# ADVANCE MITIGATION PROGRAM

# Big – Navarro – Garcia, Upper Eel, and Russian Sub-basins Regional Advance Mitigation Needs Assessment

Version 1.0

**Establishing Caltrans' Need for Advance Mitigation for Caltrans Districts 1 and 4 for the Big – Navarro – Garcia, Upper Eel, and Russian Sub-basins forecast fiscal years 2021/2022 to 2030/2031**

**California Department of Transportation – District 1**

October 2023

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# LIST OF ACRONYMS

| Acronym | Definition |
|---|---|
| ACE | Areas of Conservation Emphasis |
| ADC | Area of Deferred Certification |
| AMA | Advance Mitigation Account |
| AMP | Advance Mitigation Program |
| AMP Guidelines | *Advance Mitigation Program Final Formal Guidelines* |
| ASBS | area of special biological significance |
| BANS-TAC | Bank Swallow Technical Advisory Committee |
| Basin Plan | Water Quality Control Plan |
| BEI | Bank Enabling Instrument |
| BLM | Bureau of Land Management |
| Cal-IPC | California Invasive Plant Council |
| Caltrans | California Department of Transportation |
| CCA | Critical Coastal Area |
| CCC | California Coastal Commission |
| CDFG | California Department of Fish and Game |
| CDFW | California Department of Fish and Wildlife |
| CDP | Coastal Development Permit |
| CEHC | California Essential Habitat Connectivity |
| CEQA | California Environmental Quality Act |
| CESA | California Endangered Species Act |
| CFR | Code of Federal Regulations |
| CNRA | California Natural Resources Agency |
| $CO_2$ | carbon dioxide |
| Corps | U.S. Army Corps of Engineers |
| CWA | Clean Water Act |
| CWHR | California Wildlife Habitat Relationships |
| DPS | distinct population segment |
| EFH | essential fish habitat |
| EPA | U.S. Environmental Protection Agency |
| ESA | Endangered Species Act |
| ESHA | environmentally sensitive habitat area |
| ESU | evolutionarily significant unit |
| FGC | California Fish and Game Code |

| | |
|---|---|
| FHWA | Federal Highway Administration |
| FishPAC | Fish Passage Advisory Committee |
| FWS | U.S. Fish and Wildlife Service |
| GAI | geographic area of interest |
| GAP | Gap Analysis Program |
| GIS | geographic information system |
| HAPC | habitat area of particular concern |
| HCP | habitat conservation plan |
| HU | hydrologic unit |
| HUC | hydrologic unit code |
| HUC-6 | hydrologic unit code six-digit |
| HUC-8 | hydrologic unit code eight-digit |
| HUC-12 | hydrologic unit code twelve-digit |
| LCP | Local Coastal Program |
| MCA | mitigation credit agreement |
| MPO | metropolitan planning organization |
| NCCP | natural community conservation plan |
| NEPA | National Environmental Policy Act |
| NFWF | National Fish and Wildlife Foundation |
| NMFS | National Marine Fisheries Service |
| NOAA | National Oceanic and Atmospheric Administration |
| NPS | National Park Service |
| OPC | Ocean Protection Council |
| RAMNA | Regional Advance Mitigation Needs Assessment |
| RCIS | regional conservation investment strategy |
| RTPA | regional transportation planning agency |
| RWQCB | Regional Water Quality Control Board |
| SAMNA | Statewide Advance Mitigation Needs Assessment |
| SAMNA Reporting Tool | Statewide Advance Mitigation Needs Assessment Reporting Tool |
| SHC | Streets and Highways Code |
| SHOPP | State Highway Operation and Protection Program |
| SHOPP Ten-Year Book | *State Highway Operation and Protection Program Ten-Year Project Book Fiscal Years 2021/22—2030/31* |
| SHS | State Highway System |
| SONCC | southern Oregon/northern California Coast |

| | |
|---|---|
| STIP | State Transportation Improvement Program |
| SWAP | State Wildlife Action Plan |
| SWRCB | State Water Resources Control Board |
| TMDL | total maximum daily load |
| UA | uncertified area |
| USC | U.S. Code |
| USDA | U.S. Department of Agriculture |
| USFS | U.S. Forest Service |
| USGS | U.S. Geological Survey |
| WOTUS | waters of the U.S. |

# EXECUTIVE SUMMARY

This *Big – Navarro – Garcia, Upper Eel, and Russian Sub-basins Regional Advance Mitigation Needs Assessment* ("RAMNA") was developed with the goal of realizing the benefits of long-range planning to help manage the risks and priorities of the California Department of Transportation ("Caltrans") Advance Mitigation Program ("AMP"). It was developed in accordance with the AMP Final Formal Guidelines ("AMP Guidelines")[1] and incorporates information and feedback received from outreach to the natural resource regulatory agencies,[2] the Federal Highway Administration, other transportation agencies, Native American tribes, interested parties, and the public. Caltrans District 1 is the lead district for this planning-level effort.

**Background**. In 2017, the California Streets and Highways Code ("SHC") § 800 et seq. was amended to create the AMP within Caltrans and to provide the seed capital for an Advance Mitigation Account ("AMA"), to be operated by Caltrans as a revolving account. The stated intent of the legislation was for Caltrans, through the AMP, to realize the potential of advance mitigation to "accelerate transportation project delivery" and to "protect natural resources through transportation project [compensatory] mitigation" [SHC § 800(a)]. To this end, SHC § 800.6(a) identifies 11 specific activities as authorized allowable expenditures under the AMA and provides for the AMA to be replenished under specific conditions. The 11 activities authorized by SHC § 800 et seq. consist of purchasing or establishing compensatory mitigation credits[3,4] developed through an authorized regulatory mechanism.[5] Upon delivery, the credits are expected to be both available and at hand for Caltrans and natural resource regulatory agencies to use as offsets to transportation project impacts. The actual finding, however, of a specific credit's adequacy and/or suitability to offset an impact, as well as the placement of natural resource regulatory agency compensatory mitigation conditions on transportation

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[1] https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/amp-final-formal-guidelines-a11y.pdf

[2] For the AMP, "natural resource regulatory agencies" refers specifically to the signatories to the 2020 *Master Process Agreement for Planning and Developing Advance Mitigation throughout California for the California Department of Transportation Advance Mitigation Program*. The signatories are California Department of Fish and Wildlife ("CDFW"); State Water Resources Control Board; U.S. Army Corps of Engineers Los Angeles, Sacramento, and San Francisco districts; U.S. Environmental Protection Agency; U.S. Fish and Wildlife Service; National Marine Fisheries Service; and California Coastal Commission.

[3] Compensatory mitigation is a mitigation strategy that is preferentially applied only after it has been determined that there will be unavoidable adverse impacts on natural resources and other efforts to minimize, rectify, and reduce the impact have been incorporated into a transportation project's design. Traditionally, this determination occurs late in a transportation project's development process, at which time the compensatory mitigation action is both funded and implemented concurrently with the transportation project.

[4] Credits are the usual currency of mitigation established through an advance mitigation project; however, other values may also be established.

[5] Authorized regulatory mechanisms include the regulatory processes to establish mitigation banks and in-lieu fee programs.

projects, is conducted in the future through each transportation project's environmental studies and permits.

**Purpose.** Described in the AMP Guidelines, advance mitigation planning is the AMP's process for justifying, proposing, scoping, and securing internal Caltrans AMA funding approval for advance mitigation projects. Advance mitigation planning consists of five steps. Steps 1 and 2 serve to focus the assessment (see Section ES.1, below). Step 3 is this RAMNA. Steps 4 and 5 of the AMP's advance mitigation planning process further narrow down the suite of potential advance mitigation projects to a few that have a high probability of meeting the AMP's goals (see Section ES.9, below).

A RAMNA is a desktop study that consists of the best readily available information for Caltrans Districts to refer to when scoping and proposing advance mitigation projects to be funded by the AMA. The information was sensibility checked by other Caltrans functional units, natural resource regulatory agencies, and others before it was finalized. When the Caltrans AMP invests in advance mitigation projects to purchase compensatory mitigation credits, Caltrans assumes that the credits are aligned with existing natural resource regulatory agency goals and objectives. When the Caltrans AMP invests in advance mitigation projects to establish compensatory mitigation, it will aim to establish credits approved by multiple natural resource regulatory agencies. Whether purchased or established, Caltrans intends for credits to be delivered on a schedule that will revolve the AMA.

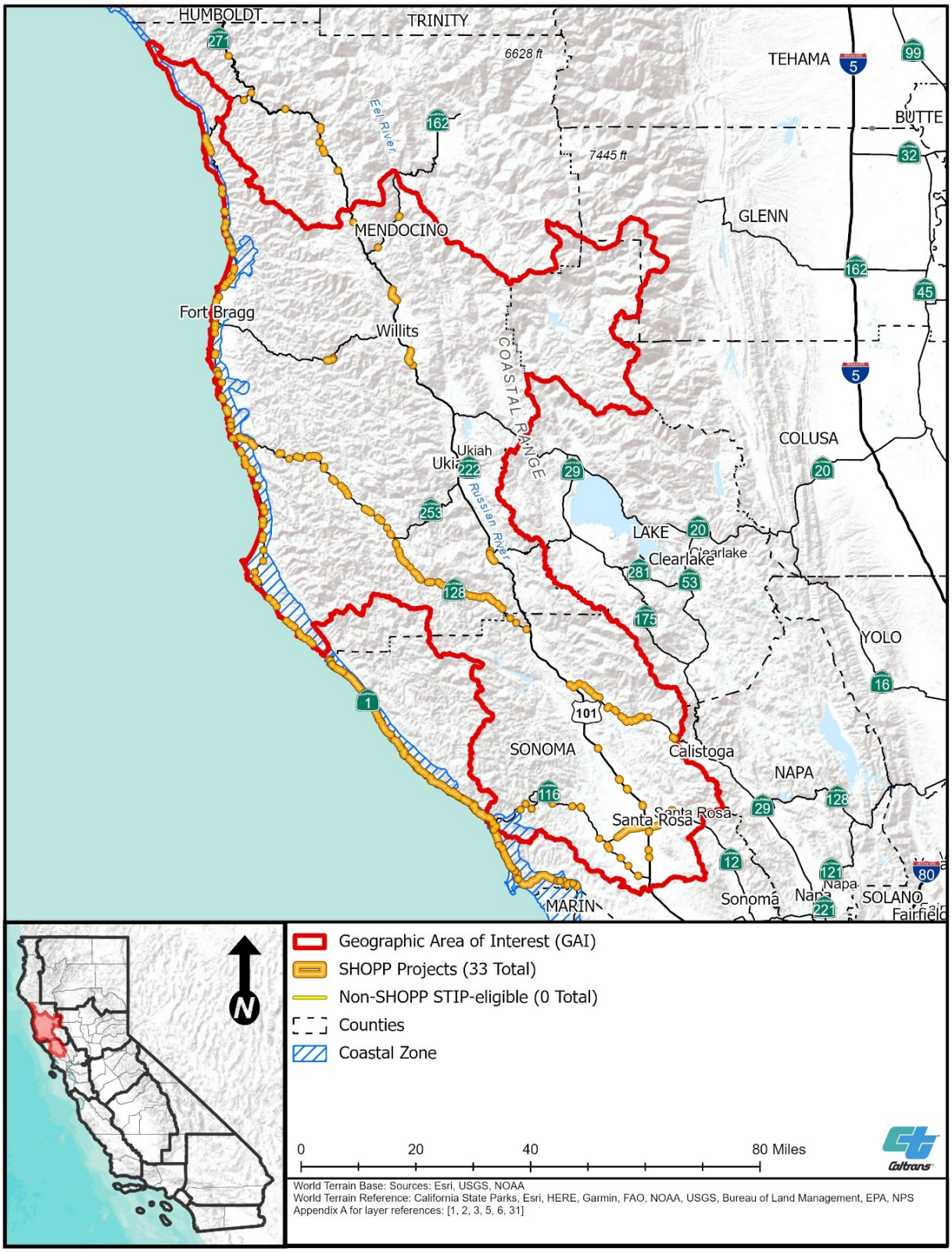
Through the RAMNA's review process, the conservation goals and objectives provided in the RAMNA were vetted with the natural resource regulatory agencies. Caltrans thinks incorporating natural resource regulatory agency goals and objectives into advance mitigation project scopes improves the chances that the compensatory mitigation credits will be (1) usable as transportation project impact offsets and (2) "protect natural resources through transportation project [compensatory] mitigation" [SHC § 800(a)]. Each chapter is briefly summarized below.

Figure ES-1 shows the geographic area of interest ("GAI") road infrastructure.

## ES.1 Geographic Area of Interest and Resource Focus

Focusing this assessment improves the probability that advance mitigation projects undertaken by Caltrans will yield credits (or similar) that will be usable and comply with an appropriate established regulatory framework. Focusing the assessment also improves the chances that resultant credits will be available on a timeframe that will revolve the AMA. Hence, for advance mitigation planning, Caltrans focused the RAMNA on a specific time period, a specific area, and typical compensatory mitigation needs.

## Figure ES-1. GAI Road Infrastructure



The time period assessed in this RAMNA is for fiscal years 2021/22 through 2030/31, a planning period consistent with Caltrans:

- Long-term transportation plans conceptualized in the *State Highway Operation and Protection Program Ten-Year Project Book Fiscal Years 2021/22—2030/31* ("SHOPP Ten-Year Book"; Caltrans 2021a). Transportation projects in the SHOPP Ten-Year Book have not undergone the environmental and permitting process.
- Modeled compensatory mitigation needs published in the *Statewide Advance Mitigation Needs Assessment*[6] *Report Second Quarter 2021/22 Fiscal Year* ("SAMNA Report"; Caltrans 2023). Compensatory mitigation needs in the SAMNA Report are modeled and do not reflect an environmental and permitting process.

The GAI assessed in this RAMNA consists of the Big – Navarro – Garcia, Upper Eel, and Russian Sub-basins. GAIs are established at an ecoregion or eight-digit hydrologic unit code ("HUC-8") scale to define appropriate planning areas for mitigation implementation and anticipated use areas that align with natural resource regulatory agency practices (Caltrans 2019a). Caltrans District 1 selected the GAI because implementing landscape-scale mitigation in the sub-basins is likely to maximize State Highway Operation and Protection Program ("SHOPP") and State Transportation Improvement Program ("STIP") funded transportation project acceleration while maximizing environmental benefits.

Because the SAMNA model forecast impacts on hundreds of species' habitats, to further focus the planning effort, Caltrans District 1 identified species for which natural resource regulatory agencies condition transportation projects and those transportation projects that would most likely benefit if compensatory mitigation credits were available. These "species of mitigation need" are southern Oregon/northern California Coast ("SONCC") and central California coast evolutionarily significant units ("ESUs") coho salmon (*Oncorhynchus kisutch*), northern California distinct population segment ("DPS") steelhead (*Oncorhynchus mykiss*) – summer run, and bank swallow (*Riparia riparia*). Within the GAI, SONCC ESU coho salmon is state and federally listed as threatened, central California coast ESU coho salmon is state and federally listed as endangered, northern California DPS steelhead – summer run is federally listed as threatened, and bank swallow is state listed as threatened.

Compensatory mitigation for aquatic resources[7] and riparian habitat was also identified as both a historical transportation project compensatory mitigation need and an anticipated future transportation project compensatory mitigation need within the GAI.

[6] The SAMNA Reporting Tool is a geographic information system ("GIS") overlay model developed by Caltrans to support advance mitigation planning (Caltrans 2018).
[7] For the purposes of this document, aquatic resources include all fish, wetlands, and non-wetland waters regulated by CDFW, U.S. Fish and Wildlife Service, California Coastal Commission, State Water Resources Control Board and Regional Water Quality Control Boards, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, and National Marine Fisheries Service.

## ES.2 Environmental Setting

Information on the GAI's environmental setting is provided in Chapter 2 and its associated appendices. To develop an understanding of the GAI that is consistent with natural resource regulatory agency tools and references, geospatial data from the SAMNA Reporting Tool, CDFW's BIOS, and other readily available information are summarized and presented. Climate change resiliency, wildlife connectivity, biodiversity, and conserved lands are among the information presented. A critical habitat map is provided.

The GAI consists of approximately 2.2 million acres in northern California within the Big-Navarro-Garcia, Russian, and Upper Eel Sub-basins (HUC-8s), which are overlapped by portions of the Northern California Coast and Northern California Coast Ranges Ecoregion Sections.

## ES.3 Relevant Plans, Policies, and Regulations

Compensatory mitigation is informed by regulatory requirements, regulatory mechanisms for credit establishment, and conservation. Laws, regulations, comprehensive plans, conservation plans, and land management plans that are applicable and relevant to the GAI will be consulted by Caltrans to inform both regional understanding and advance mitigation project scoping.

Caltrans identified 131 documents that may be relevant to advance mitigation planning and advance mitigation project delivery: 33 state and federal laws, guidelines, and regulations; 29 statewide and regional resource management plans; 18 plans and permits and other documents focused on species of mitigation need; 25 state agency, federal agency, Native American tribal, and local government land management plans; 5 water resources plans and documents; 14 county, city, and local government general plans; and 7 nongovernmental organization conservation and management documents. A summary and links to these documents can be found in Chapter 3.

## ES.4 Existing Mitigation Opportunities

For the purposes of the RAMNA, existing mitigation opportunities are potential opportunities for Caltrans to use AMA funds to purchase compensatory mitigation that was previously approved by one or more natural resource regulatory agencies. In accordance with SHC § 800.6(a), the approved credits or values eligible for purchase may have been established through a conservation bank, mitigation bank, natural community conservation plan ("NCCP"), habitat conservation plan ("HCP"), in-lieu fee program, or mitigation credit agreement ("MCA") developed in accordance with a CDFW-approved regional conservation investment strategy ("RCIS").

Chapter 4 presents readily available information regarding existing mitigation opportunities for the GAI. In brief, Caltrans identified no NCCPs or HCPs where Caltrans is a participant or may be eligible to participate, 10 pending or active conservation and/or mitigation banks, one in-lieu fee program, no in progress or approved RCISs, and no MCAs.

Existing mitigation opportunities can also inform both regional understanding and advance mitigation project scoping because they may be expressions of resource agency conservation goals and objectives[8] and may be suitable for concurrent transportation project mitigation.

## ES.5 Estimated Impacts

Prior to developing a focused advance mitigation project scope to purchase or establish mitigation credits or values, as authorized by SHC § 800.6(a), Caltrans must determine whether it needs advance mitigation credits. Since environmental and permitting processes have not yet taken place, Caltrans must rely on estimating future SHOPP transportation project[9] impacts through the SAMNA model, as well as qualitative assessments of STIP-eligible transportation project needs,[10] to define the range of its potential advance mitigation needs.

Chapter 5 provides transportation project impact estimates for fiscal years 2021/22 to 2030/31. In the GAI, 33 SHOPP transportation projects and no non-SHOPP STIP-eligible transportation projects are in their conceptualization phase for the planning period. Many of these planned transportation improvements are not forecast to affect terrestrial or aquatic resources and many forecast impacts may be avoided during transportation project delivery. Nevertheless, the compensatory mitigation estimates presented reflect the best available information about compensatory mitigation needs at this time.

Impact estimates for threatened and endangered fish, wetlands, and non-wetland waters, from SHOPP transportation projects included in the SAMNA, are summarized in Tables ES-1 through ES-5. Since natural resource regulatory agencies routinely place threatened and endangered fish-related, wetland, and non-wetland water conditions on transportation projects, it is likely that Caltrans transportation project schedules would benefit from available credits for these resources. Similarly, impact estimates for riparian habitat, terrestrial species, and bank swallow, the terrestrial species of mitigation need, are summarized in Tables ES-6 through ES-9.

[8] For the purposes of this RAMNA, conservation goals and objectives are a broad set of regional natural resource sustainability goals and objectives that are consistent with both regulatory requirements and conservation science.
[9] Caltrans undertakes SHOPP transportation projects to address maintenance, safety, operation, and rehabilitation of the SHS; such projects do not add new capacity to the system. https://catc.ca.gov/programs/state-highway-operation-and-protection-program
[10] Metropolitan planning organizations, regional transportation planning agencies, and other public agencies also undertake transportation projects to address non-SHOPP STIP-funded transportation improvements.

## Table ES-1. Summary of Estimated SHOPP Impacts on Threatened and Endangered Fish Habitat in the GAI (acres)[a]

| Sub-basin (HUC-8) | Sub-basin Number | # of Transportation Projects | Chinook Salmon – California Coastal ESU[c] | Coho Salmon – Central California Coast ESU[b] | Coho Salmon – SONCC ESU[b] | Green Sturgeon – Southern DPS[c] | Steelhead – Central California Coast DPS[c] | Steelhead – Northern California DPS[b] | Longfin Smelt[c] | Total[d] |
|---|---|---|---|---|---|---|---|---|---|---|
| Big-Navarro-Garcia | 18010108 | 10 | 0.2 | 2.0 | 0.0 | 0.1 | 0.0 | 1.6 | 0.0 | **2.0** |
| Russian | 18010110 | 7 | 0.5 | 1.0 | 0.0 | 0.4 | 0.6 | 0.0 | 1.0 | **1.0** |
| Upper Eel | 18010103 | 2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | **0.3** |
| **Total[e]** | Not applicable | **18** | **0.9** | **3.0** | **0.0** | **0.6** | **0.6** | **1.9** | **1.0** | **3.0** |

Source: Caltrans 2021a
[a] Stream/river habitat impacts are provided. Stream/river habitat impacts are assumed to be representative of fish habitat impacts.
[b] Species of mitigation need for this assessment.
[c] Species is forecast to be affected but was not identified as a species of mitigation need.
[d] For sub-basins with more than one species, co-occurrence of impacts is assumed. Acreage for the total impact across all habitat types is provided.
[e] Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one sub-basin; many do not affect fish.

## Table ES-2. Summary of Estimated SHOPP Impacts on Wetlands in the GAI (acres)

| Sub-basin (HUC-8) | Sub-basin Number | Number of Transportation Projects[a] | Estuarine and Marine Wetland | Freshwater Emergent Wetland | Freshwater Forested/ Shrub Wetland | Freshwater Pond | Total[b] |
|---|---|---|---|---|---|---|---|
| Big-Navarro-Garcia | 18010108 | 7 | 0.2 | 0.2 | 1.3 | 0.0 | **1.7** |
| Russian | 18010110 | 3 | 0.0 | <0.1 | 0.4 | 0.1 | **0.5** |
| Upper Eel | 18010103 | 1 | 0.0 | 0.0 | 0.2 | 0.0 | **0.2** |
| **Total[b,c]** | Not applicable | **11** | **0.2** | **0.2** | **2.0** | **0.1** | **2.5** |

Source: Caltrans 2021a
[a] Transportation projects are listed in Appendix B.
[b] Totals may be different on account of rounding.
[c] Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one sub-basin; many are not forecast to affect wetlands.

## Table ES-3. Summary of Estimated SHOPP Impacts on Wetlands in the GAI's Coastal Zone (acres)

| Sub-basin (HUC-8)[a] | Sub-basin Number | Number of Transportation Projects[b] | Estuarine and Marine Wetland | Freshwater Emergent Wetland | Freshwater Forested/ Shrub Wetland | Freshwater Pond | Total |
|---|---|---|---|---|---|---|---|
| Big-Navarro-Garcia | 18010108 | 7 | 0.2 | 0.1 | 1.3 | 0.0 | **1.6** |
| Russian | 18010110 | 1 | 0.0 | 0.0 | 0.3 | 0.1 | **0.4** |
| **Total** | Not applicable | **8** | **0.2** | **0.1** | **1.6** | **0.1** | **2.0** |

Source: Caltrans 2021a
[a] The SAMNA forecasts impacts on wetlands for 2 of the 3 HUC-8s in the GAI.
[b] Transportation projects are listed in Appendix B.

## Table ES-4. Summary of Estimated SHOPP Impacts on Non-wetland Waters in the GAI (acres)

| Sub-basin (HUC-8) | Sub-basin Number | Number of Transportation Projects[a] | Stream/River | Total |
|---|---|---|---|---|
| Big-Navarro-Garcia | 18010108 | 10 | 2.0 | **2.0** |
| Russian | 18010110 | 7 | 1.0 | **1.0** |
| Upper Eel | 18010103 | 2 | 0.3 | **0.3** |
| **Total[b]** | Not applicable | **18** | **3.3** | **3.3** |

Source: Caltrans 2021a
[a] Transportation projects are listed in Appendix B.
[b] Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one sub-basin; many are not forecast to affect non-wetland waters.

## Table ES-5. Summary of Estimated SHOPP Impacts on Non-wetland Waters in the GAI's Coastal Zone (acres)[a]

| Sub-basin (HUC-8) | Sub-basin Number | Number of Transportation Projects[b] | Stream/River | Total |
|---|---|---|---|---|
| Big-Navarro-Garcia | 18010108 | 7 | 1.1 | **1.1** |
| Russian | 18010110 | 2 | 0.6 | **0.6** |
| **Total** | Not applicable | **9** | **1.7** | **1.7** |

Source: Caltrans 2021a
[a] The SAMNA forecasts impacts for 2 of the 3 HUC-8s in the GAI.
[b] Transportation projects are listed in Appendix B.

**Table ES-6. Summary of Estimated SHOPP Impacts on Riparian Habitat in the GAI (acres)[a]**

| Sub-basin (HUC-8) | Sub-basin Number | Number of Transportation Projects[b] | Montane Riparian | Total |
|---|---|---|---|---|
| Big-Navarro-Garcia | 18010108 | 3 | 1.0 | **1.0** |
| Russian | 18010110 | 2 | 0.1 | **0.1** |
| **Total** | Not applicable | **5** | **1.1** | **1.1** |

Source: Caltrans 2021a
[a] The SAMNA forecasts impacts for 2 of the 3 HUC-8s in the GAI.
[b] Transportation projects are listed in Appendix B.

**Table ES-7. Summary of Estimated SHOPP Impacts on Riparian Habitat in the GAI's Coastal Zone (acres)[a]**

| Sub-basin (HUC-8) | Sub-basin Number | Number of Transportation Projects | Montane Riparian | Total |
|---|---|---|---|---|
| Big-Navarro-Garcia | 18010108 | 3 | 1.0 | **1.0** |
| **Total** | Not applicable | **3** | **1.0** | **1.0** |

Source: Caltrans 2021b
[a] The SAMNA forecasts impacts for 1 of the 3 HUC-8s in the GAI.

**Table ES-8. Summary of Estimated SHOPP Impacts on Special-status Species Habitat in the GAI**

| Ecoregion Section | Number of Caltrans SHOPP Projects[a] | Number of Habitats[b] | Special-status Species[c,d] | Estimated Total Habitat Impact (acres) |
|---|---|---|---|---|
| Northern California Coast | 25 | 11 | 57 | 99.7 |
| Northern California Coast Ranges | 11 | 9 | 50 | 22.8 |
| **Total[e]** | **33** | **13** | **65** | **122.5** |

Source: Caltrans 2021a
[a] Transportation projects are listed in Appendix B.
[b] Excludes urban.
[c] Special-status terrestrial plant and wildlife species evaluated through the SAMNA consisted of federal and state threatened, endangered, or sensitive species; state fully protected or rare species; or state species of special concern.
[d] Included in the SAMNA. See SAMNA report (Caltrans 2023).
[e] Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one ecoregion section. Some special-status species occur in more than one ecoregion section.

Using the methods described in Section 5.1.1, impacts on bank swallow were estimated for the transportation projects listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*. Although bank swallow was selected as a species of

mitigation need, of the 33 SHOPP transportation projects evaluated, the SAMNA results do not forecast any impacts on this species within the planning period (Table ES-9; Caltrans 2021a).

**Table ES-9. Summary of Estimated SHOPP Impacts on Bank Swallow Habitat in the GAI**

| Ecoregion Section | Number of Caltrans SHOPP Projects[a] | Estimated Total Habitat Impact (acres) |
|---|---|---|
| Northern California Coast | 25 | 0 |
| Northern California Coast Ranges | 11 | 0 |
| **Total** | **33** | **0** |

Source: Caltrans 2021a
[a] Transportation projects are listed in Appendix B.

A forecast of no impacts was not expected, and the lack of forecast impacts was overlooked when Caltrans selected the species of mitigation need for this RAMNA (Section 1.5). Upon examination, although bank swallows are known from one colony in Manchester State Park in the western coastal part of the GAI, the SAMNA's foundational CWHR species range map shows occurrences only to the east of the GAI. Hence, at this time, it is possible that SAMNA is not estimating bank swallow impacts appropriately. Until the CWHR range map is updated, SAMNA forecasts in the GAI will be inconclusive.

## ES.6 Benefiting Transportation Project Considerations

One intent of the AMP's founding legislation is for Caltrans to realize the potential of advance mitigation to accelerate transportation project delivery. At this time (October of fiscal year 2023/24), Caltrans is 2 years into the SHOPP Ten-Year Book planning period. Hence, for the time period under consideration, fiscal years 2021/22 through 2030/31, Caltrans District 1 intends to prioritize purchasing or developing mitigation credits or values that are planned for the middle to the end of the 10-year planning period.

Organized by aquatic resources, riparian habitat, and species of mitigation need, a temporal analysis of Caltrans needs is provided in Chapter 6. Prior to proposing advance mitigation projects, Caltrans District 1 will consult the most recent SHS Management Plan to obtain an up-to-date estimate of the timing of transportation projects that may need credits established or purchased through the AMA.

It should be noted that at this time, several transportation projects have been delayed or eliminated and the timing of Caltrans needs may change. Caltrans will consider the updated transportation schedule when scoping and funding advance mitigation projects. The feasibility of addressing the needs through the SHC § 800.6(a) authorized activities is discussed in Chapter 9.

## ES.7 Conservation Goals and Objectives

To increase the probability that advance mitigation project scopes promoted within and/or undertaken by Caltrans will successfully meet natural resource regulatory agency goals and objectives, this RAMNA was reviewed by these agencies and their comments and suggestions were incorporated.

### Wildlife Resources Goals and Objectives

When establishing wildlife resources compensatory mitigation credits in accordance with SHC § 800.6(a), Caltrans will seek to align advance mitigation project scopes with the conservation goals and objectives of the multiple natural resource regulatory agencies with the authority to approve wildlife resource-related credit establishment and with the authority to approve their application to offset transportation project-related impacts. At a broad scale, Caltrans' understanding of the wildlife resources goals and objectives presented in this RAMNA encompasses protecting, preserving, and enhancing large-scale ecological processes, environmental gradients, biological diversity, and regional linkages. Informed by relevant plans, policies, and regulations, the goals and objectives presented summarize how state and federal natural resource regulatory agencies, land managers, and other interested parties have prioritized regional conservation that preserves intact habitat and provides habitat linkages and connectivity. In recognition of transportation project acceleration needs, wildlife goals and objectives place an emphasis on species of mitigation need habitats in the GAI; however, advance mitigation for the benefit of species of mitigation need is anticipated to have broader benefits for multiple special-status species that rely on the same habitats. Caltrans' understanding of natural resource regulatory agency wildlife goals gathered for this RAMNA include:

- Conserving and expanding habitat for species of mitigation need
- Preserving, enhancing, and increasing connectivity between blocks of wildlife habitat to allow for dispersal that will maintain resilience and variability of wildlife populations
- Supporting resiliency of the landscape to climate change and sea-level rise
- Decreasing mortality and competition, and protecting population health for species of mitigation need
- Prioritizing multi-species and multi-resource benefits

Objectives and sub-objectives are provided under each of the above goals in Chapter 7 to guide Caltrans advance mitigation project scoping toward those actions that would create the greatest functional lift for wildlife resources in the GAI. Sub-objectives capture more specific measures from conservation and land management plans that address threats to the aforementioned resources.

### Aquatic Resources Goals and Objectives

When establishing aquatic resources compensatory mitigation credits in accordance with SHC § 800.6(a), Caltrans will seek to align advance mitigation project scopes with the conservation goals and objectives of the multiple natural resource regulatory agencies

that have the authority to approve aquatic resource-related credit establishment and have the authority to approve their application to satisfy conditions on transportation projects. At a broad scale, Caltrans' understanding of aquatic resources goals and objectives presented in the RAMNA encompasses restoring, maintaining, and enhancing large-scale ecological processes, environmental gradients, biological diversity, and regional linkages. Aquatic resources goals developed for this RAMNA prioritize:

- Providing for no net loss of area, functions, values, and conditions of wetland and non-wetland water resources
- Restoring and/or enhancing the chemical, physical, and biological integrity of wetlands and non-wetland waters
- Restoring and/or enhancing and expanding habitat for fish species of mitigation need
- Supporting resiliency of aquatic resources to climate change and sea-level rise
- Providing multi-resource benefits

Sub-objectives are included for each goal in Chapter 8 to guide Caltrans project scoping toward those actions that would create the greatest functional lift for aquatic resources in the GAI. Sub-objectives also capture more specific measures from conservation and land management plans that address threats to the aforementioned resources.

## ES.8 Authorized Activity Summary

A summary of Caltrans' need for compensatory mitigation credits in the GAI and the feasibility of each SHC § 800.6(a) authorized activity to address is provided in Chapter 9. As pointed out in Chapter 6, given the expected timing of mitigation need, at this time (October of fiscal year 2023/24) mitigation that can be purchased or established by 2025/26 (within the next 2 years) could potentially address mitigation for impacts on aquatic resources in the following sub-basins:

- Big-Navarro-Garcia Sub-basin:
  - 2 acres of fish habitat, 2.1 acres of wetland, 2 acres of non-wetland waters, and 1 acre of riparian habitat impacts, potentially contributing to the acceleration of 10, 8, 10, and 3 transportation projects, respectively
- Russian Sub-basin:
  - 1 acre of fish habitat, 1 acre of wetland, 1 acre of non-wetland waters, and 0.1 acre of riparian habitat impacts, potentially contributing to the acceleration of 7, 2, 7, and 2 transportation projects, respectively
- Upper Eel Sub-basin:
  - 0.3 acre of fish habitat, 0.2 acre of wetland, and 0.3 acre of non-wetland waters impacts, potentially contributing to the acceleration of 2, 1, and 2 transportation projects, respectively

There are no impacts forecast to bank swallow, the terrestrial species of mitigation need addressed by this RAMNA.

All or some of these needs could form the basis for the Caltrans District to develop an advance mitigation project scope implementing one or more of the SHC § 800.6(a) authorized activities.

Broadly speaking, SHC § 800.6(a) authorized activities can be divided into two groups: (1) purchasing compensatory mitigation that has been previously established and approved by the natural resource regulatory agencies through a conservation/mitigation bank, HCP/NCCP, in-lieu fee program, or MCA; or (2) establishing and receiving approval of compensatory mitigation credits, such as establishing a mitigation bank in accordance with existing laws, policies, procedures, templates, and guidance. The time it takes to perform each authorized activity varies; however, purchasing or paying fees for compensatory mitigation credits would likely take less time than establishing compensatory mitigation credits.

Caltrans Districts will consider all feasible options when developing advance mitigation project scopes. At this time (October of fiscal year 2023/24), purchasing credits approved through a bank or establishing new credits through a bank or in-lieu fee instrument is likely feasible. The feasibility of each authorized activity to meet the forecast mitigation need in time to accelerate transportation projects will depend on the availability of a regulatory and administrative pathway and other conditions.

As pointed out above, when Caltrans scopes advance mitigation projects to establish mitigation, Caltrans intends to center the advance mitigation projects on the species of mitigation need and aquatic resources, as well as address conservation benefits and values for other special-status terrestrial species and resources. Caltrans also intends to scope credit establishment projects that align with conservation goals and objectives, address multi-resource benefits, and address overlapping jurisdictions.

## ES.9 Next Steps

Caltrans Districts will use the advance mitigation options identified in the RAMNA to inform advance mitigation project scoping, which will consider needs; conservation data and plans; input received from natural resource regulatory agencies, the Federal Highway Administration, metropolitan planning organizations, regional transportation planning agencies, other public agencies that implement transportation improvements, Native American tribes, interested parties, and the public; feasibility in consideration of mitigation need and timing; and other information presented here and that is publicly available to develop a high-level advance mitigation project scope to be included in an advance mitigation project's nomination materials. Once a nominated advance mitigation project is approved by the Caltrans Director, the Caltrans District will begin advance mitigation project delivery, which includes stakeholder engagement, project alternative analysis, coordination with natural resource regulatory agencies with the authority to approve compensatory mitigation, contracting with third parties and/or credit sponsors, and

developing an agency-approved instrument and/or one or more advance mitigation project-specific interagency agreement.

As with all compensatory mitigation established through any advance mitigation process, the mitigation's suitability to address a specific transportation project's impact is determined in the future, on a case-by-case basis, when transportation project mitigation requirements are known.

# 1. INTRODUCTION

California's State Highway System ("SHS") relies on long-range planning documents to guide its operation and maintenance. In this *Big-Navarro-Garcia, Upper Eel, and Russian Sub-basins Regional Advance Mitigation Needs Assessment* ("RAMNA"), the California Department of Transportation ("Caltrans") District 1 presents its forecast of natural resource compensatory mitigation[1] needs for the Big-Navarro-Garcia, Upper Eel, and Russian Sub-basins for a 10-year planning horizon. Sources used for this RAMNA are cited throughout this document, and links to geographic information system ("GIS") sources are provided in Appendix A, *GIS Sources*.

The RAMNA was developed with the goal of realizing the benefits of advance mitigation, which:

- anticipates that unavoidable impacts will be identified in the future, and
- consists of having mitigation available that has already been vetted and agreed upon by natural resource regulatory agencies as representing mitigation actions before transportation projects are completely designed and funded.

When compensatory mitigation actions are independent of transportation project delivery timelines, there is an opportunity to (1) improve the schedule and cost predictability of complying with natural resource regulatory agency compensatory mitigation conditions on transportation projects and (2) consolidate the anticipated compensatory mitigation from multiple transportation projects into fewer and larger mitigation actions, establishing mitigation credits that provide a greater ecological value than implementing multiple small project-by-project actions. Credits are the usual currency of advance mitigation actions.

This document is intended to be both an internal communication tool between Caltrans' Functional Units[2] and an external communication tool for Caltrans to communicate with the Federal Highway Administration ("FHWA"), natural resource regulatory agencies, other transportation agencies (that is, metropolitan planning organizations ["MPOs"], regional transportation planning agencies ["RTPAs"], and other public agencies that implement transportation improvements), Native American tribes, interested parties, and the public. It will be posted on the Advance Mitigation Program ("AMP") website: https://dot.ca.gov/programs/environmental-analysis/biology/advancemitigation.

[1] Compensatory mitigation is a mitigation strategy that is preferentially applied only after it has been determined that there will be unavoidable adverse impacts on natural resources and other efforts to minimize, rectify, and reduce the impact have been incorporated into a transportation project's design. Traditionally, this determination occurs late in a transportation project's development process, at which time the compensatory mitigation action is both funded and implemented concurrently with the transportation project.

[2] "Functional Unit" is a general term used by Caltrans to describe its organizational structure. Caltrans functional units include, but are not limited to, transportation planning, environmental, surveys, right-of-way, real property asset management, materials, traffic, structure design, hydraulics, construction, maintenance, landscape architecture, utilities, and engineering.

## 1.1 AMP Overview

In 2017, the California Streets and Highways Code ("SHC") § 800 et seq. was amended to create the AMP within Caltrans and to provide the seed capital for an Advance Mitigation Account ("AMA"), to be operated by Caltrans as a revolving account. The stated intent of the legislation is for Caltrans, through the AMP, to realize the potential of advance mitigation to both "accelerate transportation project delivery" and "protect natural resources through transportation project [compensatory] mitigation" [SHC § 800(a)]. To this end, the legislation identifies specific activities as authorized allowable expenditures under the AMA and provides for the AMA to be replenished under specific conditions. Generally speaking, the 11 activities authorized in SHC § 800.6(a) consist of purchasing or establishing compensatory mitigation credits developed through an appropriate regulatory mechanism, which are then available for use by transportation projects to offset adverse impacts (Table 1-1). Natural resource regulatory agencies and Caltrans will determine the appropriateness of a credit's use on a case-by-case basis when Caltrans proposes use of the credit to satisfy a specific condition placed on a transportation project.

**Table 1-1. Advance Mitigation Project Types[a]**

| Advance Mitigation Project Type | Authorization |
|---|---|
| Caltrans pays mitigation fees or other costs or payments associated with coverage of transportation projects under an approved natural community conservation plan ("NCCP")[b] and/or an approved habitat conservation plan ("HCP"). | SHC § 800.6(a)(2) |
| Caltrans purchases credits from an existing conservation bank. | SHC § 800.6(a)(1) |
| Caltrans purchases credits from an existing mitigation bank. | SHC § 800.6(a)(1) |
| Caltrans purchases credits from an existing in-lieu fee program. | SHC § 800.6(a)(1) |
| Caltrans purchases credits developed through a mitigation credit agreement ("MCA"), established under a California Department of Fish and Wildlife ("CDFW")-approved regional conservation investment strategy ("RCIS").[c] | SHC § 800.6(a)(3)(A) |
| Caltrans funds the establishment of a Caltrans or third-party sponsored and operated conservation bank, in accordance with applicable state and federal standards. | SHC § 800.6(a)(1) |
| Caltrans funds the establishment of a Caltrans or third-party sponsored and operated mitigation bank in accordance with applicable state and federal standards. | SHC § 800.6(a)(1) |
| Caltrans funds the establishment of a Caltrans or third-party sponsored and operated in-lieu fee program in accordance with applicable state and federal standards. | SHC § 800.6(a)(1) |
| Caltrans funds the implementation of conservation actions and habitat enhancement actions[c,d] to generate mitigation credits pursuant to an MCA[b] established under a CDFW-approved RCIS.[c] The scope may include Caltrans first entering into or funding the preparation of an MCA.[c] The scope may also include Caltrans first entering into or funding the preparation of an RCIS.[c] | SHC § 800.6(a)(3)<br>SHC § 800.6(a)(3)(A) |

| Advance Mitigation Project Type | Authorization |
|---|---|
| Caltrans acquires, restores, manages, monitors, enhances, and preserves lands, waterways, aquatic resources, or fisheries, or funds the acquisition, restoration, management, monitoring, enhancement, and preservation[e] of lands, waterways, aquatic resources, or fisheries, that would measurably advance a conservation objective specified in an RCIS if the department concludes that the action or actions could conserve or create environmental values that are appropriate to mitigate the anticipated potential impacts of planned transportation improvements. | SHC § 800.6(a)(3)(B) |
| When the other mitigation options (above) are not practicable, Caltrans may perform mitigation in accordance with a programmatic mitigation plan[f] pursuant to SHC § 800.9. The programmatic mitigation plan shall include, to the maximum extent practicable, the information required for an RCIS.[c] | SHC § 800.6(a)(4)<br>SHC § 800.9 |

[a] Caltrans intends to contract or subcontract implementation tasks when appropriate and as required.
[b] When Caltrans is a permittee under the NCCP, or if Caltrans qualifies as a Participating Special Entity and the project is a covered activity in the NCCP
[c] See: https://www.wildlife.ca.gov/Conservation/Planning/Regional-Conservation
[d] Under specific conditions, fish passage and wildlife crossing structures may qualify as enhancement actions under an RCIS in accordance with California Fish and Game Code ("FGC") § 1850–1861.
[e] The State Water Resources Control Board ("SWRCB") and Regional Water Quality Control Boards ("RWQCBs") do not typically approve establishment of or accept preservation credits.
[f] Programmatic mitigation plans are defined in 23 U.S. Code ("USC") § 169(a) (SHC § 800.9). No more than 25 percent of the funds in the AMA may be allocated for this purpose over a 4-year period [SHC § 800.6(a)(4)].

### 1.1.1. AMP Guidelines

Approved at the end of 2019, the *Advance Mitigation Program Final Formal Guidelines* ("AMP Guidelines") describe how—through advance mitigation planning and advance mitigation project delivery—the Caltrans AMP will fulfill its intended purpose (Caltrans 2019a). As shown in Figures 1-1 and 1-2, the AMP Guidelines present a 10-step process, the first 5 of which are the advance mitigation planning phase and the next 5 are the advance mitigation project delivery phase. Implementation of each step of the planning phase improves the probability that advance mitigation projects undertaken by Caltrans in the project delivery phase will yield credits (or similar) that will be usable and comply with an appropriate established regulatory framework. The AMP Guidelines also describe how transportation projects will reimburse the AMA for advance mitigation project investments, thereby making the funds available to undertake the next advance mitigation project.

### 1.1.1. Advance Mitigation Planning Phase

Caltrans' advance mitigation planning starts with modeled estimates of potential impacts on more than 600 wildlife and aquatic resources and, through successive steps, focuses and refines Caltrans' need for advance mitigation in order to inform advance mitigation project scopes that will be approved by the Caltrans Director. At this time, Steps 1 and 2 of the AMP's 5-step advance mitigation planning phase are complete.

**Figure 1-1. Advance Mitigation Planning Phase**


Source: Caltrans (2019a)

**Figure 1-2. Advance Mitigation Project Delivery Phase**


Source: Caltrans (2019a)

The RAMNA satisfies Step 3 (Figure 1-1; Caltrans 2019a) and provides the results of a regional assessment of Caltrans' advance mitigation needs in the Big-Navarro-Garcia, Upper Eel, and Russian Sub-basins.[3]

Caltrans District 1 will first use the information and analysis presented in this RAMNA to inform Step 4 of the advance mitigation planning phase. Step 4 is the point when Caltrans justifies, proposes, and scopes an advance mitigation project based on its needs (Figure 1-1; Caltrans 2019a). Advance mitigation project scopes informed by this RAMNA will provide enough information, at the appropriate level of detail, for an advance mitigation project to be nominated to the Caltrans Director for funding approval. The advance mitigation planning phase will conclude when the Caltrans Director approves a specific nominated Caltrans District 1 advance mitigation project for funding (Step 5; Figure 1-1; Caltrans 2019a). Thereafter, Caltrans District 1 will use the RAMNA as a reference (Caltrans 2019a).

[3] Pursuant to SHC § 800.9, to the maximum extent practicable, the information required for an RCIS is presented in this RAMNA. During CDFW's review of an RCIS, CDFW determines whether the goals and objectives presented in the RCIS are consistent with FGC § 1852, subdivision (c)(8).

### 1.1.2. Advance Mitigation Project Delivery Phase

Steps 6 through 10 consist of the AMP's advance mitigation project delivery phase. Advance mitigation project delivery is undertaken after an advance mitigation project has been approved by the Caltrans Director and has been programmed[4] (Caltrans 2019a; see Figure 1-2). This phase consists of implementing one or more of the 11 authorized advance mitigation activities (Table 1-1).

### 1.1.3. Program Constraints

Implicit to the AMP, the AMP Guidelines, advance mitigation planning, and advance mitigation project delivery are a number of established laws, policies, and processes including, but not limited to, the following:

- Gas tax-derived funds may be used to develop only those mitigation credits or values anticipated to be needed to fulfill the mitigation requirements of transportation improvements [California Constitution, Article XIX § 2(a)].
- AMA funds are likely not sufficient to address all of Caltrans' anticipated compensatory mitigation needs.
- Long-term transportation planning is dynamic, and compensatory mitigation needs may change over a 10-year planning horizon as funding sources and transportation project lists are refined and updated.
- Advance mitigation planning does not imply an endorsement of a transportation project alternative.
- Establishing compensatory mitigation in advance of transportation project impacts does not create any presumption or guarantee that a future transportation project impact will be authorized by a natural resource regulatory agency. Avoidance and minimization considerations continue to be required.
- Establishing compensatory mitigation in advance of transportation project impacts does not create any presumption or guarantee that the advance compensatory mitigation will be considered adequate and/or suitable by a natural resource regulatory agency for a specific transportation project's impact. Appropriateness of use of advance mitigation credits developed will be assessed on a case-by-case basis. For example, using mitigation credits from a conservation bank where only preservation exists would not qualify for wetland or riparian impacts for some regulatory agencies.
- Natural resource regulatory agency approvals are discretionary and often conditional; well-executed advance mitigation does not necessarily increase the likelihood of obtaining agency approval for any particular transportation project.
- The 2008 Mitigation Rule expresses a preference for advance mitigation (in several forms) but also provides flexibility for off-site and out-of-kind mitigation where important aquatic resources in a watershed area have been identified as

[4] Programming refers to the process Caltrans employs to set priorities for funding advance mitigation projects at the Caltrans District and project level. Through programming, Caltrans commits revenues over a multiyear period to a specific advance mitigation project.

priority areas because of the importance of such resources, widespread loss of such resources, and/or the likelihood of successful execution of mitigation at priority sites.

- Advance mitigation projects should optimize their conservation benefit in such a way that the number and types of mitigation credits (or similar) are maximized.
- Advance mitigation projects, like transportation projects and conservation projects, have financial, technical, and strategic risks and require a scope, schedule, and budget.
- Advance mitigation projects to establish credits allow for longer timelines for plant establishment, which is crucial to success.
- Transportation projects must include mitigation costs in the scoping and programming of their budgets because they are required by law to reimburse the AMA for use of mitigation produced by the AMP [SHC § 800.6(b)].
- The AMA is a revolving account. With a revolving account, reimbursed funds are reinvested into new advance mitigation projects.

The above list is not presented in any order or priority.

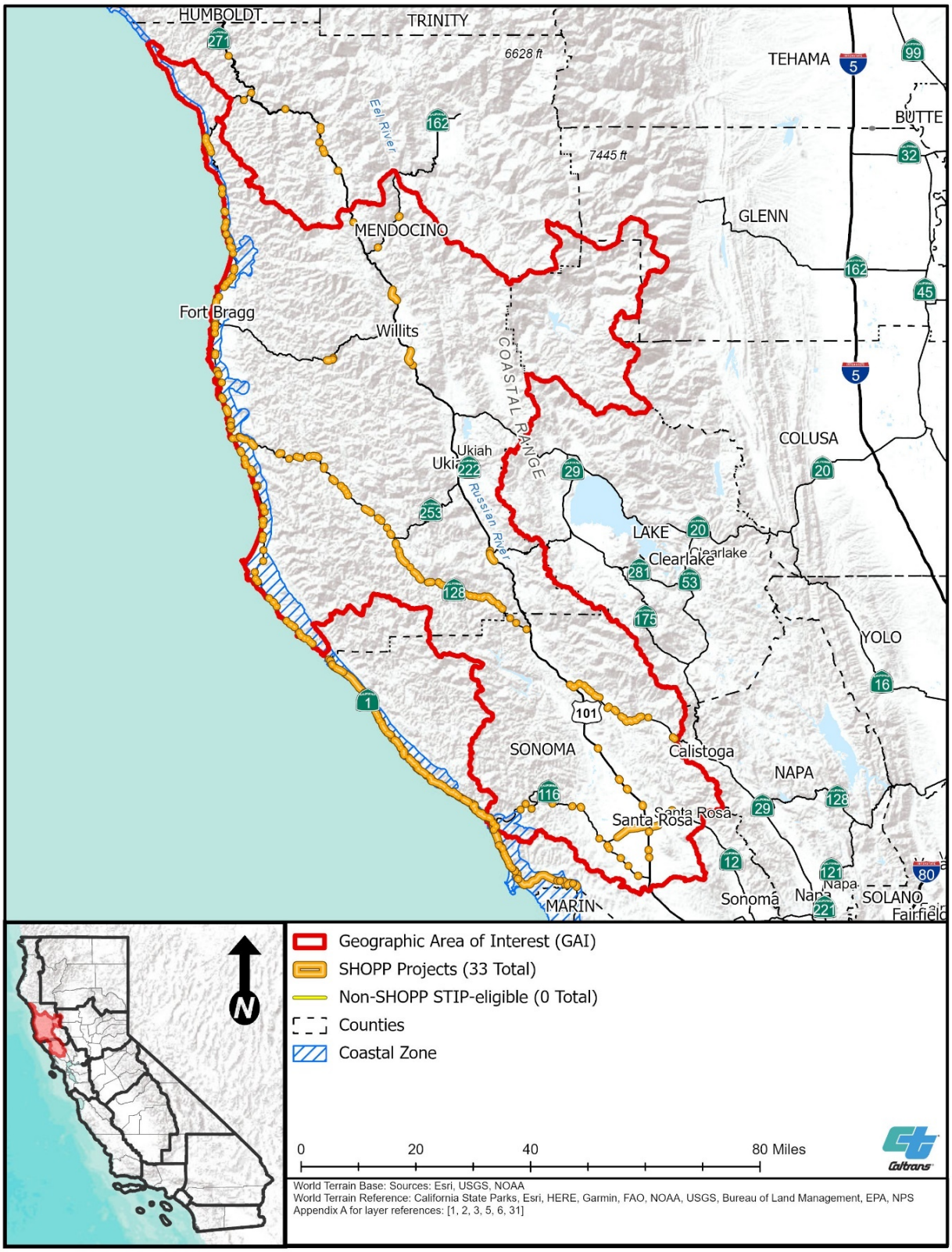
## 1.2 Caltrans District 1 Transportation Infrastructure

Headquartered in Eureka, Caltrans District 1 encompasses Del Norte, Humboldt, Lake, and Mendocino Counties. Caltrans District 1 headquarters maintains and operates over 622 centerline miles of freeway, expressways, and conventional highways. These roadways range from scenic two-lane highways to controlled-access freeways. State Route 1 and US Highway 101, two major north and south routes connecting northern and southern California, traverse Caltrans District 1. A portion of Caltrans District 4 in Sonoma County occurs within the geographic area of interest ("GAI") evaluated for this RAMNA. The highways within Caltrans District 4 that occur in the GAI include US Highway 101, State Route 128, State Route 116, and State Route 12.

Other transportation agencies that implement transportation improvements within Caltrans District 1 and 4's boundaries (MPOs, RTPAs, and other public agencies) in this RAMNA's GAI are the Colusa County Transportation Commission, Glenn County Transportation Commission, Lake County/City Area Planning Council, Mendocino Council of Governments, and Sonoma County Transportation Authority. The aforementioned transportation agencies are eligible for State Transportation Improvement Program ("STIP") funding.

Figure 1-3 shows the road infrastructure in the GAI evaluated for this RAMNA.

**Figure 1-3. GAI Road Infrastructure**



## 1.3 Regulatory Framework Summary

Unavoidable adverse natural resource impacts that could result from transportation projects are defined under environmental policies, laws, and regulations, including, but not limited to:

- California Coastal Act (Public Resources Code § 30000 et seq.)
- California Endangered Species Act ("CESA") (California FGC § 2050 et seq.)
- California Environmental Quality Act ("CEQA") (Public Resources Code § 21000 et seq.)
- federal Clean Water Act ("CWA"), Sections 401 and 404 (33 USC § 1251–1376)
- federal Endangered Species Act ("ESA") of 1973 (16 USC § 1531–1543), as amended
- Lake and Streambed Alteration Program (FGC § 1600 et seq.)
- National Environmental Policy Act ("NEPA") (42 USC § 4321 et seq.)
- Porter-Cologne Water Quality Control Act (California Water Code § 13000 et seq.)
- Rivers and Harbors Act of 1800, Section 10 (33 USC § 403)

Natural resource regulatory agencies that may need to be engaged for transportation projects that may adversely impact natural resources in the GAI are listed in Table 1-2.

**Table 1-2. Natural Resource Regulatory Agencies with the Authority to Approve Compensatory Mitigation Credits (or Values) in the GAI**

| Partner | Web Address |
|---|---|
| California Coastal Commission ("CCC") | https://www.coastal.ca.gov/ |
| CDFW, Northern Region | https://wildlife.ca.gov/Regions/1 |
| CDFW, North Central Region[1] | https://wildlife.ca.gov/Regions/2 |
| CDFW, Bay Delta Region | https://wildlife.ca.gov/Regions/3 |
| California SWRCB | https://www.waterboards.ca.gov/ |
| California RWQCB, Central Valley[1] | https://www.waterboards.ca.gov/centralvalley/ |
| California RWQCB, North Coast | https://www.waterboards.ca.gov/northcoast/ |
| California RWQCB, San Francisco Bay[1] | http://www.waterboards.ca.gov/sanfranciscobay/ |
| National Marine Fisheries Service ("NMFS") West Coast, California Coastal Office | https://www.westcoast.fisheries.noaa.gov/ |
| U.S. Army Corps of Engineers, South Pacific Division ("Corps"), Sacramento District | https://www.spk.usace.army.mil/ |
| Corps, San Francisco District | https://www.spn.usace.army.mil/ |
| U.S. Environmental Protection Agency ("EPA"), Region 9 | http://www.epa.gov/region9/ |

| Partner | Web Address |
|---|---|
| U.S. Fish and Wildlife Service ("FWS"), Arcata Field Office | https://www.fws.gov/arcata/ |
| FWS, Sacramento Field Office | https://www.fws.gov/sacramento/ |

[1] Natural resource regulatory agency's authority overlaps the GAI, but no transportation projects are planned in the area during the planning period.

Each of the natural resource regulatory agencies listed in Table 1-2 may include compensatory mitigation as a transportation project condition after it has been determined that there will be unavoidable permanent, adverse impacts and that other efforts to minimize, rectify, and reduce the impact have been incorporated in the transportation project's design and delivery. These natural resource regulatory agencies may also recognize the use or application of a compensatory mitigation credit that was established through an instrument or other formal interagency agreement as satisfying a transportation project's compensatory mitigation conditions. As a lead agency under CEQA and NEPA, Caltrans may also determine compensatory mitigation is required.

Some natural resource regulatory agencies also have established regulatory frameworks for establishing compensatory mitigation. These are defined under environmental laws, regulations, policies, and guidelines including, but not limited to:

- *Memorandum of Understanding Concerning Mitigation and Conservation Banking and In-Lieu Fee Programs in California* (California Natural Resources Agency ["CNRA"] et al. 2011)
- *Conservation Bank and Mitigation Bank Applications and Fees* (FGC § 1797 et seq.)
- *Compensatory Mitigation for Losses of Aquatic Resources, Final Rule* (33 Code of Federal Regulations ["CFR"] Parts 230, 325, and 332 and 40 CFR Part 230)
- *Advance Mitigation and Regional Conservation Investment Strategies,* mitigation credit agreements (FGC § 1856)
- *Final Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division* (Corps 2015)

As discussed previously, credits are the usual currency of mitigation established through an advance mitigation project; however, other values may also be established. Establishing conservation banks, mitigation banks,[5] and in-lieu fee programs requires an instrument. Existing policies and regulations prescribe what an instrument must contain and address, and the terms of use for the credits generated by the mitigation bank, conservation bank, or in-lieu fee program. Similarly, establishing HCPs and NCCPs requires an agreement.

[5] The goal of conservation banks is typically to offset adverse impacts on a species, while the goal of mitigation banking is to replace the exact function and values of specific wetland habitats that will be adversely affected.

## 1.4 SAMNA

Predicting likely future transportation project effects on natural resources takes place at the intersection of transportation planning and conservation planning. In 2020, consistent with Step 1 of the advance mitigation planning process (Figure 1-1), the AMP forecast Caltrans' statewide compensatory mitigation needs for the transportation improvements conceptualized in the *State Highway Operation and Protection Program Ten-Year Project Book Fiscal Years 2021/22–2030/31* ("SHOPP Ten-Year Book") for fiscal years 2021 to 2031 (Caltrans 2021a). The forecast was performed using the Caltrans Statewide Advance Mitigation Needs Assessment Reporting Tool ("SAMNA Reporting Tool"), a GIS overlay model developed by Caltrans to support advance mitigation planning (Caltrans 2021b). Potential impacts for all 12 Caltrans Districts were estimated. Statewide, almost 1,000 transportation projects and over 600 wildlife and aquatic resources were evaluated through the SAMNA Reporting Tool, yielding thousands of results (Caltrans 2023). The results for Caltrans District 1 are provided in Appendix A of Caltrans 2023. The subset of the Caltrans District 1 transportation projects that are planned in the GAI during the planning period covered by this RAMNA, as well as the hydrologic unit code eight-digit ("HUC-8") and ecoregion section, advertised year, and planned activities for each planned transportation project, are included in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*, of this RAMNA.

For consistency and as appropriate, tables, figures, and information presented throughout this document, including in Chapter 2, *Environmental Setting*, are consistent with the geospatial data within the SAMNA Reporting Tool. SAMNA Reporting Tool geospatial data and model assumptions are described more fully in Caltrans 2023. Results are presented in four different reports: terrestrial and aquatic species and subspecies, threatened and endangered fish, wetlands, and non-wetland waters. The unit of measure for impacts is acres.

**SAMNA Caveats:** The Statewide Advance Mitigation Needs Assessment ("SAMNA") is strictly and specifically intended to be used by Caltrans to justify, propose, and scope advance mitigation projects (Caltrans 2023). The SAMNA results:

- Are not to be used to substitute for or preempt any requirements to conduct detailed transportation project-level environmental scoping and analysis to inform the programming of individual transportation projects;
- Do not relieve Caltrans project planners from first avoiding and then minimizing impacts;
- Do not preclude the requirements under CEQA and NEPA for environmental analysis of and permitting for individual transportation projects; and
- Do not constitute a commitment on the part of an individual transportation project to implement the estimated compensatory mitigation. A transportation project's actual impacts and compensatory mitigation commitments will be determined during its environmental and permitting processes.

Use of the SAMNA methods shall not support the endorsement of or any other conclusion concerning any transportation project or transportation project alternative. Use or misuse of these methods and results for any purpose other than that which is intended shall be the sole responsibility of the individuals or entities conducting or supporting that use or misuse, who shall be fully liable, therefore.

## 1.5 GAI and Resource Focus

Given the quantity of resources evaluated through the SAMNA, limited AMA funding, and the need for the AMP to revolve the account, Caltrans focused this analysis on a geographic area with wildlife habitats and aquatic resources where planned transportation project schedules would likely benefit from (1) having compensatory mitigation credit purchase transactions complete and/or (2) having compensatory mitigation credit supplies increased.

Focusing this analysis improves the probability that advance mitigation projects undertaken by Caltrans will yield credits (or similar) that will be usable and comply with an appropriate established regulatory framework. Caltrans intends for any mitigation-related measures to support these environmental resources in the GAI to benefit other environmental resources as well.

### 1.5.1. GAI

As pointed out in Section 1.4, the RAMNA is consistent with SAMNA Reporting Tool geospatial data and model assumptions. In consultation with the natural resource regulatory agencies, it was determined that presenting SAMNA results by HUC-8 sub-basin and ecoregion, and not political boundaries, would steer advance mitigation planning toward better ecological outcomes—the 2008 Mitigation Rule specifies the HUC-8 as the basis of service areas for mitigation banks, and CDFW's State Wildlife Action Plan ("SWAP") is organized by ecoregion. Because the Big-Navarro-Garcia, Upper Eel, and Russian Sub-basins form an ecological boundary and not a political boundary, some portions of the GAI overlap Caltrans District 4. In addition to Caltrans District 1, Caltrans District 4 may choose to take the lead on an advance mitigation project that would address its needs within the GAI.

To identify a focus area, consistent with Step 2 of the advance mitigation planning process (Figure 1-1), in 2022, Caltrans District 1 subject matter specialists:

- Reviewed the entirety of Caltrans District 1's SAMNA results by HUC-8 and ecoregion (Caltrans 2023; available on: www.dot.ca.gov/programs/environmental-analysis/biology/advancemitigation);
- Reviewed the SAMNA results' associated potential future transportation project locations and activities anticipated for the State Highway Operation and Protection Program ("SHOPP") (Caltrans 2023);
- Reviewed non-SHOPP STIP-eligible transportation improvement plans for the next 10 years;

- Noted that advance mitigation planning for the Mad-Redwood, Lower Eel, and South Fork Eel Sub-basins was performed in 2021 (Caltrans 2021c);
- Observed that the portions of Caltrans District 1 located within the Big-Navarro-Garcia, Upper Eel, and Russian Sub-basins in the GAI have forecast compensatory mitigation needs during the planning period; and
- Identified the Big-Navarro-Garcia, Upper Eel, and Russian Sub-basins as locations where Caltrans and other public agencies that implement transportation improvements could benefit from advance mitigation planning, hereafter called the "GAI" (Figure 1-3).

### 1.5.2. Species of Mitigation Need

Compensatory mitigation for species in the GAI was identified as both a historical and anticipated future transportation project compensatory mitigation need within Caltrans District 1. SHOPP transportation projects have historically been conditioned by natural resource regulatory agencies for some species more routinely than others and have benefited from mitigation credits, when available.

Caltrans does not typically need compensatory mitigation credits for species where impacts can be avoided or minimized. Hence, to further focus the planning effort, Caltrans District 1 identified species that, if compensatory mitigation credits were available, transportation projects could potentially benefit. The determination was made after reviewing SAMNA results for the planning period. These "species of mitigation need" are southern Oregon/northern California Coast ("SONCC") and central California coast evolutionarily significant units ("ESUs") coho salmon (*Oncorhynchus kisutch*), northern California distinct population segment ("DPS") steelhead (*Oncorhynchus mykiss*) – summer run, and bank swallow (*Riparia riparia*). Within the GAI, SONCC ESU coho salmon is state and federally listed as threatened, central California coast ESU coho salmon is state and federally listed as endangered, northern California DPS steelhead – summer run is federally listed as threatened, and bank swallow is state listed as threatened.

These species inform the analysis of estimated impacts provided in Chapter 5, *Modeled Estimated Impacts*, and Chapter 6, *Benefiting Transportation Project Considerations*, and the discussion in Chapter 7, *Wildlife Resources Conservation Goals and Objectives*, and Chapter 8, *Aquatic Resources Conservation Goals and Objectives*.

### 1.5.3. Aquatic Resources

For the purposes of this document, aquatic resources include all wetlands and non-wetland waters that may be subject to CCC, Corps, EPA, RWQCB, and/or CDFW regulations, as well as special-status fish that may be subject to CCC, CDFW, FWS, and/or NMFS regulations.

Compensatory mitigation for aquatic resources and riparian habitat in the GAI were identified as both historical transportation project compensatory mitigation needs and anticipated future transportation project compensatory mitigation needs within Caltrans District 1. SHOPP transportation projects have historically been conditioned by natural

resource regulatory agencies for these resources and have benefited from mitigation credits, when available.

The Big-Navarro-Garcia (HUC-8 18010108), Upper Eel (HUC-8 18010103), and Russian (HUC-8 18010110) Sub-basins inform the analysis of estimated impacts provided in Chapter 5, *Modeled Estimated Impacts*, and Chapter 6, *Benefiting Transportation Project Considerations*, as well as the discussion in Chapter 8, *Aquatic Resources Conservation Goals and Objectives*.

## 1.6 RAMNA

This RAMNA is a planning-level document that:

- Provides a desktop analysis of relevant available information pertaining to the Big-Navarro-Garcia, Upper Eel, and Russian Sub-basins, referred to as the GAI;
- Applies to fiscal years 2021/22 to 2030/31 (planning period), which is concurrent with the time period addressed by the SHOPP Ten-Year Book (Caltrans 2021a);
- Discusses potential compensatory mitigation conditions that may be placed on future transportation projects by the seven resource and regulatory agency signatories[6] to the *Master Process Agreement for Planning and Developing Advance Mitigation throughout California for the California Department of Transportation Advance Mitigation Program* (Caltrans et al. 2020);
- Focuses on wildlife habitats and aquatic resources that have a high probability of requiring transportation project-related compensatory mitigation in the GAI and planning period;
- Documents Caltrans' forecast of potential wildlife and aquatic resource compensatory mitigation needs for the GAI and planning period, as reported by the SAMNA (Caltrans 2023);
- Identifies information that will be important to Caltrans when scoping any of the AMP's authorized activities in the GAI, in accordance with SHC § 800.6(a), including documenting the existing compensatory mitigation supply;
- Incorporates information and feedback received from outreach to the natural resource regulatory agencies, FHWA, MPOs, RTPAs, other public agencies that implement transportation projects, Native American tribes, interested parties, and the public; and
- Analyzes Caltrans' options to meet its compensatory mitigation needs in the GAI through the AMP's authorized activities.

Because early technical assistance and communication may increase the probability that advance mitigation projects promoted within and/or undertaken by Caltrans will successfully meet the AMP's purpose, in accordance with the AMP Guidelines, Caltrans has requested that this RAMNA be reviewed by FHWA, natural resource regulatory

[6] Natural resource regulatory signatories are CDFW; SWRCB; Corps Los Angeles, Sacramento, and San Francisco Districts; EPA; FWS; NMFS; and CCC.

agencies, other transportation agencies (MPOs, RTPAs, and other public agencies that implement transportation improvements), Native American tribes, interested parties, and the public. Their reviews and any information they provide will also be consulted by Caltrans when it promotes and approves specific advance mitigation projects for development and funding (Caltrans 2019a).

## 1.7 Coordination History

With respect to external communications, the AMP Guidelines describe communication milestones within the advance mitigation project planning process (Caltrans 2019a). Each is summarized in the following sections.

### 1.7.1. MPOs, RTPAs, and Other Transportation Agencies that Implement Transportation Improvements

Caltrans is authorized to provide AMA-funded mitigation credits to MPOs, RTPAs, and other public agencies that implement transportation projects, upon reimbursement, for their use to satisfy STIP-funded transportation project mitigation. To help inform the potential demand for compensatory mitigation in that area, Caltrans District 1 Transportation Planning researched STIP-eligible mitigation needs during the planning period. Caltrans District 1 discussed STIP-eligible mitigation needs during regularly scheduled meetings with the Glenn County Transportation Commission, Lake County/City Area Planning Council, Mendocino County Council of Governments, and Sonoma County Transportation Authority.

### 1.7.2. RAMNA Review

The AMP Guidelines (Caltrans 2019a) state:

> *Before the RAMNA will be used to support advance mitigation project planning, Caltrans will, per 23 USC 169(a): consult with each natural resource regulatory agency with jurisdiction over the environmental resources considered in the RAMNA; make a draft of the RAMNA available for review and comment by applicable natural resource regulatory agencies, FHWA, Native American Tribes, local transportation agencies, local advance mitigation programs, local interested parties, and the public; request that, along with their review, natural resource regulatory agencies, Native American Tribes, FHWA, local transportation agencies, local advance mitigation programs, interested parties, and the public provide Caltrans any additional information relevant to and appropriate for the RAMNA; consider any comments and information received from natural resource regulatory agencies, FHWA, Native American Tribes, local transportation agencies, local advance mitigation programs, local interested parties, and the public on the draft RAMNA; and incorporate information and address such comments in the final RAMNA as appropriate.*

In July 2023, Caltrans distributed this RAMNA for review by FHWA, natural resource regulatory agencies, other transportation agencies (MPOs, RTPAs, and other public agencies that implement transportation improvements), Native American tribes,

interested parties, and the public. Table 1-3 lists the commenters and the date of their communication. All comments received were considered, addressed, and incorporated into the document, as appropriate.

**Table 1-3. Comments Received by Caltrans on the RAMNA**

| Commenter | Date of Comment Letter |
|---|---|
| CDFW[a] | September 7, 2023 |
| CCC | September 5, 2023 |
| SWRCB | September 5, 2023 |
| Corps | Not provided |
| EPA | September 11, 2023 |
| FWS | September 5, 2023 |
| NMFS | Not provided |

[a] SHC § 800 et seq. specifically directs Caltrans to consult with CDFW on all activities pursuant to the AMP.

### 1.7.3. Interagency Meeting and Coordination

The Master Process Agreement states that prior to finalizing the RAMNA, "Caltrans will arrange and facilitate at least one … meeting [with natural resource regulatory agencies] to discuss the RAMNA, conservation goals and objectives, overlapping agency statutory and regulatory requirements, and other relevant topics" (Section IV, Subsection A, Provision 6). In accordance with the Master Process Agreement, a meeting between Caltrans and the natural resource regulatory agencies was held within 60 days of distribution of the RAMNA. The meeting participants and meeting dates are presented in Table 1-4. The discussion has informed this document.

**Table 1-4. Interagency Meetings**

| Meeting Participants | Meeting Date |
|---|---|
| CCC, CDFW, NMFS, SWRCB, Corps, EPA, FWS | September 7, 2023 |
| SWRCB | September 18, 2023 |

## 1.8 Document Organization

This document is organized as shown in Table 1-5.

**Table 1-5. Document Organization**

| Chapter | Title | Content |
|---|---|---|
| Chapter 1 | Introduction | This chapter introduces the RAMNA, placing it in the context of the AMP Guidelines, transportation network, and regulatory framework. |
| Chapter 2 | Environmental Setting | This chapter describes the GAI analyzed in the RAMNA. It relies on geospatial data from the SAMNA Reporting Tool and other readily available information. |
| Chapter 3 | Relevant Plans, Policies, and Regulations | This chapter briefly describes laws, regulations, comprehensive plans, conservation plans, and land management plans that are applicable and relevant to the GAI and inform both regional understanding and advance mitigation scoping. |
| Chapter 4 | Existing Mitigation Opportunities | This chapter summarizes the mitigation credits (or similar) currently available to Caltrans and/or pending that are applicable to the environmental resources discussed in the RAMNA and located within or near the GAI. |
| Chapter 5 | Modeled Estimated Impacts | This chapter summarizes the SAMNA forecast and regional estimates of compensatory mitigation need for the GAI. |
| Chapter 6 | Benefiting Transportation Project Considerations | This chapter summarizes relevant information about potentially benefiting transportation projects, including scheduling considerations and constraints. A time frame for the need for forecast mitigation is provided and analyzed. The potentially benefiting transportation projects' acceleration priorities are documented in this chapter. |
| Chapter 7 | Wildlife Resources Conservation Goals and Objectives | This chapter presents Caltrans' understanding of the GAI's wildlife conservation goals and objectives, with which Caltrans seeks to align its advance mitigation projects. |
| Chapter 8 | Aquatic Resources Conservation Goals and Objectives | This chapter presents Caltrans' understanding of the GAI's aquatic, wetland, and water resources conservation goals and objectives, with which Caltrans seeks to align its advance mitigation projects. |
| Chapter 9 | Assessment of Authorized Activities | This chapter describes options and analyzes the feasibility of purchasing and/or establishing mitigation credits (or similar) in the GAI that have a high probability of successfully accelerating transportation project delivery and protect natural resources through transportation project mitigation. |
| Chapter 10 | References | This chapter lists references cited in the RAMNA. |

| Chapter | Title | Content |
|---|---|---|
| Appendices | Various | Appendices supporting this document:<br>Appendix A – GIS Sources<br>Appendix B – Transportation Projects Planned for the GAI during the Planning Period<br>Appendix C – Local Coastal Programs<br>Appendix D – Land Cover Types<br>Appendix E – Complete SAMNA Species Results<br>Appendix F – Hydrologic Units<br>Appendix G – List of 303(d) Impaired Waters<br>Appendix H – Aquatic Resource Locations |

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# 2. ENVIRONMENTAL SETTING

In this chapter, Caltrans describes the GAI in terms of ecoregion sections, land ownership, topography, coastal zone, climate, land cover types, invasive species, special-status species, critical habitat, essential fish habitat, connectivity, sub-basins, hydrology, flood hazard areas, water quality, wild and scenic rivers, aquatic resources,[1] riparian habitat, areas of special biological significance ("ASBSs"), and fire severity zones. Intended to inform advance mitigation project scoping, this assessment relied on readily available literature and GIS sources, including the vegetation and other geospatial data layers developed for the SAMNA Reporting Tool (Caltrans 2021b). Sources used for this assessment are cited throughout the chapter, and links to GIS sources are provided in Appendix A, *GIS Sources*.

On each figure, Caltrans has provided the general location of planned SHOPP transportation projects that, during the 10-year planning period addressed by this document, natural resource regulatory agencies may condition with compensatory mitigation. The GAI's road infrastructure is described in Chapter 1, *Introduction*, and additional information about planned transportation projects is provided in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period,* and Chapter 5, *Modeled Estimated Impacts*.

## 2.1 Ecoregion Sections

The GAI consists of approximately 2.2 million acres in northern California within the Big-Navarro-Garcia, Russian, and Upper Eel Sub-basins (HUC-8s), which are overlapped by portions of the Northern California Coast and Northern California Coast Ranges Ecoregion Sections (Table 2-1, Figure 2-1). Ecoregion sections are defined as the largest ecological unit of the U.S. Department of Agriculture ("USDA"), U.S. Forest Service ("USFS") National Hierarchical Framework of Ecological Units, which are nested within larger provinces (Cleland et al. 1997). The Northern California Coast Ecoregion Section is within the larger California Coastal Steppe – Mixed Forest – Redwood Forest Province. The Northern California Coast Ranges Ecoregion Section is within the larger Sierran Forest – Alpine Meadows Province (McNab et al. 2007).

[1] For the purposes of advance mitigation planning, aquatic resources consist of wetlands and non-wetland waters that may be subject to CCC, Corps, EPA, RWQCB, and/or CDFW regulations, and special-status fish that may be subject to CCC, managed by CDFW, FWS, and/or NMFS regulations.

**Table 2-1. Ecoregion Sections in the GAI**

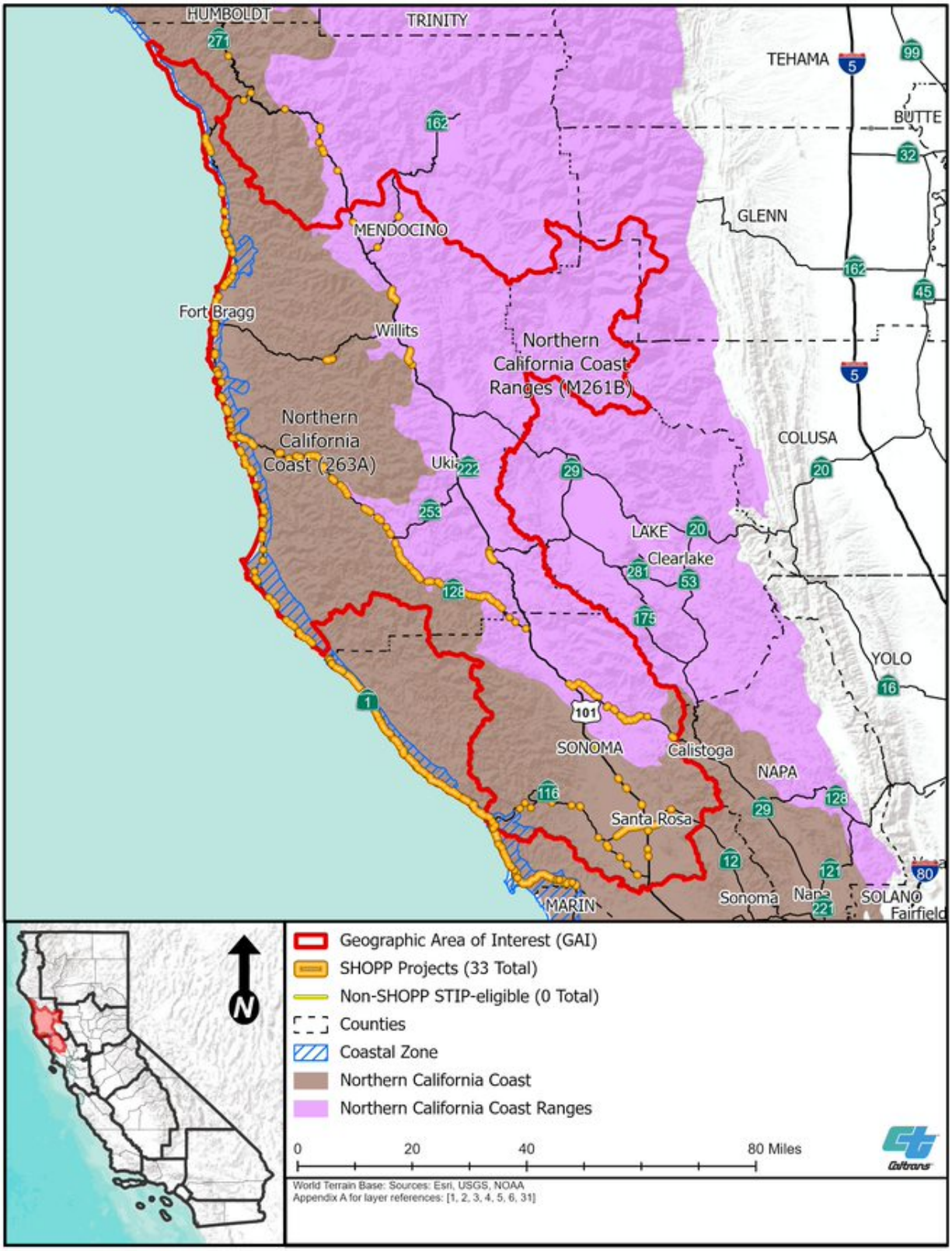
| Section | Acreage[a] | Ecoregion Section as Percentage of GAI |
|---|---|---|
| Northern California Coast | 1,179,880 | 54.2 |
| Northern California Coast Ranges | 997,334 | 45.8 |
| **Total** | **2,177,215** | **100%** |

Source: Caltrans 2021b
[a] Numbers were rounded to the nearest whole number.

## 2.2 Land Ownership

The GAI spans parts of Glenn, Mendocino, and Sonoma Counties (Figure 2-2). Privately owned and managed lands account for most of the land in the GAI (72.1 percent). Federal lands account for 12.1 percent of land in the GAI and are administered and managed by the USDA's USFS, the U.S. Department of Interior's Bureau of Land Management ("BLM"), Corps, and U.S. military bases (Table 2-2, Figure 2-2). USFS land includes the Mendocino National Forest. Other lands in the GAI, which account for 8.1 percent of the GAI, are owned or managed by Native American tribes and nonprofit conservancies and land trusts. State lands, which account for 4.7 percent of land in the GAI, include lands owned and managed by CDFW, California Department of Forestry and Fire Protection, California Department of Parks and Recreation, California State Lands Commission, California State University, University of California, and other public lands. Only 3.0 percent of land in the GAI is governed by counties, cities, and special districts (Table 2-2, Figure 2-2).

**Figure 2-1. Ecoregion Sections in the GAI**

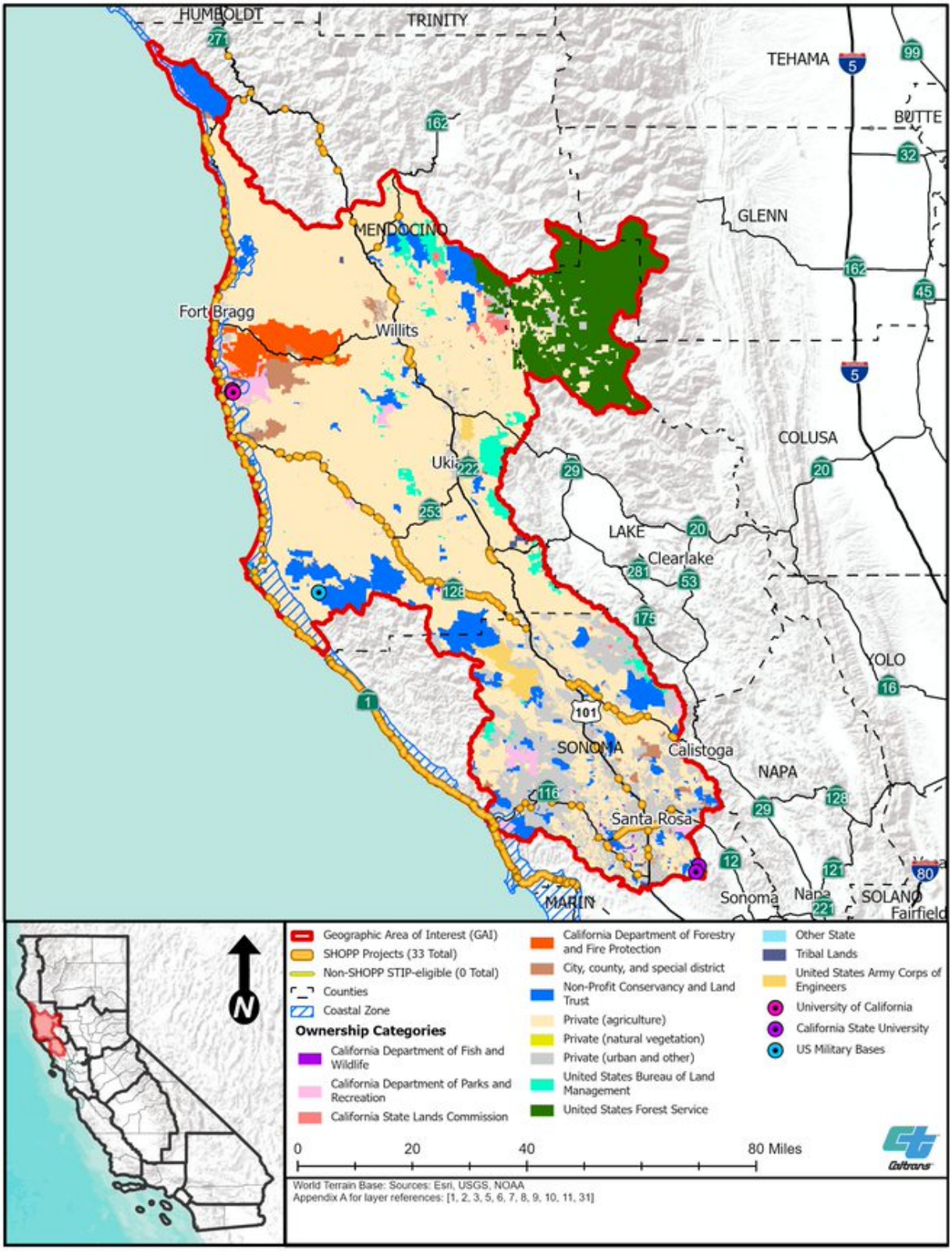


## Table 2-2. Land Ownership

| Land Owner or Land Use | Number of Parcels | Total Acreage per Agency/Owner[a] | Ownership as Percentage of GAI |
|---|---|---|---|
| Private (agriculture) | 2 | 1,343,717 | 59.8 |
| Private (urban and other) | 5 | 272,946 | 12.1 |
| USFS | 28 | 200,848 | 8.9 |
| Nonprofit conservancy and land trust | 349 | 178,145 | 7.9 |
| City, county, and special district | 1,257 | 68,065 | 3.0 |
| BLM | 120 | 51,195 | 2.3 |
| California Department of Forestry and Fire Protection | 2 | 48,719 | 2.2 |
| California Department of Parks and Recreation | 98 | 45,750 | 2.0 |
| Corps | 10 | 19,448 | 0.9 |
| California State Lands Commission | 47 | 9,617 | 0.4 |
| Private (natural vegetation) | 1 | 3,804 | 0.2 |
| Tribal lands | 11 | 3,744 | 0.2 |
| CDFW | 49 | 1,720 | 0.1 |
| California State University | 2 | 414 | <0.1 |
| Other state lands | 26 | 207 | <0.1 |
| U.S. military bases | 1 | 80 | <0.1 |
| University of California | 3 | 76 | <0.1 |
| Private (unassigned) | 1 | 7 | <0.1 |
| **Total** | **2,012** | **2,248,499** | **100%** |

Sources: Bureau of Indian Affairs; California Protected Lands Database; California Conservation Easement Database; Caltrans 2021b, U.S. Census Bureau; USDA; and California Department of Technology for land parcels
[a] Numbers were rounded to the nearest whole number.

**Figure 2-2. Land Ownership**



### 2.2.1. Protected Lands

The California Protected Areas Database, developed by GreenInfo Network, provides an inventory of lands that are owned in fee or protected for open space purposes throughout California by more than 1,000 public and nonprofit organizations. These protected lands are managed for the preservation of biological diversity and other natural, recreational, and cultural uses. It is important to note, however, that these data are based on best available public information at the time of development and, as such, may not represent all protected lands in California.

In the California Protected Areas Database, lands are assigned U.S. Geological Survey ("USGS") Gap Analysis Program ("GAP") status ranks that define the degree of protection for biodiversity conservation using a 1 to 4 coding system. Areas with a GAP status of 1 are managed for biodiversity; areas with a GAP status of 2 are managed for biodiversity with disturbance events suppressed; areas with a GAP status of 3 are managed for multiple uses, potentially including mining or off-road vehicle use; and areas with a GAP status of 4 have no known mandate for biodiversity protection. The method of applying these California Protected Areas Database ranks is done in collaboration with the USGS' Protected Areas Database of the U.S.

Not all California Protected Areas Database lands have GAP status ranks, and some may be out of date. Nevertheless, available protected lands and their associated GAP status ranks are indicated on Figure 2-3. As Figure 2-3 shows, no GAP status 1 lands are identified in the database for the GAI, and most of the planned SHOPP transportation projects are in areas with no assigned rank. Lands with conservation easements are also identified in the California Protected Areas Database; some SHOPP transportation projects are near conservation easements (Figure 2-3).

## 2.3 Topography

The Big-Navarro-Garcia, Upper Eel, and Russian Sub-basins, which define the GAI, are characterized by rolling hills and mountains. The GAI is bounded on the west by the Pacific Ocean, on the south by Sonoma Valley, and extends east and upward to the northern Coast Ranges. Elevations in the GAI range from sea level to 7,012 feet above mean sea level (Figure 2-4).

**Figure 2-3. Protected Lands**

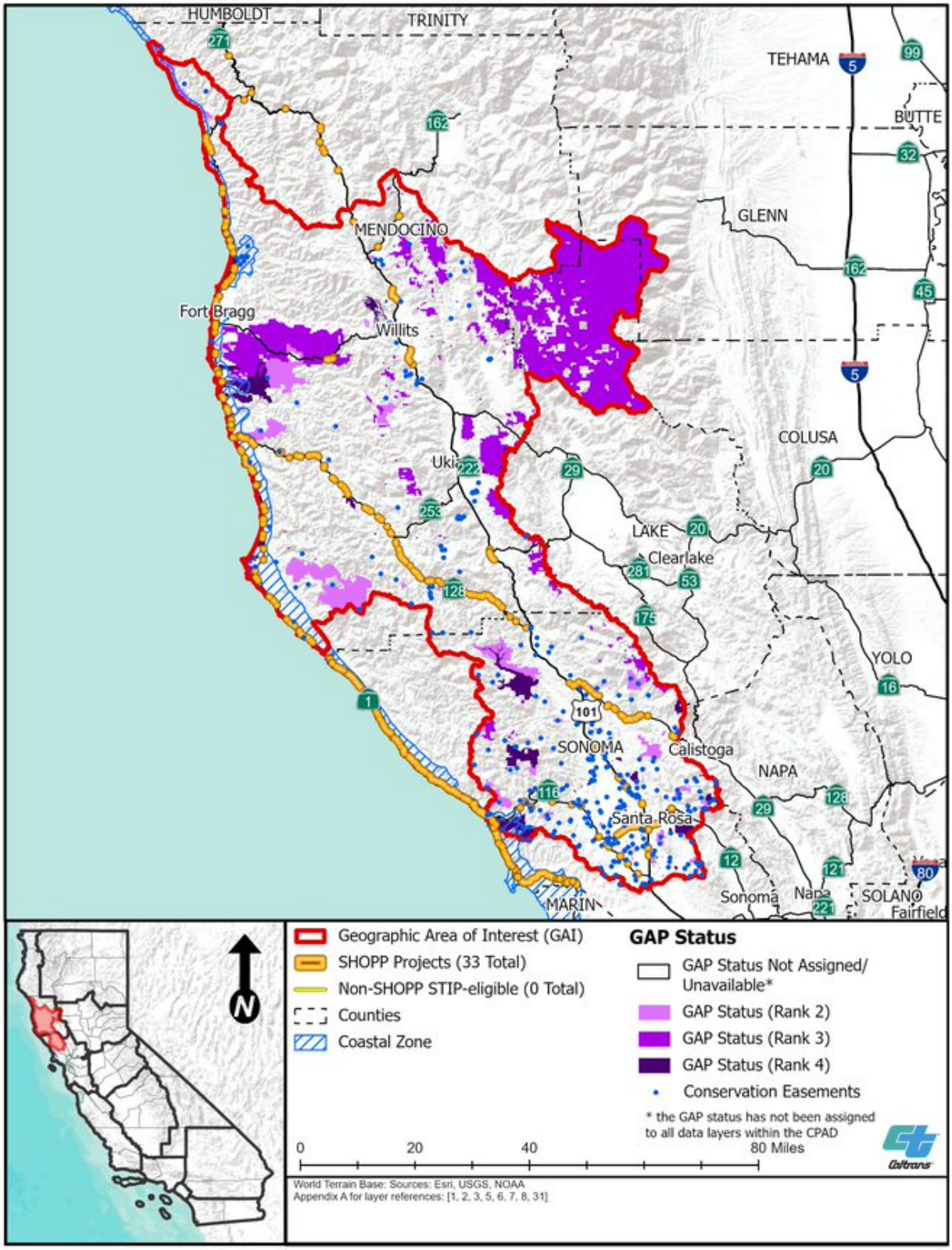


**Figure 2-4. Topography**

## 2.4 Coastal Zone

Public Resources Code § 30103(a) of the California Coastal Act defines California's coastal zone as the land and water area of the State of California from the Oregon border to the border with the Republic of Mexico, as depicted on maps identified and set forth in the Coastal Act of 1976, and this area represents the jurisdiction of the CCC. The coastal zone extends seaward to the state's outer limit of jurisdiction, including all offshore islands, and extends inland generally 1,000 yards from the mean high tide line of the sea. In significant coastal estuarine, habitat, and recreational areas, the coastal zone extends inland to the first major ridgeline paralleling the sea or 5 miles from the mean high tide line of the sea, whichever is less, and in developed urban areas the zone generally extends inland less than 1,000 yards. As indicated on Figure 2-4 and the maps in Appendix C, *Local Coastal Programs*, the coastal zone overlaps the extreme western part of the GAI; even so, several planned SHOPP transportation projects intersect with the coastal zone.

### 2.4.1. Local Coastal Programs

The Coastal Act requires mitigation for impacts on coastal habitats, which are within the scope of this document, and other types of coastal resource impacts (for example, visual impacts), which are outside the scope of this document. The CCC regulates potentially impactful projects in the coastal zone primarily through the issuance of Coastal Development Permits ("CDPs"). Local Coastal Programs ("LCPs") are planning tools used to guide development in the coastal zone through preparation of land use plans and implementation of zoning ordinances. In coastal local jurisdictions where the CCC has reviewed an LCP for consistency with Coastal Act requirements and certified the LCP, the local government assumes CDP authority within its jurisdiction, with certain exceptions. For example, the CCC retains jurisdiction on tidelands—including former tidelands—submerged land, and land subject to the public trust.

Mapped in Appendix C, *Local Coastal Programs*, five LCPs are used by local governments to guide development in the coastal zone in coordination with the CCC, all of which have been certified by the CCC.

### 2.4.2. Environmentally Sensitive Habitat Areas

The California Coastal Act defines an environmentally sensitive habitat area ("ESHA") as "any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments" (§ 30107.5). Under the Coastal Act § 30240, an ESHA shall be protected against any significant disruption of habitat values, and only uses dependent on those resources (for example, nature study) are allowed in those areas. Furthermore, development in areas adjacent to an ESHA must be sited and designed to prevent significant degradation of the ESHA. Whether a habitat or location is considered an ESHA is determined by evaluating on-the-ground-resources and the surrounding ecological context.

Although maps or descriptions of ESHAs are included in some of the LCPs covering the GAI, there may be ESHAs that have been added since the LCPs were certified. Specific ESHA definitions and policies vary among the five CCC-certified LCPs in the GAI (Appendix C). LCPs may list specific species habitats or specific natural communities as ESHAs or may designate geographic areas as ESHAs because of the presence of rare or valuable plants species or animal species, natural communities, or habitat. Designation of ESHAs is not limited to habitat for federally or state listed species or designated critical habitat. SWRCB designated ocean ASBSs (see Section 2.19); coastal wetlands and lagoons, tidepools, wilderness and primitive areas, and more may also be considered ESHAs. ESHAs are often threatened by habitat fragmentation, disturbance, degradation, or other anthropogenic factors, but while a type of ESHA may be determined to be sensitive because of demonstrated effects of such threats as those listed, it does not necessitate that a particular location must be so threatened itself to qualify as an ESHA. Areas identified as ESHAs in the LCPs in the GAI include, but are not limited to, anadromous fish streams, Bodega Harbor tideflats, sand dunes and coastal strands, coastal bluffs, rookeries and marine mammal haulout areas, wetlands, riparian areas, Mendocino cypress woodland (previously classified as pygmy vegetation), and other vegetation communities containing species of rare or endangered plants, and habitats of rare and endangered plants and animals (Keeler-Wolf et al. 2019; Mendocino County 1991; Sonoma County 2001).

### 2.4.3. Critical Coastal Areas

California's Critical Coastal Areas ("CCAs") program fosters collaboration among local stakeholders and government agencies to coordinate efforts to protect high resource value coastal waters from polluted runoff. This nonregulatory program, which is part of California's Nonpoint Source Pollution Program, is coordinated by CCC staff through a multiagency statewide committee. The committee includes, but is not limited to, the CCC, Caltrans (stormwater), CDFW, SWRCB, RWQCBs, and EPA.

The criteria for identifying CCAs reflect the CCA program's dual goals of improving degraded coastal water quality and providing extra protection from polluted runoff to coastal waters with a recognized high resource value. To be a CCA, an area must meet one or more of the following criteria:

- Coastal watershed areas where an impaired waterway on the 1994 303(d) list is, or flows into, a bay or estuary.
- Coastal watershed areas where an impaired waterway on the 1998 303(d) list flows into a state or federal Marine Managed Area.
- Shoreline areas within San Francisco Bay where an impaired waterway on the 1998 303(d) list flows into wildlife refuges, waterfront parks, and beaches, as specified in the San Francisco Bay Plan.
- Coastal watershed areas that flow into an ASBS.
- Coastal watershed areas where an impaired waterway on the 2010 303(d) list is, or flows into, a Principal Bay or Estuary, as identified in CDFW (2001).

- Coastal watershed areas where an impaired waterway on the 2010 303(d) list is adjacent to a state Marine Protected Area, as defined in 14 Code of California Regulations § 632(a)(1)(A–C).

Statewide, 119 CCAs have been identified, 11 of which occur in the GAI (Figure 2-5). These include:

- Albion River
- Big River
- Garcia River
- Jughandle Cove
- King Range (northern tip of GAI)
- Navarro River
- Noyo River
- Pudding Creek
- Russian River
- Saunders Reef
- Ten Mile River

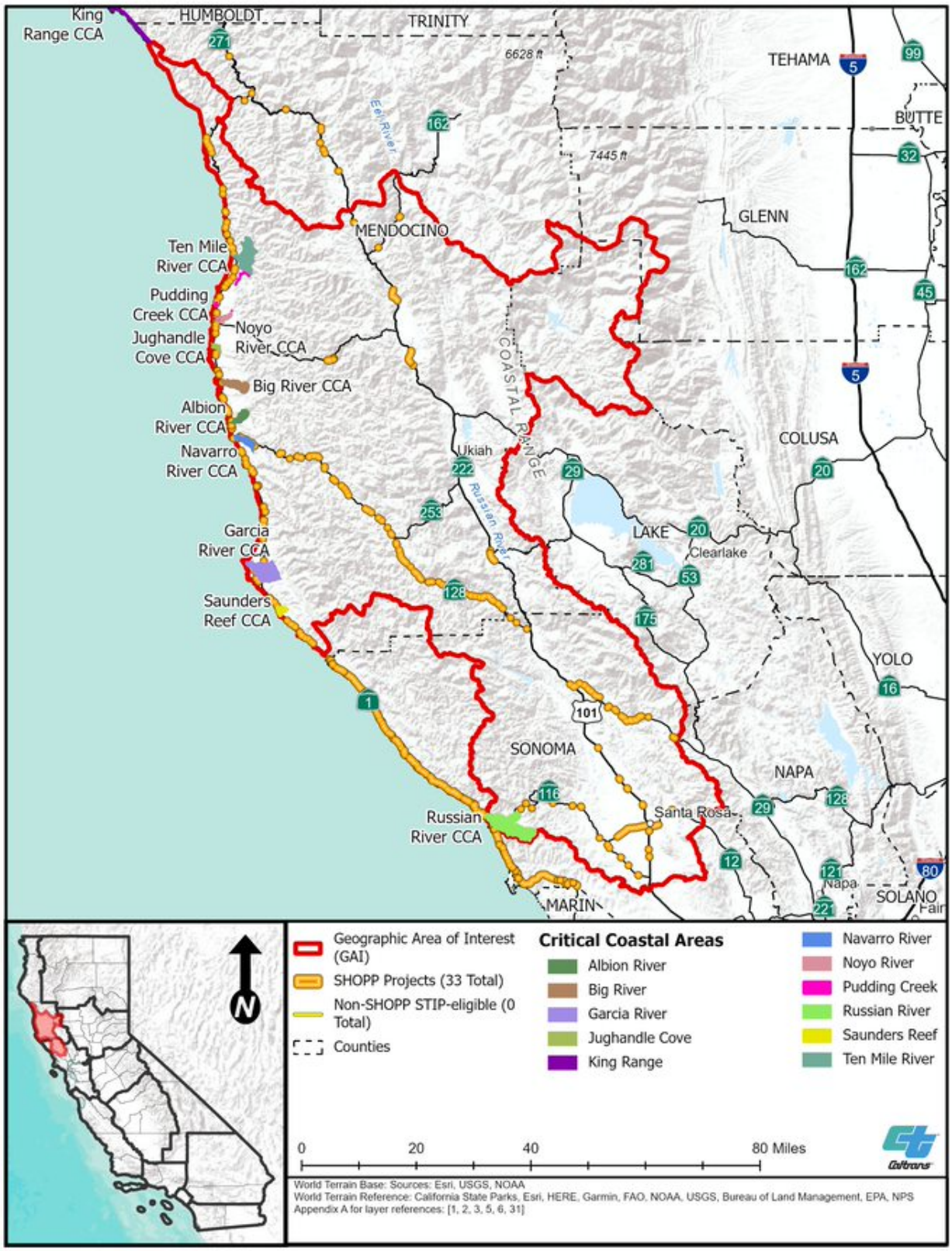
The inland boundary of a CCA is the coastal zone boundary, as defined in the California Coastal Act. The shoreline boundary is determined on a case-by-case basis.

## 2.5 Climate

The GAI is characterized by mild, dry, and frequently foggy summers, and wet, cool winters along the coast. Inland areas are characterized by substantially warmer and drier summers with wet, cool winters and snowfall at elevations over 3,000 feet. Average temperatures range from 20 to 80 degrees Fahrenheit along the coast and 5 to 100 degrees Fahrenheit within inland areas. Average precipitation varies by location; however, most precipitation occurs during winter, with snowfall at higher elevations and little precipitation occurring during the summer (Caltrans 2019c; Mendocino County 2021).

In the next 30 years, the climate is expected to change. Sea-level rise predictions used in California for planning purposes are summarized in Section 2.5.1. Results of Caltrans' climate vulnerability assessment are summarized in Section 2.5.2. The predicted resilience of the GAI to effects resulting from climate change is summarized in Section 2.5.3.

**Figure 2-5. Critical Coastal Areas in the GAI**



### 2.5.1. State of California Sea-level Rise Guidance

CNRA and the Ocean Protection Council ("OPC") *State of California Sea-Level Rise Guidance: 2018 Update* provides guidance to California state agencies for incorporating sea-level rise projections into planning, permitting, investment, and other decisions (CNRA and OPC 2018).

The stepwise approach provides guidance on how to select sea-level rise projections by evaluating risk and vulnerability. The following recommendations provide guidance on preferred sea-level rise planning and adaptation approaches, with an understanding that the diversity of communities, uses, and natural resources along California's coastline, as well as planning for new development versus existing structures, may merit different approaches to building resilience. Adaptation planning and strategies should:

1. Prioritize social equity, environmental justice, and the needs of vulnerable communities.
2. Prioritize protection of coastal habitats and public access.
3. Consider the unique characteristics, constraints, and values of existing water-dependent infrastructure, ports, and public trust uses.
4. Consider episodic increases in sea-level rise caused by storms and other weather-related events.
5. Coordinate and collaborate with local, state, and federal agencies when selecting sea-level rise projections; where feasible, use consistent sea-level rise projections across multiagency planning and regulatory decisions.
6. Consider local conditions to inform decision making.
7. Include adaptive capacity in design and planning.
8. Assess risk and conduct adaptation planning at community and regional levels, when possible.

The guidance includes sea-level rise projections centered on the year 2030, which overlaps the RAMNA's planning period (CNRA and OPC 2018). The guidance is based on the *Rising Seas in California: An Update on Sea-Level Rise Science* report (OPC 2017), which reflects the most current understanding of sea-level rise science and modeling of global sea-level rise. Based on the CNRA and OPC (2018) guidance report, the Arena Cove tide gauge is located along the California coast in the GAI (Figure 2-6).

Sea-level rise projections for 2030 are based on the representative concentration pathway 8.5 (high emissions scenario) because that represents expected conditions over the next 10 years. The 2030 sea-level rise projections for the Arena Cove tide gauge range from 0.5 to 0.7 foot (CNRA and OPC 2018).

### 2.5.2. Climate Vulnerability Assessment

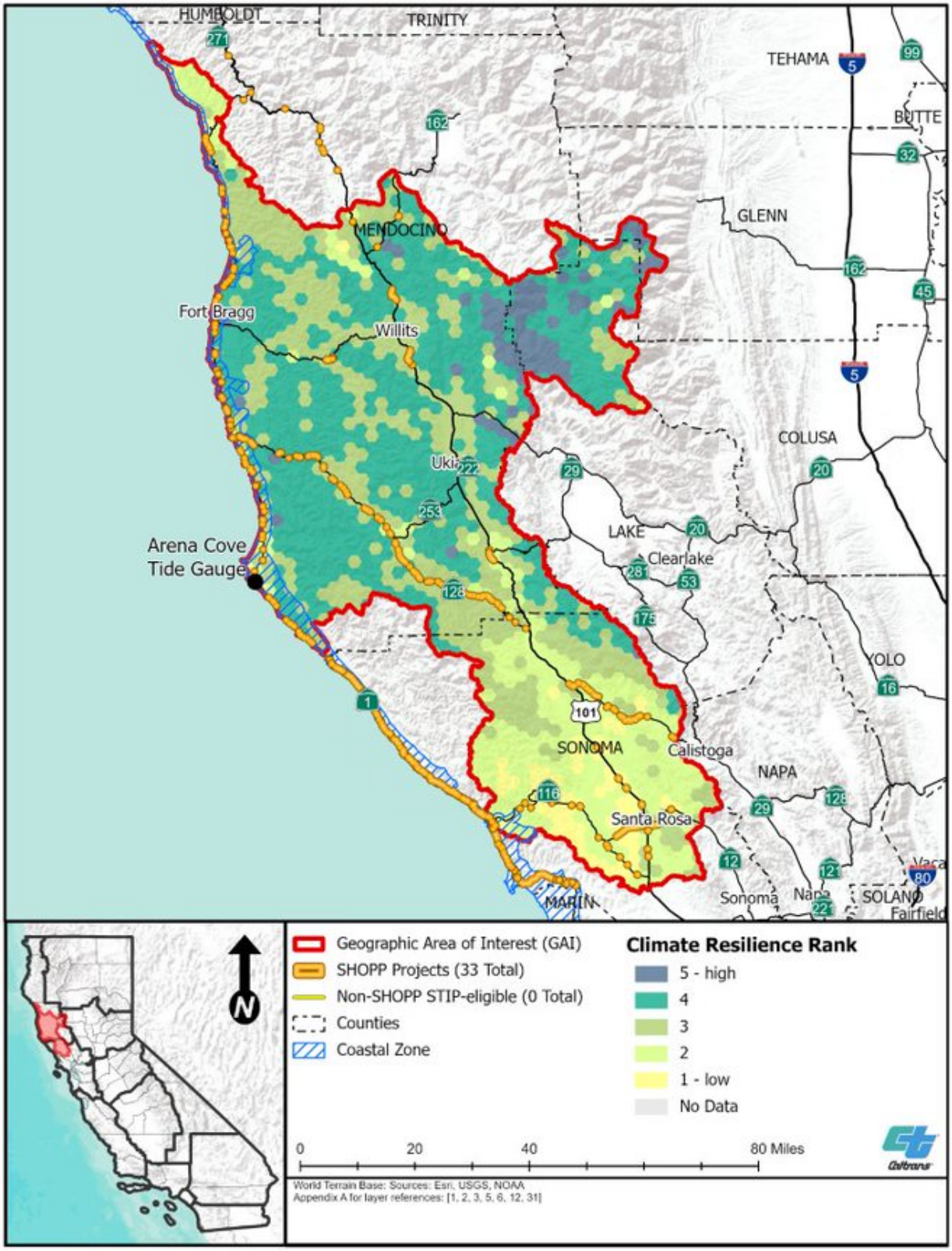
In 2019, Caltrans performed a statewide climate change vulnerability assessment for the SHS (Caltrans 2019c). The analysis provided in the *Caltrans Climate Change Vulnerability Assessments: District 1 Technical Report* (Caltrans 2019c) is based on global climate change data compiled by the Intergovernmental Panel on Climate Change. Caltrans applies three future emissions scenarios for greenhouse gas emission

concentrations in the technical report—representative concentration pathway 2.6, which assumes global annual greenhouse gas emissions will peak in the next few years and then begin to decline substantially; representative concentration pathway 4.5, which assumes emissions will peak around 2040 and then begin to decline; and representative concentration pathway 8.5, which assumes that high emission trends continue to the end of the century—for three future 30-year periods centered on the years 2025 (2010 to 2039), 2055 (2040 to 2069), and 2085 (2070 to 2099).

The effects of climate change in the GAI pose risks for transportation infrastructure, reliability, and capacity. Transportation systems were designed for historical climate conditions; changing climatic conditions, including an increased frequency of extreme weather events, are expected to disrupt and damage the SHS. Predicted climate change effects consist of projected increases in the average and maximum temperatures, including more frequent extreme heat events; more volatile precipitation, with increases in heavy precipitation, with dry years becoming drier and wet years becoming wetter; and an increased risk of drought, wildfires, flash flooding, and landslides over the three time periods analyzed in the technical report (Caltrans 2019c). Climate change effects along the coast during the three future 30-year periods are expected to exacerbate coastal hazards, including storm surges that increase coastal bluff and dune erosion, shoreline retreat, 1-percent flood events, and inundation of low-lying coastal areas; increase landslide and mudslide frequency; and worsen the severity of wildfires. At higher elevations, extreme temperatures are expected to rise, which may result in tree mortality and changing snowmelt patterns (Caltrans 2019c).

Local relative sea-level trends based on tide gauge measurements from 1978 to 2022 indicate that sea levels along the coast of the GAI have risen at a rate equivalent to 0.28 foot in 100 years (National Oceanic and Atmospheric Administration [“NOAA”] 2023). Based on the NOAA model for estimated sea-level rise presented in the *Caltrans Climate Change Vulnerability Assessments: District 1 Technical Report*, portions of State Route 1 in Mendocino County are vulnerable to sea-level rise but are unlikely to be affected by storm surge events (Caltrans 2019c).

**Figure 2-6. Terrestrial Climate Resilience Rankings**



### 2.5.3. Climate Resiliency

A climate change-resilient natural community area is a terrestrial location expected to remain stable in the face of climate change (CDFW 2018a). The predicted resilience of the GAI to effects resulting from climate change was acquired from CDFW's Areas of Conservation Emphasis ("ACE," version 3) terrestrial climate change resilience dataset. This dataset consists of the modeled probability that a given terrestrial location may function as a plant or wildlife refugium from climate change, meaning that it would be relatively buffered from the effects of climate change, conditions would likely remain suitable for plants and wildlife currently residing in the area, and ecological functions would be more likely to remain intact. The ACE dataset combines climate refugia model results from eight future climate scenarios based on different combinations of global climate models, emissions scenarios, and time horizons. The eight scenarios assessed included two potential future climates: both a hotter and drier future and a warmer and wetter future; two future carbon dioxide ("$CO_2$") scenarios—one with no reductions in $CO_2$ emissions and one with a peak in 2040 followed by a significant decline in $CO_2$ emissions; and two 29-year time intervals—2040 to 2069 and 2070 to 2099. Terrestrial locations were assigned climate resilience ranks ranging from 1 (low resilience or low probability that the terrestrial location will contain climate refugia) to 5 (high resilience or high probability that the terrestrial location will contain climate refugia) (CDFW 2018a).

Resiliency is an important consideration when establishing compensatory mitigation. The terrestrial climate change resilience rank from the ACE dataset (CDFW 2018a) is presented on Figure 2-6. Most of the GAI is characterized by climate resilience with Ranks 3 and 4, with higher resilience in the Mendocino Forest in the northeastern part of the GAI. Lower resilience is observed in the southern part of the GAI in Sonoma County.

## 2.6 Land Cover Types

General land cover types are depicted on the maps provided in Appendix D, *Land Cover Types*. Land cover types in the GAI were extracted from the SAMNA, which developed its vegetation data layer by merging CDFW's California Wildlife Habitat Relationships ("CWHR") Vegetation Classification and Mapping Program GIS database, the USFS Classification and Assessment with LandSat of Visible Ecological Groupings, and the California Department of Forestry and Fire Protection vegetation layer (Caltrans 2021c). Based on these data, tree-dominated habitats account for the largest habitat type, encompassing 72.0 percent of the GAI, with montane hardwood the most common. Herbaceous-dominated habitats account for 13.9 percent of the GAI, with annual grassland the most common. Shrub-dominated habitats account for 7.3 percent of the GAI, with mixed chaparral the most common. Developed and non-vegetated habitat types (barren areas) combined account for 6.1 percent of the GAI, with cropland the most common. Aquatic habitats account for 0.6 percent of the GAI, with lacustrine the most common (Table 2-3, Appendix D). Land cover is generally shown on Figure 2-7.

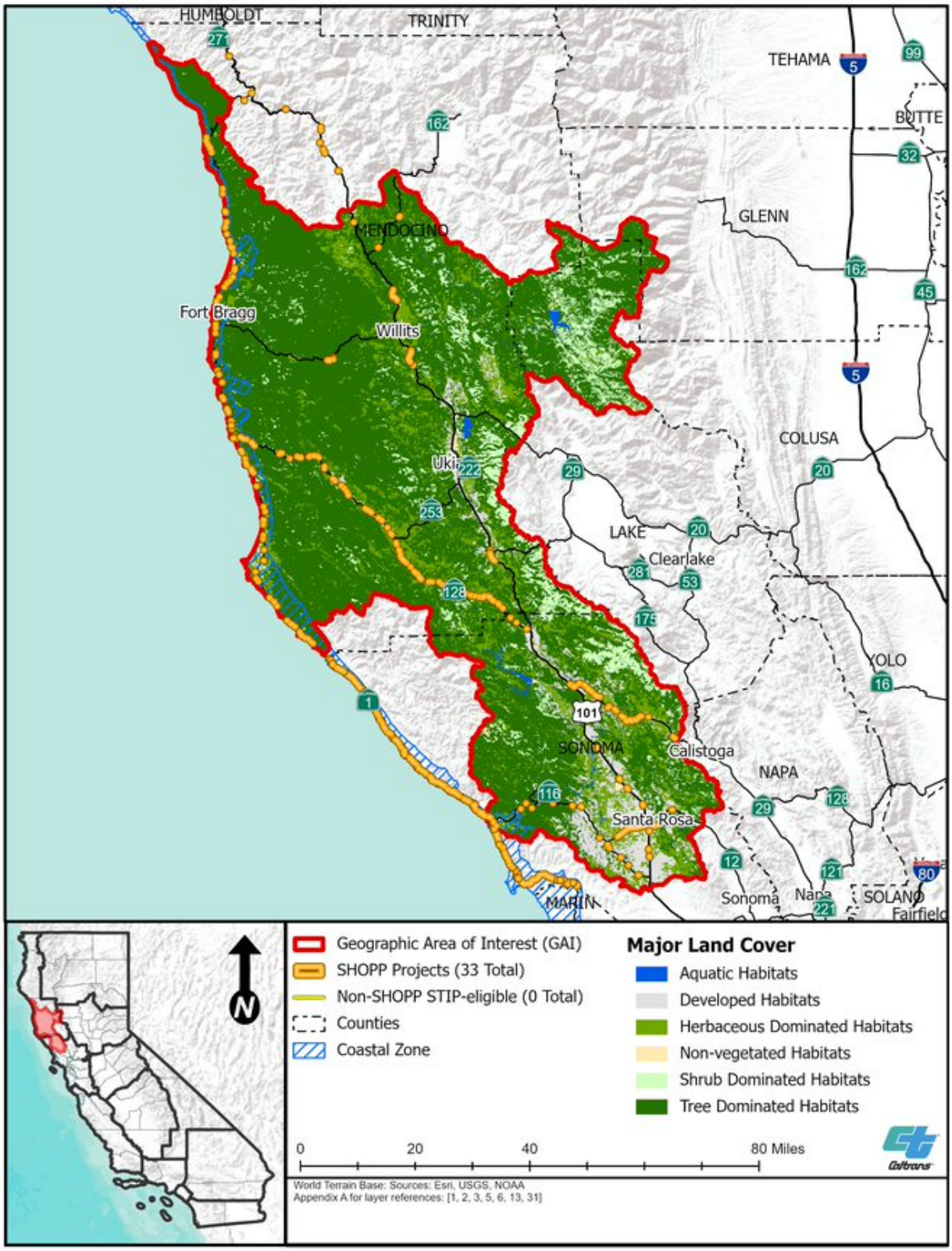
## Table 2-3. Land Cover Types

| CWHR Habitat Type | Acres[a] | Cover as Percentage of GAI[b] |
|---|---|---|
| **Tree-dominated Habitats** | **1,567,348** | **71.99** |
| Blue Oak Woodland | 6,199 | 0.28 |
| Blue Oak-Foothill Pine | 10,967 | 0.50 |
| Closed-Cone Pine-Cypress | 35,186 | 1.62 |
| Coastal Oak Woodland | 25,985 | 1.19 |
| Douglas Fir | 129,786 | 5.96 |
| Eucalyptus | 544 | 0.02 |
| Jeffrey Pine | 350 | 0.02 |
| Klamath Mixed Conifer | 192 | 0.01 |
| Montane Hardwood | 548,413 | 25.19 |
| Montane Hardwood-Conifer | 310,626 | 14.27 |
| Montane Riparian | 8,863 | 0.41 |
| Ponderosa Pine | 11,958 | 0.55 |
| Red Fir | 527 | 0.02 |
| Redwood | 384,661 | 17.67 |
| Sierran Mixed Conifer | 87,291 | 4.01 |
| Valley Foothill Riparian | 1,645 | 0.08 |
| Valley Oak Woodland | 1,543 | 0.07 |
| White Fir | 2,612 | 0.12 |
| **Shrub-dominated Habitats** | **159,380** | **7.32** |
| Alpine Dwarf-Shrub | 93 | <0.01 |
| Chamise-Redshank Chaparral | 22,995 | 1.06 |
| Coastal Scrub | 9,388 | 0.43 |
| Mixed Chaparral | 119,008 | 5.47 |
| Montane Chaparral | 7,895 | 0.36 |
| **Herbaceous-dominated Habitats** | **303,399** | **13.94** |
| Annual Grassland | 238,481 | 10.95 |
| Fresh Emergent Wetland | 129 | 0.01 |
| Pasture | 63,079 | 2.90 |
| Perennial Grassland | 1,382 | 0.06 |

| CWHR Habitat Type | Acres[a] | Cover as Percentage of GAI[b] |
|---|---|---|
| Saline Emergent Wetland | 13 | <0.01 |
| Wet Meadow | 315 | 0.01 |
| **Aquatic Habitats** | **13,960** | **0.64** |
| Estuarine | 6 | <0.01 |
| Lacustrine | 10,072 | 0.46 |
| Marine | 12 | <0.01 |
| Riverine | 3,807 | 0.18 |
| **Developed Habitats** | **113,704** | **5.22** |
| Cropland | 65,243 | 3.00 |
| Deciduous Orchard | 18 | <0.01 |
| Orchard-Vineyard | 45 | <0.01 |
| Rice | 556 | 0.03 |
| Urban | 38,634 | 1.77 |
| Vineyard | 9,208 | 0.42 |
| **Non-vegetated Habitats** | **19,424** | **0.89** |
| Barren | 19,424 | 0.89 |
| **Total** | **2,177,215** | **100%** |

Source: Caltrans 2021d
[a] Numbers were rounded to the nearest whole number.
[b] Numbers were rounded to the hundredths.

**Figure 2-7. Major Land Cover[a]**




[a] For greater detail, see Appendix D.

## 2.7 Invasive Species

Both invasive plant and animal species are known to occur in the GAI. Invasive species include plants and animals that are not native to an area, typically have high growth and reproductive rates, and are able to outcompete native plants and animals, often because of a lack of natural predators or controls (FWS 2012; National Wildlife Federation 2019). Invasive species may affect native species, including special-status species, by directly competing for resources, preying on native species, introducing or spreading diseases, reducing the complexity and biodiversity of ecosystems, altering soil chemistry and water availability, and increasing wildfire potential (FWS 2012).

Three organizations maintain invasive species databases for California. The Invasive Species Council of California maintains a list of invasive plant and animal species throughout the state of California (California Invasive Species Advisory Committee 2010). The California Department of Food and Agriculture ("CDFA") also maintains a list of noxious weeds for California (CDFA 2023). The California Invasive Plant Council ("Cal-IPC") maintains a California invasive plant inventory that categorizes nonnative plant species based on the severity of their potential ecological impacts (Cal-IPC 2022).

Nonnative invasive plant pathogens occur in the GAI. The pathogen that causes sudden oak death (*Phytophthora ramorum*), a water mold, is particularly problematic in north coast redwood forests and has killed millions of oaks and tanoaks (*Lithocarpus densiflorus*) along the California coast (California Oak Mortality Task Force 2019; CDFW 2015). This pathogen infests a range of shrub and tree host species, causing branch and shoot dieback and leaf spots. It spreads aerially by wind and can survive in infested plant material, litter, soil, and water (Goheen et al. 2006).

In the GAI, invasive plant species have been specifically identified as threats or stressors to terrestrial and aquatic biological resources. Nonnative, invasive plant species with a high ranking by Cal-IPC are those that have the most severe ecological effects and are the most widely distributed geographically, although species with a moderate or limited ranking can also have negative local ecological effects.

Invasive plant species in the GAI that are identified as problematic in the SWAP or the Cal-IPC inventory include, but are not limited to, tree-of-heaven (*Ailanthus altissima*), sweet vernal grass (*Anthoxanthum odoratum*), giant reed (*Arundo donax*), wild oats (*Avena barbata* and *A. fatua*), false brome (*Brachypodium distachyon*), black mustard (*Brassica nigra*), ripgut brome (*Bromus diandrus*), red brome (*Bromus rubens*), woolly distaff thistle (*Carthamus lanatus*), purple starthistle (*Centaurea calcitrapa*), tocalote (*Centaurea melitensis*), yellow starthistle (*Centaurea solstitialis*), bull thistle (*Cirsium vulgare*), poison hemlock (*Conium maculatum*), pampas grass (*Cortaderia jubata*), hedgehog dogtailgrass (*Cynosurus echinatus*), Scotch broom (*Cytisus scoparius*), common and Fuller's teasel (*Dipsacus fullonum* and *D. sativus*), medusahead (*Elymus caput-medusae*), tall fescue (*Festuca arundinacea*), rattail sixweeks grass (*Festuca myuros*), Italian ryegrass (*Festuca perennis*), fennel (*Foeniculum vulgare*), French broom (*Genista monspessulana*), cutleaf geranium (*Geranium dissectum*), English ivy (*Hedera*

*helix*), common velvet grass (*Holcus lanatus*), Mediterranean barley (*Hordeum marinum*), hare barley (*Hordeum murinum*), rough cat's-ear (*Hypochaeris radicata*), pennyroyal (*Mentha pulegium*), parrotfeather (*Myriophyllum aquaticum*), Eurasian watermilfoil (*Myriophyllum spicatum*), hardinggrass (*Phalaris aquatica*), Himalayan blackberry (*Rubus armeniacus*), red sorrel (*Rumex acetosella*), Australian fireweed (*Senecio minimus* and *S. glomeratus*), Spanish broom (*Spartium junceum*), hedgeparsley (*Torilis arvensis*), common gorse (*Ulex europaea*), and big periwinkle (*Vinca major*) (Cal-IPC 2022; CDFW 2015).

Nonnative animals that are/may be present in the GAI and that can negatively affect aquatic species include New Zealand mudsnails (*Potamopyrgus antipodarum*), quagga mussels (*Dreissena bugensis*), zebra mussels (*Dreissena polymorpha*), largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), brown trout (*Salmo trutta*), brook trout (*Salvelinus fontinalis*), Sacramento pikeminnow (*Ptychocheilus grandis*), yellow perch (*Perca flavescens*), sunfish (*Lepomis* sp.), black crappie (*Pomoxis nigromaculatus*), white crappie (*Pomoxis annularis*), bullhead (*Ameiurus* spp.), Mississippi silversides (*Menida audens*), threadfin shad (*Dorosoma petenense*), and American bullfrog (*Rana catesbiana*) (CDFW 2015). Introduced nonnative animals such as bullfrogs and fish can negatively affect foothill yellow-legged frogs (*Rana boylii*) and other aquatic species through competition for food resources, acting as disease vectors, and predation (Hayes et al. 2016).

Nonnative animals that are/may be present in the GAI and that can negatively affect terrestrial wildlife through competition, predation, or parasitism include feral pigs (*Sus scrofa*), European starlings (*Sturnus vulgaris*), and brownheaded cowbirds (*Molothrus ater*) (CDFW 2015). Invasive animal species that are/may be associated with urban areas include common ravens (*Corvus corax*), domestic dogs (*Canis lupus familiaris*), domestic cats (*Felis catus*), Argentine ants (*Linepithema humile*), and fire ants (*Solenopsis invicta*) (CDFW 2015). Steller's jay (*Cyanocitta stelleri*) and common raven are native to California but are considered subsidized predators, benefiting from urbanization and human-altered habitats to increase their range.

## 2.8 Special-status Terrestrial Species

Special-status terrestrial species are discussed below, with additional detail provided in Appendix E, *Complete SAMNA Species Results*. Threatened and endangered fish species with the potential to occur in the GAI are discussed in Section 2.17.2.

Special-status terrestrial species with the potential to occur in the GAI were extracted from the SAMNA Reporting Tool's species-attributed vegetation data layer, which was developed using the CWHR (CDFW 2019), the Jepson Herbarium's floristic province layer, CDFW's RareFind 5 database (CDFW 2017), and other information (Caltrans 2018; Appendix E).

Special-status terrestrial species included in the SAMNA are those that are considered federally and/or state threatened or endangered species, state candidate threatened or

endangered species, state fully protected species, state species of concern, state rare species, and federal sensitive species (which includes species that are USFS sensitive and/or BLM sensitive). Based on a search of the SAMNA Reporting Tool's species-attributed vegetation layer, 78 non-fish special-status species have the potential to occur in the GAI (73 species in the Northern California Coast Ecoregion Section and 63 species in the Northern California Coast Ranges Ecoregion Section).

Although it is the best information currently available, the SAMNA Reporting Tool's species list is uncertain (Appendix E). The species-attributed list developed for the SAMNA Reporting Tool depends on a species having a defined geographic range within the CWHR or having occurrences documented in the California Natural Diversity Database (Caltrans 2021b). When CWHR home range and/or California Natural Diversity Database occurrence information is incorrect or out-of-date, the probability that a species will be misidentified as potentially present increases. Hence, SAMNA results go through a sensibility evaluation prior to being used to inform advance mitigation scoping (Appendix E). Further, although the SAMNA data layers and results are suitable to assist with advance mitigation project scoping, establishing compensatory mitigation credits approved by one or more natural resource regulatory agencies requires additional analysis and site-specific studies.

## 2.9 Critical Habitat

FWS and NMFS regulate impacts on critical habitat under the ESA. The ESA (16 USC § 1531–1544) defines critical habitat for a threatened or endangered species as (i) "specific areas within the geographical area occupied by the species at the time it is listed … on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection;" and (ii) "specific areas outside the geographical area occupied by the species at the time it is listed … upon a determination by the Secretary that such areas are essential for the conservation of the species." Further, the ESA clarifies that critical habitat "shall not include the entire geographical area which can be occupied by the threatened or endangered species." Critical habitat designations reflect a rigorous process. Before publishing the rule finalizing the critical habitat designation, FWS publishes proposals to designate critical habitat in the *Federal Register* and considers information received during the public comment period (FWS 2017).

The GAI includes federally designated final critical habitat for nine species (FWS 2021a):

- California red-legged frog (*Rana draytonii*)
- California tiger salamander (*Ambystoma californiense*)
- Central California coast ESU chinook salmon (*Oncorhynchus tshawytscha*)
- Central California coast ESU coho salmon (*Oncorhynchus kisutch*)
- Central California coast DPS steelhead (*Oncorhynchus mykiss*)
- Contra Costa goldfields (*Lasthenia conjugens*)
- Marbled murrelet (*Brachyramphus mamoratus*)

- Northern spotted owl (*Strix occidentalis caurina*)
- Tidewater goby (*Eucyclogobius newberryi*)

Critical habitat is an important consideration when establishing compensatory mitigation. Designated critical habitat for the terrestrial species is indicated on Figure 2-8. Designated critical habitat for the central California coast ESU chinook salmon, central California coast ESU coho salmon, and central California coast DPS steelhead are indicated on Figures 2-9 through 2-11.

Note that designated critical habitat represented by points on Figure 2-8 are units too small to depict at the regional level assessed in this RAMNA.

**Figure 2-8. Federally Designated Critical Habitat**

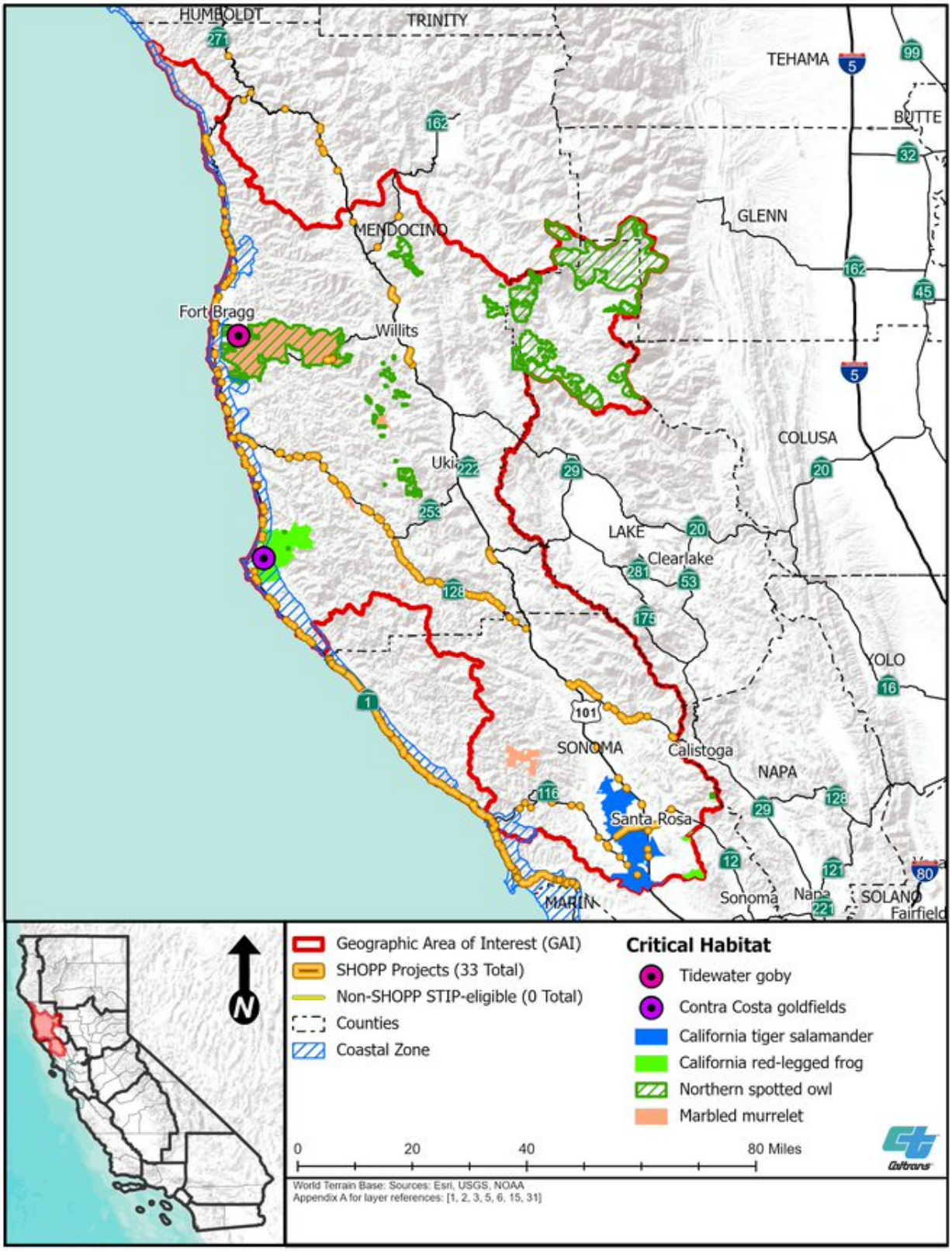


**Figure 2-9. Federally Designated Critical Habitat for Central California Coast ESU Chinook Salmon**

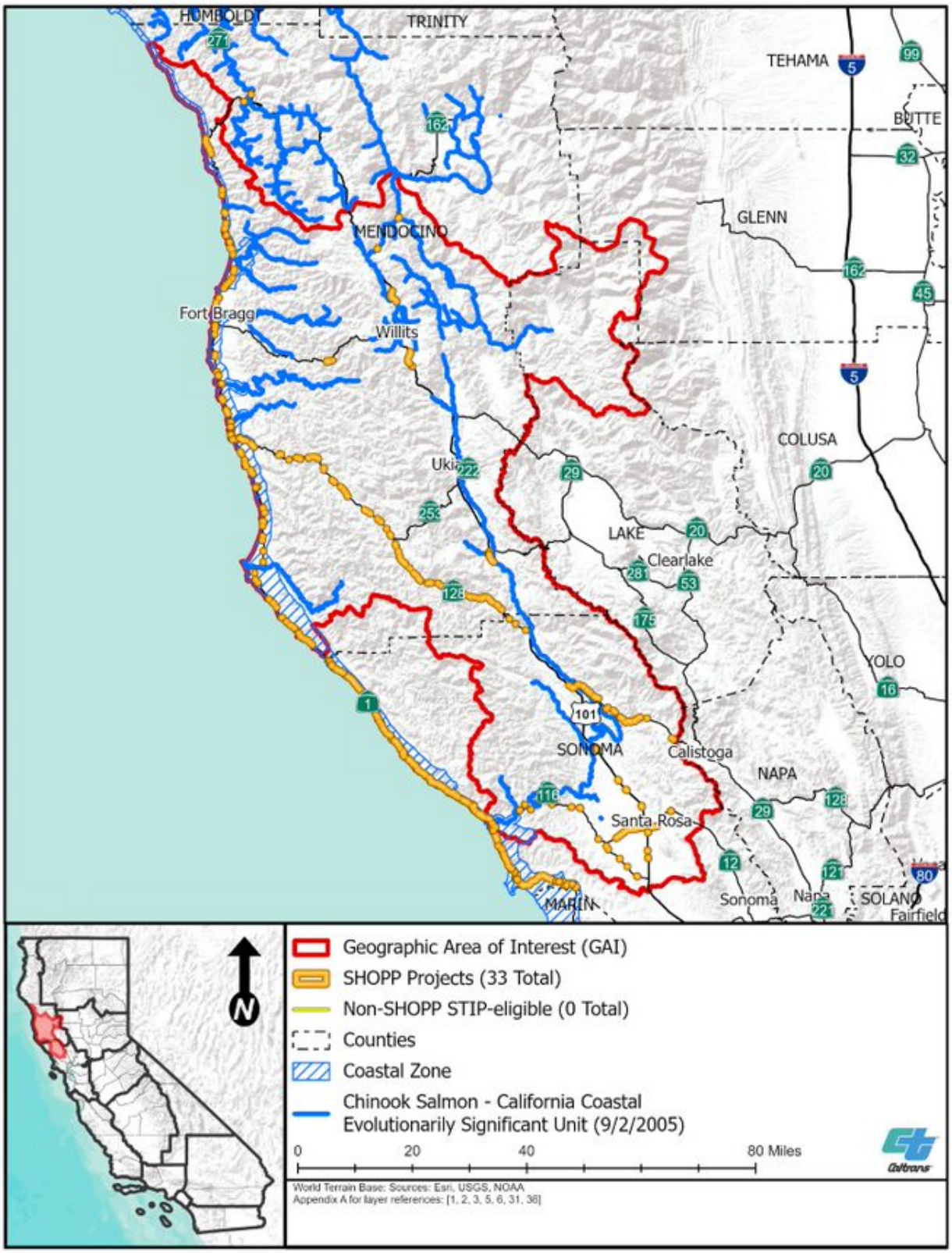


**Figure 2-10. Federally Designated Critical Habitat for Central California Coast ESU Coho Salmon**

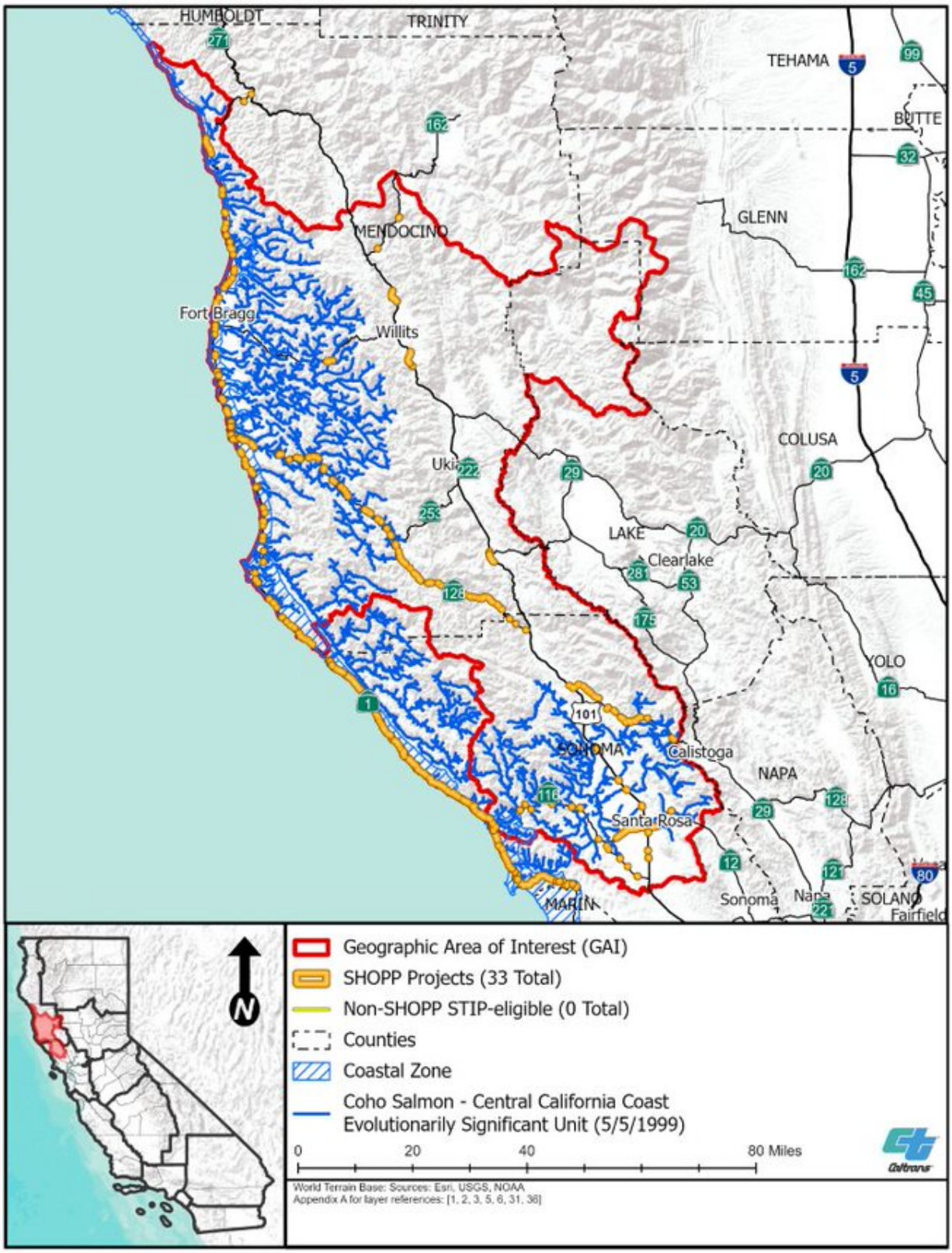
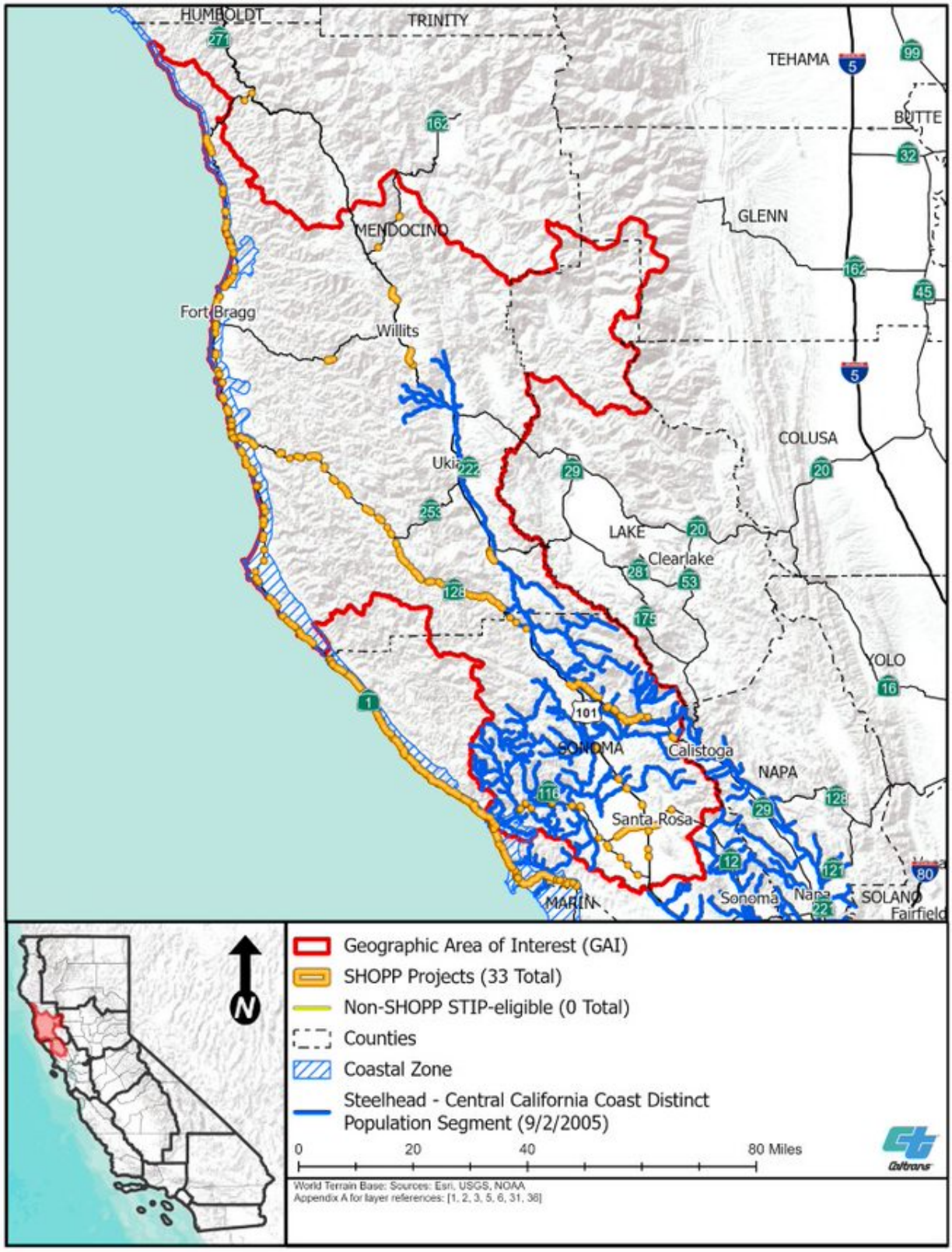


**Figure 2-11. Federally Designated Critical Habitat for Central California Coast DPS Steelhead**



## 2.10 Essential Fish Habitat

NMFS is responsible for ensuring impacts on essential fish habitat ("EFH") are addressed. EFH was defined by Congress in 1996 in an amendment to the Magnuson-Stevens Fishery Conservation and Management Act. EFH covers federally managed fish and invertebrate species that are not found strictly in fresh water and includes all aquatic habitat types where fish spawn, breed, feed, or grow to maturity (NMFS 2017). Habitat types include coral reefs, kelp forests, bays, wetlands, rivers that connect to the ocean, and deep ocean habitat. EFH is protected by imposing fishing limitations and requiring consultation with NMFS prior to any federal work with the potential to affect fish habitat. NMFS designates EFH for sharks, tuna, and other migratory species that cross regional boundaries. Habitat for other managed fish species is determined by regional fishery management councils (NMFS 2017). The GAI includes EFH for coho salmon, Chinook salmon, krill, finfish, coastal pelagic species, and groundfish (Figure 2-12).

### 2.10.1. Habitat Areas of Particular Concern

The Pacific Fishery Management Council identifies habitat areas of particular concern ("HAPCs") and recommends HAPCs to NOAA Fisheries consistent with the Magnuson-Stevens Act. HAPCs are a discrete subset of EFH that consist of areas considered a high priority for conservation, management, or research because they provide important ecosystem functions that can be especially sensitive to degradation as a result of human activities, can be stressed by development, or are notable because of their rarity. An area designated as an HAPC prioritizes and focuses conservation efforts rather than automatically requiring its protection or restrictions. HAPCs may be important for healthy fish populations; however, other EFH areas can also provide ecological functions necessary to support and maintain sustainable fisheries and a healthy ecosystem (NMFS 2021b).

Within the GAI, HAPCs include kelp canopy, rocky reefs, and seagrass near or in the Navarro River, Noyo Bay, Noyo River, Ten Mile River, and along most of the coastline. HAPCs that intersect the SHS are shown on Figure 2-13.

**Figure 2-12. Essential Fish Habitat**

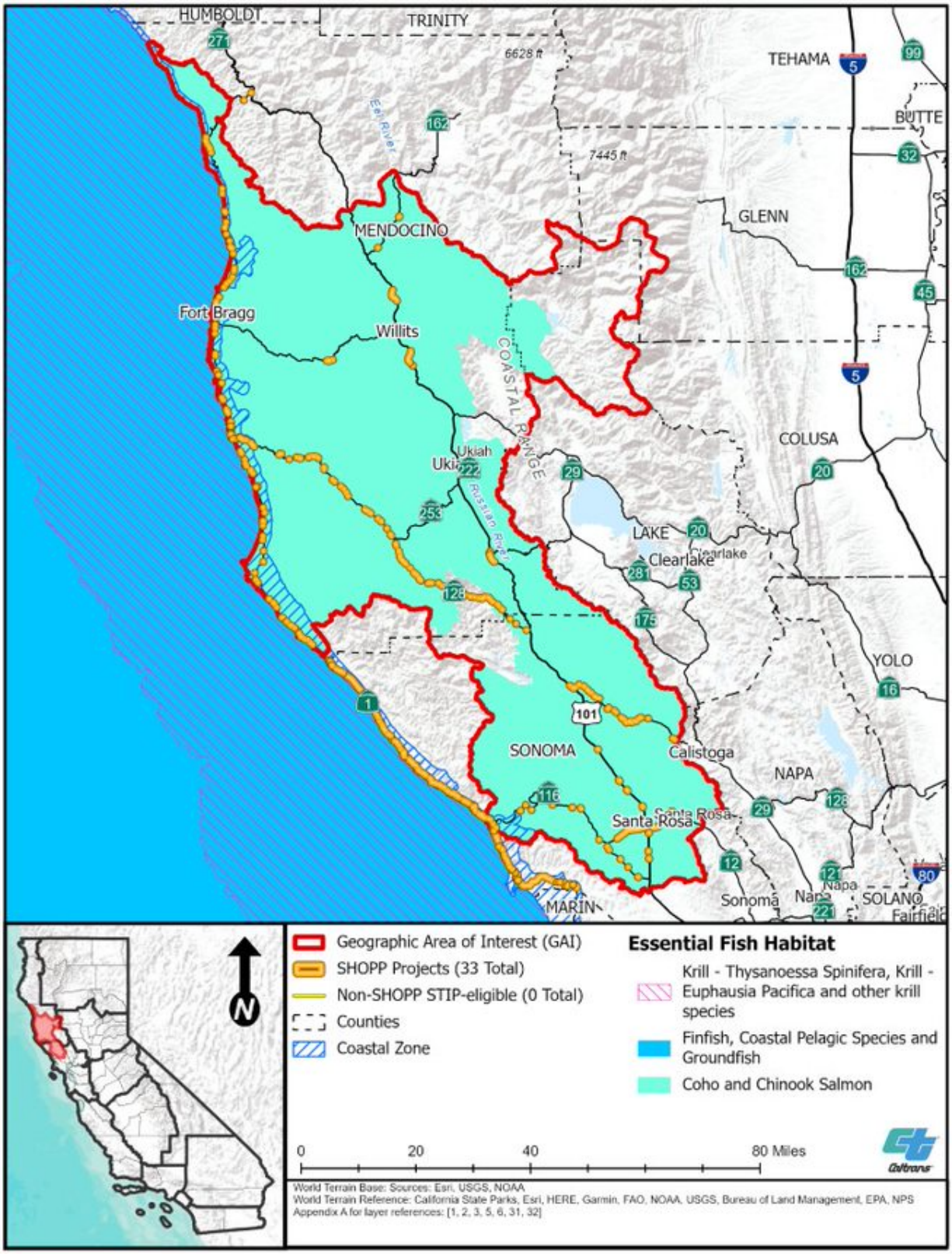
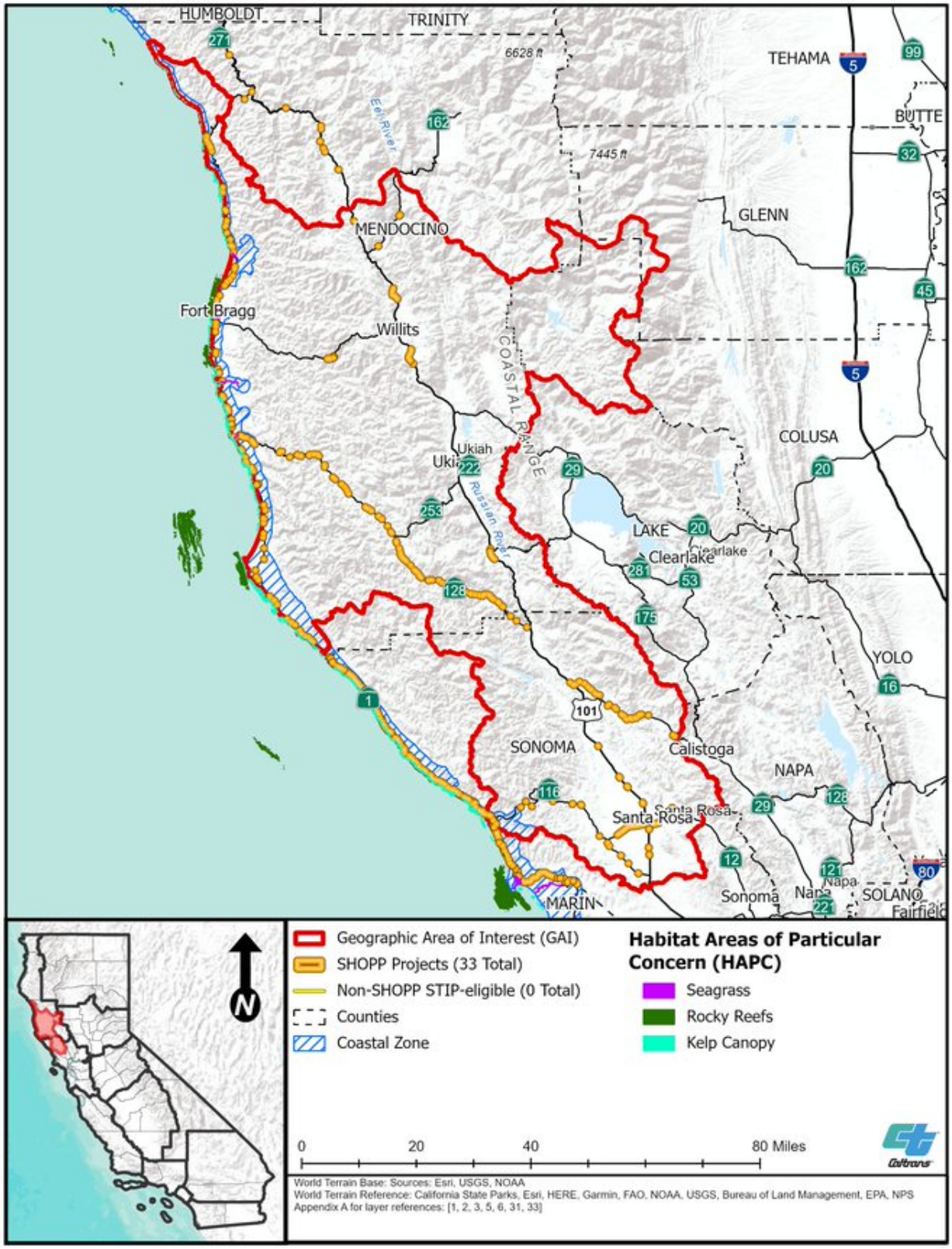


**Figure 2-13. Habitat Areas of Particular Concern**



## 2.11 Connectivity

Roads can be barriers to special-status wildlife species movement and block migration and access to and from suitable upstream habitat for special-status fish species. Improving habitat connectivity and permeability of the SHS may provide a mechanism for maintaining biodiversity in the face of California's human population growth and climate change (CDFW 2022).

### 2.11.1. Wildlife Movement

Caltrans identified four connectivity assessments applicable and relevant to the GAI: the California Essential Habitat Connectivity ("CEHC") Project, ACE, CDFW's *Restoring California's Wildlife Connectivity 2022* report, and Bay Area Critical Linkages Project. Each is briefly summarized below.

#### *California Essential Habitat Connectivity*

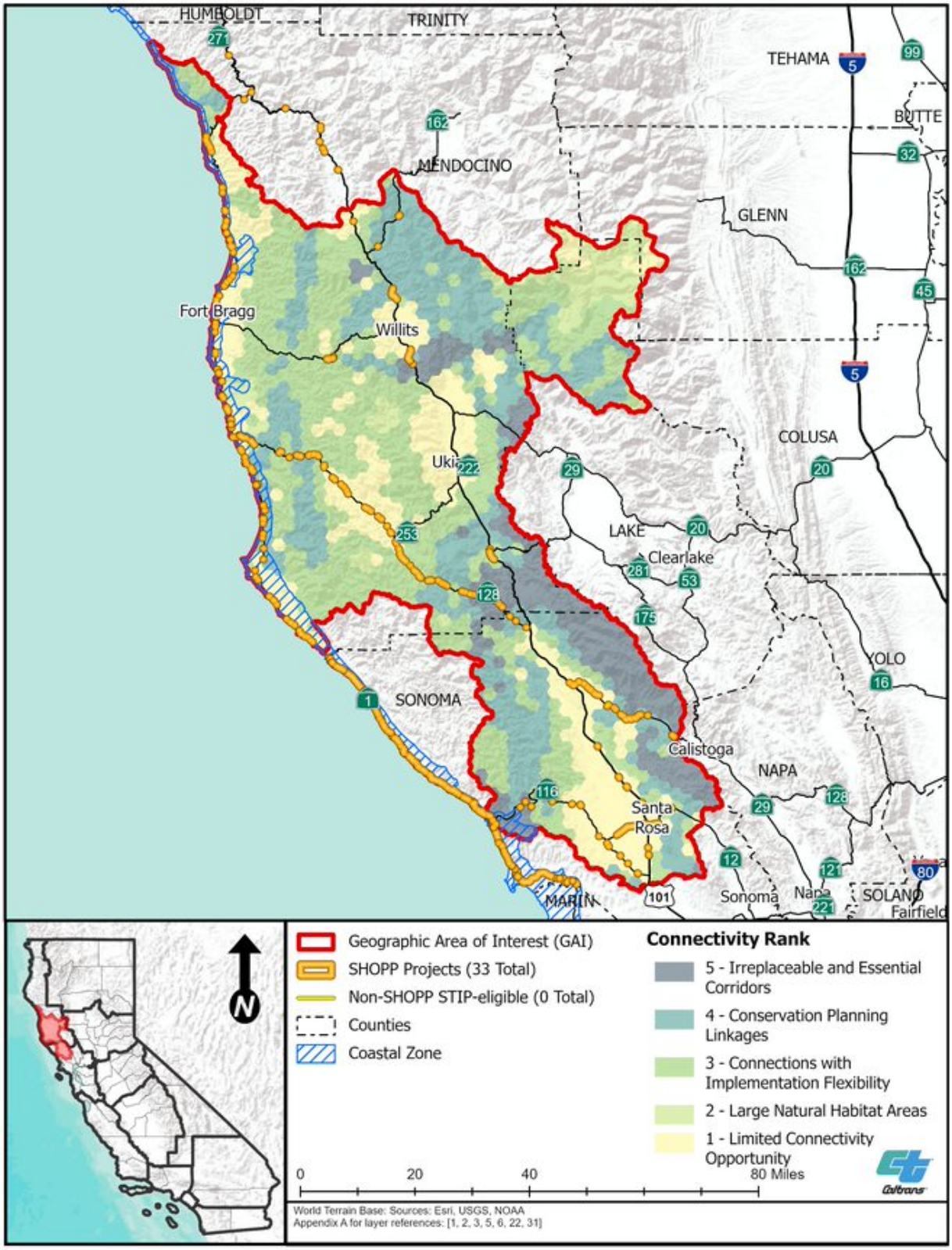
The CEHC Project, a statewide assessment commissioned by CDFW and Caltrans, identified large remaining blocks of intact habitat or natural landscape that support native biodiversity and modeled linkages or essential connectivity areas between them that need to be maintained, particularly as corridors for wildlife (CDFW 2018b; Spencer et al. 2010). These connectivity areas were broadly defined, focusing on ecological integrity rather than species-specific habitat needs, and included potential riparian connections between landscape blocks. For instance, connectivity areas were selected to connect existing reserves across land that has been highly altered and fragmented by agriculture, urbanization, and roads, which typically constrain wildlife movement (Spencer et al. 2010).

#### *CDFW's Areas of Conservation Emphasis*

CDFW's ACE version 3 terrestrial connectivity dataset builds on the CEHC Project and includes mapped corridors or linkages and where they occur in relation to large, contiguous natural areas (Figure 2-14). It also incorporates species-specific, fine-scale linkage information developed at a regional scale, where available, and includes areas that were not evaluated by the CEHC Project. Connectivity ranks in the terrestrial connectivity dataset were assigned as follows:

- Rank 5 (irreplaceable and essential corridors) – includes channelized areas and priority species movement corridors
- Rank 4 (conservation planning linkages) – habitat connectivity linkages mapped in the CEHC and fine-scale regional connectivity studies that are based on species-specific models and represent the best connections between core natural areas
- Rank 3 (connections with implementation flexibility) – areas with connectivity importance, including core habitat areas and areas on the periphery of mapped habitat linkages

**Figure 2-14. Terrestrial Connectivity**



- Rank 2 (large natural habitat areas) – large blocks of natural habitat (greater than 2,000 acres) with relatively intact connectivity
- Rank 1 (limited connectivity opportunity) – areas where land use limits connectivity, including some lakes

Connectivity is an important consideration when establishing compensatory mitigation. Most of the planned SHOPP transportation projects occur in areas with a connectivity rank of 1, 3 or 4, and fewer planned transportation projects occurring in areas with a connectivity rank of 2 or 5 (Figure 2-14).

### *CDFW's Restoring California's Wildlife Connectivity 2022 Report*

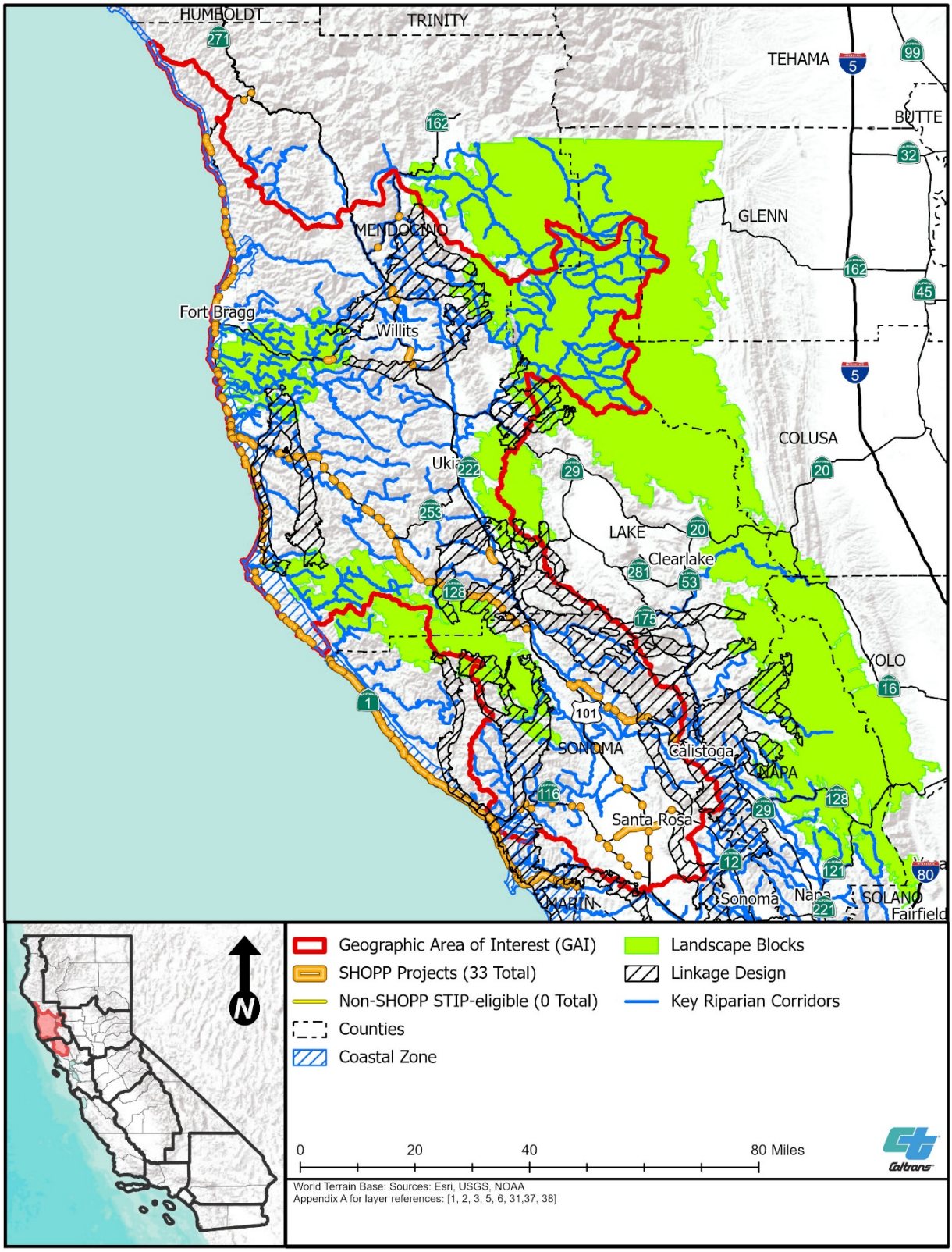
CDFW's *Restoring California's Wildlife Connectivity 2022* report identified priority wildlife connectivity project locations based on barriers created by linear infrastructure across the state, including the SHS, railroads, canals, high-speed rail alignments, and local roads, to help focus financial resources on improving wildlife movement (CDFW 2022). In addition to impeding wildlife movement, these barriers act as sources of mortality and affect population demographics, gene flow, resilience, and persistence of California's wildlife. Barriers were identified using existing connectivity and road crossing studies, collared-animal movement data, roadkill observations, and professional expertise. This report is an update to the 2020 priority barrier dataset; it includes an updated list of priority wildlife barriers in each region, identifies additional wildlife barriers across the state, and identifies two top priority barriers in each region. A total of 150 segments of linear infrastructure were identified as wildlife barriers, with 62 identified as priority wildlife barriers and 12 on the statewide top priority list (CDFW 2022).

Two priority wildlife movement barriers were identified in the GAI. These barriers and the target species for movement are (1) Santa Rosa Plain – Todd Road in Sonoma County (Sonoma DPS California tiger salamander) and (2) Highway 12 near Glen Ellen in Sonoma County (mule deer, mountain, and mesocarnivores) (CDFW 2022).

### *Bay Area Critical Linkages Project*

Available from CDFW's Biogeographic Information and Observation System, the Bay Area Critical Linkages Project report is the result of collaboration among conservation biologists, ecologists, wildlife and transportation agencies, land managers and planners, conservation organizations, and other experts to identify priority landscape linkages deemed vital for connectivity between existing wildlands in the San Francisco Bay Area. These linkages were identified for their potential to maintain ecological and evolutionary processes throughout the region by considering habitat and movement needs of specific species (Figure 2-15) (Penrod et al. 2013). The area covered by the Bay Area Critical Linkages Project extends beyond the GAI, primarily to the east and south.

**Figure 2-15. Bay Area Critical Linkages**



The goal of this project is to provide functional connections to maintain movements of wide-ranging species, such as mountain lion (*Puma concolor*), a species listed as a candidate under CESA in April 2020 and specially protected under the California Wildlife Protection Act of 1990, and American badger (*Taxidea taxus*), a California species of special concern. Each linkage design identifies potential barriers, opportunities for habitat restoration and improvement of road crossings, and management needs for the linkage (Penrod et al. 2013). The Bay Area Critical Linkages Project identifies many of the same landscape blocks as the CEHC Project; however, more key riparian connections are identified, and the linkages are more substantial, likely because they are species-specific (Figure 2-15).

### 2.11.2. Fish Passage

Article 3.5 of Chapter 1 of Division 1 of the SHC, also known as "Senate Bill 857" (Kuehl, Chapter 589 and Statute of 2005), prohibits the new construction or continued maintenance upgrades of SHS facilities that prevent or impede the passage of salmon and steelhead. Most salmon and steelhead in California are listed as either threatened or endangered, and barriers on the SHS further block fish from gaining access to upstream habitat.

SHC § 156.1 requires Caltrans to:

1. Provide an annual list of fish passage priorities for the SHS to the legislature. Fish Passage Annual Reports are available on the Caltrans Legislative Affairs website, and the most recent report is available from: https://dot.ca.gov/programs/legislative-affairs/reports.
2. Complete assessments of potential barriers to anadromous fish prior to commencing any transportation project using state or federal transportation funds.
3. Submit assessments to the California Fish Passage Assessment Database.
4. Construct all new transportation projects in a way that does not pose or create a barrier to fish passage.

The CESA and ESA list 10 ESUs/DPSs of salmon and steelhead as threatened or endangered. Barriers created by the SHS are known to block access to habitat for each of these species units. CDFW, in coordination with CalTrout, estimates that without increased intervention, to include habitat remediation and restoration, the following species will become extinct in California in the next 40 years:

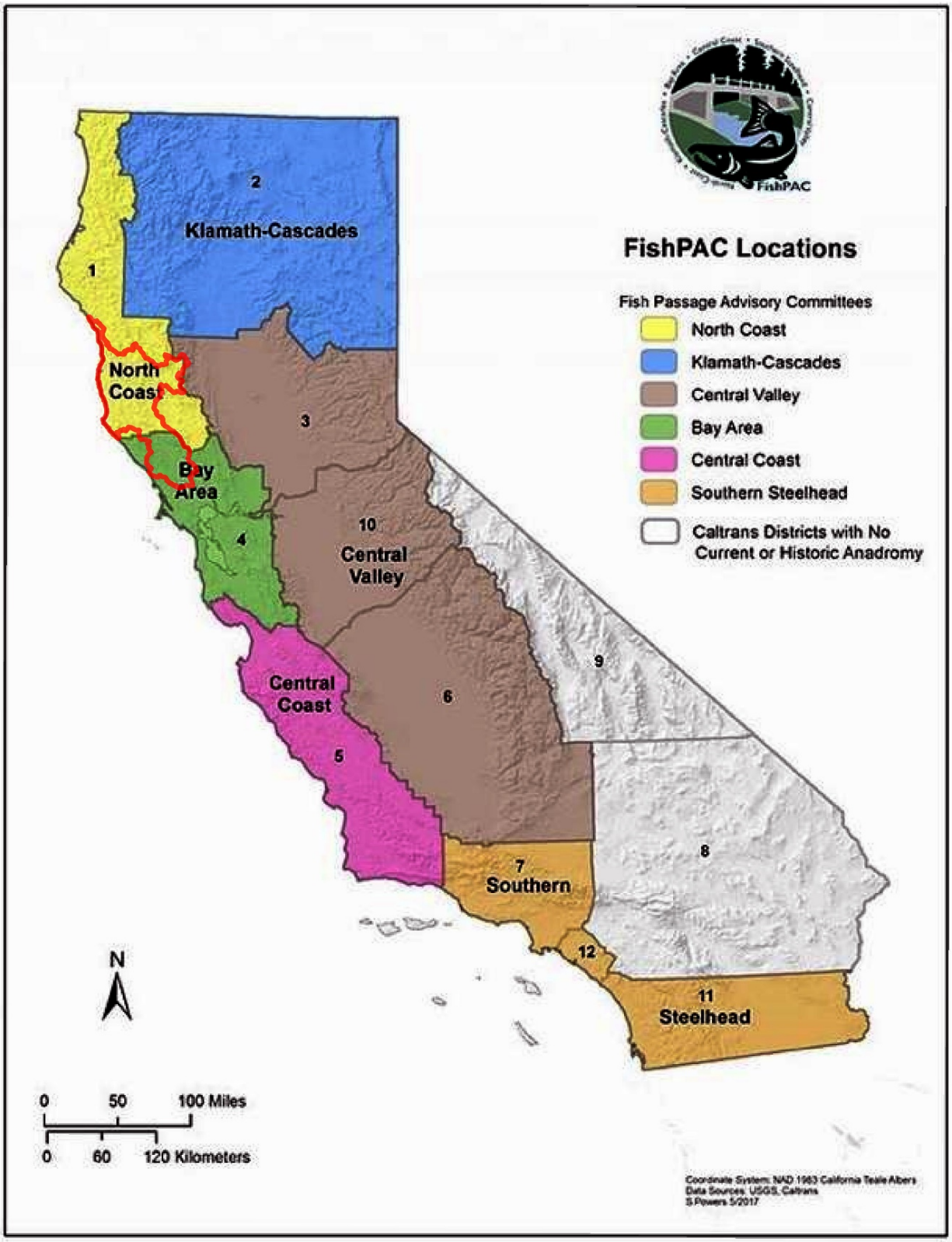
- Three identified species' units currently listed as state and/or federally endangered: central California coast ESU coho salmon, Sacramento River winter-run ESU Chinook salmon, and southern California DPS steelhead
- Seven identified species currently listed as state and/or federally threatened: SONCC ESU coho salmon, Central Valley spring-run ESU and California Coastal ESU Chinook salmon, and Central Valley DPS, Northern California DPS, central California coast DPS, and south-central California coast DPS steelhead

Figure 2-16 depicts the six California Fish Passage Advisory Committee (“FishPAC”) locations throughout the state. The FishPAC is a partnership between Caltrans, CalTrout, CCC, CDFW, FWS, NMFS, Pacific States Marine Fisheries Commission, and other local fish passage advocates. The FishPACs share science and data related to known fish barriers and prioritize SHS locations based on high-value habitat recovery.

FishPACs support the implementation of meaningful, long-term fish passage solutions for SHS projects within each FishPAC geographic area. FishPACs recommend technical solutions, explore options for accelerated delivery of transportation projects, and identify potential funding mechanisms for both new barrier removal projects and the long-term maintenance of existing fish passage facilities for the SHS. Stream simulation designs and full-span solutions to fish passage also consider and incorporate benefits for both terrestrial and wildlife species and can also help to address sediment transport, water temperature, dissolved oxygen, and stream erosion issues.

FishPACs help advance the desired outcomes of legislative guidance included in the SHC and promote collaborative interjurisdictional solutions. Long-term, full-span fish passage solutions are key to enhancing connectivity for both aquatic and terrestrial species in California's watersheds. Providing access to upstream habitats will help ensure fish populations can respond and adapt to climate change stressors such as drought, wildfire, sea-level rise, changes in stream flow, and water temperature. The FishPAC network of more than 200 fish passage experts, advocates, and partners throughout the range of salmon and steelhead work collaboratively to address legacy transportation barriers with long-term solutions that facilitate both fish passage and climate resilience.

**Figure 2-16. California Fish Passage Advisory Committee Locations**



The FishPAC helps Caltrans advance the desired outcomes of SHC § 156 (J. Walth, Caltrans, personal communication, 2020). Since 2006, in collaboration with FishPAC, Caltrans has partially or fully remediated 51 barriers on the SHS and identified 556 additional barriers to salmon and steelhead statewide. Results of Caltrans and FishPAC's efforts to locate, assess, prioritize, and remediate fish passage barriers on the SHS are documented in the Fish Passage Annual Reports prepared by Caltrans and submitted to the legislature as required by SHC § 156.1. As specified above, the FishPAC also provides SHS-related information to the Fish Passage Assessment Database, to be incorporated into its periodic updates.[2] Information regarding verified SHS fish passage barriers is available through the appropriate FishPAC.

## 2.12 Sub-basins

The Watershed Boundary Dataset maps the areal extent of surface water drainage in the U.S. It consists of a hierarchical system of nesting hydrologic units of various scales, each with an assigned HUC that is georeferenced to USGS topographic maps (USGS 2014). Each HUC classification consists of 2 to 12 digits. For example, 6-digit HUCs, or "HUC-6s," map to the basin level; 8-digit HUCs, or "HUC-8s," map to the sub-basin level; and 12-digit HUCs, or "HUC-12s," map to the sub-watershed level.

The SAMNA Reporting Tool expresses the landscape in terms of USGS HUC-8 sub-basins and, hence, information in this RAMNA is also presented by HUC-8 (Caltrans 2021b; USGS 2014). However, SWRCB and the RWQCBs do not exclusively use HUC-8 codes (California Department of Water Resources 2016). SWRCB and the RWQCBs also use the Calwater system (that is, hydrologic units, or "HUs") for state-level purposes such as assigning beneficial uses to waters. The Calwater system is a hierarchical system similar to USGS HUCs. Calwater levels begin with the division of the state into 10 hydrologic regions. Each hydrologic region is progressively subdivided into five smaller, nested levels: HUs, hydrologic areas, hydrologic sub-areas, super planning watersheds, and planning watersheds.

Appendix F, *Hydrologic Units*, provides a crosswalk between the HUC-8 and HU classification systems for each HUC-8 in the GAI. The GAI overlaps three sub-basins that loosely correspond to the Bodega, Cache Creek, Cape Mendocino, Eel River, Mendocino Coast, Putah Creek, Russian River, San Pablo, and Stony Creek HUs (Appendix F). Figure 2-17 shows the HUC-8 sub-basins and state-level HUs in the GAI. Figure 2-18 shows HUC-8 sub-basins and HUC-10 watersheds in the GAI.

[2] More information about the Fish Passage Assessment Database can be found in CalFish 2018.

**Figure 2-17. HUC-8 Sub-basins and HUs**

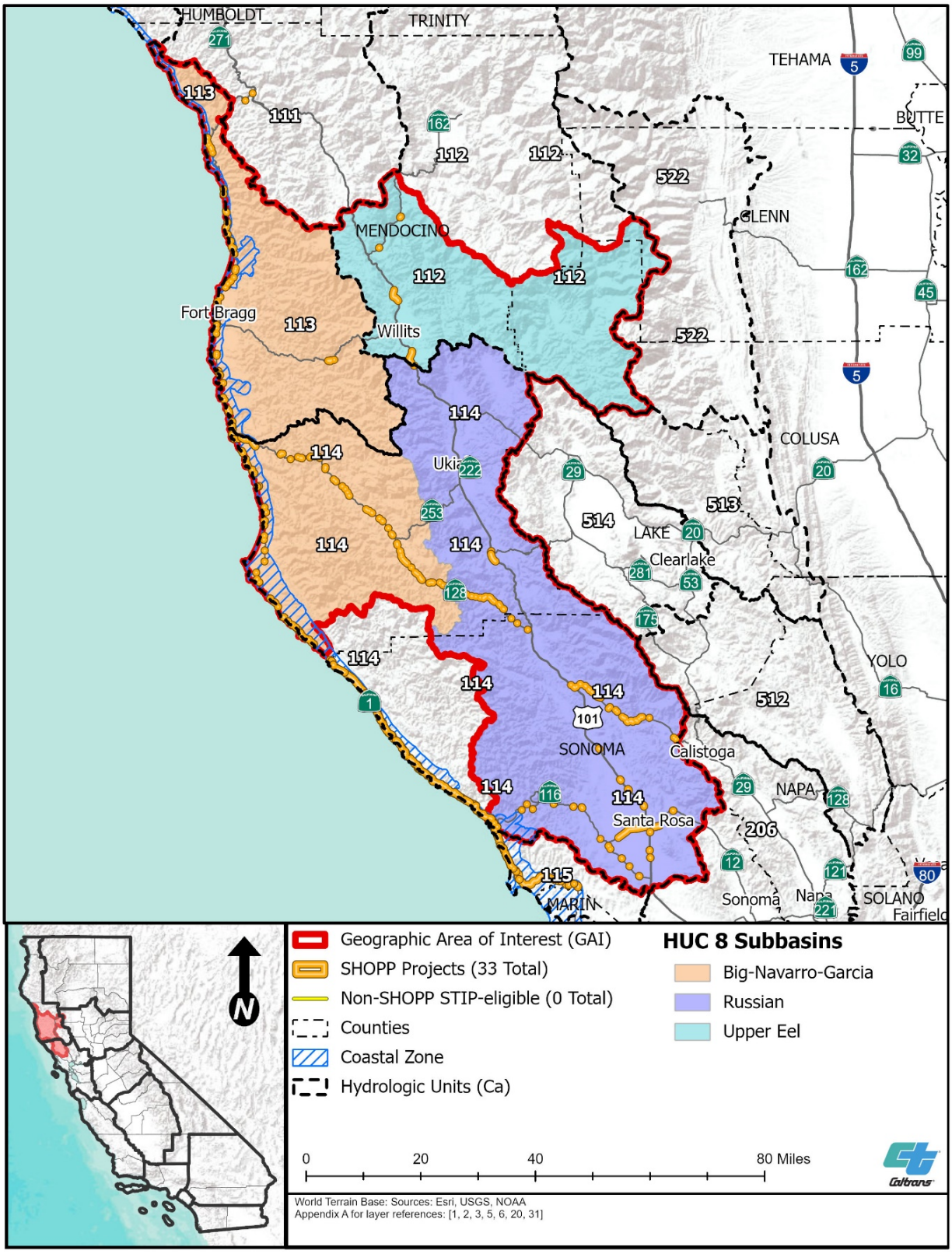
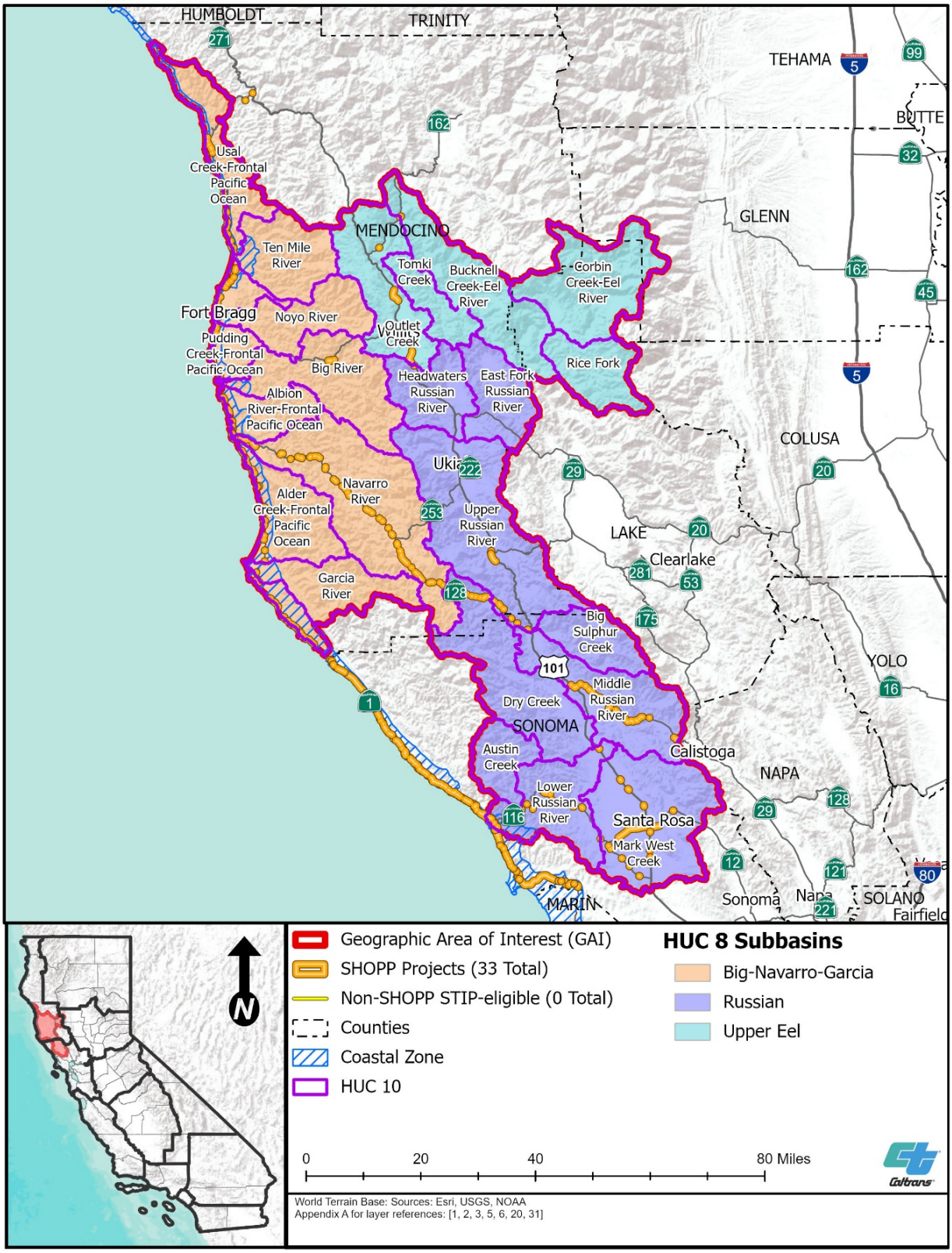


**Figure 2-18. HUC-8 Sub-basins and HUC-10 Watersheds**



## 2.13 Hydrology

The three sub-basins of the GAI drain an area of 2,204,544 acres (3,445 square miles) (Table 2-4). Described individually in Appendix F, *Hydrologic Units*, these sub-basins include 4,152 rivers and streams that traverse 4,572 miles in the North Coast and Central Valley RWQCB boundaries (Table 2-4, Figure 2-17). Sub-basin acreages shown in Table 2-4 may include areas outside of the GAI.

**Table 2-4. Sub-basins**

| Sub-basin Name | Sub-basin Code (HUC-8) | Drainage Area (acres)[a] | Rivers and Streams (count) | Total Reach Length (miles)[a] |
|---|---|---|---|---|
| Big-Navarro-Garcia | 18010108 | 800,371 | 1,387 | 1,630 |
| Russian | 18010110 | 950,363 | 1,493 | 1,805 |
| Upper Eel | 18010103 | 453,810 | 1,272 | 1,137 |
| **Total** | Not applicable | **2,204,544** | **4,152** | **4,572** |

Source: California Department of Water Resources
[a] Numbers were rounded to the nearest whole number.

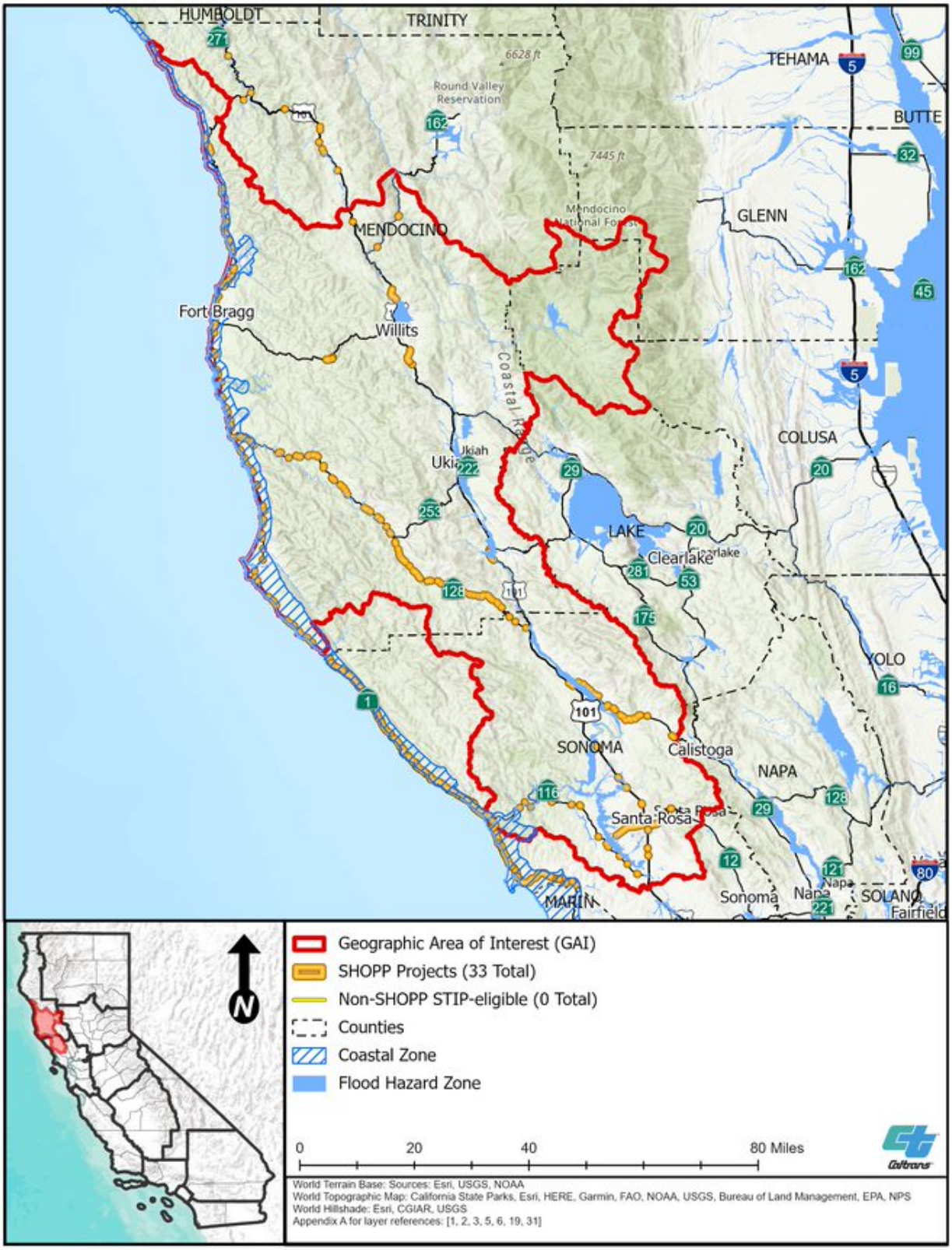
## 2.14 Flood Hazard Areas

As designated by the Federal Emergency Management Agency, a Special Flood Hazard Area is defined as the area of land that is covered by the floodwaters of a 100-year base flood (Federal Emergency Management Agency 2020). In accordance with Executive Order 11988, all federally approved projects that encroach into a 100-year base floodplain must try to:

- avoid support of incompatible floodplain development,
- minimize the impact of highway actions that adversely affect the base floodplain,
- restore and preserve natural and beneficial floodplain values, and
- be consistent with the standards/criteria of the National Flood Insurance Program of the Federal Emergency Management Agency (Caltrans 2015).

Flood hazard areas in the GAI are shown on Figure 2-19. Waterbodies associated with the majority of flood hazard risk in the GAI include Laguna de Santa Rosa, Russian River, and Santa Rosa Creek. This information is important for scoping advance mitigation projects and transportation projects undertaken in the GAI, which will need to comply with Executive Order 11988.

**Figure 2-19. Flood Hazard Areas**



## 2.15 Water Quality

Water quality objectives for surface waters and groundwater in the GAI are provided in the *Water Quality Control Plan for the North Coast Region* ("Basin Plan") (North Coast RWQCB 2018). Water quality objectives identified in the Basin Plan can be numerical or narrative. For example, the "chemical constituents" water quality objective for the protection of aquatic life and human health consists of federal water quality criteria for toxic "priority pollutants" under the California Toxics Rule (40 CFR § 131.38) and National Toxics Rule (40 CFR § 131.36). In contrast, the water quality objective for taste and odor is narrative. Undesirable tastes and odors in water are an aesthetic nuisance and can indicate the presence of other pollutants.

Beneficial uses for surface waters, groundwater, and coastal features are also identified in the Basin Plan (North Coast RWQCB 2018). If it cannot be avoided, a waterbody's beneficial uses may be affected by the construction, operation, and maintenance of highways and bridges. Impacts on wildlife and aquatic resources can be adverse or beneficial. An example of an adverse impact would be the introduction of a variety of pollutants, including sediments, heavy metals, hydrocarbons, and toxic substances (EPA 2005). An example of a beneficial impact would be repairs or retrofits that improve permeability or flows. Hence, this RAMNA considers beneficial uses identified for waterbodies located in the GAI relevant to the RAMNA when they support the preservation and enhancement of wildlife habitat and aquatic resources and are consistent with the AMP's objective to protect natural resources through transportation project mitigation (Table 2-5).

**Table 2-5. Beneficial Uses**

| Beneficial Use | North Coast Basin Plan | Relevant to RAMNA?[a] |
|---|---|---|
| Agricultural supply | Applicable | No |
| Aquaculture | Applicable | No |
| Cold freshwater habitat | Applicable | Yes |
| Commercial and sport fishing | Applicable | No |
| Estuarine habitat | Applicable | Yes |
| Flood peak attenuation/flood water storage | Applicable | Yes |
| Freshwater replenishment | Applicable | Yes |
| Groundwater recharge | Applicable | Yes |
| Hydropower generation | Applicable | No |
| Industrial process supply | Applicable | No |
| Industrial service supply | Applicable | No |
| Inland saline water habitat | Applicable | Yes |
| Marine habitat | Applicable | Yes |

| Beneficial Use | North Coast Basin Plan | Relevant to RAMNA?[a] |
|---|---|---|
| Migration of aquatic organisms | Applicable | Yes |
| Municipal and domestic supply | Applicable | No |
| Native American culture | Applicable | No |
| Navigation | Applicable | No |
| Non-contact water recreation | Applicable | No |
| Preservation of ASBS | Applicable | Yes |
| Rare, threatened, or endangered species | Applicable | Yes |
| Shellfish harvesting | Applicable | Yes |
| Spawning, reproduction, and/or early development | Applicable | Yes |
| Subsistence fishing | Applicable | No |
| Warm freshwater habitat | Applicable | Yes |
| Water contact recreation | Applicable | No |
| Water quality enhancement | Applicable | Yes |
| Wetland habitat | Applicable | Yes |
| Wildlife habitat | Applicable | Yes |

Source: North Coast RWQCB 2018
[a] Beneficial uses are relevant to the RAMNA when they support the preservation and enhancement of wildlife habitat and aquatic resources and are consistent with the AMP's objective to protect natural resources through transportation project mitigation.

Through habitat and other improvements, advance mitigation projects have the potential to contribute to compliance with the SWRCB CWA Section 303(d) List of Total Maximum Daily Load Priority Schedule. For example, fish passage projects in impaired watersheds that increase road/stream crossing capacity, improve the alignment of the crossing, or implement weirs, baffles, or other grade/velocity-control devices at undersized road/stream crossings will improve sediment transport and reduce scour, thereby improving water quality. Similarly, culvert replacement projects that increase flow and capacity would also reduce scour and improve sediment transport, resulting in improved channel function and flow and improved water quality.

The CWA Section 303(d) list of impaired waters includes 37 waterbodies in the GAI (SWRCB 2021). This RAMNA considers a waterbody's CWA Section 303(d) impairment designation as relevant to the RAMNA when it is indicative of a waterbody's loss of a relevant aquatic resource-related beneficial use (Table 2-5). The primary sources of these impairments are rural and agricultural land uses, mining, silvicultural activities, sewage system and septic tank system discharges, and urban runoff. These waterbodies, their impairments, and whether total maximum daily loads ("TMDLs") have been established

are provided in Appendix G, *List of 303(d) Impaired Waters*. A RWQCB may need to consult with CDFW or other natural resource regulatory agencies to determine whether a beneficial use may be affected by a water quality-related decision.

## 2.16 Wild and Scenic Rivers

The purpose of the federal Wild and Scenic Rivers Act of 1968 (16 USC Chapter 28) and the state Wild and Scenic Rivers Act of 1972 (Public Resources Code § 5093.50) is to protect and enhance the wild, scenic, and recreational values of designated rivers (National Wild and Scenic Rivers System 2016; Water Education Foundation 2022). Rivers designated under the Wild and Scenic Rivers Act are classified as wild, scenic, or recreational. Wild river areas include rivers or sections of rivers that are free of impoundments, inaccessible except by trail, and have unpolluted waters. Scenic river areas include rivers or sections of rivers that are free of impoundments, have relatively undeveloped shorelines, and are accessible in some places by roads. Recreational river areas include rivers or sections of rivers that are readily accessible by road or railroad, have some development along shorelines, and may have impoundments or diversions.

The Eel River is the only nationally and state designated wild and scenic river in the GAI (National Wild and Scenic Rivers System 2016; Omnibus Public Land Management Act of 2009; Public Resources Code § 5093.50). The location of the Eel River is provided on Figure 2-20. On January 19, 1981, Congress designated 97 miles of the Eel River as wild, 28 miles as scenic, and 273 miles as recreational from the mouth of the river north of the GAI to 100 yards below Van Ardsdale Dam within the GAI (National Wild and Scenic Rivers System 2016, Figure 2-20).

## 2.17 Aquatic Resources

A high-level view of major aquatic resources in the GAI is provided on Figure 2-21, and detailed maps of aquatic resources are provided in Appendix H, *Aquatic Resource Locations*. For the purposes of advance mitigation planning, aquatic resources in the GAI include wetlands and non-wetland waters that may be subject to CCC, Corps, EPA, RWQCB, and/or CDFW regulations, as well as special-status fish that may be subject to CCC, CDFW, FWS, and/or NMFS regulations. Riparian habitat is discussed separately in Section 2.18.

The CCC regulates impacts on coastal wetlands and marine and aquatic resources, and these resources receive special protections under Coastal Act § 30230 et seq. Corps and EPA jurisdiction under Section 404 of the CWA includes any activity that may cause a discharge of dredged or fill material into waters of the U.S. (“WOTUS”), including wetlands. Corps jurisdiction also includes any work or structure affecting navigable WOTUS, pursuant to Section 10 of the Rivers and Harbors Act and 33 CFR § 329, respectively.

**Figure 2-20. Wild and Scenic Rivers in the GAI**

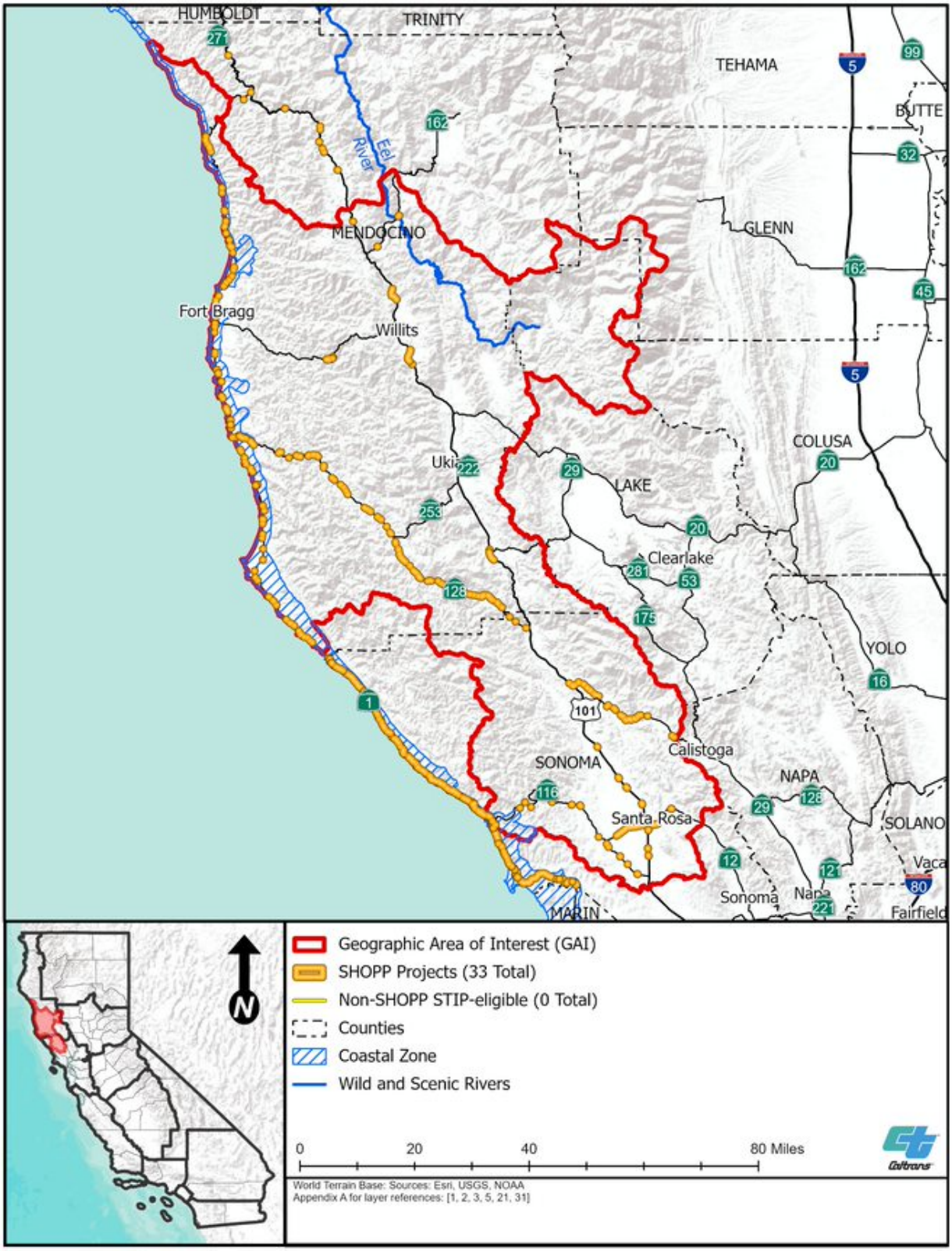
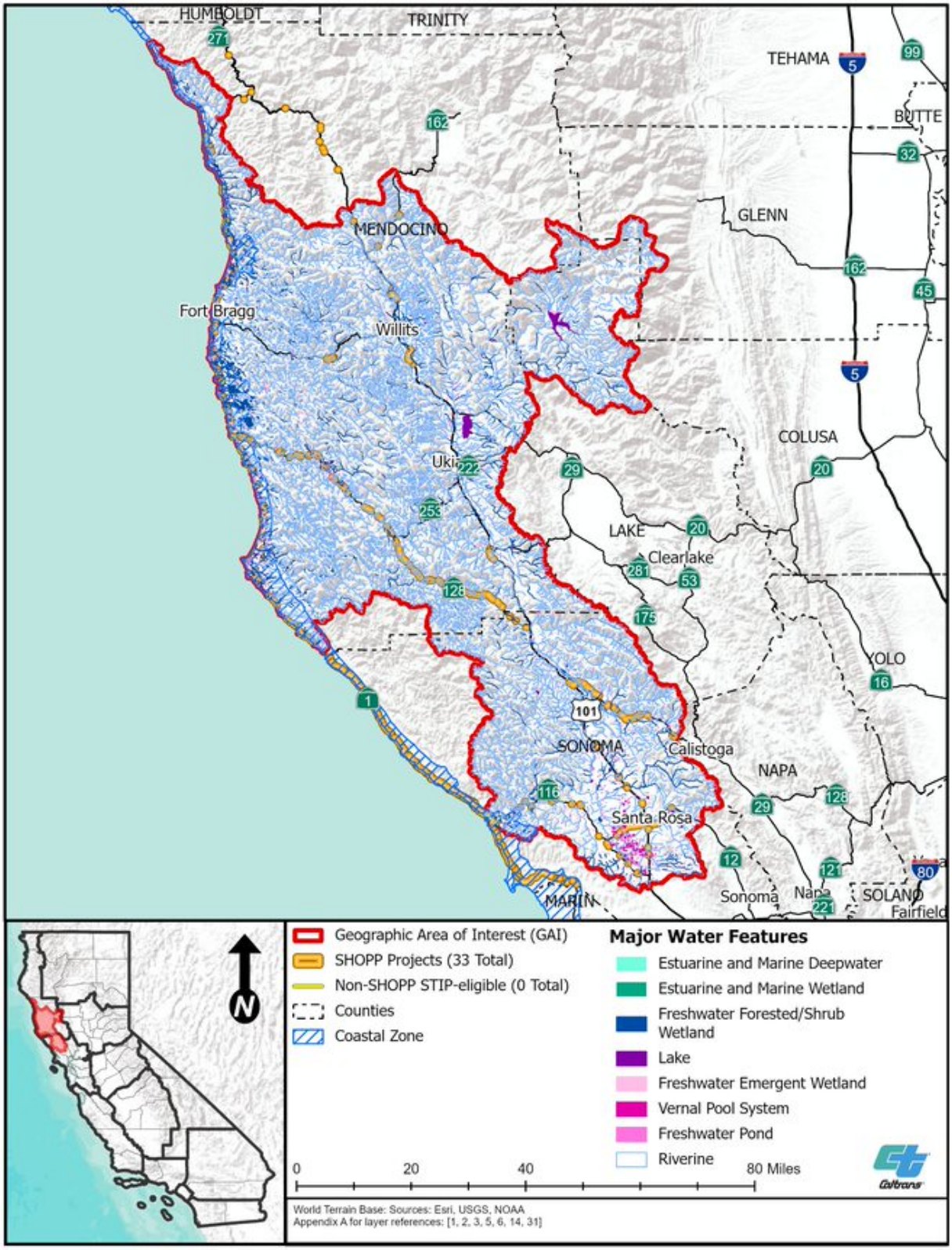


**Figure 2-21. Aquatic Resource Features and Major Stream Systems[a]**




[a] For greater detail, see Appendix H.

RWQCB jurisdiction includes any activity that may cause a discharge of waste to waters of the state, including WOTUS, such as rivers, streams, and lakes and ephemeral, intermittent, and perennial watercourses and wetlands, seeps, and springs. CDFW regulates any activity that may divert or obstruct the natural flow of a river, stream, or lake; change the bed, channel, or bank of any river, stream, or lake; use material from any river, stream, or lake;[3] and deposit or dispose of material into any river, stream, or lake.

### 2.17.1. Historical Context

Prior to European settlement, Native Americans utilized the fishery resources within the streams and surrounding areas. After European settlement, the primary land use for these areas focused on timber production and logging activities that altered the watersheds and surrounding areas, causing increased sedimentation and erosion on harvested slopes. Construction of roads and railroads to assist with logging activities also increased surface erosion and sedimentation within the streams. Several diversions and dams were built within the Upper Eel and Russian sub-basins for hydroelectric power generation and agriculture, including Cape Horn Dam, Scott Dam, and the Potter Valley Project. Most of the area was utilized for agriculture and grazing, which resulted in the establishment of a TMDL for impaired temperature and sediment conditions within the Navarro River. The area was converted to vineyards (NMFS 2016a).

Other land uses that have historically affected aquatic resources in the GAI include ranching, mining, and fur trapping. In the 1800s, ranchers drained wetlands and overgrazed riparian areas, miners increased sedimentation and released mercury into waterways, and fur trappers decimated beaver populations, resulting in altered waterways from the lack of beaver dams (Litton 2003).

### 2.17.2. Threatened and Endangered Fish Species

Special-status terrestrial species with the potential to occur in the GAI are discussed in Section 2.8. Threatened and endangered fish species are discussed below.

Threatened and endangered fish species with the potential to occur in the GAI were extracted from the SAMNA Reporting Tool's fish habitat layer, which was developed using the USGS National Hydrography Dataset and other information (Caltrans 2018, 2021g). Based on a search of the fish habitat layer, nine federally or state listed threatened or endangered fish species have the potential to occur in the GAI:

- federally threatened California coastal ESU Chinook salmon
- state threatened Clear Lake hitch (*Lavinia exilicauda chi*)
- federally and state endangered SONCC ESU coho salmon
- federally and state threatened central California coast ESU coho salmon
- federally threatened southern DPS green sturgeon (*Acipenser medirostris*)
- state threatened longfin smelt (*Spirinchus thaleichthys*)

[3] Rivers, streams, and lakes include ephemeral, intermittent, and perennial watercourses.

- federally threatened central California coast DPS steelhead
- federally threatened northern California DPS steelhead
- federally endangered tidewater goby

However, two of these species do not occur in the GAI: Clear Lake hitch (occurs east of the GAI) and SONCC ESU coho salmon (occurs north of the GAI).

The GAI does not include FWS- or NMFS-designated final critical habitat for federally listed fish species. The California coastal ESU Chinook salmon is found in the Albion, Big, Garcia, Gualala, Navarro, Noyo, Russian, and Upper Eel Rivers. The northern California DPS steelhead is found in the Albion, Big, Eel, Garcia, Gualala, Navarro, Noyo, and Ten Mile Rivers. The central California coast DPS steelhead is found in the Russian River (NMFS 2016a). The central California coast ESU coho salmon is found in streams between southern coastal Humboldt County to Aptos Creek in Santa Cruz (NMFS 2012). The southern DPS green sturgeon is found in coastal marine waters from Monterey Bay north to Cape Flattery, Washington (NOAA 2022). Longfin smelt was historically found within the Garcia and Gualala Rivers and is currently found in the Russian River (CDFW 2018c). Tidewater goby is found within the Ten Mile River, Virgin and Pudding Creeks near Fort Bragg, and Davis Pond, Brush Creek, and Lagoon Creek near Point Arena (FWS 2005a).

Although it is the best information currently available, the SAMNA Reporting Tool's fish species list is uncertain (Caltrans 2021b). Hence, although the SAMNA data layers and results are suitable to assist with advance mitigation project scoping, establishing compensatory mitigation credits approved by one or more natural resource regulatory agencies requires additional analysis and site-specific studies.

### 2.17.3. Wetlands

Wetland resources information for the GAI was extracted from the SAMNA Reporting Tool, which relies on the FWS National Wetlands Inventory maps (FWS 2021b) and data from the San Francisco Estuary Institute (2018) California Aquatic Resource Inventory (Table 2-6, Appendix H; Caltrans 2021e). These data were used to estimate the extent of wetlands in the GAI; however, the data layers are largely based on aerial imagery, have not been ground-truthed, provide no information on plant species associated with mapped areas, and, hence, are relatively coarse. Although suitable for advance mitigation project scoping, site-specific wetland studies that result in more detailed mapping and classification of wetland aquatic resources would be required for advance mitigation projects to establish compensatory mitigation credits. For example, under Section 404 of the CWA, the Corps considers wetlands to be jurisdictional WOTUS only if they have the three parameters of hydrology, hydrophytic vegetation, and hydric soils, and satisfy criteria to be connected to a traditionally navigable water.

Aquatic resource types outlined here follow the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). The SAMNA Reporting Tool wetlands data layer is separate from the land cover types discussed previously in

Section 2.6; therefore, total acreages of wetland land cover types presented in Table 2-3 may not align with those presented in Table 2-6 (Caltrans 2021e).

**Table 2-6. Wetland and Non-wetland Water Types in the GAI**

| Type | Big-Navarro-Garcia (acres) 18010108 | Russian (acres) 18010110 | Upper Eel (acres) 18010103 | Total (acres) |
|---|---|---|---|---|
| Depressional Natural Non-vegetated | Not mapped | 21.9 | Not mapped | **21.9** |
| Depressional Natural Vegetated | Not mapped | 22.8 | Not mapped | **22.8** |
| Depressional Perennial Non-vegetated | Not mapped | 246.4 | 75.7 | **322.1** |
| Depressional Perennial Unnatural Non-vegetated | <0.1 | Not mapped | Not mapped | **<0.1** |
| Depressional Seasonal | Not mapped | 2,277.2 | 0.5 | **2,277.7** |
| Depressional Seasonal Natural Forested | <0.1 | <0.1 | Not mapped | **<0.1** |
| Depressional Seasonal Natural Shrub-Scrub | <0.1 | <0.1 | Not mapped | **<0.1** |
| Depressional Seasonal Unnatural Non-vegetated | Not mapped | <0.1 | Not mapped | **<0.1** |
| Depressional Unnatural Non-vegetated | Not mapped | 503.0 | Not mapped | **503.0** |
| Depressional Unnatural Vegetated | Not mapped | 328.1 | Not mapped | **328.1** |
| Estuarine and Marine Deepwater | 358.0 | 345.3 | Not mapped | **703.3** |
| Estuarine and Marine Wetland | 1,321.1 | 43.9 | Not mapped | **1,365.0** |
| Freshwater Emergent Wetland | 2,110.6 | 900.2 | 442.4 | **3,453.2** |
| Freshwater Forested/Shrub Wetland | 6,656.1 | 3,281.4 | 472.3 | **10,409.8** |
| Freshwater Pond | 359.7 | 1,550.1 | 128.8 | **2,038.6** |
| Individual Vernal Pool | Not mapped | 781.5 | Not mapped | **781.5** |
| Lacustrine Unnatural Non-vegetated | Not mapped | 128.2 | Not mapped | **128.2** |
| Lacustrine Unnatural Vegetated | Not mapped | 0.6 | Not mapped | **0.6** |
| Lake | 38.4 | 2,246.9 | 2,086.0 | **4,371.3** |
| Marine Natural Intertidal Non-vegetated | 1.1 | Not mapped | Not mapped | **1.1** |
| Riverine | 7,640.2 | 10,078.0 | 4,525.0 | **22,243.1** |
| Riverine Natural | Not mapped | 218.1 | Not mapped | **218.1** |

| Type | Big-Navarro-Garcia (acres) 18010108 | Russian (acres) 18010110 | Upper Eel (acres) 18010103 | Total (acres) |
|---|---|---|---|---|
| Riverine Natural Open Water | Not mapped | 76.2 | Not mapped | **76.2** |
| Riverine Natural Vegetated | Not mapped | 40.8 | Not mapped | **40.8** |
| Riverine Unnatural Open Water | Not mapped | 3.4 | Not mapped | **3.4** |
| Riverine Unnatural Vegetated | Not mapped | 2.3 | Not mapped | **2.3** |
| Slope Natural | Not mapped | 208.1 | Not mapped | **208.1** |
| Slope Natural Forested | Not mapped | 504.1 | Not mapped | **504.1** |
| Slope Natural Vegetated | Not mapped | 25.6 | Not mapped | **25.6** |
| Slope Natural Wet Meadow Herbaceous | Not mapped | 623.2 | Not mapped | **623.2** |
| Slope Unnatural | Not mapped | 45.7 | Not mapped | **45.7** |
| Vernal Pool System | Not mapped | 1,827.0 | Not mapped | **1,827.0** |
| **Total[a]** | **18,485** | **26,330** | **7,731** | **52,546** |

Sources: Caltrans (2021e, 2021f)
[a] Rounded to the nearest whole number.

### *Coastal Wetlands*

Caltrans did not find any spatial data for the GAI that display "coastal wetlands" as defined by the CCC, in accordance with Public Resources Code § 30121 [14 California Code of Regulations § 13577(b)], which is a broader category that may include aquatic resources that the Corps would not define as wetlands. The SAMNA Reporting Tool's wetland layer does not report on coastal wetlands that meet the CCC's definition. It is likely that, if located in the coastal zone, all of the wetland types identified in Table 2-6 would be classified as coastal wetlands. An unknown additional number may also meet the definition of coastal wetland using the CCC's criteria; identification would have to occur in the field.

## 2.17.4. Non-wetland Waters

Other, non-wetland water resources information for the GAI was extracted from the SAMNA Reporting Tool, which relies on the USGS National Hydrography Dataset (Table 2-6, Appendix H; Caltrans 2021f). Although suitable for advance mitigation project scoping, site-specific studies that result in more detailed mapping and classification of other, non-wetland aquatic resources would be required for advance mitigation projects to establish compensatory mitigation credits. Similar to the wetlands data, the waters data layer is separate from the land cover types discussed previously in Section 2.6; therefore, total acreages of water land cover types presented in Table 2-3 may not align with those presented in Table 2-6 (Caltrans 2021f).

## 2.18 Riparian Habitat

Riparian habitats may include portions that are wetlands or non-wetland waters, but they also may be outside of these categories. California does not have a GIS layer for riparian ecotones and the natural resource regulatory agencies with authority in California do not have a definition for riparian habitat. Nevertheless, CWHR does include three riparian habitat types: montane riparian, valley foothill riparian, and desert riparian, which are included in the SAMNA's terrestrial vegetation data layer (Caltrans 2021d). In the GAI, riparian habitat types are a subset of the land cover types in Table 2-3 and include montane riparian and valley foothill riparian.

## 2.19 Areas of Special Biological Significance

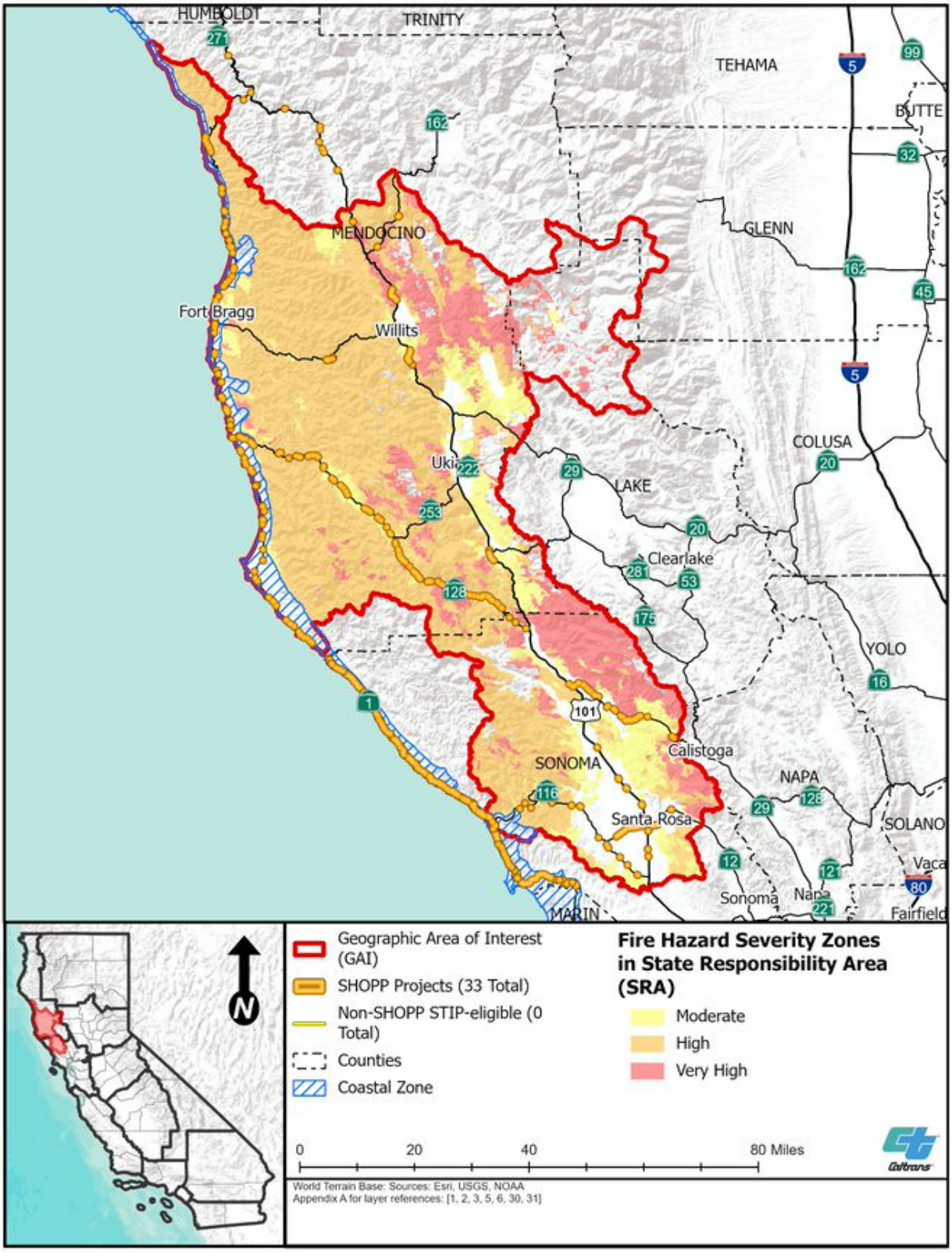
The California Ocean Plan, originally adopted by SWRCB in 1972 and updated most recently in 2019, establishes water quality objectives for ocean waters and provides the basis for the regulation of wastes discharged into coastal waters from both point and non-point sources (SWRCB 2019a). It defines ASBS as "those areas designated by the SWRCB as ocean areas requiring protection of species or biological communities…" and requires that waste be discharged a sufficient distance from an ASBS to ensure "maintenance of natural water quality" (SWRCB 2019a). According to Resolution Nos. 74-28, 74-32, and 75-61, SWRCB designated 34 ocean areas along the coast of California as ASBSs (SWRCB 2019a). These areas typically support a variety of aquatic life and often host unique individual species (SWRCB 2017). Figure 2-22 shows ASBSs located in proximity to the GAI. From north to south, the GAI's coastline is adjacent to the following ASBSs: (1) Kings Range ASBS, which encompasses almost 33 miles of coastline in Humboldt County (only a small portion of the ASBS is within the GAI); (2) Jughandle Cove ASBS, which occupies approximately 1.5 miles of shoreline between the cities of Fort Bragg and Mendocino in Mendocino County; and (3) Saunders Reef ASBS, which occupies approximately 1.6 miles of shoreline in Mendocino County (SWRCB 2017).

## 2.20 Fire Hazard Severity Zones

The California Department of Forestry and Fire Protection prepares Fire Hazard Severity Zone maps that classify the severity of fire hazards in California (Figure 2-23). These maps are developed by assigning a hazard score based on factors that influence fire likelihood and behavior, including fire history, existing and potential fuel, predicted flame length, blowing embers, terrain, and typical fire weather. Hazard scores are averaged over zone areas to result in a moderate, high, or very high zone class. As indicated on Figure 2-23, high fire hazard severity zones are located throughout the western part of the GAI with very high and moderate zones occurring within the northern Coastal Ranges. This information is important for scoping advance mitigation projects and transportation projects undertaken within the GAI and it may inform the types of materials that can be used in an area based on their fire resistance capabilities.

**Figure 2-22. Areas of Special Biological Significance in Relation to the GAI**

**Figure 2-23. Fire Hazard Severity Zones**



# 3. RELEVANT PLANS, POLICIES, AND REGULATIONS

This chapter summarizes the references applicable to the GAI that, when relevant, Caltrans will consult when conceptualizing advance mitigation project scopes informed by this RAMNA. Table 3-1 is organized by subject: laws and regulations, statewide and regional resource management plans, plans and permits focused on the species of mitigation need, resource agency land management plans (separated by agency), water resources plans and documents, county and city general plans, and other organization conservation and management documents. HCPs, NCCPs, and RCIS documents are discussed separately in Chapter 4, *Existing Mitigation Opportunities*, because they represent or support current compensatory mitigation credit purchase opportunities for Caltrans.

Table 3-1 provides the following information for each reference identified:

- Reference document title
- Status:
  - Final: The reference is completed.
  - Draft: The reference is not complete, and changes may occur when it is finalized.
  - In progress: A formal draft version has not been completed, and the document is being written.
  - In litigation: The reference is subject to at least one lawsuit and is not being revised.
  - Updated periodically: The reference is updated with new information on a somewhat frequent basis.
  - Not publicly available: The reference is known to exist but does not appear to be publicly available.
- Spatial data – whether a map is provided with the document
- Reference purpose – a summary of information relevant to advance mitigation planning and/or a summary of reference intent
- Link – where the reference can be found
- Date – when the reference was published or last updated

The list of relevant documents, policies, and regulations in Table 3-1 is not exhaustive. Additional relevant resources may be consulted by Caltrans as advance mitigation planning is conceptualized. For example, Local Coastal Programs (“LCPs”) are updated frequently. When conducting advance mitigation project scoping, Caltrans will check to determine whether it has the most up-to-date version of a particular reference.

## 3.1 Relationship to Goals and Objectives

As pointed out in Chapter 1, *Introduction*, the GAI for this RAMNA was selected by Caltrans District 1 based on the SAMNA results and other information. Caltrans District 1

specifically identified compensatory mitigation for bank swallow, SONCC and central California coast coho salmon ESUs, northern California DPS steelhead – summer-run, oak woodlands, and aquatic resources as historical and anticipated mitigation needs. Hence, Table 3-1 emphasizes documents related to the specified wildlife and aquatic resources, which, in turn, form the basis for the goals and objectives presented in Chapter 7, *Wildlife Resources Conservation Goals and Objectives*, and Chapter 8, *Aquatic Resources Conservation Goals and Objectives*. As much as practicable, however, Caltrans intends for any compensatory mitigation established in the GAI to support these specific wildlife and aquatic resources to benefit other wildlife and aquatic resources as well.

**Table 3-1. Comprehensive Plans, Agreements, Resource Management Plans, Policies, and Regulations Relevant to the GAI**

| Title | Status | Spatial Data | Reference Purpose | Link | Date |
|---|---|---|---|---|---|
| **State Laws, Guidelines, and Regulations** | See below | See below | See below | See below | See below |
| Barriers to Fish Passage SHC § 156 | Final | No | Article 3.5 of Chapter 1 of Division 1 of the SHC, also known as Senate Bill 857 (Kuehl, Chapter 589 and Statute of 2005), prohibits new construction or continued maintenance upgrades of SHS facilities to prevent or impede the passage of salmon and steelhead, the majority of which are listed as either threatened or endangered in California, and requires Caltrans to do the following:<br>▪ Provide an annual list of fish passage priorities for the SHS to the legislature.<br>▪ Complete assessments of potential barriers to anadromous fish prior to commencing any transportation project using state or federal transportation funds.<br>▪ Submit assessments to the Fish PAD.<br>▪ Construct all new transportation projects in a way that does not pose or create a barrier to fish passage.<br>Caltrans collaborates with the FishPAC to identify passage priority locations for the SHS. The FishPAC is a partnership between CDFW, NMFS, USFWS, CCC, CalTrout, Pacific States Marine Fisheries Commission, other local fish passage advocates, and Caltrans. | https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=156.&lawCode=SHC | 1/1/2006 (effective date) |
| California Coastal Act of 1976 | Updated periodically (by California legislature) | No | The California Coastal Act is the primary law that governs decisions of the CCC. It outlines, among other things, standards for development within the coastal zone. The California Coastal Act requires mitigation for impacts on coastal habitats and other types of coastal resource impacts—for example, visual impacts—that are outside the scope of this document. The CCC regulates potentially impactful projects within the coastal zone, primarily through the issuance of CDPs. In coastal local jurisdictions where the CCC has certified an LCP, the local government assumes CDP authority within its jurisdiction (with certain exceptions, such as some coastal wetlands, where the CCC retains original jurisdiction). LCPs are used by local governments to guide development in the coastal zone in coordination with the CCC. LCPs that overlap the GAI are listed in Appendix C of this RAMNA. | https://www.coastal.ca.gov/coastact.pdf | 10/9/2019 (last amended) |
| California Fish and Game Commission Wetlands Resources Policy | Updated periodically | No | California Fish and Game Commission's policy to seek to provide for the protection, preservation, restoration, enhancement, and expansion of wetland habitat in California. | https://fgc.ca.gov/About/Policies/Miscellaneous#Wetlands | 8/18/2005 (last amended) |
| California Water Boards 2010 Update to Strategic Plan 2008–2012 | Final | No | Update to strategic plan from the SWRCB and RWQCBs. Goals include implementing strategies to fully support beneficial uses for all water bodies listed in the 2006 report, improve and protect groundwater quality, increase sustainable local water supplies available for meeting beneficial uses by 1,725,000 acre-feet per year, comprehensively address water quality protection and restoration, improve transparency and accountability within the SWRCB and RWQCBs, enhance consistency across the SWRCB and RWQCBs, and ensure that the SWRCB and RWQCBs have access to information and expertise. | https://www.waterboards.ca.gov/water_issues/hot_topics/strategic_plan/docs/2010/final_strategic_plan_update_report_062310.pdf | 6/1/2010 |
| Caltrans Fish Passage Annual Legislative Report | Final | No | Report identifies priority fish passage barriers on the SHS. Priorities are determined through FishPAC collaboration and are based on the following:<br>▪ Species diversity – listed threatened and endangered salmon and steelhead species currently or historically present in the watershed;<br>▪ Habitat – suitable habitat quality and quantity above each crossing, relative to recovery of threatened and endangered species; and<br>▪ Best professional knowledge – professional, discretionary value for science-based information known to fisheries and engineering subject matter experts.<br>Subject matter experts include CDFW, NMFS, FWS, CCC, CalTrout, Pacific States Marine Fisheries Commission, other local fish passage advocates, and Caltrans. | https://dot.ca.gov/programs/legislative-affairs/reports | 10/1/2019 (most recent) |

| Title | Status | Spatial Data | Reference Purpose | Link | Date |
|---|---|---|---|---|---|
| CCC Regulations | Updated periodically | No | California Code of Regulations section that allows CCC to implement provisions of the Coastal Act. | https://www.law.cornell.edu/regulations/california/title-14/division-5.5 | 12/24/2021 (most recent update) |
| CCC Sea Level Rise Policy Guidance | Updated periodically | No | CCC's policy guidance document for integrating development projects in the coastal zone with sea-level rise projections for LCPs and CDPs. | https://www.coastal.ca.gov/climate/slrguidance.html | 11/7/2018 (last updated) |
| CESA | Updated periodically (by California legislature) | No | CESA prohibits the take of any species of wildlife designated by the California Fish and Game Commission as an endangered, threatened, or candidate species. CDFW may authorize the take of any such species by permit if the conditions set forth in FGC § 2081, subdivisions (b) and (c), are met. (See California Code of Regulations, Title 14, § 783.4.) | https://www.wildlife.ca.gov/Conservation/CESA | 9/10/2018 (last amended) |
| Definition and Delineation of Wetlands in the Coastal Zone | Final | No | Implemented by the CCC. Serves as a reference guide to help interpret CCC law and regulations, which, in part, define wetlands. Summarizes a wetland definition, set forth in the Coastal Act and California Code of Regulations, Title 14, Division 5.5, that uses a one-parameter approach by which any of the three Corps' indicators constitutes a wetland. This document also includes wetland delineation procedures. | https://documents.coastal.ca.gov/reports/2011/10/W4-10-2011.pdf | 10/5/2014 |
| Executive Order W-59-93 | Final | No | Governor of California's directive for a no net loss policy on the quantity, quality, and permanence of wetland acreages and values. | https://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/wrapp2008/executive_order_w59_93.pdf | 8/23/1993 |
| Native Plant Protection Act | Final | No | Enacted in 1977, the Act allows the California Fish and Game Commission to designate plants as rare or endangered. There are 64 species, subspecies, and varieties of plants that are protected as rare under the Native Plant Protection Act. The Act prohibits take of endangered or rare native plants but includes some exceptions for agricultural and nursery operations and emergencies, and after properly notifying CDFW for vegetation removal from canals, roads, and other sites; changes in land use; and in certain other situations. | https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?division=2.&chapter=10.&lawCode=FGC | 1/1/1977 |
| Porter-Cologne Water Quality Control Act | Updated periodically (by California legislature) | No | Law that governs water quality in California, establishing the nine RWQCBs and their jurisdiction to protect California's surface water and groundwater through water quality objectives and the beneficial uses of water as outlined in a project's waste discharge requirements. | https://www.waterboards.ca.gov/laws_regulations/docs/portercologne.pdf | 1/1/2019 (last amended) |
| State Board Resolution No. 68-16 | Final | No | Policy for maintaining high water quality. | https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/1968/rs68_016.pdf | 10/28/1968 |
| State of California Sea-Level Rise Guidance: 2018 Update | Final | No | Drafted by CNRA and OPC. Provides guidance to state agencies for incorporating sea-level rise projections into planning, permitting, investment, and other decisions. | https://www.opc.ca.gov/updating-californias-sea-level-rise-guidance/ | 3/14/2018 |
| State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State | Final | No | Created by the SWRCB and implemented by the SWRCB and RWQCBs. Creates a State of California wetland definition, a framework for determining jurisdiction of state wetlands, wetland delineation procedures, and application procedures for discharges of dredge and fill material to waters of the state. | https://www.waterboards.ca.gov/water_issues/programs/cwa401/wrapp.html | 5/28/2020 (effective date) |
| Streambed Alteration Program FGC § 1602 | Updated periodically (by California legislature) | No | Implemented by CDFW. Regulates activities that may substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. In general terms, CDFW jurisdiction extends to top-of-bank of the outer extent of riparian habitat, if present. Additionally, CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. | https://www.wildlife.ca.gov/conservation/lsa | 6/27/2017 (last amended) |

| Title | Status | Spatial Data | Reference Purpose | Link | Date |
|---|---|---|---|---|---|
| Water Quality Control Plan for the North Coast Region | Updated periodically | Yes | Implemented by North Coast Region RWQCB. Establishes general and site-specific water quality standards and objectives in the Klamath River and North Coastal Basins; however, the Klamath River Basin is not in the GAI. | https://www.waterboards.ca.gov/northcoast/water_issues/programs/basin_plan/basin_plan_documents/ | 6/20/2018 (last updated) |
| **Federal Laws, Guidelines, and Regulations** | See below | See below | See below | See below | See below |
| 2008 Final Compensatory Mitigation Rule | Final | No | Corps' ruling to establish standards and criteria for the use of all types of compensatory mitigation, including on- and off-site permittee-responsible mitigation, mitigation banks, and in-lieu fee mitigation to offset unavoidable impacts on WOTUS. | https://www.govinfo.gov/content/pkg/CFR-2012-title33-vol3/xml/CFR-2012-title33-vol3-part332.xml | 7/9/2008 |
| 303(d) List of Impaired Water Bodies | Updated periodically | No | EPA and SWRCB's listing of regulated impaired water bodies. | https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2018_integrated_report.html | 4/11/2018 (last updated) |
| 40 CFR § 131.12 California Antidegradation Policy | Final | No | Implemented by SWRCB. Required by federal law, the Antidegradation Policy applies to the disposal of waste to high-quality surface water and groundwater. | https://www.waterboards.ca.gov/plans_policies/antidegradation.html | 8/21/2015 (last amended) |
| Corps Regulatory Guidance Letter 18-01 | Final | No | Corps' guidance document on determining compensatory mitigation credits for the removal of obsolete dams and other structures from rivers and streams. | https://usace.contentdm.oclc.org/utils/getfile/collection/p16021coll9/id/1473 | 9/25/2018 |
| CWA | Updated periodically (by Congress) | No | Authorized by EPA and delegated to the Corps and SWRCB, the CWA establishes the basic structure for regulating discharges of pollutants into WOTUS and regulating quality standards for surface waters. | https://www.law.cornell.edu/uscode/text/33/1344 | 2/4/1987 (last amended) |
| CWA § 401 | Updated periodically (by Congress) | No | Implemented by EPA and SWRCB. Regulates discharge of pollutants into WOTUS. | https://www.law.cornell.edu/uscode/text/33/1341 | 12/27/1977 (last amended) |
| CWA § 402 National Pollutant Discharge Elimination System MS4 Permit | Updated periodically (by Congress) | No | Implemented by EPA and SWRCB. Regulates discharge of stormwater from municipal sources that is a conveyance or system of conveyances and is:<br>▪ owned by a state, city, town, village, or other public entity that discharges to WOTUS;<br>▪ designed or used to collect or convey stormwater (e.g., storm drains, pipes, ditches);<br>▪ not a combined sewer; and<br>▪ not part of a sewage treatment plant or publicly owned treatment works. | https://www.epa.gov/npdes/stormwater-discharges-municipal-sources | 1/19/2019 (last amended) |
| CWA § 404 | Updated periodically (by Congress) | No | Implemented by EPA and the Corps. Regulates discharge of dredge or fill material into WOTUS. | https://www.epa.gov/cwa-404/section-404-permit-program | 11/6/1986 (last amended) |
| ESA | Updated periodically (by Congress) | No | Authorizes FWS and NMFS to protect federally listed threatened and endangered species. | https://www.fws.gov/endangered/laws-policies/ | 11/24/2003 (last amended) |
| Executive Order 11990, Protection of Wetlands | Final | No | Aims to minimize the destruction, loss, or degradation of wetlands and preserve and enhance the natural and beneficial values of wetlands. | https://www.epa.gov/cwa-404/protection-wetlands-executive-order-11990 | 3/24/1977 |
| Final 2015 Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division | Final | No | Corps' guidelines for mitigation and monitoring in the South Pacific Division, including California. | https://www.spd.usace.army.mil/portals/13/docs/regulatory/mitigation/mitmon.pdf | 12/19/2014 (last amended) |
| National Wetlands Mitigation Action Plan | Final | No | EPA and Corps comprehensive, interagency document to further achievement of the goal of no net loss of wetlands and to set forth the no net loss policy. | https://www.epa.gov/cwa-404/national-wetlands-mitigation-action-plan | 12/26/2002 |

| Title | Status | Spatial Data | Reference Purpose | Link | Date |
|---|---|---|---|---|---|
| The Navigable Waters Protection Rule | In progress | No | The navigable waters protection rule, dated April 21, 2020, has been vacated by the court and implementation has been halted. Rulemakings to revise the rule are currently in progress. | https://www.epa.gov/nwpr/final-rule-navigable-waters-protection-rule | 6/9/2021 (announcement of rulemaking process) |
| Section 10 of the Rivers and Harbors Appropriation Act of 1899 | Updated periodically (by Congress) | No | Authorizes the Corps to protect navigable WOTUS by requiring a permit for construction of any structure over a navigable WOTUS. A Section 10 permit is required if the structure or work affects the course, location, or condition of the water body. The law applies to any dredging or disposal of dredged materials, excavation, filling, rechannelization, or any other modification of a navigable WOTUS. | https://www.epa.gov/cwa-404/section-10-rivers-and-harbors-appropriation-act-1899 | 7/26/1947 (last amended) |
| Section 14 of the Rivers and Harbors Appropriation Act of 1899 | Updated periodically (by Congress) | No | Implemented by EPA and the Corps. Regulates the temporary occupation or use of any sea wall, bulkhead, jetty, dike, levee, wharf, pier, or other work built by the United States. | https://www.law.cornell.edu/uscode/text/33/408 | 10/23/2018 (last amended) |
| Wild and Scenic Rivers Act | Final | Yes | Reserves certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. All federal agencies must seek to avoid or mitigate actions that would adversely affect National River Inventory river segments. | https://www.law.cornell.edu/uscode/text/16/chapter-28 | 12/19/2014 (last amended) |
| **Statewide and Regional Resource Planning Documents** | See below | See below | See below | See below | See below |
| 2018 Master Plan for Fisheries | Final | No | CDFW's plan to implement the Marine Life Management Act. Includes goals to manage priority species, achieve sustainability for commercial fish stocks, conserve ecosystems, integrate marine protected areas into fisheries management, and provide adaptive management for climate change. Provides a framework for specific management plan creation. | https://wildlife.ca.gov/Conservation/Marine/Master-Plan | 6/1/2018 |
| A Climate Change Vulnerability Assessment of California's Terrestrial Vegetation | Final | Yes | CDFW's document to assess the climate vulnerability of terrestrial vegetation. | https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=116208&inline | 1/1/2016 |
| A Strategy for California @ 50 Million – Supporting California's Climate Change Goals | Final | Yes | Planning report from the California Governor's Office that focuses on sustainability efforts across California in response to climate change. | http://opr.ca.gov/docs/EGPR_Nov_2015.pdf | 11/1/2015 |
| ACE Connectivity Project Version 3.0 | Updated periodically | Yes | A CDFW effort to analyze large amounts of map-based data to inform decisions around goals such as biodiversity conservation, habitat connectivity, and climate change resiliency. | https://wildlife.ca.gov/Data/Analysis/ACE | 7/10/2019 (last updated) |
| California Biodiversity Initiative | Final | No | A CNRA, California Department of Food and Agriculture, and Governor's Office of Planning and Research high-level planning document. Provides a roadmap to secure California's biodiversity future. | https://californiabiodiversityinitiative.org/pdf/california-biodiversity-action-plan.pdf | 9/2018 |
| California Coastal Trail Mapping Viewer | In progress | Yes | GIS map created by CCC and the Coastal Conservancy showing existing segments of the California Coastal Trail. Most of the California Coastal Trail segments are located in public open space or the Caltrans right-of-way, and Caltrans is a statutory partner in maintaining and advancing the trail. Caltrans should be aware of any potential trail alignments when planning and designing mitigation projects. | https://the-california-coastal-trail-1-coastalcomm.hub.arcgis.com/ | Updated frequently |
| California Eelgrass Mitigation Policy and Implementing Guidelines | Final | No | NMFS document describing its policy for mitigation of impacts on eelgrass habitats, which includes no net loss of eelgrass habitat. | https://www.fisheries.noaa.gov/resource/document/california-eelgrass-mitigation-policy-and-implementing-guidelines | 10/1/2014 |

| Title | Status | Spatial Data | Reference Purpose | Link | Date |
|---|---|---|---|---|---|
| California Essential Habitat Connectivity Project | Final | Yes | CDFW and Caltrans assessment to identify large remaining blocks of intact habitat or natural landscape and model linkages between them that need to be maintained, particularly as corridors for wildlife. | https://www.wildlife.ca.gov/conservation/planning/connectivity/CEHC | 2/1/2010 |
| California Water Action Plan 2016 Update | Final | No | Calls for action to restore key mountain meadow habitat, manage headwaters, restore coastal watersheds, and enhance water flows in streams statewide. | http://resources.ca.gov/docs/california_water_action_plan/Final_California_Water_Action_Plan.pdf | 2016 |
| California Watershed Assessment Manual Volume I | Final | No | Provides guidance for conducting a watershed assessment in California. | https://www.epa.gov/system/files/documents/2022-02/caliwam.pdf | 5/1/2005 |
| Caltrans Adaptation Strategies Report: District 1 | Final | No | Caltrans initiated a major agency-wide effort to adapt its infrastructure so that it can withstand future conditions. The effort began by determining which assets are most likely to be adversely affected by climate change in each Caltrans District. | https://dot.ca.gov/programs/transportation-planning/division-of-transportation-planning/air-quality-and-climate-change/2020-adaptation-priorities-reports | 2/1/2021 |
| Caltrans Climate Change Vulnerability Assessment, District 1 Technical Report | Final | No | Caltrans assessment of climate change vulnerabilities for the District. | https://dot.ca.gov/programs/transportation-planning/division-of-transportation-planning/air-quality-and-climate-change/2019-climate-change-vulnerability-assessments | 10/1/2019 |
| CCC Strategic Plan 2020–2025 | Final | No | CCC draft to guide agency actions from 2020 to 2025. The plan currently contains 9 goals, 49 objectives, and 189 specific actions. Of these, Caltrans is identified in 16 specific actions, including coordination on biodiversity resources and advanced mitigation (3.1.3, 3.2.3, 3.2.4), climate change planning (4.1.2, 4.1.3, 4.1.4, 4.1.5, 4.3.1, 4.4.2), LCP engagement (6.1.3, 6.1.5, 6.2.1), environmental justice (5.2.1, 5.2.3), and information/GIS collaboration (8.1.1, 8.1.7, 9.6.2, 9.6.4). | https://www.coastal.ca.gov/strategicplan/spindex.html | 11/6/2020 |
| Coastal Storm Modeling System (CoSMoS) | Updated periodically | Yes | A tool developed by USGS to allow for detailed predictions of coastal flooding resulting from projected sea-level rise and storm systems. Includes projections of storm scenarios under different sea-level rise conditions. This system is integrated with Our Coast Our Future: Coastal Storm Modeling System noted below. | https://www.usgs.gov/centers/pcmsc/science/coastal-storm-modeling-system-cosmos?qt-science_center_objects=0#qt-science_center_objects | 9/1/2021 (last piece added) |
| Conservation and Mitigation Banking | Updated periodically | No | CDFW's main public webpage describing the process for creating and using mitigation banks. | https://wildlife.ca.gov/Conservation/Planning/Banking | 1/1/2022 |
| Development, Land Use, and Climate Change Impacts on Wetland and Riparian Habitats – A Summary of Scientifically Supported Conservation Strategies, Mitigation Measures, and Best Management Practices | Final | No | A technical memorandum from CDFW, Region 1, describing analysis and summary of recent research on fish and wildlife relationships to land use and development impacts and conservation strategies to minimize impacts. The memo recommends that an appropriate starting place for buffering impacts on sensitive habitats is 50 meters. | https://wildlife.ca.gov/Regions/1 | 5/21/2014 |
| Large Mammal-Vehicle Collision Hot Spot Analyses, California, USA | Final | Yes | Western Transportation Institute's report documenting the methods and results of hot-spot analyses of large wild mammal-vehicle collisions in California, with an emphasis on mule deer. These analyses identified the road sections that had the highest concentration of deer-vehicle crashes and mule deer carcasses. Special-status species were not addressed. | https://westerntransportationinstitute.org/wp-content/uploads/2019/09/4W6693_Huijser-and-Begley-FINAL-Report-Caltrans-Statewide-20190913-reduced-image-size.pdf | 9/13/2019 |
| Master Plan for Marine Protected Areas | Final | No | CDFW's management plan for marine protected areas. | https://www.wildlife.ca.gov/Conservation/Marine/MPAs/Master-Plan | 8/24/2016 |
| Our Coast Our Future: Coastal Storm Modeling System | Updated periodically | Yes | A USGS mapping program tracking projected sea-level rise for the California coast. Some pieces of the program are not yet completed. | https://data.pointblue.org/apps/ocof/cms/ | 2016 (last piece added) |

| Title | Status | Spatial Data | Reference Purpose | Link | Date |
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| Pacific Coast Fishery Ecosystem Plan for the U.S. Portion of the California Current Large Marine Ecosystem | Final | Yes | Pacific Fishery Management Council's overarching plan for management of the marine ecosystem and fish population for the California Coast. | https://www.pcouncil.org/managed_fishery/ecosystem-based-management/ | 7/1/2013 |
| Record of Decision for Amendments to Forest Service and BLM Planning Documents within the Range of the Northern Spotted Owl | Final | No | This document, colloquially referred to as The Northwest Forest Plan, is a landscape approach to federal land management designed to protect threatened and endangered species while also contributing to the region's social and economic sustainability. It also includes an Aquatic Conservation Strategy, which aims to restore and maintain the ecological health of watersheds and aquatic ecosystems. | https://www.fs.usda.gov/detail/r6/landmanagement/planning/?cid=fsbdev2_026990 | 4/13/1994 |
| Restoring California's Wildlife Connectivity 2022. 2022 Priority Wildlife Connectivity Project Locations by Region | Final | Yes | CDFW's priority wildlife movement barriers across the state. This document is focused on large wild mammal game species; however, some priorities would benefit special-status species such as bighorn sheep. | https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=204648&inline | 12/1/2022 |
| Safeguarding California Plan: 2018 Update | Final | No | A conservation plan by CNRA. Includes goals to strengthen the climate adaptation component of conservation planning efforts, enhance habitat connectivity, protect climate refugia through strategic acquisition and protection activities, increase restoration and enhancement activities to increase climate resiliency of natural and working lands, increase biodiversity monitoring efforts, continue incorporating climate considerations into state investment decision processes, and provide educational opportunities to the public and state agency staff regarding climate impacts and adaptation options. | http://resources.ca.gov/docs/climate/safeguarding/update2018/safeguarding-california-plan-2018-update.pdf | 1/1/2018 |
| Sanctuary Integrated Monitoring Network | Updated periodically | Yes | A NOAA-administered program to collect original research, gather historical records, and monitor and report on the condition of National Marine Sanctuaries in California, including the Greater Farallones National Marine Sanctuary in the GAI. | https://sanctuarysimon.org/ | Updated periodically |
| Strategic Plan to Protect California's Coast and Ocean 2020–2025 | Final | Yes | OPC's plan for coastal and ocean protection. Includes goals and objectives centered on safeguarding coastal and marine ecosystems, advancing equity across ocean and coastal policies and actions, enhancing coastal and marine biodiversity, and improving ocean health with economic factors. | https://www.opc.ca.gov/webmaster/ftp/pdf/2020-2025-strategic-plan/OPC-2020-2025-Strategic-Plan-FINAL-20200228.pdf | 2/28/2020 |
| SWAP | Updated periodically (5-year intervals) | Yes | CDFW's plan for protection of species of greatest conservation need, in addition to habitats and other wildlife in California. | https://www.wildlife.ca.gov/SWAP/Final | 9/1/2015 |
| SWAP Marine Resources Companion Plan | Final | Yes | CDFW's companion document to SWAP to assess the vulnerability and conservation strategies for the California coast and coastal waters. | https://wildlife.ca.gov/SWAP/Final/Companion-Plans | 12/1/2016 |
| SWAP Transportation Companion Plan | Final | Yes | CDFW's companion document to SWAP for protection of species specific to transportation project planning. | https://wildlife.ca.gov/SWAP/Final/Companion-Plans | 12/1/2016 |
| SWAP Water Management Companion Plan | Final | Yes | CDFW's companion document to SWAP to recommend water management practices throughout the state of California. | https://wildlife.ca.gov/SWAP/Final/Companion-Plans | 12/1/2016 |
| **Special-Status Taxa[a] Documents** | See below | See below | See below | See below | See below |
| State of California Department of Fish and Game Recovery Plan: Bank Swallow (*Riparia riparia*) | Final | No | CDFW's recovery plan for bank swallow. Recovery goals for this species involve research, inventory of nesting sites, and the creation of a habitat preserve system, much of which was set to be completed by 1998. | https://wildlife.ca.gov/Search-Results?q=bank%20swallow%20plan#gsc.tab=0&gsc.q=bank%20swallow%20plan&gsc.page=1 | 12/1/1992 |
| Incidental Take Permit for Bank Swallow | Updated periodically | No | CDFW's list of incidental take permits issued for bank swallow from its publicly available document search website. There are 2 documents listed in the search. | https://nrm.dfg.ca.gov/documents/docviewer.aspx | 4/5/2016 (most recent document) |

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| Final Coastal Multispecies Recovery Plan Volume III: Northern California Steelhead DPS | Final | Yes | NMFS' recovery plan for the Northern California summer-run steelhead DPS. Includes biological recovery criteria of effective populations categorized by diversity strata regions. The GAI falls within the Northern Coastal, North Mountain Interior, Lower Interior, and North Central Coastal regions. Table 4 includes restoration priorities based on diversity strata and waterbody. Pages 68 to 85 include the list of DPS level recovery actions. | https://www.fisheries.noaa.gov/resource/document/final-coastal-multispecies-recovery-plan-california-coastal-chinook-salmon | 10/1/2016 |
| 2016 5-Year Review: Summary & Evaluation of California Coastal Chinook Salmon and Northern California Steelhead | Final | Yes | NMFS' most recent formal review of the species condition. | https://www.fisheries.noaa.gov/resource/document/2016-5-year-review-summary-evaluation-california-coastal-chinook-salmon-and | 4/13/2016 |
| Critical Habitat Designation for Steelhead | Final | No | *Federal Register* posting of critical habitat designation for steelhead. The designation of critical habitat for the Northern California steelhead DPS occurs in the GAI. | https://www.govinfo.gov/content/pkg/FR-2005-09-02/pdf/05-16389.pdf#page=2 | 9/2/2005 |
| Biological Opinions for Northern California Steelhead | Updated periodically | No | NMFS' list of biological opinions for coho salmon. All biological opinions listed are from Alaska. | https://www.fisheries.noaa.gov/resources/all-publications?title=&field_category_document_value%5Bbiological_opinion%5D=biological_opinion&term_node_tid_depth%5B1000000031%5D=1000000031&field_species_vocab_target_id=Steelhead+Trout+%281000006266%29&sort_by=created | 6/3/2020 |
| Steelhead Restoration and Management Plan for California | Final | Yes | CDFW's restoration and management plan for steelhead throughout the state. There are separate management objectives for three designated management areas: North Coast, Central Valley, and South Coast. The GAI falls within the North Coast management area. The focus of the North Coast management area is on maintaining and increasing population abundance, with principal emphasis on summer steelhead and other naturally reproducing stocks. The management plan has recommendations for specific streams. | https://www.google.com/url?client=internal-element-cse&cx=003744124407919529812:v2-t3gqht48&q=https://nrm.dfg.ca.gov/FileHandler.ashx%3FDocumentID%3D3490&sa=U&ved=2ahUKEwj1156Uz_fmAhXSHc0KHcG_CfY4ChAWMAB6BAgGEAE&usg=AOvVaw1GUboKPeGb7OoSOIkc7IH7 | 2/1/1996 |
| Final Recovery Plan for the Southern Oregon/Northern California Coast Evolutionarily Significant Unit of Coho Salmon (*Oncorhynchus kisutch*) | Final | Yes | NMFS' recovery plan for the SONCC ESU coho salmon. Goals center on having enough redundancy to withstand catastrophic events and enough connectivity to maintain long-term genetic processes. Recovery criteria are complex and explained on Tables 4-1, 4-2, 4-5, and 4-6 of the recovery plan. | https://www.fisheries.noaa.gov/resource/document/final-recovery-plan-southern-oregon-northern-california-coast-evolutionarily | 9/30/2014 |
| Southern Oregon/Northern California Coast Evolutionarily Significant Unit of Coho Salmon 5-year review | Updated periodically | No | NMFS' most recent formal review of the condition of this ESU population of coho salmon. | https://repository.library.noaa.gov/view/noaa/17026 | 5/26/2016 |
| Recovery Plan for the Evolutionarily Significant Unit of the Central Coast Coho Salmon Volume I | Final | Yes | NMFS' recovery plan for the central California coast ESU of coho salmon. The recovery criteria that must be achieved before delisting can occur are:<br>▪ Effective population size per generation is greater than 500 or total population size per generation is greater than 2,500 for all independent populations.<br>▪ No population decline is apparent or probable for all independent populations.<br>▪ Catastrophic decline is not apparent for all independent populations.<br>▪ Minimum spawner density is achieved for all 28 populations.<br>▪ No evidence is found of adverse genetic, demographic, or ecological effects of hatchery fish on wild populations. | https://repository.library.noaa.gov/view/noaa/15987 | 9/1/2012 |
| 2016 5-Year Review: Summary & Evaluation of Central California Coast Coho Salmon | Updated periodically | Yes | NMFS' most recent formal review of the condition of this ESU population of coho salmon. | https://www.fisheries.noaa.gov/resource/document/5-year-review-central-california-coast-coho-salmon | 4/16/2016 |

| Title | Status | Spatial Data | Reference Purpose | Link | Date |
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| Designated Critical Habitat; Central California Coast and Southern Oregon/Northern California Coasts Coho Salmon | Updated periodically | No | *Federal Register* posting of critical habitat designation for the coho salmon. The designation of critical habitat for the SONCC ESU does not occur in the GAI. The designation of critical habitat for the central California coast ESU occurs in the GAI. | https://www.federalregister.gov/documents/1999/05/05/99-11187/designated-critical-habitat-central-california-coast-and-southern-oregonnorthern-california-coasts | 5/5/1999 |
| Biological Opinions for Coho Salmon | Updated periodically | No | NMFS' list of biological opinions for coho salmon from its publicly available website. The search includes 3 documents from outside the GAI. | https://www.fisheries.noaa.gov/resources/documents?title=&field_category_document_value%5Bbiological_opinion%5D=biological_opinion&field_species_vocab_target_id=Coho+Salmon+%28100000005321%29&sort_by=created | 5/15/2015 (latest document) |
| Species in the Spotlight Priority Actions: 2016–2020 Central California Coast Coho Salmon | Final | No | NOAA document outlining priorities for improvement of the central California coast ESU of coho salmon. Includes goals and objectives for various aquatic features in the GAI. | https://www.fisheries.noaa.gov/resource/document/species-spotlight-priority-actions-2016-2020-central-california-coast-coho-salmon | 1/1/2016 |
| Recovery Strategy for California Coho Salmon | Final | Yes | CDFW's recovery plan for coho. Goals center on increasing the amount of habitat for coho and the total population size. Recovery criteria for this species include maintaining and improving key populations, increasing the number of spawning adults, maintaining and increasing the distribution of coho salmon, maintaining EFH, and enhancing and restoring habitat in the current known range. An additional goal of getting the population to a point where tribal and commercial fishing can commence is also included in the plan. | https://wildlife.ca.gov/Search-Results?q=ccc%20coho%20salmon#gsc.tab=0&gsc.q=ccc%20coho%20salmon&gsc.page=1 | 2/1/2004 |
| Incidental Take Permit for Coho Salmon | Updated periodically | No | CDFW's list of incidental take permits issued for central California coast ESU coho salmon from its publicly available document search website. There are 4 documents listed in the search. | https://nrm.dfg.ca.gov/documents/docviewer.aspx | 12/3/2022 (most recent document) |
| Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California | Final | Yes | FWS recovery plan for tidal marsh species in northern and central California, which includes 3 plants, 1 bird, and 1 mammal species. Salt marsh bird's beak (*Chloropyron maritimum* ssp. *maritimum*) is listed as a non-focal species because, although it would benefit from the activities covered in this plan, it has its own recovery plan. In general, recovery criteria center on habitat protection and adaptive habitat management, which include developing management plans, conducting status surveys, finding populations to be at least maintaining their population if not increasing, conducting research, and having additional public outreach and participation.<br>No identified recovery units occur in the GAI. The plan includes a regional strategy for the Humboldt Bay and North Coast area. This strategy includes consideration of steelhead as a recovery target for the area, as well as four other wildlife species, and eight plant species that would benefit from the measures in the plan. | https://www.fws.gov/sfbaydelta/documents/tidal_marsh_recovery_plan_v1.pdf | 8/27/2013 |
| Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon | Final | Yes | FWS recovery plan for vernal pool species in California and Oregon, which includes 25 plants, 7 invertebrates, and 1 amphibian, for a total of 33 species. In general, recovery criteria center on habitat protection and adaptive habitat management, which includes developing management plans, conducting status surveys, finding populations to be at least maintaining their population if not increasing, conducting research, and having additional public outreach and participation. Some species-specific criteria exist, such as seed banking for plants and preferential transition from intensive agriculture to grazing near western spadefoot toad conservation areas. Sixteen regions are identified in this plan, along with 41 core areas. | https://ecos.fws.gov/docs/recovery_plan/060614.pdf | 12/15/2005 |
| **State Land Management Plans** | See below | See below | See below | See below | See below |
| General Planning Handbook for California State Parks | Final | Yes | California State Parks' guidelines for general plan development, which requires an inventory of known natural resources and general guidelines to comply with federal and state laws. State Park entities with information pertinent to Chapters 7 and 8 of this RAMNA are listed below. | http://www.parks.ca.gov/pages/21299/files/planning_handbook_april_2010.pdf | 4/1/2010 |

| Title | Status | Spatial Data | Reference Purpose | Link | Date |
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| Bothe-Napa Valley State Park General Development Plan | Final | No | California State Parks' plan for the Bothe-Napa Valley State Park. | https://www.parks.ca.gov/?page_id=24354 | 11/1/1976 |
| Greenwood State Beach General Plan | Final | No | California State Parks' plan for the Greenwood State Beach. Highlights Greenwood Creek as an important riparian resource in the park. Caltrans District 1 is planning a PRM project with California State Parks in Greenwood Creek. | https://www.parks.ca.gov/?page_id=24357 | 11/1/1994 |
| Jackson Demonstration State Forest Management Plan | Final | No | The California Department of Forestry and Fire Protection's plan for the Jackson Demonstration State Forest, which includes a goal to restore riparian and lake systems in old-growth and second-growth forest to improve salmonid habitat. Steelhead and coho salmon are known to occur in Jackson Demonstration State Forest. | https://ceqanet.opr.ca.gov/2000032002 | 11/30/2016 |
| Mendocino Headlands State Park General Development Plan | Final | No | California State Parks' plan for the Mendocino Headlands State Park. Steelhead and coho salmon are known to occur in the Big River portion of Mendocino Headlands State Park. | https://www.parks.ca.gov/?page_id=24360 | 3/1/1976 |
| Sinkyone Wilderness State Park Final General Plan & EIR | Final | Yes | California State Parks' plan for the Sinkyone Wilderness State Park. The plan lists 19 guidelines to fulfill the goal of rehabilitating and protecting wildlife in the park. Includes goal to restore salmonid habitat at Jackass Creek. | https://www.parks.ca.gov/?page_id=21299 | 11/1/2006 |
| Sonoma Coast State Park | Final | Unknown | California State Parks' plan for the Sonoma Coast State Park. The link appears to be inactive and the plan cannot be accessed from the website. | https://www.parks.ca.gov/?page_id=24364 | 5/1/2007 |
| Sugarloaf Ridge State Park Final General Plan and EIR | Final | Yes | California State Parks' plan for the Sugarloaf Ridge State Park. Steelhead is known to occur in the north and main fork of Santa Rosa Creek. Includes several goals pertaining to aquatic habitat improvement. | https://www.parks.ca.gov/?page_id=24364 | 5/14/2004 |
| Van Damme State Park General Plan | Final | Yes | California State Parks' plan for the Van Damme State Park. Steelhead and coho salmon occur in the Little River portion of the park. Includes a goal to restore riparian and wetland habitat for anadromous fish and aquatic vegetation on the Little River. | https://www.parks.ca.gov/?page_id=24365 | 6/1/1995 |
| **FWS Land Management Plans** | See below | See below | See below | See below | See below |
| Not applicable | Not applicable | Not applicable | No FWS-managed lands are in the GAI. | Not applicable | Not applicable |
| **NOAA Management Plans** | See below | See below | See below | See below | See below |
| Collaborating to Identify Salmon Habitat Restoration Priorities in California Watersheds | Updated periodically | Yes | NOAA's program to implement a collaborative program with CDFW called SHaRP (Salmon Habitat Restoration Priorities) to identify priority actions for restoring California's salmon and steelhead habitat. Efforts that occur in the GAI include those for the Ten Mile River, Noyo River, Big River, Navarro River, and Garcia River, which are grouped together in the Mendocino Coast SHaRP area. This plan is currently in development with no document publicly available. | https://www.fisheries.noaa.gov/west-coast/habitat-conservation/collaborating-identify-salmon-habitat-restoration-priorities | 4/6/2023 (last updated) |
| Gulf of the Farallones National Marine Sanctuary Final Management Plan | Final | Yes | NOAA's management plan for the Greater Farallones National Marine Sanctuary; the northern half of the sanctuary occurs in the GAI. | https://farallones.noaa.gov/manage/management_plan.html | 12/1/2014 |
| **U.S. Military Land Management Plans** | See below | See below | See below | See below | See below |
| Not applicable | Not applicable | Not applicable | No active military facilities with a land management plan are in the GAI. | Not applicable | Not applicable |

| Title | Status | Spatial Data | Reference Purpose | Link | Date |
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| **U.S. Bureau of Indian Affairs Land Management Plans** | See below | See below | See below | See below | See below |
| Not applicable | Not applicable | Not applicable | Although the Cloverdale Rancheria Band of Pomo Indians, Coyote Valley Band of Pomo Indians, Dry Creek Rancheria Band of Pomo Indians, Federated Indians of Graton Rancheria, Guidiville Rancheria, Manchester Band of Pomo Indians, Little River Band of Pomo Indians, and Sherwood Valley Rancheria of Pomo Indians occur in the GAI, these nations do not appear to have a publicly available land management plan pertinent to this RAMNA. | Not applicable | Not applicable |
| Hopland Band of Pomo Indians Wetlands Program Plan | Final | Yes | Hopland Band of Pomo Indians' programmatic plan for monitoring and protecting wetlands on Hopland Reservation lands. Includes a general goal to restore riparian wetland, vernal pool, and seep meadow habitat. | https://www.epa.gov/sites/default/files/2015-10/documents/hopland_wpp.pdf | 3/15/2011 |
| Pinoleville Pomo Nation Wetland Program Plan | Final | Yes | Pinoleville Pomo Nation's programmatic plan for monitoring and protecting wetlands on Pinoleville Reservation lands. Includes a general goal to restore Ackerman Creek and associated riparian wetlands for steelhead and other anadromous fish species. Active restoration measures proposed include removal of giant reed and Himalayan blackberry, streambank stabilization, and bioswales construction. | https://www.epa.gov/sites/default/files/2016-06/documents/ppn_wpp_with_signatures.pdf | 9/30/2014 |
| **USFS Land Management Plans** | See below | See below | See below | See below | See below |
| Ecological Restoration Implementation Plan | Final | Yes | USFS' internal restoration plan, which includes general strategies focused on increasing collaboration with other organizations, completion of land management plans, and forest-specific goals. | https://www.fs.usda.gov/detail/stnf/landmanagement/?cid=STELPRDB5411675 | 1/1/2013 |
| Managing Sierra Nevada Forests | Final | No | USFS' published collection of papers summarizing the state of the science on topics relevant to this forest management approach and presenting case studies of collaborative planning efforts and field implementation of these new practices. | https://pitmodoc.opennrm.org/docs/416 | 3/1/2012 |
| Mendocino National Forest Land Management Plan | Final | Yes | Management plan to guide all resource management activities in the national forest. Steelhead occur in the Middle Fork of the Eel River portion of the forest. | https://www.fs.usda.gov/detailfull/mendocino/landmanagement/planning/?cid=fsbdev3_004518&width=full | 2/1/1995 |
| **BLM Land Management Plans** | See below | See below | See below | See below | See below |
| California Coastal National Monument Resource Management Plan | Final | Yes | BLM management plan for California Coastal National Monument. | http://www.npshistory.com/publications/blm/california-coastal/rmp-2005.pdf | 9/1/2005 |
| King Range National Conservation Area Draft Resource Management Plan and Draft Environmental Impact Statement | Draft | Yes | BLM management plan for the King Range National Conservation Area. Note, there is approximately only 1 acre of overlap between the conservation area and the GAI at the extreme northwest boundary of the GAI at Whale Gulch. | https://ia800304.us.archive.org/19/items/kingrangenationa03unit/kingrangenationa03unit.pdf | 1/1/2004 |
| Record of Decision Arcata Resource Management Plan and Environmental Impact Statement | In progress | No | BLM's record of decision for the resource management plan for the Arcata Field Office. | https://eplanning.blm.gov/eplanning-ui/project/2012803/570 | 4/1/1992 |
| Northwest California Integrated Draft Resource Management Plan and Environmental Impact Statement | Draft | Not applicable | BLM's resource management plan covering the Arcata and Redding Field Offices that is currently in development. Only the Arcata Field Office is in the GAI. Requires buffers of 300 feet on either side of the channel in fish-bearing streams, 150 feet on either side of the channel in non-fish-bearing streams, and a 100-foot buffer on either side of the stream channel in intermittent streams and landslide prone areas. | https://eplanning.blm.gov/eplanning-ui/project/2012803/570 | 9/28/2023 |

| Title | Status | Spatial Data | Reference Purpose | Link | Date |
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| Ukiah Resource Management Plan | Final | Yes | BLM's resource management plan for the Ukiah Field Office. It includes goals to restore oak woodlands and riparian and wetland areas by eradicating nonnative vegetation on 272 miles of streams. | https://eplanning.blm.gov/eplanning-ui/project/79315/570 | 9/25/2006 |
| **National Park Service ("NPS") Land Management Plans** | See below | See below | See below | See below | See below |
| Nationwide Rivers Inventory | Final | Yes | Listing of Nationwide River Inventory river segments that are potential candidates for inclusion in the National Wild and Scenic Rivers System. Listed national river segments in the GAI include the Eel, Russian, Navarro, and Noyo Rivers. | https://www.nps.gov/subjects/rivers/nationwide-rivers-inventory.htm | 9/10/2021 |
| Not applicable | Not applicable | Not applicable | No NPS lands occur in the GAI. | Not applicable | Not applicable |
| **Local Government Land Management Plans** | See below | See below | See below | See below | See below |
| North Coast Resource Partnership Plan | Final | Yes | North Coast Resource Partnerships' plan for resource use and conservation planning in northern coastal California. The partnership is between indigenous tribes and county governments. Includes general goals for improving water quality and enhancing and/or restoring aquatic ecosystems, in particular coastal wetlands and streams inhabited by salmonids. | https://northcoastresourcepartnership.org/planning/ | 1/1/2020 |
| Sonoma Water Climate Adaptation Plan | Final | No | Sonoma Water's Climate Adaptation Plan, written with input from the Corps, NOAA, CDFW, and local agencies in Sonoma County, is meant to assess climate risks to water supply, flood management, and wastewater systems infrastructure and operations and to serve as a roadmap for developing, evaluating, and implementing adaptation strategies to improve the resilience of its systems. | https://www.sonomawater.org/climate | 10/1/2021 |
| Sonoma Water Vulnerability Assessment | Final | No | Sonoma Water's Vulnerability Assessment to assess the susceptibility of Sonoma Water's water supply, flood management, and sanitation systems to adverse effects of climate and climate change. It provides vulnerability assessments based on current, historic, and future conditions based on a range of climate scenarios. | https://www.sonomawater.org/media/PDF/Environment/Climate%20Adaptation%20Planning/SW_CAP_AppB_VulnerabilityAssessment_Final_October_2021.pdf | 10/1/2021 |
| **Water Resources Plans and Documents** | See below | See below | See below | See below | See below |
| North Coast Integrated Regional Water Management Plan Phase 3 | Updated periodically | Yes | North Coast Resource Partnerships' plan for water resources in the plan area, which includes all of the GAI. The North Coast Resource Partnership primarily consists of indigenous nations and county and city governments. The plan includes multiple general goals to improve and restore habitat and water quality in part for the benefit of salmonid species. | https://northcoastresourcepartnership.org/resources/ | 8/1/2014 |
| North Coast RWQCB Watershed Management Planning Chapter | Final | Yes | North Coast RWQCB document on water quality conditions in its jurisdiction. Includes general goals to enhance beneficial uses in the jurisdictional area. | https://www.waterboards.ca.gov/northcoast/water_issues/programs/watershed_management/watershed_management_initiative/ | 2/1/2005 |
| North Coast RWQCB TMDL Action Plans | Updated periodically | No | SWRCB and North Coast RWQCB's list of TMDL action plans for the North Coast Region. In the GAI, TMDL action plans exist for the Eel, Russian, Navarro, Albion, Big, Garcia, Ten Mile, and Noyo Rivers and for Laguna de Santa Rosa. | https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/ | 12/28/2010 (most recent approval date) |
| Russian River Estuary Adaptive Beach Management Plan 2023 | Updated periodically | Yes | Sonoma Water's management plan for adaptive beach management at the mouth of the Russian River as a requirement of a Biological Opinion issued by NMFS in 2008. The plan is updated annually in collaboration with CDFW, NMFS, and California State Parks. The plan generally has a goal to support the improvement of the Russian River estuary. | https://www.sonomawater.org/russian-river-estuary | 5/15/2023 (last amended) |

| Title | Status | Spatial Data | Reference Purpose | Link | Date |
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| Sonoma Water Final Report Appendix B, Vulnerability Assessment | Final | No | Sonoma Water's assessment of the risks posed by climate change, including flood risk, to its infrastructure. | https://www.sonomawater.org/media/PDF/Environment/Climate%20Adaptation%20Planning/SW_CAP_AppB_VulnerabilityAssessment_Final_October_2021.pdf | 10/1/2021 |
| **County General Plans** | See below | See below | See below | See below | See below |
| Glenn County General Plan | Updated periodically | Yes | General plan for Lake County. Requires permanent buffers of indeterminate size, but a minimum of 300 feet is recommended when development is adjacent to open space. Setbacks are required in riparian forest and wetland habitat plus a minimum 50-foot-wide corridor adjacent to preserve and buffer habitat from direct impacts. Contains a land use designation of open space, and special overlay designations of area of biological importance, floodplain, floodway, and restorable wetlands. The special designations preclude development, require setbacks of indeterminate distance, or mitigation depending on which land use designation they reside in or are adjacent to. | https://www.countyofglenn.net/dept/planning-community-development-services/planning/resources/plans | 6/15/1993 (last amended) |
| Lake County General Plan | Updated periodically | Yes | General plan for Lake County. Requires a buffer of indeterminate amount between development and significant watercourses, riparian vegetation, and wetlands. Contains a land use designation of resource conservation. | https://www.lakecountyca.gov/554/Lake-County-General-Plan | 9/1/2008 (last amended) |
| Mendocino County General Plan | Updated periodically | Yes | General plan for Mendocino County. Steelhead and coho salmon are known to occur in the Middle Fork Eel River. The plan requires a 2:1 mitigation ratio for oak woodlands and for sensitive habitats, which are defined in part as pygmy forests and old growth forests, which can include riparian areas and wetlands. Contains a land use designation of open space, but it is defined in such a way that agriculture and forestry are not precluded activities. | https://www.mendocinocounty.org/government/planning-building-services/plans/mendocino-county-general-plan | 8/1/2009 (last amended) |
| Sonoma County General Plan | In progress | No | Proposed general plan is still in progress and has not been approved by the Board of Supervisors. The general plan was last amended in 2016 and it is not listed on the County website. A complete general plan revision is currently underway. | https://permitsonoma.org/longrangeplans/adoptedlong-rangeplans/generalplan | 8/2/2016 (last amended) |
| **City General Plans** | See below | See below | See below | See below | See below |
| City of Cloverdale General Plan | Updated periodically | Yes | General plan for Cloverdale. Includes goal to restore riparian and wetland areas adjacent to the Russian River and to create 100-foot buffers (50 feet on each side) where possible. Contains a land use designation for open space. | https://www.cloverdale.net/243/Long-Range-Planning | 1/28/2015 |
| Cotati General Plan | Updated periodically | Yes | General plan for Cotati. Includes a general goal to enhance aquatic habitat and oak woodlands. Contains a land use designation for open space. | http://cotati.generalplan.org/ | 3/24/2015 |
| Fort Bragg Inland General Plan | Updated periodically | Yes | General plan for Fort Bragg. Includes a general goal to restore riparian and wetland areas. Contains a land use designation for open space. | https://www.city.fortbragg.com/departments/community-development/general-plan-zoning-information/inland-land-use-development-and-general-plan/-folder-117 | 7/1/2019 |
| Healdsburg 2030 General Plan Policy Document | Updated periodically | Yes | General plan for Healdsburg. Includes goals to enhance conditions of the Russian River and Foss Creek. Requires a 100-foot setback from the Russian River, a 35-foot setback from Foss Creek, and 25-foot setback from other streams. Contains land use designations for open space and riparian setbacks. | https://www.ci.healdsburg.ca.us/354/General-Plan | 7/6/2009 |
| City of Rohnert Park General Plan | Updated periodically | Yes | General plan for Rohnert Park. Includes a general goal to enhance aquatic habitat and oak woodlands. Requires a minimum 50-foot buffer in riparian areas. Requires permanent preservation of open space as mitigation for development in some areas of the city. Contains two types of open space designation: open space for environmental conservation and open space for agriculture and resource management. | https://www.rpcity.org/city_hall/departments/development_services/Planning/general_plan___special_area_plans/general_plan_2020 | 8/1/2017 |

| Title | Status | Spatial Data | Reference Purpose | Link | Date |
|---|---|---|---|---|---|
| Santa Rosa General Plan 2035 | Updated periodically | Yes | General plan for Santa Rosa. Steelhead is known to occur in Santa Rosa Creek. Includes goals to restore Santa Rosa, Matanzas, Sierra Park, and Spring Creeks. Mitigation ratios between 1:1 and 3:1 are required based on development distance from protected resources including wetlands. Contains a land use designation for open space. | https://www.srcity.org/392/General-Plan | 10/1/2020 |
| Sebastopol General Plan | Updated periodically | Yes | General plan for Sebastopol. Includes a general goal to enhance aquatic habitat and oak woodlands. Requires setbacks of indeterminate distance to protect riparian habitat. Contains a land use designation for open space. | https://ci.sebastopol.ca.us/City-Government/Departments-Services/Planning/General-Plan | 1/23/2023 |
| City of Ukiah 2040 General Plan | Updated periodically | Yes | General plan for Ukiah. Includes a goal to restore Russian River riparian habitat. Contains a land use designation for open space. | https://ukiah2040.com/ | 12/1/2022 |
| City of Willits General Plan | Updated periodically | Yes | General plan for Willits. Contains a land use designation for open space. | https://cityofwillits.org/143/Planning-Documents | 12/11/2019 |
| Town of Windsor 2040 General Plan | Updated periodically | Yes | General plan for Windsor. Contains a land use designation for open space. | https://www.townofwindsor.com/DocumentCenter/View/21498/Final-Town-of-Windsor-2040-General-Plan_2018-06-04 | 4/4/2018 |
| **Other Conservation and Management Documents** | See below | See below | See below | See below | See below |
| California Coastkeeper Alliance – Ocean Climate Resiliency Action Plan | Final | No | California coastkeeper's plan addressing climate change and rising sea levels. Plan includes preventing ocean wastewater discharges from causing ocean acidification and hypoxia hotspots, prevent agricultural nutrient inputs from causing harmful algal blooms and exacerbating ocean acidification and hypoxia hot spots, improving water quality in Marine Protected Areas, sequestering greenhouse gas emissions, and preventing coastal development in zones at risk from sea-level rise. | https://cacoastkeeper.org/wp-content/uploads/2019/11/CCKA_Ocean-Climate-Resiliency-Campaign_FINAL.pdf | 11/19/2019 |
| California EcoAtlas | Updated periodically (nearly daily) | Yes | Statewide database tracking the extent and condition of wetlands in California, managed by the San Francisco Estuary Institute. | https://www.ecoatlas.org/ | Updated nearly daily |
| Coastal Conservancy Strategic Plan 2018-2022 | Final | No | Implemented by the Coastal Conservancy. Includes a discussion of issues and conservancy funded efforts in the GAI including wetland and riparian habitat restoration. | https://scc.ca.gov/about/ | 11/30/2017 |
| Conserving California's Coastal Habitats – A Legacy and A Future with Sea Level Rise | Final | Yes | Statewide coastal conservation plan by the Coastal Conservancy and The Nature Conservancy. Contains plans to maintain and manage coastal lands to be resilient to sea-level rise. Plans include maintaining existing resilient conservation lands, conserving resilient landscapes, managing in place for resilience, conserving potential future habitat areas, and increasing adaptive capacity. | https://www.conservationgateway.org/ConservationPractices/Marine/crr/library/Documents/TNC_SCC_CoastalAssessment_lo%20sngl.pdf | 2018 |
| Critical Linkages: Bay Area & Beyond | Updated periodically | Yes | Regional effort by Science & Collaboration for Connected Wildlands to identify 14 landscape connections for wildlife migration in the San Francisco Bay and Central Coast regions. | http://www.scwildlands.org/ | 5/1/2013 |
| Demonstrating the California Wetland Status and Trends Program: A Probabilistic Approach for Estimating Statewide Aquatic Resource Extent, Distribution and Change Over Time | Final | No | A report from the Southern California Coastal Water Research Project describing a pilot study that is tracking wetland conditions statewide. | https://www.sccwrp.org/publications/ | 4/1/2015 |

| Title | Status | Spatial Data | Reference Purpose | Link | Date |
|---|---|---|---|---|---|
| U.S. Pacific Coastal Wetland Resilience and Vulnerability to Sea-Level Rise | Final | No | An original research article describing and comparing climate models and scenarios with respect to coastal wetland resilience and sea-level rise. | https://advances.sciencemag.org/content/4/2/eaao3270 | 2/21/2018 |

[a] Consistent with the Caltrans SAMNA and Chapter 4, for the purposes of this document, special-status species are defined as federally and State of California threatened, endangered, or sensitive species; state fully protected or rare species; or state species of special concern.

# 4. EXISTING MITIGATION OPPORTUNITIES

SHC § 800.6(a)-authorized advance mitigation project types include purchasing credits and paying fees associated with existing mitigation sources. This chapter summarizes the mitigation credits and values currently available to Caltrans and/or pending through existing HCPs, NCCPs, mitigation and conservation banks, in-lieu fee programs, and MCAs. RCISs, which are a prerequisite to MCAs, are also discussed. Caltrans begins the chapter by describing the advance mitigation credits already held by District 1.

## 4.1 SHOPP Advance Mitigation Credits

The 2016 SHOPP, with California Transportation Commission approval, released the first funds used to program Caltrans advance mitigation projects in several Caltrans Districts. The projects were programmed against the $40 million reserve created in the 2016 SHOPP for advance mitigation project delivery. Thirteen pilot advance mitigation projects were programmed in the SHOPP and their delivery is underway. Within Caltrans District 1, the California Transportation Commission approved the establishment of a mitigation bank with the working title of “Mendocino Coast Mitigation Bank,” to be delivered through the Request for Proposal and contracting process.

Because this bank is currently pending, the contract has been awarded to the bank sponsor but the extent of its service area and other key information are not available. The Mendocino Coast Mitigation Bank is intended to supply credits for use for transportation-related projects to be delivered under Caltrans’ SHOPP. Contracted credits are expected to be available starting in 2024 (first release) and to be complete within 4 to 6 years. Any credits created in excess of those required by Caltrans will be the property of the bank sponsor and could be purchased by Caltrans under normal transportation project credit purchase conditions. Available information on the Mendocino Coast Mitigation Bank is provided in Table 4-1.

**Table 4-1. SHOPP Advance Mitigation Credits**

| Name | Year Approved | Signatories[a] | Area (acres) | Service Area | Credit Types |
|---|---|---|---|---|---|
| Mendocino Coast Mitigation Bank (working title) | In progress | **Corps** and others, to be determined[b] | To be determined | Within Mendocino County. Service area to be determined. | 26.2 acres of three-parameter wetland credits and 12.2 acres of other WOTUS (non-wetland and non-riparian within the ordinary high-water mark). Additional credits if possible. |

[a] Signatories in **bold** are signatories to the *Master Process Agreement for Planning and Developing Advance Mitigation Throughout California for the California Department of Transportation* (Caltrans et al. 2020).
[b] The bank sponsor may also seek and receive approval from CCC, SWRCB, the RWQCBs, FWS, NMFS, and EPA.

## 4.2 HCPs and NCCPs

HCPs[1] and NCCPs[2] define covered activities that consist of specific projects and actions that may have adverse effects on covered species and natural communities. FWS and/or CDFW estimate adverse effects associated with the covered activities and issue incidental take permits. Once the HCP, NCCP, or HCP/NCCP is adopted and the incidental take permit(s) are issued, signatories and participating special entities, where applicable, can request take authorization for project-related effects on covered species. Participation in an adopted HCP, NCCP, or HCP/NCCP streamlines permit processes by eliminating the need to obtain project-specific incidental take permits from FWS and/or CDFW and by providing early documentation of compliance with CESA and ESA.

When Caltrans is not an NCCP permittee, under specific conditions and with signatory agency approval, Caltrans may be able to qualify as a Participating Special Entity under the plan, gaining some of the NCCP permittee's privileges; however, not all NCCPs have a Participating Special Entity clause.

Caltrans identified no active or pending HCPs or NCCPs in the GAI to which Caltrans and/or RTPAs are currently signatories or Participating Special Entities. Although multiple project-specific HCPs exist in the GAI, they apply to non-transportation agency single users.

## 4.3 Conservation and Mitigation Banks

A conservation or mitigation bank is privately or publicly owned land managed for its natural resource values and can be for profit or nonprofit. In exchange for permanently protecting, managing, and monitoring the land, the bank sponsor is allowed to sell or transfer habitat and/or aquatic resource credits to permittees who—after all appropriate and practicable avoidance and minimization has been performed—need to satisfy legal requirements and compensate for their project's unavoidable natural resource impacts. Conservation banks generally protect threatened and endangered species habitat, while mitigation banks generally protect, restore, create, and/or enhance aquatic resources. The legal document for the establishment, operation, and use of a conservation bank or mitigation bank is a Bank Enabling Instrument ("BEI").

Caltrans identified 10 active or pending conservation and/or mitigation banks with service areas that overlap all or part of the GAI. Information on the agency approvals and the types of credits available—and brief descriptions of each bank with species of mitigation need, water, and non-wetland water credits—are provided in Table 4-2, and the location and extent of their service areas are depicted on Figures 4-1 through 4-5. Several of these conservation and mitigation banks do not provide credits for the species of mitigation need identified in this RAMNA; however, credits for other listed species or habitats are available, as listed in Table 4-2.

[1] Pursuant to Section 10 of the federal ESA or consultations under Section 7 of the federal ESA
[2] Pursuant to Section 2835 of the California FGC

**Table 4-2. Overview of Conservation and Mitigation Banks in the GAI[a]**

| Name | Year Approved | Current Status | Signatories[b] | Area (acres) | Credit Types |
|---|---|---|---|---|---|
| Alton North Conservation Bank | 2007 | Active – credits available | **FWS, CDFW** | 22.67 | California tiger salamander (Sonoma DPS), Burke's goldfields, Sonoma sunshine |
| Alton South Conservation Bank | Pending | Pending | **FWS** | 8.11 | California tiger salamander (Sonoma DPS) |
| Carinalli – Todd Road Mitigation Bank | 2009 | Active – credits available | **FWS, CDFW, Corps, EPA** | 67.32 | California tiger salamander (Sonoma DPS), Sonoma sunshine, Sebastopol meadowfoam |
| Desmond Mitigation Bank | 2005 | Active – credits available | **FWS, CDFW, Corps, EPA** | 48.30 | Riparian seasonal wetland, Sebastopol meadowfoam |
| East Austin Creek Conservation Bank | 2010 | Active – credits available | **NMFS** | 144 | Steelhead, coho salmon |
| Hazel Mitigation Bank | 2006 | Active – credits available | **FWS, CDFW, Corps, EPA** | 101 | California tiger salamander (Sonoma DPS), seasonal wetland |
| Margaret West Conservation Bank | 2013 | Active – credits available | **FWS, CDFW** | 21.62 | California tiger salamander (Sonoma DPS) (sold out), Sebastopol meadowfoam |
| Martin Conservation Bank | 2010 | Active – credits available | **FWS, CDFW** | 12.30 | California tiger salamander (Sonoma DPS) |
| Ridge Top Ranch Wildlife Conservation Bank | 2014 | Active – credits available | **FWS** | 745 | California red-legged frog, Callippe silverspot butterfly |
| Swift/Turner Conservation Bank | 2006 | Active – credits available | **FWS** | 34.18 | California tiger salamander (Sonoma DPS), Burke's goldfields, Sebastopol meadowfoam, Sonoma sunshine |

[a] Up-to-date information on approved conservation and mitigation banks, including available credits, can be found at the following websites:
https://www.wildlife.ca.gov/Conservation/Planning/Banking/Approved-Banks
https://ribits.ops.usace.army.mil/ords/f?p=107:2::::::
https://www.fws.gov/sacramento/es/Conservation-Banking/Banks/In-Area/

[b] Signatories in **bold** are signatories to the *Master Process Agreement for Planning and Developing Advance Mitigation Throughout California for the California Department of Transportation* (Caltrans et al. 2020).

**Figure 4-1. Conservation and Mitigation Bank Service Areas – Part 1**

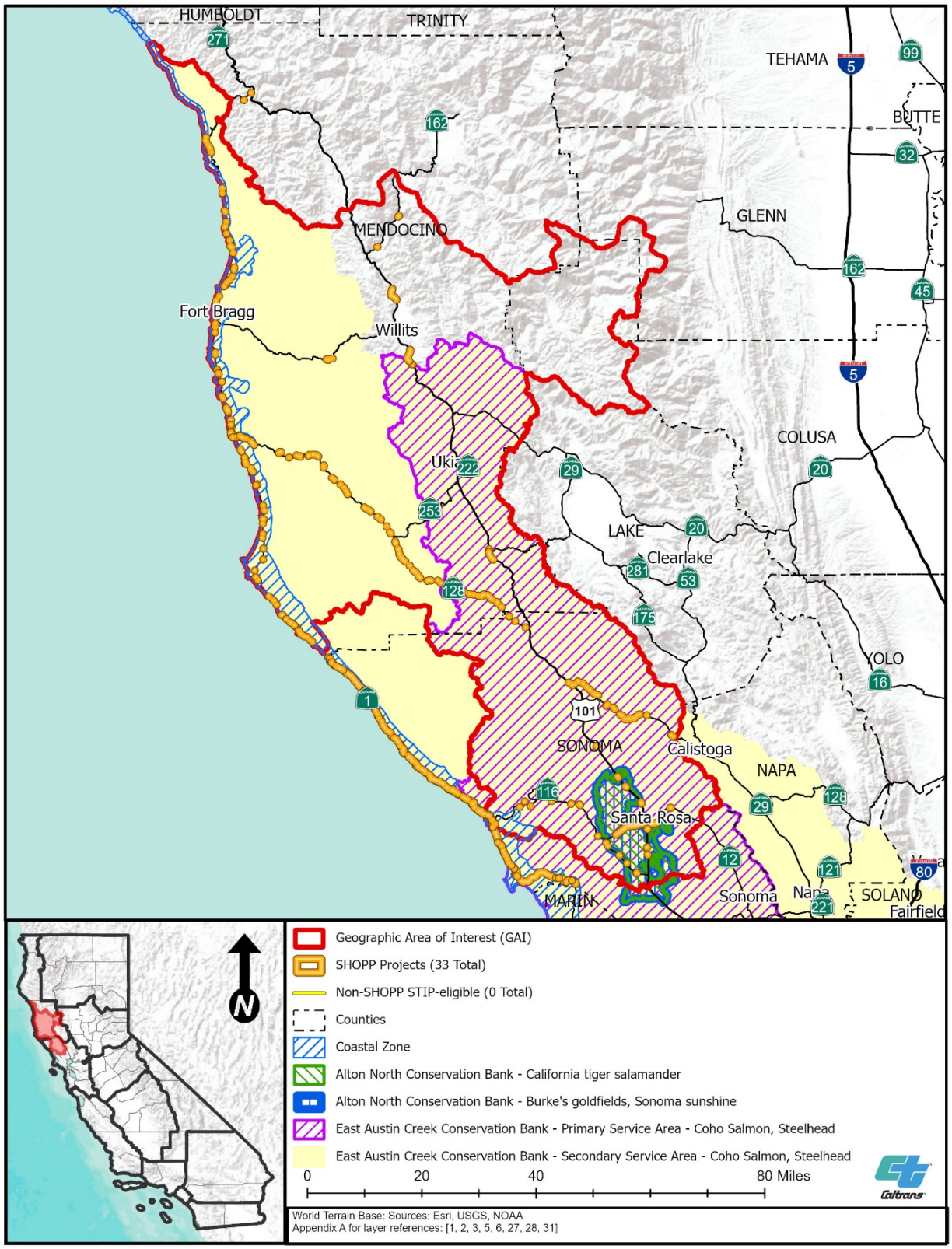


**Figure 4-2. Conservation and Mitigation Bank Service Areas – Part 2**

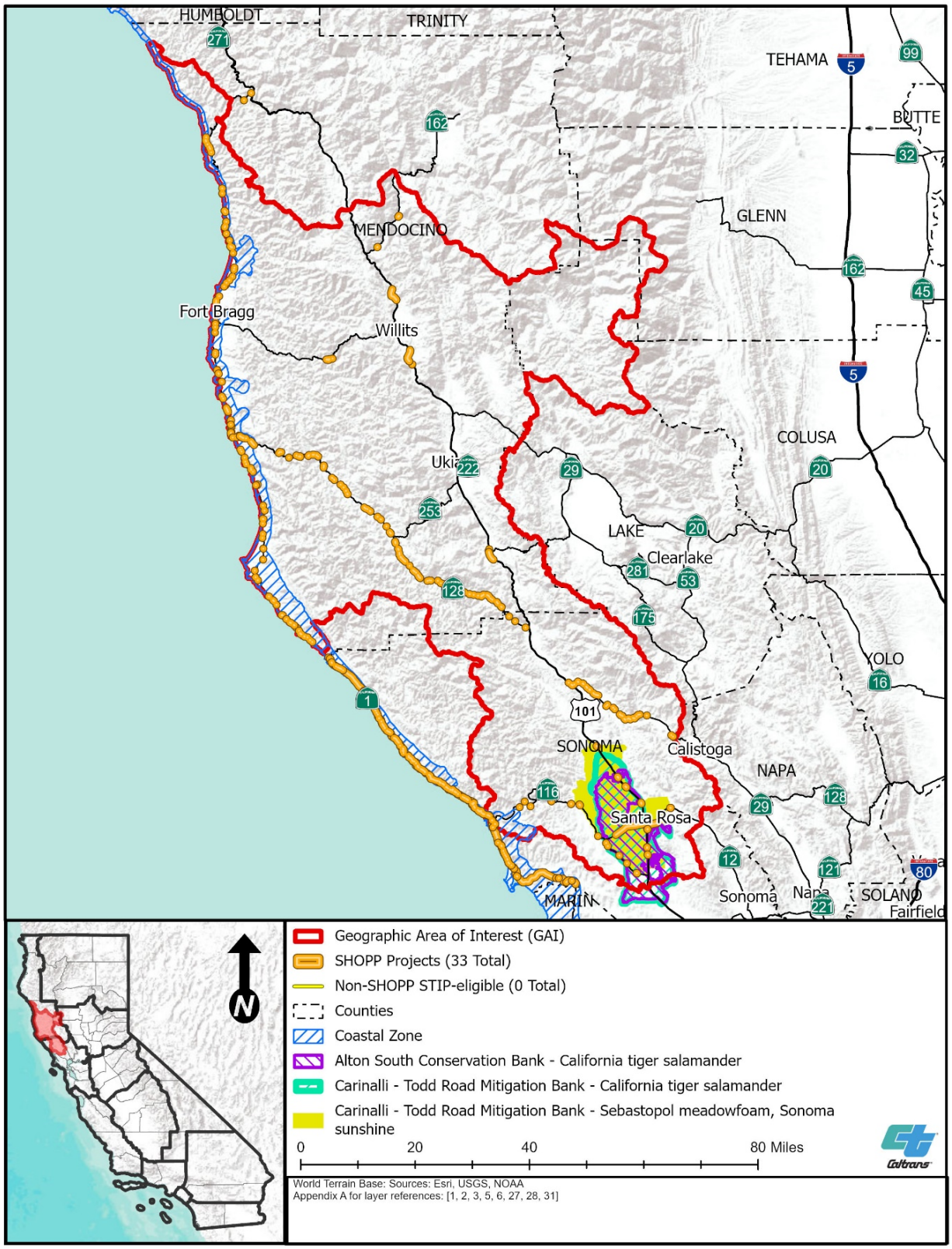


**Figure 4-3. Conservation and Mitigation Bank Service Areas – Part 3**

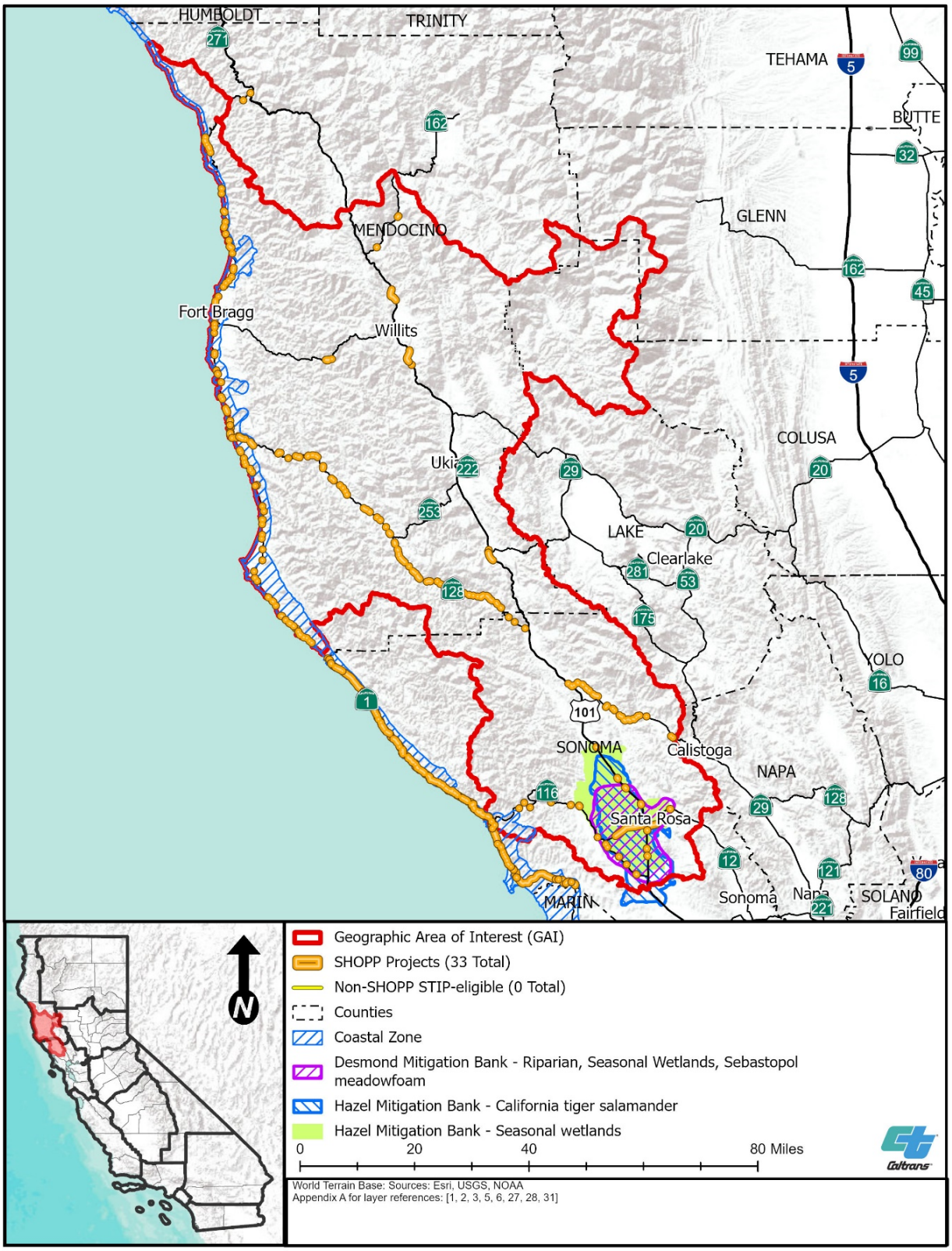


**Figure 4-4. Conservation and Mitigation Bank Service Areas – Part 4**

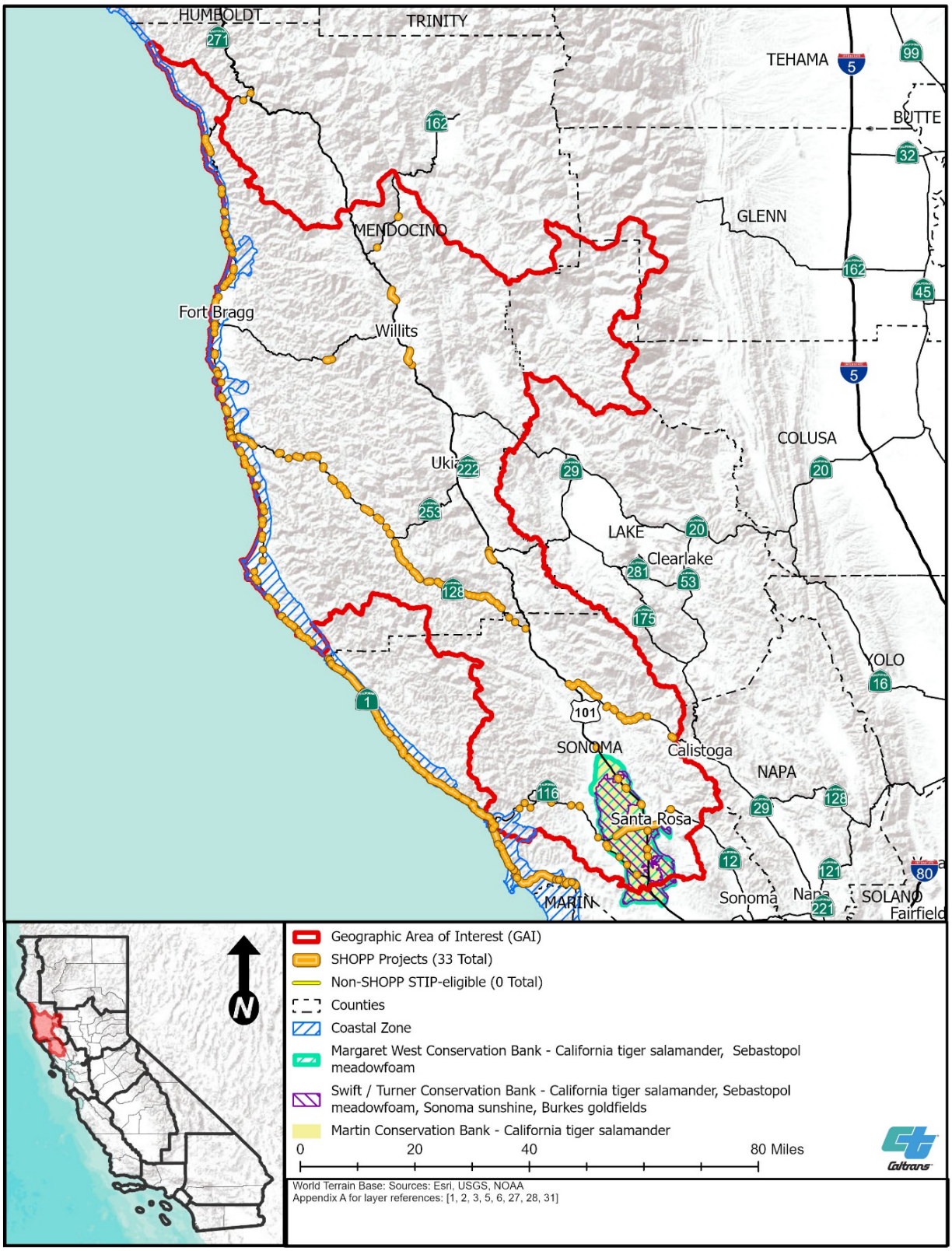
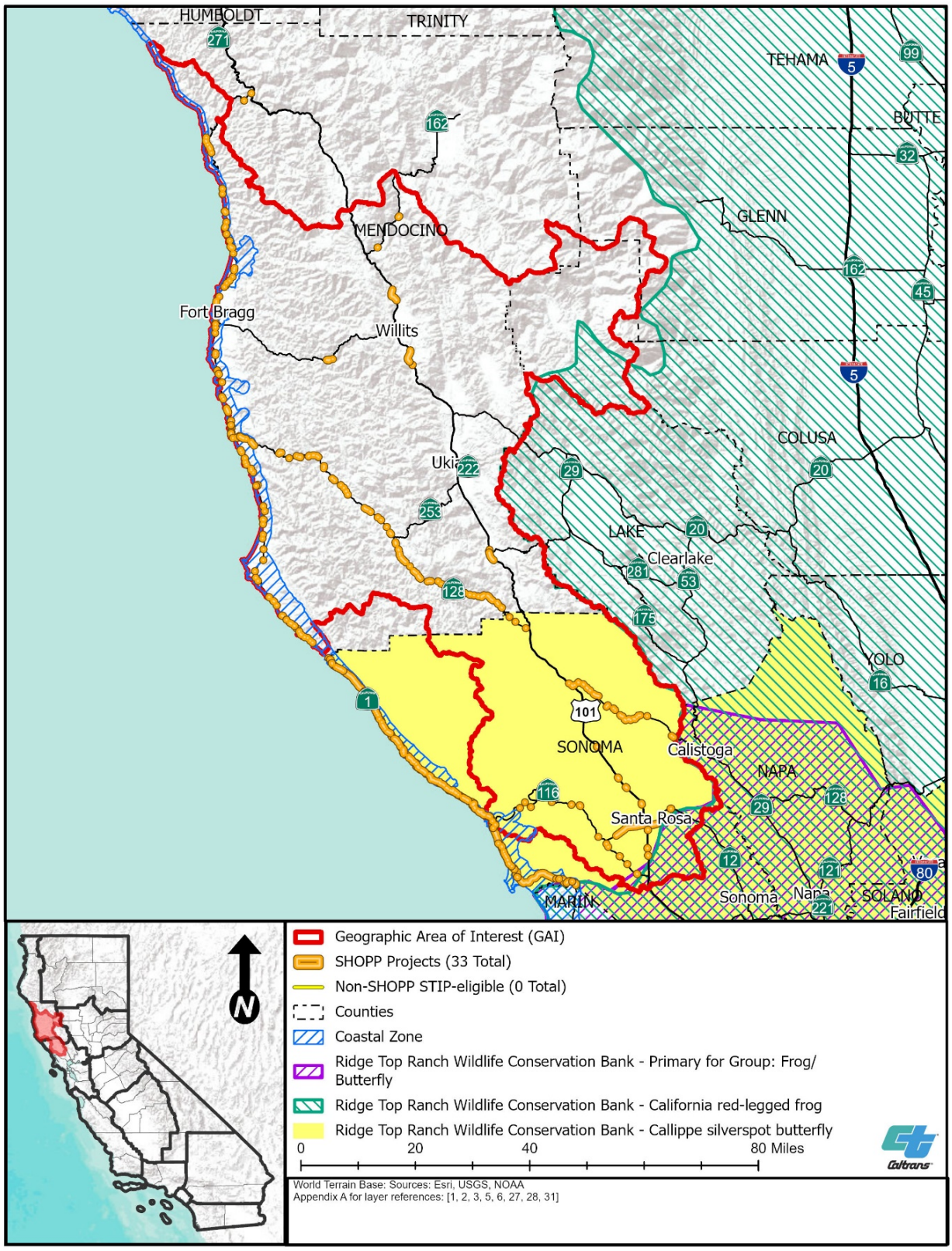


**Figure 4-5. Conservation and Mitigation Bank Service Areas – Part 5**



Several additional conservation and/or mitigation banks have service areas that are partially within the GAI but do not overlap any state highways within the GAI. These banks were omitted from Table 4-2 because they would not be usable by Caltrans for fulfilling mitigation requirements.

## 4.4 In-lieu Fee Programs

Compensatory mitigation can also be accomplished through participation in an in-lieu fee program, which is an agreement between a natural resource regulatory agency or agencies and a single in-lieu fee sponsor. In-lieu fee mitigation occurs when a permittee provides funds to an in-lieu fee sponsor instead of either completing permittee-responsible mitigation or purchasing credits from a conservation or mitigation bank. An in-lieu fee sponsor can include entities such as public agencies or nonprofit organizations, and the fees are used to plan, build, and maintain a mitigation site. This method is similar to purchasing mitigation credits, in that the mitigation is usually conducted "off site." Often, the mitigation occurs after the permitted impacts. However, when the instrument allows for pre-transfer credit purchases, credits can be purchased prior to permitted impacts.

One active in-lieu fee program has a service area that overlaps the GAI: the National Fish and Wildlife Foundation ("NFWF") Sacramento District California ILF Program. However, the service area for this ILF program overlaps only a portion of the GAI within northern Lake County where no state highways or SHOPP transportation projects are located and, as such, cannot be used for advance mitigation within the GAI. No other in-lieu fee programs are currently established within the GAI.

## 4.5 RCISs and MCAs

Assembly Bill 2087 established CDFW's RCIS Program in 2016 (Fish and Game Code Chapter 9, § 1850, et seq.), which created a voluntary framework for governments and other entities to strategically plan for conservation investments in their areas, including investments performed for compensatory mitigation. To promote the conservation quality of compensatory mitigation investments, the RCIS Program provides an advance mitigation tool that can be applied to resources subject to regulations implemented by CDFW. MCAs are developed when and where an RCIS is approved by CDFW and contains the elements described in the California Fish and Game Code § 1856(b). Then, with respect to the SHS, a useful MCA would create credits that may be used as compensatory mitigation to offset impacts identified under CESA and the Lake and Streambed Alteration Program.

An MCA has numerous required elements, many of which parallel the requirements of a mitigation bank. These required elements can be found in the California Fish and Game Code § 1856 and additional guidance is available in *Regional Conservation Investment Strategies Program Guidelines* (CDFW 2023). It is important to note that MCAs are not permits as are HCPs and NCCPs (Section 4.2). MCA advance mitigation credits are analogous to conservation and mitigation bank credits (Section 4.3). In other words,

unlike an HCP and NCCP, RCISs and MCAs do not result in the issuance of incidental take permits for covered activities.

Caltrans did not identify any active or pending RCISs with service areas that overlap the GAI. Because MCAs are issued once a RCIS has been approved, there are also currently no MCAs within the GAI.

## 4.6 Wildlife Crossing and Aquatic Corridor Enhancements

In 2022, California Fish and Game Code § 1955 et seq. authorized CDFW to approve compensatory mitigation credits for a “wildlife connectivity action” through its Banking or RCIS programs. Hence, when wildlife crossings and aquatic corridor enhancements improve the permeability of the SHS, through a BEI or an MCA developed under an RCIS, CDFW is authorized to recognize CESA and Lake and Streambed Alteration credits for construction made separate and distinct from a specific transportation project. Connectivity information for the GAI is summarized in Section 2.11.

# 5. MODELED ESTIMATED IMPACTS

In this chapter, Caltrans documents the potential compensatory mitigation needs in the GAI for fiscal years 2021/22 to 2030/31. Needs were based on estimated potential compensatory mitigation requirements of Caltrans' anticipated SHOPP transportation projects and regional and local STIP-eligible transportation projects, as appropriate. Because the assessment is intended to inform advance mitigation project scoping, the impact estimates used to forecast compensatory mitigation needs do not distinguish between permanent or temporary impacts. Actual transportation project impacts, and natural resource regulatory agency compensatory mitigation conditions on transportation projects, will be determined in the future through each transportation project's environmental studies and permits.

In this chapter, Caltrans:

- Describes its approach to, and major assumptions when, estimating transportation-related compensatory mitigation needs in the GAI; and
- Provides its estimate of impacts for the 10-year planning period for aquatic resources, riparian habitat, and species of mitigation need.

Because Caltrans District 1 chose to focus the analysis on terrestrial resources (Section 1.5), the results presented below are organized by the North California Coast and North California Coast Ranges Ecoregion Sections within Caltrans Districts 1 and 4, which is also the GAI.

## 5.1 Approach

Transportation projects eligible to use AMA-funded advance mitigation credits may only be SHOPP or STIP transportation projects (SHC § 800.7; Caltrans 2019a). Therefore, the compensatory mitigation needs for aquatic resources and wildlife in the GAI are based on Caltrans' anticipated SHOPP transportation project impacts and Caltrans, regional, and local STIP-eligible transportation project impacts.

At this time:

- SHOPP transportation project needs are forecast quantitatively through the SAMNA model developed for the AMP.
- STIP-eligible needs are assessed qualitatively, through Caltrans District 1, MPO, RTPA, and other transportation agency coordination.

All estimates assume permanent losses, although it is likely that, in many cases, some of the effects of a transportation project may be avoided, may be temporary, or may not result in a full loss.

### 5.1.1. SHOPP Needs Assessment: SAMNA Model Results

SHOPP impacts were forecast through the SAMNA. The SAMNA consists of an intersection of assumed transportation project footprints with natural resource layers developed for the SAMNA. Briefly described in Section 1.4, more detailed SAMNA

information is provided in the *Advanced Mitigation Needs Assessment GIS Tool Report for California Department of Transportation* (Caltrans 2018).

To identify the list of SHOPP projects planned for the GAI, Caltrans consulted the SHOPP Ten-Year Book for fiscal years 2021/22 to 2030/31 (Caltrans 2021a). The intent of the SHOPP Ten-Year Book is to raise awareness of planned future transportation projects, and detailed transportation project information is not provided. The SHOPP Ten-Year Book includes 33 SHOPP transportation projects in the GAI that are currently in the planning and conceptual phases (Appendix B). The general locations of all 33 planned transportation projects are shown on most of the maps in this document.

SAMNA estimates are not precise and are not intended to be used for transportation project permitting; however, they are suitable for informing advance mitigation project scopes. The AMP developed the SAMNA strictly and specifically for Caltrans' use in advance mitigation planning—that is, when Caltrans is justifying, proposing, and scoping advance mitigation projects (Caltrans 2019a, 2023). The SAMNA model, its foundation, and assumptions are described in the *Statewide Advance Mitigation Needs Assessment Report* (Caltrans 2023), and some of its uncertainties are highlighted in Appendix E, *Complete SAMNA Species Results*. All results are provided in acres. Some species and resources are not forecast to be affected.

Specific to this assessment, forecast impacts on aquatic resources can be found in Section 5.2 and forecast impacts on species of mitigation need can be found in Section 5.3. The SAMNA results for all habitats with at least one special-status species forecast to be affected are provided in Appendix E, *Complete SAMNA Species Results*.

### 5.1.2. Non-SHOPP STIP-eligible Needs Assessment

At this time, STIP-eligible needs are assessed qualitatively through coordination between the Caltrans District, MPOs, RTPAs, and other public agencies that implement transportation improvements.

Obtaining a reliable list of STIP transportation projects within the 10-year planning horizon is problematic. It is never known which transportation projects will be funded through the STIP until the funds are voted on by the California Transportation Commission, at which point the transportation projects are well past their planning and conceptualization phases and entering their delivery phases. Because of this timing, funded STIP projects will likely need compensatory mitigation before the AMP can deliver the needed mitigation. AMP planning, therefore, must glean a list of transportation projects from the broader set of non-SHOPP transportation projects that may or may not receive STIP funding, such as STIP-eligible transportation projects. Additionally, the STIP is currently receiving very little funding in favor of the "fix-it-first" philosophy of the Road Repair and Accountability Act of 2017, although there is a backlog of transportation projects that potentially need these funds.

To address the dynamic nature of the non-SHOPP STIP-eligible list, it was necessary to identify transportation projects that will be (1) reasonably certain to occur in the same 10-year time frame as the SHOPP projects used in the SAMNA and (2) highly likely to receive STIP funding. To that end, the AMP consulted the Caltrans Division of Transportation Planning's Multimodal Operations, Non-SHOPP, Transportation Equity Report database, using the criteria that a transportation project would have to be in a fiscally constrained[1] regional transportation plan, with a Ready to List[2] year identified as occurring in the 10-year planning horizon. The list would be further refined through consultation with the Caltrans Districts and their regional and local transportation partners (see Table 1-3 of this document for the consultation summary). However, no planned STIP-eligible transportation projects were identified within the GAI for fiscal years 2021/22 to 2030/31.

***Non-SHOPP STIP-eligible Potential Impacts***

Because no planned STIP-eligible transportation projects were identified in the GAI for fiscal years 2021/22 to 2030/31, no STIP-eligible related impacts or mitigation needs are anticipated.

## 5.2 Estimated Aquatic Resources Impacts

The quantitative impacts presented in this document are estimates, pursuant to the SAMNA model. Specific aquatic resource impacts will be assessed in the future as part of each transportation project's environmental studies.

Below, estimated aquatic resource impacts are presented for the HUC-8 sub-basins that make up the GAI. Aquatic resources impacts are categorized as potential impacts on threatened and endangered fish, wetlands, and non-wetland waters. Riparian habitat is also discussed. Refer to Appendix H, *Aquatic Resource Locations*, for maps depicting the location and extent of wetlands and non-wetland waters in the GAI. Riparian habitat is a land cover type mapped in Appendix D, *Land Cover Types.*

### 5.2.1. Estimated Impacts on Aquatic Species of Mitigation Need Habitat

Several threatened and endangered fish species with the potential to be affected during the planning period were identified as species of mitigation need. Species of mitigation need are species for whom a high probability of compensatory mitigation need is anticipated (Section 1.5). Each aquatic species of mitigation need is discussed briefly in the subsections below.

Using the methods described in Section 5.1.1, impacts on aquatic species of mitigation need habitat were estimated for the 33 transportation projects listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*. Of the

[1] Transportation project funding is reasonably assured.
[2] Transportation project schedule is reasonably assured. Ready to List is a named milestone within the Caltrans project delivery process. It is the point when a complete package is ready for contractors to bid on and a transportation project has been approved to be advertised to bid for construction.

33 SHOPP transportation projects evaluated, 18 are forecast to affect approximately 3 acres of aquatic species of mitigation need habitat (Table 5-1; Caltrans 2021a). For example, 10 transportation projects are anticipated to affect 2 acres of Central California Coast ESU coho salmon habitat and 1.6 acres of Northern California DPS steelhead habitat in the Big-Navarro-Garcia Sub-basin.

**Table 5-1. Summary of Estimated SHOPP Impacts on Threatened and Endangered Fish Habitat in the GAI (acres)[a]**

| Sub-basin (HUC-8) | Sub-basin Number | # of Transportation Projects | Chinook Salmon – California Coastal ESU[c] | Coho Salmon – Central California Coast ESU[b] | Coho Salmon – SONCC ESU[b] | Green Sturgeon – Southern DPS[c] | Steelhead – Central California Coast DPS[c] | Steelhead – Northern California DPS[b] | Longfin Smelt[c] | Total[d] |
|---|---|---|---|---|---|---|---|---|---|---|
| Big-Navarro-Garcia | 18010108 | 10 | 0.2 | 2.0 | 0.0 | 0.1 | 0.0 | 1.6 | 0.0 | **2.0** |
| Russian | 18010110 | 7 | 0.5 | 1.0 | 0.0 | 0.4 | 0.6 | 0.0 | 1.0 | **1.0** |
| Upper Eel | 18010103 | 2 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | **0.3** |
| **Total[e]** | Not applicable | **18** | **0.9** | **3.0** | **0.0** | **0.6** | **0.6** | **1.9** | **1.0** | **3.0** |

Source: Caltrans 2021a
[a] Stream/river habitat impacts are provided. Stream/river habitat impacts are assumed to be representative of fish habitat impacts.
[b] Species of mitigation need for this assessment.
[c] Species is forecast to be affected but was not identified as a species of mitigation need.
[d] For sub-basins with more than one species, co-occurrence of impacts is assumed. Acreage for the total impact across all habitat types is provided.
[e] Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one sub-basin; many do not affect fish.

### *Central California Coast ESU Coho Salmon*

Using the methods described in Section 5.1.1, impacts on Central California Coast ESU coho salmon and its habitat were estimated for the transportation projects that may affect wildlife (Appendix B). The SAMNA estimated that 2.0 acres of Central California Coast ESU coho salmon habitat may be affected by 18 Caltrans SHOPP projects in the GAI (Table 5-1; Caltrans 2021a). None of these projects are in the GAI's coastal zone that is under the jurisdiction of the CCC.

### *Northern California DPS Steelhead – Summer Run*

Using the methods described in Section 5.1.1, impacts on Northern California DPS steelhead – summer run and its habitat were estimated for the transportation projects that may affect wildlife (Appendix B). The SAMNA estimated that 1.9 acres of Northern California DPS steelhead – summer run habitat may be affected by 18 SHOPP

transportation projects planned in the GAI (Table 5-1; Caltrans 2021a). None of these projects are in the GAI's coastal zone that is under the jurisdiction of the CCC.

***Southern Oregon/Northern California Coast ESU Coho Salmon***

Using the methods described in Section 5.1.1, impacts on SONCC ESU coho salmon and its habitat were estimated for the transportation projects that may affect wildlife (Appendix B). Although SONCC ESU coho salmon was selected as a species of mitigation need, of the 33 SHOPP transportation projects evaluated, the SAMNA results do not forecast any impacts on this species within the planning period (Table 5-1; Caltrans 2021a). None of these projects are in the GAI's coastal zone that is under the jurisdiction of the CCC.

### 5.2.2. Estimated Impacts on Wetlands

Using the methods described in Section 5.1.1, impacts on wetlands were estimated for the 33 transportation projects listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*. Of the 33 SHOPP transportation projects evaluated, 11 would result in impacts on 2.5 acres of wetland habitat in the GAI, including 0.2 acre of estuarine and marine wetland, 0.2 acre of freshwater emergent wetland, 2 acres of freshwater forested/shrub wetland, and 0.1 acre of freshwater pond (Table 5-2; Caltrans 2021a).

**Table 5-2. Summary of Estimated SHOPP Impacts on Wetlands in the GAI (acres)**

| Sub-basin (HUC-8) | Sub-basin Number | Number of Transportation Projects[a] | Estuarine and Marine Wetland | Freshwater Emergent Wetland | Freshwater Forested/ Shrub Wetland | Freshwater Pond | Total[b] |
|---|---|---|---|---|---|---|---|
| Big-Navarro-Garcia | 18010108 | 7 | 0.2 | 0.2 | 1.3 | 0.0 | **1.7** |
| Russian | 18010110 | 3 | 0.0 | <0.1 | 0.4 | 0.1 | **0.5** |
| Upper Eel | 18010103 | 1 | 0.0 | 0.0 | 0.2 | 0.0 | **0.2** |
| **Total[b,c]** | Not applicable | **11** | **0.2** | **0.2** | **2.0** | **0.1** | **2.5** |

Source: Caltrans 2021a
[a] Transportation projects are listed in Appendix B.
[b] Totals may be different on account of rounding.
[c] Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one sub-basin; many are not forecast to affect wetlands.

Note the SAMNA's terrestrial habitat layers include wetland types (for example, freshwater emergent wetland, saline emergent wetland, and wet meadow, as shown in Table 2-3). However, wetland forecasts based on the SAMNA's wetland layer are considered more accurate than wetland habitat forecasts based on the SAMNA's

terrestrial habitat layers. Therefore, the wetland estimates below are based solely on the SAMNA's wetland data layer (Caltrans 2021a).

### *Estimated Impacts on Wetlands in the Coastal Zone*

As pointed out in Section 2.17.3, Caltrans did not find any coastal wetland spatial data for the GAI. Further, no suitable species or other element from the SAMNA data layers was found to be a suitable proxy for coastal wetlands. Nevertheless, for the purposes of this RAMNA, it is assumed that wetland impacts forecast within the coastal zone would be evaluated under the CCC's coastal wetland impact standards. Hence, of the 33 SHOPP transportation projects evaluated, 8 are forecast to affect 2.0 acres of coastal wetlands in the GAI, including 0.2 acre of estuarine and marine wetland, 0.1 acre of freshwater emergent wetland, 1.6 acres of freshwater forested/shrub wetland, and 0.1 acre of freshwater pond (Table 5-3).

**Table 5-3. Summary of Estimated SHOPP Impacts on Wetlands in the GAI's Coastal Zone (acres)**

| Sub-basin (HUC-8)[a] | Sub-basin Number | Number of Transportation Projects[b] | Estuarine and Marine Wetland | Freshwater Emergent Wetland | Freshwater Forested/ Shrub Wetland | Freshwater Pond | Total |
|---|---|---|---|---|---|---|---|
| Big-Navarro-Garcia | 18010108 | 7 | 0.2 | 0.1 | 1.3 | 0.0 | **1.6** |
| Russian | 18010110 | 1 | 0.0 | 0.0 | 0.3 | 0.1 | **0.4** |
| **Total** | Not applicable | **8** | **0.2** | **0.1** | **1.6** | **0.1** | **2.0** |

Source: Caltrans 2021a
[a] The SAMNA forecasts impacts on wetlands for 2 of the 3 HUC-8s in the GAI.
[b] Transportation projects are listed in Appendix B.

As pointed out in Section 2.17.3, CCC would likely identify as present more coastal wetlands than included in the SAMNA's wetland layer, which is based on the National Wetland Inventory. Consequently, transportation projects may affect CCC wetlands not included in the SAMNA's wetland layer.

## 5.2.3. Estimated Impacts on Non-wetland Waters

Using the methods described in Section 5.1.1, impacts on non-wetland waters were estimated for the 33 transportation projects listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*. Of the 33 SHOPP transportation projects evaluated, 18 would result in impacts on 3.3 acres of non-wetland waters in the GAI, all of which consists of stream/river habitat (Table 5-4; Caltrans 2021a).

**Table 5-4. Summary of Estimated SHOPP Impacts on Non-wetland Waters in the GAI (acres)**

| Sub-basin (HUC-8) | Sub-basin Number | Number of Transportation Projects[a] | Stream/River | Total |
|---|---|---|---|---|
| Big-Navarro-Garcia | 18010108 | 10 | 2.0 | **2.0** |
| Russian | 18010110 | 7 | 1.0 | **1.0** |
| Upper Eel | 18010103 | 2 | 0.3 | **0.3** |
| **Total[b]** | Not applicable | **18** | **3.3** | **3.3** |

Source: Caltrans 2021a
[a] Transportation projects are listed in Appendix B.
[b] Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one sub-basin; many are not forecast to affect non-wetland waters.

### *Estimated Impacts on Non-wetland Waters in the Coastal Zone*

Of the 33 SHOPP transportation projects evaluated, 9 are forecast to affect 1.7 acres of non-wetland waters in the GAI's coastal zone, all of which consists of stream/river habitat (Table 5-5; Caltrans 2021a).

**Table 5-5. Summary of Estimated SHOPP Impacts on Non-wetland Waters in the GAI's Coastal Zone (acres)[a]**

| Sub-basin (HUC-8) | Sub-basin Number | Number of Transportation Projects[b] | Stream/River | Total |
|---|---|---|---|---|
| Big-Navarro-Garcia | 18010108 | 7 | 1.1 | **1.1** |
| Russian | 18010110 | 2 | 0.6 | **0.6** |
| **Total** | Not applicable | **9** | **1.7** | **1.7** |

Source: Caltrans 2021a
[a] The SAMNA forecasts impacts for 2 of the 3 HUC-8s in the GAI.
[b] Transportation projects are listed in Appendix B.

## 5.2.4. Estimated Impacts on Riparian Habitat

The SAMNA does not directly estimate riparian impacts through its aquatic resource layers, but riparian impacts can be estimated by proxy using the SAMNA desert riparian, montane riparian, and valley foothill riparian forecast from the SAMNA's terrestrial layer. No impacts on desert riparian or valley foothill riparian habitat were forecast. Adapting the methods described in Section 5.1.1, impacts on riparian habitat were estimated for the 33 transportation projects listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period.* Of the 33 SHOPP transportation projects evaluated, 5 SHOPP transportation projects are forecast to affect 1.1 acres of riparian habitat in the GAI, all of which consists of montane riparian habitat (Table 5-6; Caltrans 2021a).

**Table 5-6. Summary of Estimated SHOPP Impacts on Riparian Habitat in the GAI (acres)[a]**

| Sub-basin (HUC-8) | Sub-basin Number | Number of Transportation Projects[b] | Montane Riparian | Total |
|---|---|---|---|---|
| Big-Navarro-Garcia | 18010108 | 3 | 1.0 | **1.0** |
| Russian | 18010110 | 2 | 0.1 | **0.1** |
| **Total** | Not applicable | **5** | **1.1** | **1.1** |

Source: Caltrans 2021a
[a] The SAMNA forecasts impacts for 2 of the 3 HUC-8s in the GAI.
[b] Transportation projects are listed in Appendix B.

### *Estimated Impacts on Riparian Habitat in the GAI's Coastal Zone*

Of the 33 SHOPP transportation projects evaluated, 3 SHOPP transportation projects are forecast to affect 1.0 acre of riparian habitat in the GAI's coastal zone, all of which consists of montane riparian habitat (Table 5-7; Caltrans 2021a).

**Table 5-7. Summary of Estimated SHOPP Impacts on Riparian Habitat in the GAI's Coastal Zone (acres)[a]**

| Sub-basin (HUC-8) | Sub-basin Number | Number of Transportation Projects | Montane Riparian | Total |
|---|---|---|---|---|
| Big-Navarro-Garcia | 18010108 | 3 | 1.0 | **1.0** |
| **Total** | Not applicable | **3** | **1.0** | **1.0** |

Source: Caltrans 2021b
[a] The SAMNA forecasts impacts for 1 of the 3 HUC-8s in the GAI.

## 5.3 Estimated Wildlife Impacts

The quantitative impacts presented in this document are estimates, pursuant to the SAMNA model. Specific wildlife resource impacts will be assessed in the future, as part of each transportation project's environmental studies.

Below, estimated impacts are presented for the ecoregion sections that overlap the GAI for species of mitigation need identified by Caltrans District 1, as well as for species that may co-occur in their habitats. The complete results of the SAMNA—inclusive of the 33 transportation projects planned in the GAI and listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*, that may affect special-status plant and wildlife species—are provided in Appendix E, *Complete SAMNA Species Results*.

The special-status terrestrial plant and wildlife species evaluated through the SAMNA consisted of federal and state threatened, endangered, or sensitive species; state fully protected or rare species; or state species of special concern (Caltrans 2023). Based on

a search of the species-attributed vegetation layer, 78 non-fish special-status terrestrial species have the potential to occur in the GAI (Section 2.8, Appendix E; Caltrans 2021a). Using the methods described in Section 5.1.1, the SAMNA analysis determined that 33 SHOPP transportation projects could potentially affect 13 habitat types, which could support up to 65 special-status species (Table 5-8).

**Table 5-8. Summary of Estimated SHOPP Impacts on Special-status Species Habitat in the GAI**

| Ecoregion Section | Number of Caltrans SHOPP Projects[a] | Number of Habitats[b] | Special-status Species[c,d] | Estimated Total Habitat Impact (acres) |
|---|---|---|---|---|
| Northern California Coast | 25 | 11 | 57 | 99.7 |
| Northern California Coast Ranges | 11 | 9 | 50 | 22.8 |
| **Total[e]** | **33** | **13** | **65** | **122.5** |

Source: Caltrans 2021a
[a] Transportation projects are listed in Appendix B.
[b] Excludes urban.
[c] Special-status terrestrial plant and wildlife species evaluated through the SAMNA consisted of federal and state threatened, endangered, or sensitive species; state fully protected or rare species; or state species of special concern.
[d] Included in the SAMNA. See SAMNA report (Caltrans 2023).
[e] Totals may not reflect numbers presented in rows above. Some SHOPP transportation projects cross more than one ecoregion section. Some special-status species occur in more than one ecoregion section.

Species of mitigation need are species for whom a high probability of compensatory mitigation need is anticipated (Section 1.5). One terrestrial species of mitigation need was identified for the GAI, bank swallow, and is discussed briefly in the subsection below.

### 5.3.1. Bank Swallow

Using the methods described in Section 5.1.1, impacts on bank swallow were estimated for the transportation projects listed in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*. Although bank swallow was selected as a species of mitigation need, of the 33 SHOPP transportation projects evaluated, the SAMNA results do not forecast any impacts on this species within the planning period (Caltrans 2021a).

A forecast of no impacts was not expected, and the lack of forecast impacts was overlooked when Caltrans selected the species of mitigation need for this RAMNA (Section 1.5). Upon examination, although bank swallows are known from one colony in Manchester State Park in the western coastal part of the GAI, the SAMNA's foundational CWHR species range map shows occurrences only to the east of the GAI. Hence, at this time, it is possible that the SAMNA is not estimating bank swallow impacts appropriately. Until the CWHR range map is updated, SAMNA forecasts in the GAI will be inconclusive.

### 5.3.2. Potential Co-benefiting Species

The species of mitigation need co-occur with other protected plant, invertebrate, amphibian, reptile, bird, and mammal species. However, because no impacts are forecast for bank swallow, co-benefiting terrestrial special-status species could not be identified.

# 6. BENEFITING TRANSPORTATION PROJECT CONSIDERATIONS

Benefiting transportation projects have delivery schedules that would likely benefit from advance mitigation credits. Potentially benefiting transportation projects are identified in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*, for advance mitigation planning to guide advance mitigation project scoping. Actual benefiting transportation projects will be determined in the future. Caltrans and relevant natural resource regulatory agencies will evaluate the appropriateness of using advance mitigation credits on a case-by-case basis as part of each future transportation project's permitting and technical assistance processes.

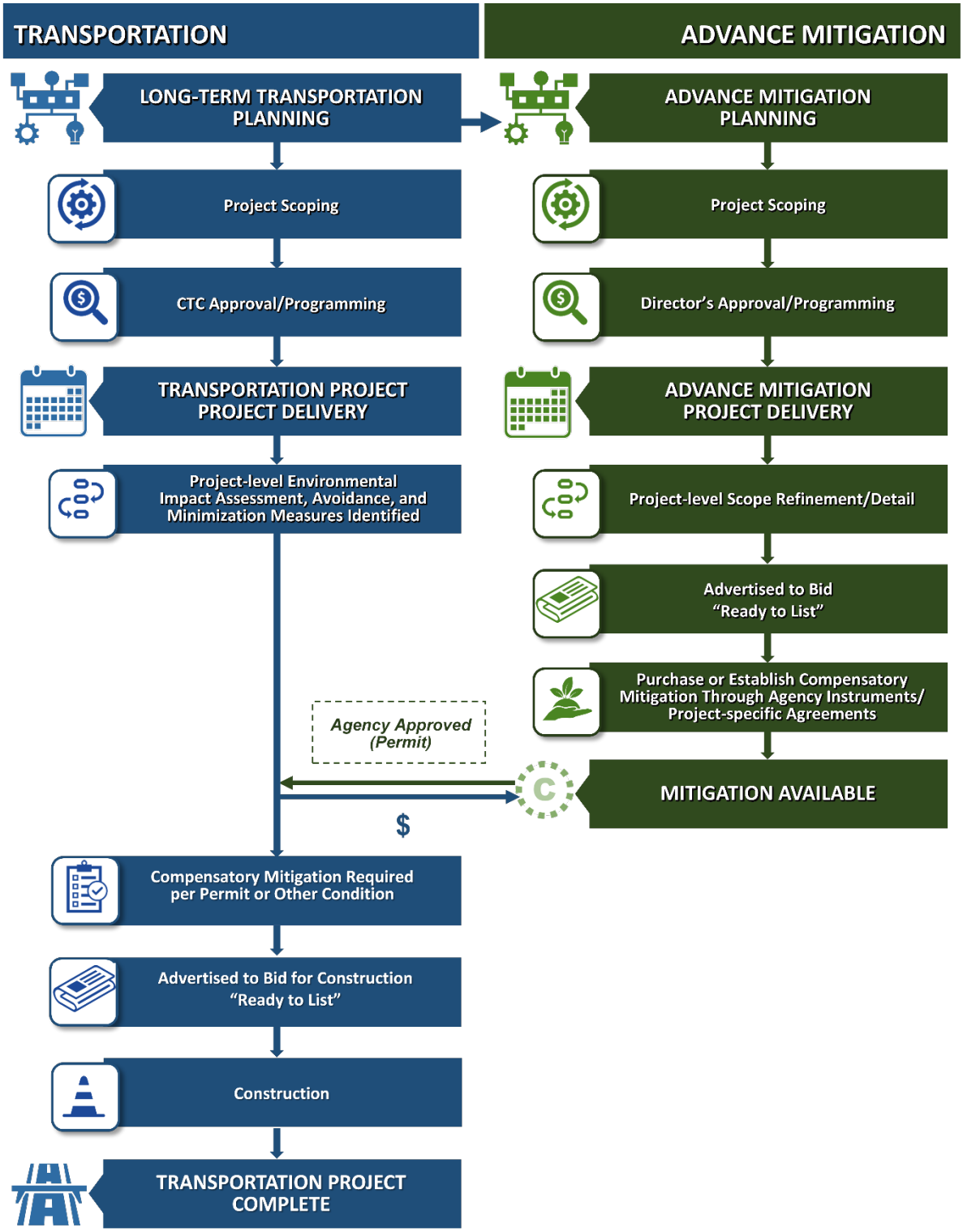
In this chapter, Caltrans summarizes the scheduling considerations and constraints of potential benefiting transportation projects in order to inform advance mitigation project schedules. A time frame for the forecast advance mitigation needs is provided and analyzed. The potentially benefiting transportation projects' acceleration priorities are documented in this chapter.

## 6.1 Why Timing is Important

Broadly speaking, an advance mitigation project is a SHC § 800.6(a)-authorized activity that consists of (1) purchasing compensatory mitigation that has been previously approved by the natural resource regulatory agencies through a conservation bank, mitigation bank, HCP/NCCP, or in-lieu fee program; or (2) establishing and receiving approval of compensatory mitigation credits, such as establishing a mitigation bank in accordance with existing laws, policies, procedures, templates, and guidance (see Table 1-1). Elaborated upon in Chapter 9, *Assessment of Authorized Activities*, the time it takes to deliver each authorized activity varies; however, purchasing compensatory mitigation credits would likely take less time than establishing compensatory mitigation credits.

Caltrans transportation projects must have permits and compensatory mitigation lined up before advertising and selecting a contractor to bid upon and perform a transportation project (Figure 6-1). Hence, for advance mitigation project scoping, the Caltrans District's nomination of a specific advance mitigation project type will be contingent, in part, on the anticipated timing of the potentially benefiting transportation project impacts. This is because, to benefit transportation projects as intended, the compensatory mitigation purchased or established through an advance mitigation project will need to be available to meet actual transportation project permit conditions established through an environmental study and document process undertaken prior to the transportation project incurring impacts (Figure 6-1).

**Figure 6-1. Timing Advance Mitigation with Transportation Project Delivery**



The date when a Caltrans potential transportation project is expected to be Ready to List[1] is an appropriate estimate for identifying when a Caltrans advance mitigation project will need to deliver compensatory mitigation to a potential benefiting transportation project. Approved credits must be in-hand before their offset value, with natural resource regulatory agency approval, may be applied to a transportation project.

## 6.2 Patterns of Estimated Potential Impacts

Given that the planning horizon for this assessment covers the 2021/22 through 2030/31 fiscal years, and that some of the transportation projects may have already gone to bid, it is necessary to consider which transportation projects:

- would need to acquire compensatory mitigation before the AMP can deliver, and hence the AMP cannot feasibly supply compensatory mitigation credits on the required schedule;
- would need compensatory mitigation delivered in a nearer time frame, which may favor seeking already existing credits as an AMP advance mitigation project scope; and
- would need compensatory mitigation farther out in time and, if so, whether there is time to establish new compensatory mitigation.

Initial estimated impact patterns are based on the planned SHOPP transportation project information provided in Appendix B, *Transportation Projects Planned for the GAI during the Planning Period*.

- As shown in Tables 6-1 through 6-3 and on Figures 6-2 through 6-4, when the SHOPP transportation projects identified previously have their aquatic resource impacts examined relative to their expected advertising date, the compensatory mitigation needs are spread throughout the 10-year planning period, as described below:
  - Compensatory mitigation needs in the Big-Navarro-Garcia Sub-basin are focused on fish habitat, wetlands, non-wetland waters, and riparian habitat, with the largest impacts in fiscal years 2021/22 and 2029/30 and lesser impacts in fiscal years 2022/23, 2023/24, and 2027/28.
  - Compensatory mitigation needs in the Russian Sub-basin are focused on fish habitat, wetlands, non-wetland waters, and riparian habitat in fiscal year 2023/24 with lesser impacts on fish habitat and non-wetland waters in fiscal years 2027/28, 2029/30, and 2030/31, and minor impacts to riparian habitat in fiscal year 2028/29 and wetlands in fiscal year 2029/30.

[1] Ready to List is a named milestone within the Caltrans project delivery process. It is the point when a complete package is ready for contractors to bid on and a transportation project has been approved to be advertised to bid for construction.

- Compensatory mitigation needs in the Upper Eel Sub-basin are focused on fish habitat, wetlands, and non-wetland waters in fiscal year 2024/25, with lesser impacts to fish habitat and non-wetland waters in fiscal year 2023/24.

Spatially, these transportation projects are distributed throughout the GAI (Figure 6-5).

**Table 6-1. Big-Navarro-Garcia Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year**

| Expected Advertisement Year | Fish: Number of Transportation Projects | Fish: Estimated Potential Impacts (acres) | Wetland: Number of Transportation Projects | Wetland: Estimated Potential Impacts (acres) | Non-wetland waters: Number of Transportation Projects | Non-wetland waters: Estimated Potential Impacts (acres) | Riparian: Number of Transportation Projects | Riparian: Estimated Potential Impacts (acres) |
|---|---|---|---|---|---|---|---|---|
| 2021/22 | 5 | 0.8 | 3 | 0.8 | 5 | 0.8 | 1 | 0.4 |
| 2022/23 | 1 | 0.2 | 0 | 0.0 | 1 | 0.2 | 0 | 0.0 |
| 2023/24 | 1 | <0.1 | 1 | 0.1 | 1 | <0.1 | 1 | 0.1 |
| 2024/25 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 2025/26 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 2026/27 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 2027/28 | 1 | 0.2 | 1 | 0.2 | 1 | 0.3 | 0 | 0.0 |
| 2028/29 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 2029/30 | 2 | 0.7 | 2 | 0.7 | 2 | 0.7 | 1 | 0.5 |
| 2030/31 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| **Total[a]** | **10** | **2.0** | **7** | **1.7** | **10** | **2.0** | **3** | **1.0** |

[a] Total may be different on account of rounding.

**Figure 6-2. Big-Navarro-Garcia Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year**

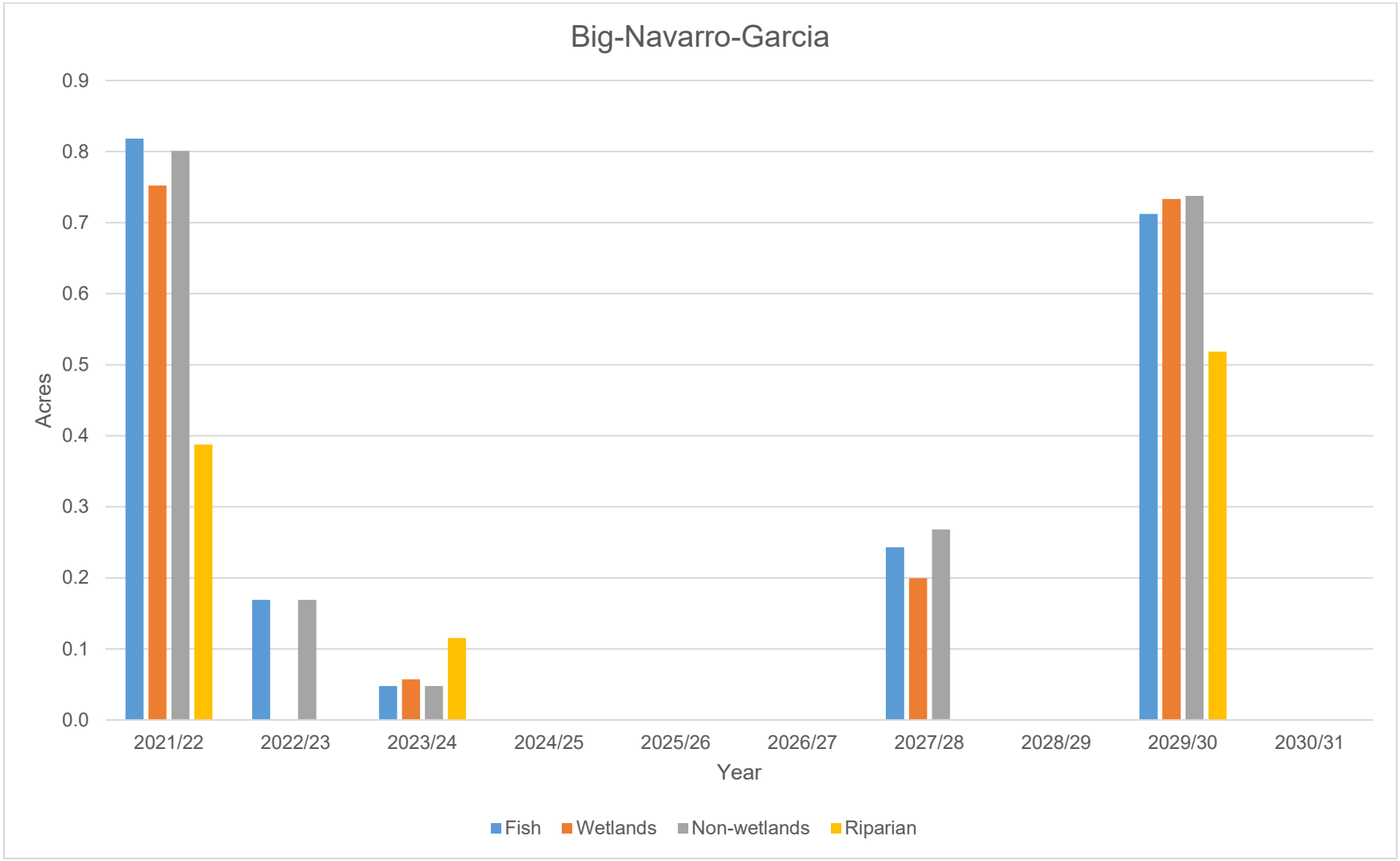


**Table 6-2. Russian Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year**

| Expected Advertisement Year | Fish: Number of Transportation Projects | Fish: Estimated Potential Impacts (acres) | Wetland: Number of Transportation Projects | Wetland: Estimated Potential Impacts (acres) | Non-wetland waters: Number of Transportation Projects | Non-wetland waters: Estimated Potential Impacts (acres) | Riparian: Number of Transportation Projects | Riparian: Estimated Potential Impacts (acres) |
|---|---|---|---|---|---|---|---|---|
| 2021/22 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 2022/23 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 2023/24 | 4 | 0.8 | 2 | 0.5 | 4 | 0.8 | 1 | 0.1 |
| 2024/25 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 2025/26 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 2026/27 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 2027/28 | 1 | 0.1 | 0 | 0.0 | 1 | 0.1 | 0 | 0.0 |
| 2028/29 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | <0.1 |
| 2029/30 | 1 | 0.1 | 1 | <0.1 | 1 | 0.1 | 0 | 0.0 |
| 2030/31 | 1 | <0.1 | 0 | 0.0 | 1 | <0.1 | 0 | 0.0 |
| **Total[a]** | **7** | **1.0** | **3** | **0.5** | **7** | **1.0** | **2** | **0.1** |

[a] Total may be different on account of rounding.

**Figure 6-3. Russian Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year**

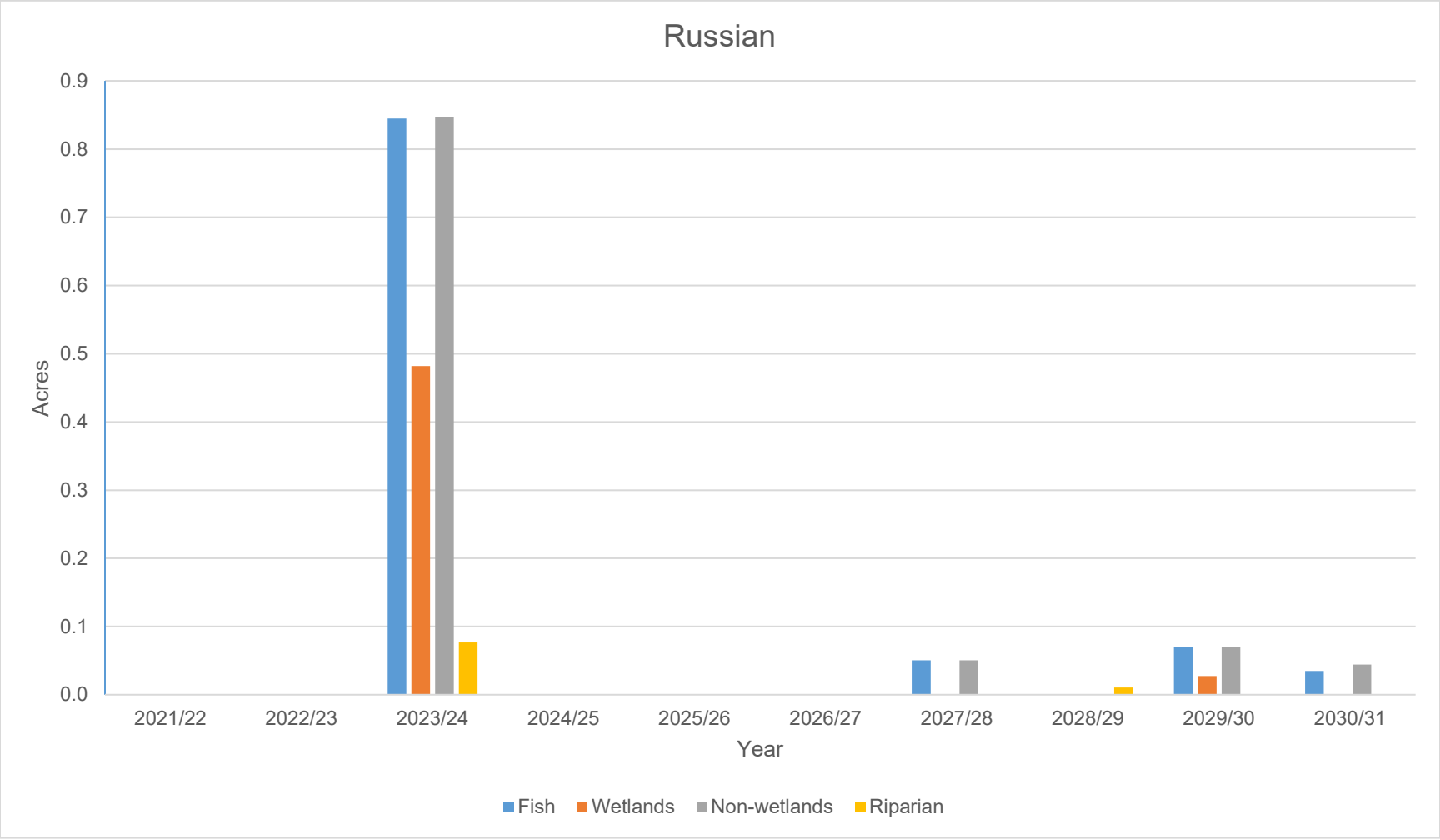
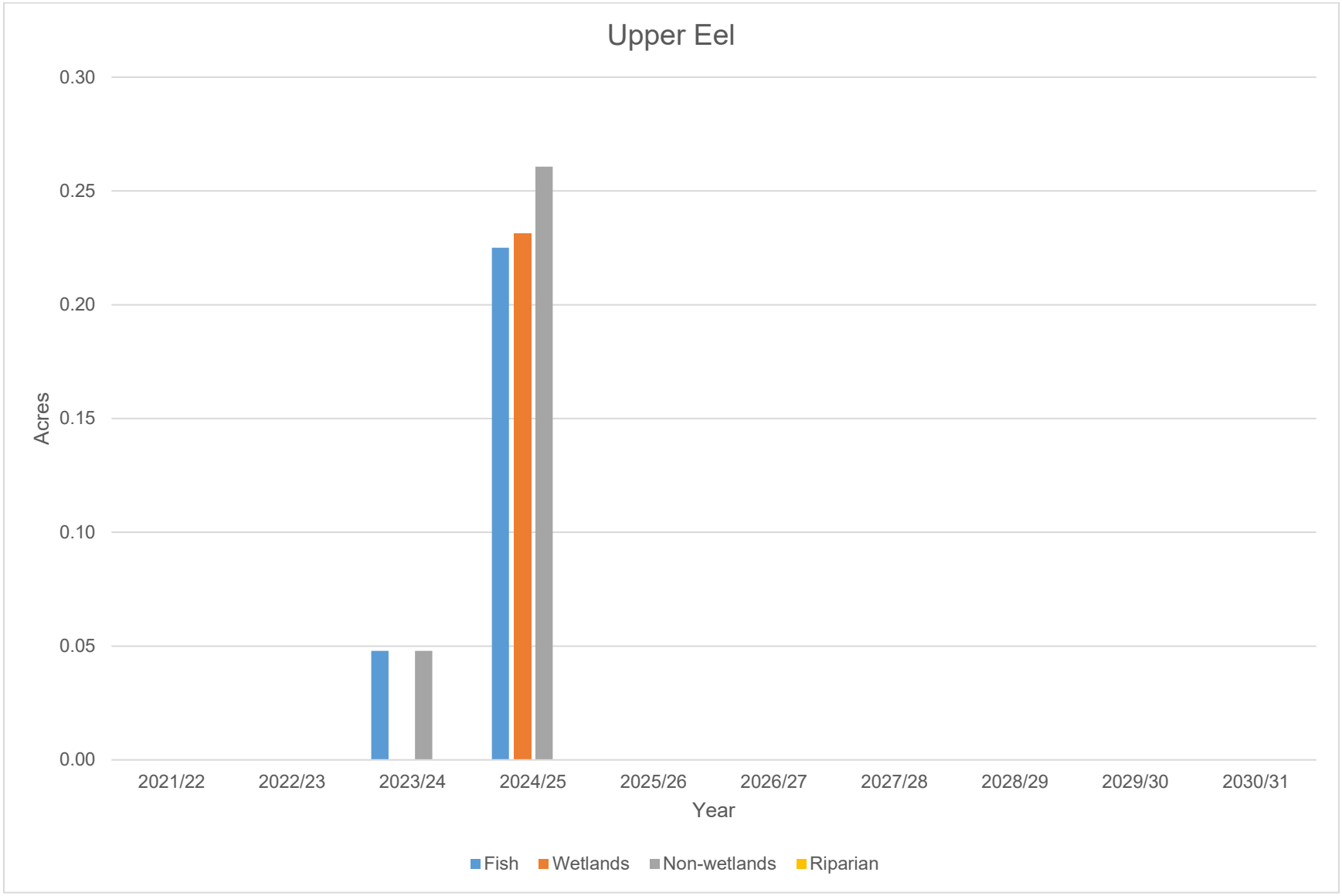


**Table 6-3. Upper Eel Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year**

| Expected Advertisement Year | Fish: Number of Transportation Projects | Fish: Estimated Potential Impacts (acres) | Wetland: Number of Transportation Projects | Wetland: Estimated Potential Impacts (acres) | Non-wetland waters: Number of Transportation Projects | Non-wetland waters: Estimated Potential Impacts (acres) | Riparian: Number of Transportation Projects | Riparian: Estimated Potential Impacts (acres) |
|---|---|---|---|---|---|---|---|---|
| 2021/22 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 2022/23 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 2023/24 | 1 | <0.1 | 0 | 0.0 | 1 | <0.1 | 0 | 0.0 |
| 2024/25 | 1 | 0.2 | 1 | 0.2 | 1 | 0.3 | 0 | 0.0 |
| 2025/26 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 2026/27 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 2027/28 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 2028/29 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 2029/30 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| 2030/31 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| **Total[a]** | **2** | **0.3** | **1** | **0.2** | **2** | **0.3** | **0** | **0.0** |

[a] Total may be different on account of rounding.

**Figure 6-4. Upper Eel Sub-basin: Estimated Impacts on Aquatic Resources, by Transportation Project Delivery Year**



## 6.3 Acceleration Priorities

At the time of an advance mitigation project proposal, Caltrans' transportation project sequence prioritization will reflect the updated information provided in the most current SHOPP Ten-Year Book and will be based on meeting the Caltrans District's needs and performance targets while financially balancing the Caltrans District's and AMA accounts.

- As shown in Tables 6-1 to 6-3 and on Figures 6-2 to 6-4, which are based on Quarter 2 of the Ten-Year Book, most impacts on aquatic resources in the GAI are concentrated in fiscal years 2021/22 through 2024/25, with no impacts in fiscal years 2025/26 and 2026/27, and additional impacts during the remainder of the 10-year planning period evaluated in the SAMNA.
- Most of the projects that are anticipated to advertise in the 2022/23 fiscal year or prior have already required specific project mitigation when they obtained their permits in the 2021/22 fiscal year (July 1, 2021, to June 30, 2022) (Figure 6-5).

Therefore, most transportation projects that could benefit from an advance mitigation project initiated post-RAMNA would need to be advertised in the 2024/25 or subsequent fiscal years.

Caltrans District 1's transportation project priorities are expressed in the 2021 SHS Management Plan, which identifies transportation projects that generally fall in the middle and end of the 10-year assessment period. These priorities can change, however. Transportation planning is dynamic and since the 2021/22 to 2030/31 (Quarter 2) SHOPP Ten-Year Book was published, delivery schedules associated with many transportation projects may have changed. Prior to proposing advance mitigation projects, Caltrans District 1 will consult the most recent SHS Management Plan to obtain an up-to-date estimate of the timing of transportation projects that may need credits established or purchased through the AMA.

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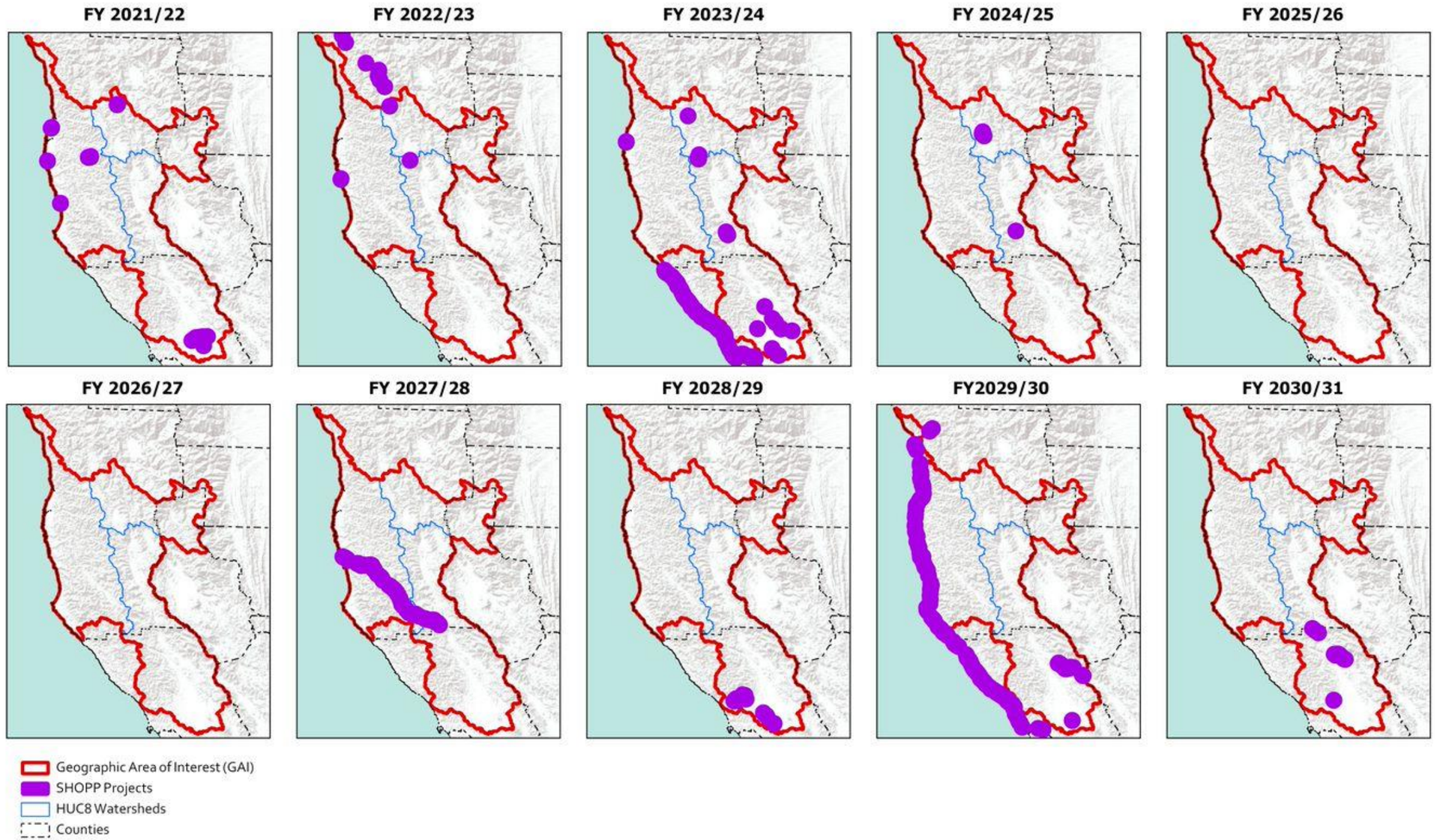
**Figure 6-5. Location of SHOPP Estimated Impacts, by Transportation Project Delivery Year**




Note: SHOPP transportation projects are listed in Appendix B.

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# 7. WILDLIFE RESOURCES CONSERVATION GOALS AND OBJECTIVES

Caltrans' primary objective for wildlife resources is to avoid and minimize all impacts on special-status species from Caltrans transportation projects in the GAI. However, when avoidance and minimization are insufficient or infeasible, compensatory mitigation may be used to offset impacts. Credits or values established through SHC § 800.6(a)-authorized advance mitigation projects offer the unique opportunity to consolidate needed compensatory mitigation. This consolidation helps to provide strategically placed and environmentally sound compensatory mitigation options, including enhanced, restored, or created habitat and an improved environmental outcome that may not be available through the usual transportation project-by-project approach to compensatory mitigation.

Caltrans seeks to align its advance mitigation projects with natural resource regulatory agencies' goals and objectives, thus contributing to an improved environmental outcome within the GAI. With this in mind, this chapter presents Caltrans' understanding of natural resource regulatory agencies' regional conservation goals and objectives and how they could be applied to advance mitigation projects undertaken in the GAI to offset forecast impacts on wildlife resources from SHOPP and STIP-eligible transportation projects.

The goals and objectives assembled for this chapter are intended to guide Caltrans' advance mitigation project scoping decisions toward those choices that provide the greatest environmental benefit available through the advance mitigation planning and delivery processes. Such projects undertaken by Caltrans should contribute to wildlife resource protection and enhancement and should yield compensatory mitigation usable by future transportation projects, as specified in SHC § 800.[1] Compensatory mitigation usable by future transportation projects should be expressed in standard units or terms recognized by the natural resource regulatory agencies.

Information presented in this chapter is for advance mitigation project scoping purposes only. Transportation projects must still go through environmental and permitting processes and must demonstrate avoidance and minimization efforts prior to compensation.

## 7.1 Approach

For the purposes of this RAMNA, conservation goals and objectives are a broad set of regional natural resource sustainability goals and objectives that are consistent with both regulatory requirements and conservation science.

[1] Pursuant to SHC § 800.9, to the maximum extent practicable, the information required for an RCIS is presented in this RAMNA. During CDFW's review of an RCIS, CDFW determines whether the goals and objectives presented in the RCIS are consistent with FGC § 1852, subdivision (c)(8).

To determine the wildlife resource conservation goals and objectives applicable to the GAI, Caltrans:

- First, in Section 7.2, identifies the natural resource regulatory agencies with the authority to condition transportation projects with wildlife resource-related compensatory mitigation in the GAI.
- Then, in Section 7.3, summarizes the life history information for the wildlife species of mitigation need chosen to focus the assessment, as identified in Section 1.5.
- Next, in Sections 7.4, 7.5, and 7.6, for the species of mitigation need, identifies:
  - Federal and state binding and non-binding regional conservation and land management plans
  - Current and projected pressures and stressors for which there is a potential transportation nexus
  - Opportunities to enhance the conservation benefits through advance mitigation projects
  - Opportunities to benefit other special-status and native wildlife species through advance mitigation
- Last, analyzes the aforementioned information in relation to the transportation-related activities that could potentially affect the species of mitigation need, and the potential range of compensatory mitigation that could satisfy a future transportation project condition associated with the activities.

The result of this analysis is a framework of conservation goals and objectives for use in advance mitigation project scoping (Section 7.7).

## 7.2 Natural Resource Regulatory Agencies with Wildlife Resources Oversight

Table 7-1 lists the natural resource regulatory agencies with the authority to condition transportation projects delivered in the GAI with wildlife resource-related compensatory mitigation. The aquatic resources used by wildlife, such as streams, wetlands, and non-wetland waters, are also regulated by other natural resource regulatory agencies. This RAMNA identifies goals and objectives for aquatic resources, including threatened and endangered fish species, separately in Chapter 8, *Aquatic Resources Conservation Goals and Objectives*.

## Table 7-1. Natural Resource Regulatory Agencies with the Authority to Approve Wildlife Resource Compensatory Mitigation Credits (or Values)

| Agency[a] | Summary |
|---|---|
| CCC | CCC protects the coast by planning for and regulating new development in the coastal zone pursuant to the policies of the Coastal Act. Through the issuance of CDPs, CCC implements the policies of the Coastal Act, including protecting sensitive resources (for example, wetlands, waters, ESHAs), water quality, public access to the coast, etc. CCC also coordinates with local governments in developing and certifying LCPs, which allow local governments to assume the authority to issue CDPs within their jurisdiction. The agency also provides comprehensive guidance to local governments and project applicants regarding planning for and adapting to climate change and sea-level rise. The CCC, agency, or authorized local government with a certified LCP also determines how an ESHA is defined, either as specific species habitats or as geographic areas because of the presence of rare or valuable plants or animal species or habitat. Areas designated as ESHAs are also typically threatened by habitat fragmentation, disturbance, degradation, or other anthropogenic factors. |
| CDFW | CDFW oversees the conservation, protection, and management of fish, wildlife, native plants, and the habitats necessary for biologically sustainable populations of those species in California. CDFW's Environmental Review and Permitting, Conservation and Mitigation Banking, NCCP, and RCIS programs implement sections of the FGC, Title 14 of the California Code of Regulations, and Public Resources Code § 21000, et seq. These programs help fulfill CDFW's mission to manage California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values. CDFW issues permits and agreements to project proponents under its authorities including incidental take permits and consistency determinations under CESA, Lake and Streambed Alteration Agreements, approvals of conservation and mitigation banks, approvals of MCAs and RCISs, and NCCP permits. NCCP permits can authorize the take of fully protected species. |
| FWS | FWS has jurisdiction over a broad range of fish and wildlife resources. FWS authorities related to these resources are codified under multiple statutes, including, but not limited to, the ESA. Most statutes give FWS an advisory role in mitigation. However, if a non-federal entity applies for an incidental take permit for a listed animal species, Section 10(a)(2)(b) of the ESA requires that the impact of any incidental take be minimized and mitigated to the maximum extent practicable. Section 7(a)(1) of the ESA also requires all federal agencies to use their authorities to conserve listed species. Many federal agencies have developed programs to include mitigation as part of the Section 7(a)(2) consultation on their proposed actions to partially fulfill this Congressional mandate.<br><br>Conservation banking can assist federal and non-federal participants in the Section 7 and Section 10 process. In May 2003, FWS issued comprehensive federal guidelines designed to promote conservation banks as a tool for mitigating adverse impacts on species; the guidelines foster national consistency by standardizing establishment and operational criteria. Many activities conducted under Section 7 and Section 10 of the ESA result in adverse effects on listed species, including habitat loss or modification. One way to offset these types of impacts is to include in the project design a plan that involves the restoration and/or protection of similar habitat on site and/or off site. Purchasing credits in conservation banks is one method of protecting habitat on site or off site. |

| Agency[a] | Summary |
|---|---|
| NMFS | NMFS has jurisdiction over marine species listed as threatened or endangered under the ESA. Federal agencies must consult with NMFS to ensure that their actions do not jeopardize the continued existence of ESA listed species or result in the destruction or adverse modification of designated critical habitat.<br><br>NMFS also manages and conserves wildlife and fisheries resources in the marine and estuarine environment under the Magnuson-Stevens Fishery Conservation and Management Act. Federal agencies must consult with NMFS on any action that might adversely affect EFH. NMFS will advise federal agencies to avoid, minimize, mitigate, or otherwise offset adverse effects on EFH. Magnuson-Stevens Fishery Conservation and Management Act EFH consultation can be done in tandem with ESA consultation.<br><br>NMFS protects marine mammals under the Marine Mammal Protection Act, with the exception of sea otters, walruses, manatees, and polar bears, which are managed by FWS. With some exceptions, the Marine Mammal Protection Act prohibits the take of marine mammals, including harassment, hunting, capturing, collecting, or killing, in U.S. waters and by U.S. citizens on the high seas. |

[a] In addition to the agencies listed above, the RWQCBs may exert jurisdiction over species to the extent that wildlife habitat; rare, threatened, or endangered species; warm freshwater habitat; cold freshwater habitat; or spawning, reproduction, and/or early development beneficial uses exist and would be affected by a project.

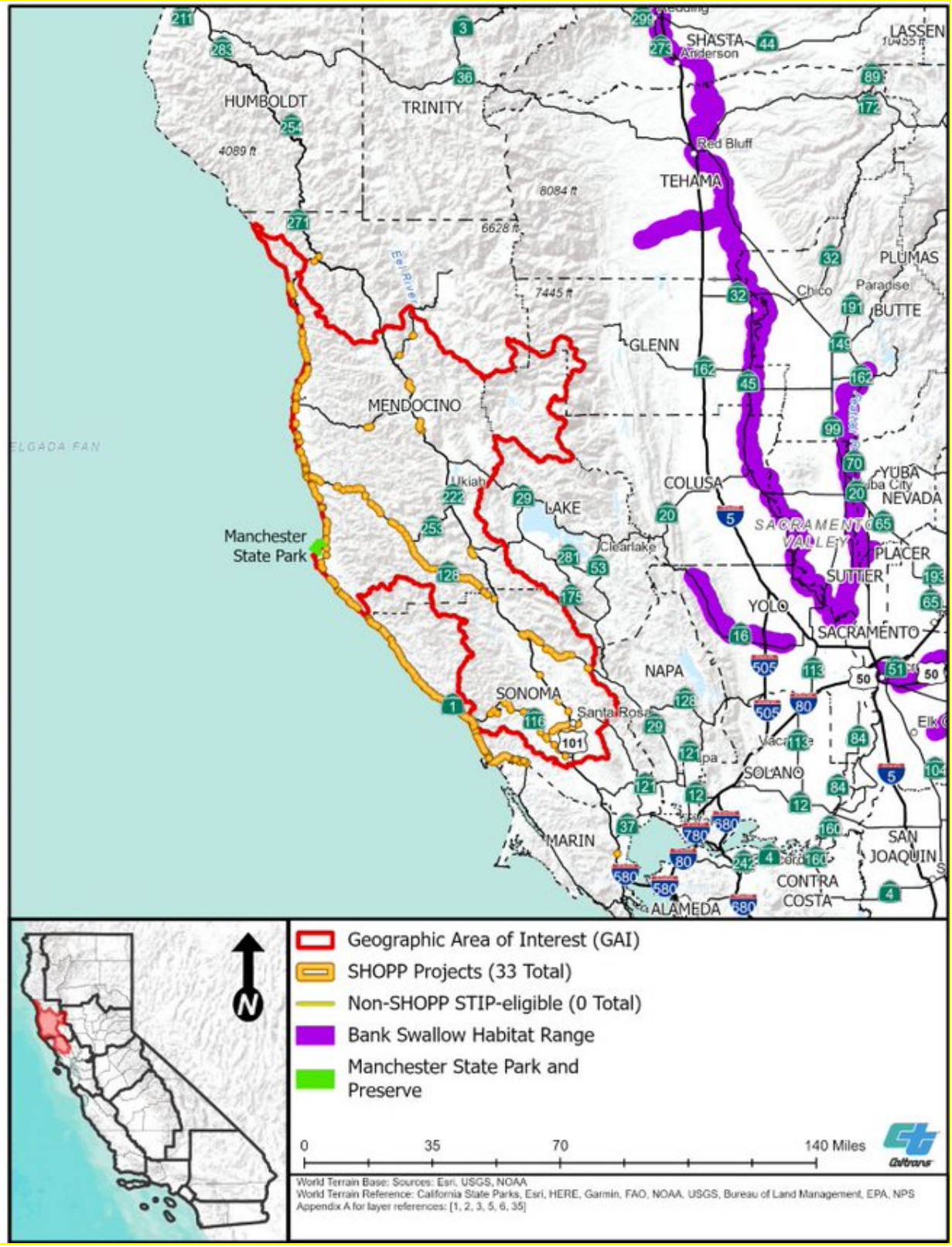
## 7.3 Species of Mitigation Need

An overview of wildlife resources is provided in Chapter 2, *Environmental Setting*. As described in Section 1.5, species of mitigation need were selected to focus the planning effort and to improve the probability that advance mitigation projects undertaken by Caltrans will yield credits (or similar) that will be usable during the planning period. To this end, the terrestrial species of mitigation need identified for the GAI is bank swallow. This species is briefly described below.

### 7.3.1. Bank Swallow

Bank swallow is a state threatened bird species that nests throughout much of North America. It is a neotropical migrant species, wintering in Latin America from southern Mexico to as far south as central Argentina and returning to North America in the spring to nest. Bank swallows are colonial nesters, establishing their colonies in fine-textured sandy soils within vertical banks, bluffs, and cliffs along rivers, near lakeshores, and in some coastal areas (California Department of Fish and Game [“CDFG”] 1999). In California, bank swallows were formerly more common but the number of known colonies in the state has declined significantly over the last century, due in large part to channelization and bank stabilization (CDFG 1995). A large portion of the colonies remaining in the state nest along the banks of the Upper Sacramento and Feather Rivers in the northern Central Valley, but other colonies persist in the northeastern part of the state and along the central coast and north coast. The CWHR range map for bank swallow does not include the GAI (Figure 7-1). However, there is one known colony within the GAI located at Manchester State Park and Preserve in Mendocino County at the cliffs on the beach and not near any SHOPP projects. While this species is included in the SAMNA, no impacts on the species or its habitat were forecast (see Chapter 5, *Modeled Estimated Impacts*).

**Figure 7-1. CWHR Bank Swallow Range Map**



## 7.4 Regional Conservation Efforts

Caltrans' understanding of natural resource regulatory agency conservation goals and objectives is that they are generally designed to protect existing populations and habitat, and include acquiring, protecting, restoring, and/or enhancing habitats and linkages. Several conservation and land management plans listed in Table 3-1, relevant to the species of mitigation need, identify key habitats or designate specific lands or areas to protect for conservation of the species of mitigation need in the GAI. These conservation and land management plans are presented in Table 7-2.

The conservation and land management plans include measures to address specific known, ongoing threats to individuals and populations, which are incorporated into and/or inform the advance mitigation conservation goals and objectives compiled below. Caltrans may also use this information during advance mitigation project scoping to help compensatory mitigation efforts in the GAI align with the goals and objectives of natural resource regulatory agencies that approve mitigation.

## 7.5 Pressures and Stressors

Pressures and stressors refer to environmental trends or physical, chemical, or biological factors or conditions that affect the species of mitigation need or its habitat. According to the SWAP (CDFW 2015), a pressure is defined as "an anthropogenic (human-induced) or natural driver that could result in changing the ecological conditions of the target. Pressures can be positive or negative depending on intensity, timing, and duration. Negative or positive, the influence of a pressure to the target is likely to be significant." Additionally, stress is defined in the SWAP as "[a] degraded ecological condition of a target that resulted directly or indirectly from negative impacts of pressures (e.g., habitat fragmentation)" (CDFW 2015). The *Five-Year Status Review: Bank Swallow (*Riparia riparia*)* (CDFG 1995), the bank swallow species account in the *California Partners in Flight Riparian Bird Conservation Plan* (Garrison 1998), and the *Bank Swallow Conservation Strategy for the Sacramento River Watershed, California* (Bank Swallow Technical Advisory Committee ["BANS-TAC"] 2013) refer to these pressures and stressors as threats.

The plans included in Table 7-2 identify multiple pressures and stressors contributing to the decline of the species of mitigation need within its range. These pressures and stressors were evaluated in relation to the types of effects that could result from transportation projects funded through SHOPP and STIP and whether the species of mitigation need could benefit from in-kind compensatory mitigation purchased or established through an advance mitigation project

**Table 7-2. Documents Identifying Areas for Species of Mitigation Need Conservation in the GAI**

| Document | Reference | Areas of Important Habitat |
|---|---|---|
| **Special-status Taxa Documents** | See below | See below |
| *State of California Department of Fish and Game Recovery Plan: Bank Swallow (*Riparia riparia*)* | CDFG 1992 | CDFW's recovery plan for bank swallow. Recovery goals for this species involve research, inventory of nesting sites, and the creation of a habitat preserve system, much of which was set to be completed by 1998. |
| *Five-Year Status Review: Bank Swallow (*Riparia riparia) | CDFG 1995 | Identifies historic bank swallow colonies, none of which were located in the GAI. Most were located along the Sacramento and Feather Rivers, with others located along Cache Creek, in the Klamath Basin and Modoc Plateau, and a few along the central coast from San Francisco to Monterey. |
| **Conservation and Land Management Documents** | See below | See below |
| *Hopland Band of Pomo Indians Wetlands Program Plan* | EPA 2011 | Hopland Band of Pomo Indians' programmatic plan for monitoring and protecting wetlands on Hopland Reservation lands. Includes a general goal to restore riparian wetland, vernal pool, and seep meadow habitat. |
| *King Range National Conservation Area Draft Resource Management Plan and Draft Environmental Impact Statement* | BLM 2004 | Goal to maintain and restore spatial and temporal connectivity within and between watersheds through lateral, longitudinal, and drainage network connections of floodplains, wetlands, upslope areas, headwater tributaries, and intact refugia. |
| *Mendocino County Coastal Element, Chapter 3 – The Land Use Plan: Resources and Development Issues and Policies* | Mendocino County 1991 | LCP for Mendocino County. Identifies CCC-designated Special Treatment Areas, Protected Resource Areas, and Areas of Special Biological Importance in the GAI. |
| *Nationwide Rivers Inventory* | NPS 2017 | Listing of Nationwide River Inventory river segments that are potential candidates for inclusion in the National Wild and Scenic Rivers System. Listed national river segments in the GAI include the Eel River. |

| Document | Reference | Areas of Important Habitat |
|---|---|---|
| *County of Sonoma Local Coastal Program* | Sonoma County 2001 | LCP for Sonoma County. Identifies environmental resources, conservation areas, and sanctuary-preservation areas in the GAI, and presents resource management recommendations. |
| *Ukiah Resource Management Plan* | BLM 2006 | BLM's resource management plan for the Ukiah Field Office. Includes goals to restore oak woodlands, riparian, and wetland areas by eradicating nonnative vegetation along 272 miles of streams. |
| *SWAP* | CDFW 2015 | CDFW's plan for protection of species of greatest conservation need, in addition to habitats and other wildlife in California. The GAI is situated entirely within the North Coast and Klamath SWAP geographic province:<br>▪ In the North Coast and Klamath Province, bank swallow is considered a Species of Greatest Conservation Need.<br>▪ The SWAP defines a broad target of increasing the acreage of specific vegetation types and habitats available to focal species by 5 percent over their 2015 levels by 2025. |
| **County and City General Plans** | See below | See below |
| *Glenn County General Plan* | Glenn County 1993 | General plan for Glenn County. This plan has a land use designation of open space and special overlay designations of area of biological importance, floodplain, floodway, and restorable wetlands. The special designations preclude development, require setbacks of indeterminate distance, and mitigation depending on which land use designation they reside in or are adjacent to. Requires permanent buffers of indeterminate size, but a minimum of 300 feet is recommended when development is adjacent to open spaces. Setbacks are required in riparian forest and wetland habitat, plus a minimum 50-foot-wide corridor adjacent to them to preserve and buffer habitat from direct impacts. |
| *Lake County General Plan* | Lake County 2008 | General plan for Lake County. This plan has a land use designation of resource conservation. It requires a buffer of indeterminate amount between development and significant watercourses, riparian vegetation, and wetlands. |
| *Mendocino County General Plan* | Mendocino County 2009 | General plan for Mendocino County. Steelhead and coho salmon are known to occur in the Middle Fork Eel River. The plan requires a 2:1 mitigation ratio for oak woodlands and for sensitive habitats, defined in part as pygmy forests and old growth forests, which can include riparian areas, and Section 404 wetlands and WOTUS. This plan has a land use designation of open space, but it is defined in such a way that agriculture and forestry are not precluded activities. |

| Document | Reference | Areas of Important Habitat |
|---|---|---|
| *City of Cloverdale General Plan* | City of Cloverdale 2015 | General plan for Cloverdale. Includes a general goal to restore riparian and wetland areas adjacent to the Russian River and to create 100-foot buffers (50 feet on each side) where possible. Contains a land use designation for open space. |
| *Cotati General Plan* | City of Cotati 2015 | General plan for Cotati. Includes a general goal to enhance freshwater marshes, wetlands, vernal pools, riparian areas, aquatic habitat, and oak woodlands. Contains a land use designation for open space. |
| *Fort Bragg Inland General Plan* | City of Fort Bragg 2019 | General plan for Fort Bragg. Contains a land use designation for open space. Includes a general goal to restore riparian and wetland areas. |
| *Healdsburg 2030 General Plan Policy Document* | City of Healdsburg 2009 | General plan for Healdsburg. Contains land use designations for open space and riparian setbacks. The riparian setback designation requires a 100-foot setback from the Russian River, 35-foot setback from Foss Creek, and 25-foot setback from other streams. Includes a general goal to enhance conditions of the Russian River and Foss Creek. |
| *City of Rohnert Park General Plan* | City of Rohnert Park 2017 | General plan for Rohnert Park. Contains two types of open space designation: open space for environmental conservation and open space for agriculture and resource management. Requires a minimum 50-foot buffer in riparian areas. Requires permanent preservation of open space as mitigation for development in some areas of the City. Includes general goal to enhance wetlands, vernal pools, riparian areas, aquatic habitat, and oak woodlands. |
| *Sebastopol General Plan* | City of Sebastopol 2023 | General plan for Sebastopol. Contains land use designation for open space. Includes a general goal to enhance freshwater marshes, wetlands, vernal pools, riparian areas, aquatic habitat, and oak woodlands. Requires setbacks of indeterminate distance to protect riparian habitat. |
| *City of Ukiah 2040 General Plan* | City of Ukiah 2022 | General plan for Ukiah. Contains land use designation for open space. Includes a general goal to restore Russian River riparian habitat. |

### 7.5.1. Habitat Loss, Fragmentation, and Degradation

Bank swallow populations in California have been severely affected by the loss of suitable nesting habitat resulting from land conversion, bank stabilization, flood management, and water supply operations throughout the state (BANS-TAC 2013). Bank swallows depend on naturally eroding banks, bluffs, and cliffs along rivers and coastal areas for nesting. State and federally funded bank stabilization projects have installed riprap along these naturally eroding banks, which has contributed to loss of nesting habitat for bank swallows. In fact, these bank stabilization projects are the primary cause of habitat loss for bank swallows in the state (CDFG 1992). Additionally, erosion control projects constructed at active bank swallow colonies during the breeding season have caused direct mortality to adults and nestlings (BANS-TAC 2013).

### 7.5.2. Invasive Species

Transportation projects and associated ongoing maintenance activities have the potential to introduce and/or spread nonnative, invasive species. The entry of invasive, nonnative species into an ecosystem may reduce biodiversity, degrade habitats, alter native genetic diversity, shift habitat type, and further threaten already endangered or threatened natural resources.

Invasive species are not thought to be a significant threat to bank swallows given the specific nesting habitat required (Garrison 1998). However, establishment of tall, dense invasive plant species such as giant reed and pampas grass (*Cortaderia jubata*) on steep riverbanks can reduce suitability of nesting habitat, and invasive plant species have the potential to negatively affect foraging sites, such as natural floodplains that contain riparian grassland (BANS-TAC 2013).

### 7.5.3. Climate Change, Drought, and Sea Level Rise

Section 2.5 provided a brief overview of the GAI's climate and available planning-level predictions for climate change in the region. In the next 30 years, the climate is expected to continue to change. Predicted climate change effects consist of projected extended periods of higher temperatures in the summer, large fluctuations in precipitation—with dry years becoming drier and wet years becoming wetter—and an increased risk of drought, wildfires, and landslides (Caltrans 2019c). Increased variability and changes in the type, magnitude, and timing of precipitation suggested by climate change models will result in more variable and extreme flows in river systems. These changes have the potential to disrupt erosion patterns and cause variation in habitat quality along these river systems, which could lead to loss of nesting and foraging habitat for bank swallows (Garrison 1998). Bankfull flows are necessary to promote more natural levels of channel migration and bank erosion. However, high flows later in the season than are typical (that is, during the late spring and summer nesting season) may be detrimental to bank swallows because of direct inundation of burrows or loss of nests caused by localized bank sloughing (BANS-TAC 2013).

Essential habitat connectivity in the GAI, including large remaining blocks of intact habitat or natural landscape, is shown on Figure 2-14. These areas are expected to provide

opportunities for the species of mitigation need to respond to climate change stress by preserving large blocks of habitat and linkage areas that will allow migration toward more suitable habitat as the climate changes, and by providing protection for the ecological processes that support key habitat. Figure 2-6 depicts the terrestrial climate change resilience rank from the ACE dataset (CDFW 2019c). Climate resilience is lower in the southern portions of the GAI in Sonoma County, with most of those areas having a rank between 1 and 3. It is in these locations where impacts from climate change are expected to be the most severe in the GAI. Projected resilience is greater in the northern portion of the GAI in Mendocino County, with most of that area having a rank between 3 and 5.

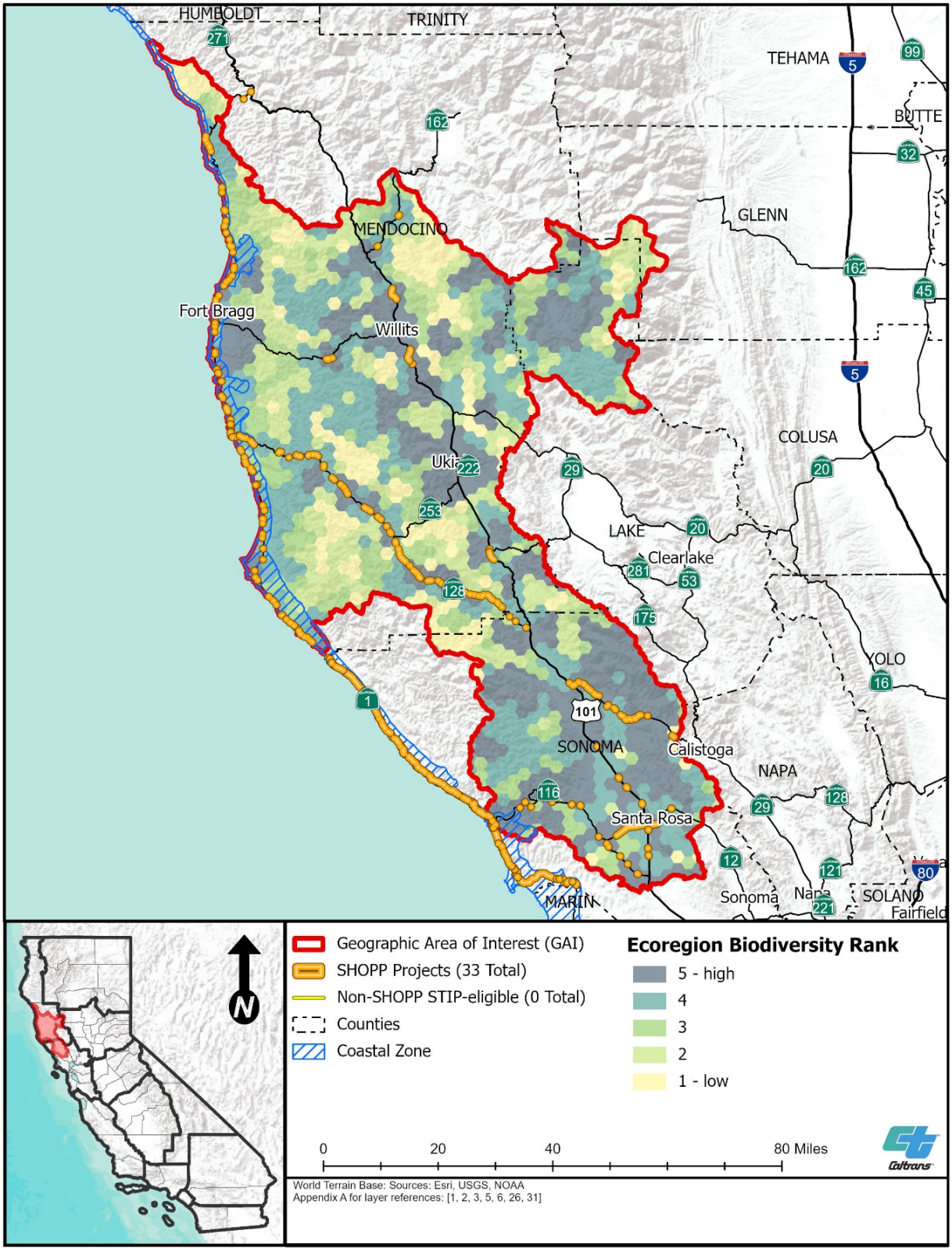
## 7.6 Multi-species Benefits

While the terrestrial species of mitigation need identified for this GAI is bank swallow, several other special-status species share habitat with this species, including foothill yellow-legged frog (*Rana boylii*), purple martin (*Progne subis*), and Point Arena mountain beaver (*Aplodontia rufa nigra*), which may be addressed under CDFW's Lake and Streambed Alteration Agreement program. Typically, multi-species benefits are considered when there are forecast impacts on a species of mitigation need and compensatory mitigation for that species could benefit other species that share the same habitat. However, although bank swallow was selected as a terrestrial species of mitigation need for this RAMNA, no impacts on this species are forecast from the SHOPP transportation projects evaluated for this RAMNA during the 10-year planning period (Section 5.3.1).

Advance mitigation planning provides Caltrans an opportunity to prioritize multi-species and multi-resource benefits through acquisition, protection, restoration, and/or enhancement of habitat that provides the most multi-species benefits within the GAI. Figure 7-2 illustrates the regional terrestrial biodiversity in the GAI, according to CDFW's ACE GIS dataset. According to these data, high to moderate terrestrial biodiversity is present along much of the SHS with SHOPP projects, while other portions of the SHS within the GAI with SHOPP projects show low biodiversity. Habitats are mapped in Appendix D, *Land Cover Types*, and the special-status species that may occur in these habitats are provided in Appendix E, *Complete SAMNA Species Results*.

The installation of culvert ramps and fence jump-outs to facilitate safe movement across highways would also benefit numerous terrestrial wildlife species. Advance mitigation purchased or established to address anticipated impacts on fish species of mitigation need (addressed in Chapter 8) may also provide mitigation to compensate for impacts on other special-status species that utilize aquatic habitats for at least part of their life cycles. Caltrans will consider the special-status species with the potential to co-occur in habitat in order to inform advance mitigation scoping and thereby improve the conservation benefits of mitigation in the GAI.

**Figure 7-2. Terrestrial Biodiversity in the GAI**



## 7.7 Advance Mitigation Conservation Goals and Objectives

The conservation goals and objectives compiled in Table 7-3 are intended to be relevant to anticipated future SHOPP and STIP transportation project mitigation needs, be consistent with the goals and objectives of natural resource regulatory agencies for the species of mitigation need, address pressures and stressors, and support species of mitigation need population recovery and success in the GAI. Each conservation goal is supported by one or more conservation objectives and is meant to further guide Caltrans District 1 toward scoping advance mitigation projects to achieve the desired result specified by the goal. Project-specific objectives will be developed for advance mitigation projects in the future, during their project delivery phase in accordance with an instrument, MCA, or other project-specific agreement (Figure 1-2). Project-specific advance mitigation project objectives will be specific, measurable, achievable, relevant, and time-bound.

At the broad scale, these wildlife goals and objectives encompass large-scale ecological processes, environmental gradients, biological diversity, and regional wildlife linkages. These goals and objectives prioritize regional conservation that preserves intact habitat and provides habitat linkages and connectivity. Sub-objectives are included for each objective to guide Caltrans advance mitigation and project scoping toward those authorized actions that would create the greatest functional lift[2] or conservation benefit for the species of mitigation need in the GAI. Sub-objectives also capture specific measures from conservation and land management plans that address threats to the species of mitigation need.[3] Several of the goals are interrelated, and many objectives could apply to more than one goal; objectives were grouped with the goal to which they most specifically aligned. Goals and objectives are generally presented in order from general to more specific. They are not presented in order of importance.

[2] For the purposes of this document, “functional lift” means the difference between an existing degraded condition and a restored or enhanced condition.
[3] In accordance with both law and Caltrans policy, standard best management practices are followed on all Caltrans transportation projects. Hence, they are presumed and they are not itemized as goals and objectives for the AMP.

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**Table 7-3. Advance Mitigation Conservation Goals and Objectives for the Species of Mitigation Need**

| Objective | Sub-Objective | Affected Species[a] | Alignment with Conservation and Management Plans[b] |
|---|---|---|---|
| ***Goal WILD-1: Conserve and expand habitat for species of mitigation need within the GAI to support ecosystem functions that are essential to recovery of the species.*** | See below | See below | See below |
| **Objective WILD-1.1:** Acquire, protect, restore, and/or enhance habitat of sufficient quantity to offset estimated impacts on species of mitigation need within the GAI in advance of transportation project impacts. | **Sub-Objective WILD-1.1.1:** Identify habitat for species of mitigation need in the GAI and acquire, protect, restore, and/or enhance this habitat such that the greatest functional lift to the species of mitigation need is provided, including consolidating compensatory mitigation.<br>**Sub-Objective WILD-1.1.2:** Prioritize key areas, such as designated critical habitat, movement corridors, and buffer zones.<br>**Sub-Objective WILD-1.1.3:** Prioritize acquisition and/or protection of large blocks of suitable, occupied habitat for the species of mitigation need; lands adjacent to occupied habitat; and/or land that expands or buffers existing occupied protected habitats.<br>**Sub-Objective WILD-1.1.4:** Prioritize land acquisition and/or protection that supports key populations.[c]<br>**Sub-Objective WILD-1.1.5:** Prioritize acquisition, protection, and/or enhancement of SWAP (CDFW 2015) conservation targets: coastal dune and bluff scrub, freshwater marsh, north coastal and montane riparian forest and woodland, Pacific Northwest conifer forest, and Pacific Northwest subalpine forest (Figure 7-3) that coincide with the species of mitigation need range, as well as other locally or regionally important habitat types.<br>**Sub-Objective WILD-1.1.6:** Create, enhance, or restore breeding habitat in protected areas where it is limited.[c]<br>**Sub-Objective WILD-1.1.7:** Align with LCP ESHA requirements to prioritize restoration and/or enhancement in ESHAs containing species of mitigation need such that a functional lift to the ESHA is provided, when feasible. | ▪ bank swallow | ▪ *SWAP* (CDFW 2015) and companion plans<br>▪ *Five-Year Status Review: Bank Swallow (*Riparia riparia) (CDFG 1995)<br>▪ *Hopland Band of Pomo Indians Wetlands Program Plan* (EPA 2011)<br>▪ *King Range National Conservation Area Draft Resource Management Plan and Draft Environmental Impact Statement* (BLM 2004)<br>▪ *Mendocino County Coastal Element, Chapter 3 – The Land Use Plan: Resources and Development Issues and Policies* (Mendocino County 1991)<br>▪ *County of Sonoma Local Coastal Program* (Sonoma County 2001)<br>▪ *Ukiah Resource Management Plan* (BLM 2006)<br>▪ *Nationwide Rivers Inventory* (NPS 2017)<br>▪ *Glenn County General Plan* (Glenn County 1993)<br>▪ *Lake County General Plan* (Lake County 2008)<br>▪ *Mendocino County General Plan* (Mendocino County 2009)<br>▪ *City of Cloverdale General Plan* (City of Cloverdale 2015)<br>▪ *Cotati General Plan* (City of Cotati 2015)<br>▪ *Fort Bragg Inland General Plan* (City of Fort Bragg 2019)<br>▪ *Healdsburg 2030 General Plan Policy Document* (City of Healdsburg 2009)<br>▪ *City of Rohnert Park General Plan* (City of Rohnert Park 2017)<br>▪ *Sebastopol General Plan* (City of Sebastopol 2023)<br>▪ *City of Ukiah 2040 General Plan* (City of Ukiah 2022) |

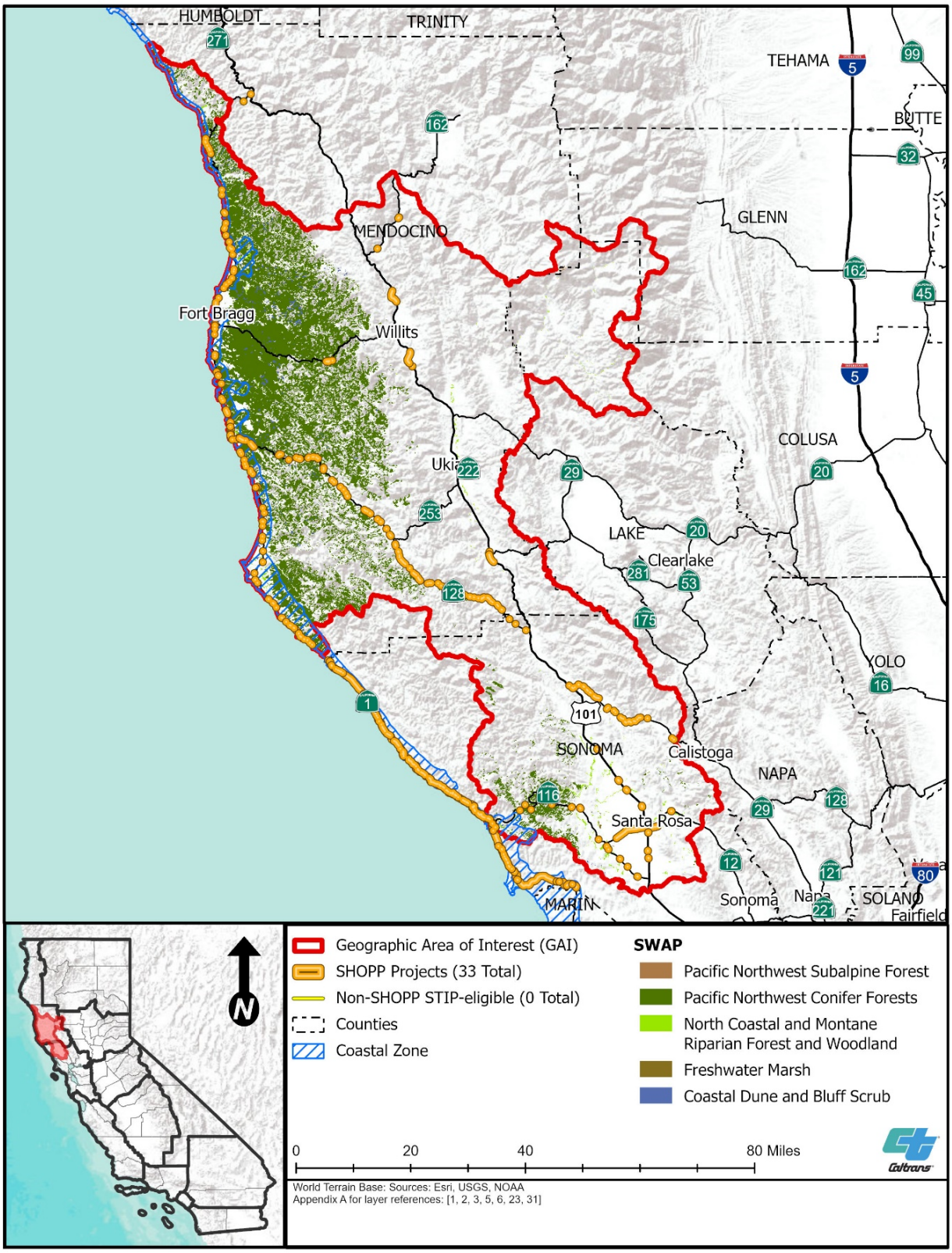
| Objective | Sub-Objective | Affected Species[a] | Alignment with Conservation and Management Plans[b] |
|---|---|---|---|
| **Goal WILD-2:** ***Preserve, enhance, and increase connectivity between blocks of habitat supporting species of mitigation need to allow for dispersal that will maintain resilience and variability of populations.*** | See below | See below | See below |
| **Objective WILD- 2.1:** Acquire, protect, restore, and/or enhance movement corridors within the GAI in advance of transportation project impacts. | **Sub-Objective WILD-2.1.1:** Identify movement corridors for the species of mitigation need in the GAI and acquire, protect, restore, and/or enhance corridors such that the greatest functional lift for the species of mitigation need is provided.<br>**Sub-Objective WILD-2.1.2:** Prioritize habitat in key linkage areas, between habitat areas, and/or areas that provide a buffer to key or existing corridors.[c]<br>**Sub-Objective WILD-2.1.3:** Identify areas that will enhance connectivity between existing protected breeding locations and create new breeding habitat for the species of mitigation need.[c] | ▪ bank swallow | ▪ *SWAP* (CDFW 2015) and companion plans<br>▪ *Five-Year Status Review: Bank Swallow (*Riparia riparia) (CDFG 1995)<br>▪ *Hopland Band of Pomo Indians Wetlands Program Plan* (EPA 2011)<br>▪ *King Range National Conservation Area Draft Resource Management Plan and Draft Environmental Impact Statement* (BLM 2004)<br>▪ *Mendocino County Coastal Element, Chapter 3 – The Land Use Plan: Resources and Development Issues and Policies* (Mendocino County 1991)<br>▪ *County of Sonoma Local Coastal Program* (Sonoma County 2001)<br>▪ *Ukiah Resource Management Plan* (BLM 2006)<br>▪ *Nationwide Rivers Inventory* (NPS 2017)<br>▪ *Glenn County General Plan* (Glenn County 1993)<br>▪ *Lake County General Plan* (Lake County 2008)<br>▪ *Mendocino County General Plan* (Mendocino County 2009)<br>▪ *City of Cloverdale General Plan* (City of Cloverdale 2015)<br>▪ *Cotati General Plan* (City of Cotati 2015)<br>▪ *Fort Bragg Inland General Plan* (City of Fort Bragg 2019)<br>▪ *Healdsburg 2030 General Plan Policy Document* (City of Healdsburg 2009)<br>▪ *City of Rohnert Park General Plan* (City of Rohnert Park 2017)<br>▪ *Sebastopol General Plan* (City of Sebastopol 2023)<br>▪ *City of Ukiah 2040 General Plan* (City of Ukiah 2022) |

| Objective | Sub-Objective | Affected Species[a] | Alignment with Conservation and Management Plans[b] |
|---|---|---|---|
| **Goal WILD-3:** ***Support resiliency of the landscape to climate change and sea-level rise.*** | See below | See below | See below |
| **Objective WILD-3.1:** Acquire, protect, restore, and/or enhance habitat that supports resilience to climate change and sea-level rise within the GAI in advance of transportation project impacts. | **Sub-Objective WILD-3.1.1:** Identify, acquire, protect, restore, and/or enhance habitat critical to climate resilience for the species of mitigation need in the GAI (Figure 2-6).<br>**Sub-Objective WILD-3.1.2:** Prioritize management of invasive species in key areas, such as movement corridors and ESHAs, that may be exacerbated by climate change and sea-level rise and that would provide functional lift for the species of mitigation need and ESHAs. | ▪ bank swallow | ▪ *SWAP* (CDFW 2015) and companion plans<br>▪ *Five-Year Status Review: Bank Swallow (*Riparia riparia*)* (CDFG 1995)<br>▪ *Hopland Band of Pomo Indians Wetlands Program Plan* (EPA 2011)<br>▪ *King Range National Conservation Area Draft Resource Management Plan and Draft Environmental Impact Statement* (BLM 2004)<br>▪ *Mendocino County Coastal Element, Chapter 3 – The Land Use Plan: Resources and Development Issues and Policies* (Mendocino County 1991)<br>▪ *County of Sonoma Local Coastal Program* (Sonoma County 2001)<br>▪ *Ukiah Resource Management Plan* (BLM 2006)<br>▪ *Nationwide Rivers Inventory* (NPS 2017)<br>▪ *Glenn County General Plan* (Glenn County 1993)<br>▪ *Lake County General Plan* (Lake County 2008)<br>▪ *Mendocino County General Plan* (Mendocino County 2009)<br>▪ *City of Cloverdale General Plan* (City of Cloverdale 2015)<br>▪ *Cotati General Plan* (City of Cotati 2015)<br>▪ *Fort Bragg Inland General Plan* (City of Fort Bragg 2019)<br>▪ *Healdsburg 2030 General Plan Policy Document* (City of Healdsburg 2009)<br>▪ *City of Rohnert Park General Plan* (City of Rohnert Park 2017)<br>▪ *Sebastopol General Plan* (City of Sebastopol 2023)<br>▪ *City of Ukiah 2040 General Plan* (City of Ukiah 2022) |
| **Goal WILD-4:** ***Decrease mortality and competition, and protect population health for species of mitigation need.*** | See below | See below | See below |
| **Objective WILD-4.1:** Reduce impacts of invasive species on populations of species of mitigation need within the GAI in advance of transportation project impacts. | **Sub-Objective WILD-4.1.1:** Reduce invasive species in key habitat locations and/or in areas that provide a buffer to high-value habitat for the species of mitigation need. Prioritize areas where invasive species reduction would provide the greatest functional lift to species of mitigation need and its habitat.<br>**Sub-Objective WILD-4.1.2:** Prioritize restoration of native plant species in key areas, such as critical habitat, movement corridors, and buffer zones. | ▪ bank swallow | ▪ *SWAP* (CDFW 2015) and companion plans<br>▪ *Five-Year Status Review: Bank Swallow (*Riparia riparia*)* (CDFG 1995)<br>▪ *Hopland Band of Pomo Indians Wetlands Program Plan* (EPA 2011)<br>▪ *King Range National Conservation Area Draft Resource Management Plan and Draft Environmental Impact Statement* (BLM 2004)<br>▪ *Ukiah Resource Management Plan* (BLM 2006)<br>▪ *Nationwide Rivers Inventory* (NPS 2017)<br>▪ *Glenn County General Plan* (Glenn County 1993)<br>▪ *Lake County General Plan* (Lake County 2008)<br>▪ *Mendocino County General Plan* (Mendocino County 2009)<br>▪ *City of Cloverdale General Plan* (City of Cloverdale 2015)<br>▪ *Cotati General Plan* (City of Cotati 2015)<br>▪ *Fort Bragg Inland General Plan* (City of Fort Bragg 2019)<br>▪ *Healdsburg 2030 General Plan Policy Document* (City of Healdsburg 2009)<br>▪ *City of Rohnert Park General Plan* (City of Rohnert Park 2017)<br>▪ *Sebastopol General Plan* (City of Sebastopol 2023)<br>▪ *City of Ukiah 2040 General Plan* (City of Ukiah 2022) |

| Objective | Sub-Objective | Affected Species[a] | Alignment with Conservation and Management Plans[b] |
|---|---|---|---|
| **Goal WILD-5:** ***Provide multi-species and multi-resource benefits.*** | See below | See below | See below |
| **Objective WILD-5.1:** Acquire, protect, restore, and/or enhance habitat that provides multi-species benefits within the GAI in advance of transportation project impacts. | **Sub-Objective WILD-5.1.1:** Prioritize mitigation to provide benefits for special-status species that may co-occur with the species of mitigation need and that will provide functional lift to other special-status species within the GAI.<br>**Sub-Objective WILD-5.1.2:** Identify SHS right-of-way areas where enhancement efforts may benefit species of mitigation need.<br>**Sub-Objective WILD-5.1.3:** Align with LCP ESHA requirements to prioritize restoration and/or enhancement actions that provide a functional lift to the ESHA and their resource values, when feasible. | ▪ bank swallow | ▪ *SWAP* (CDFW 2015) and companion plans<br>▪ *Five-Year Status Review: Bank Swallow (*Riparia riparia*)* (CDFG 1995)<br>▪ *Hopland Band of Pomo Indians Wetlands Program Plan* (EPA 2011)<br>▪ *King Range National Conservation Area Draft Resource Management Plan and Draft Environmental Impact Statement* (BLM 2004)<br>▪ *Mendocino County Coastal Element, Chapter 3 – The Land Use Plan: Resources and Development Issues and Policies* (Mendocino County 1991)<br>▪ *County of Sonoma Local Coastal Program* (Sonoma County 2001)<br>▪ *Ukiah Resource Management Plan* (BLM 2006)<br>▪ *Nationwide Rivers Inventory* (NPS 2017)<br>▪ *Glenn County General Plan* (Glenn County 1993)<br>▪ *Lake County General Plan* (Lake County 2008)<br>▪ *Mendocino County General Plan* (Mendocino County 2009)<br>▪ *City of Cloverdale General Plan* (City of Cloverdale 2015)<br>▪ *Cotati General Plan* (City of Cotati 2015)<br>▪ *Fort Bragg Inland General Plan* (City of Fort Bragg 2019)<br>▪ *Healdsburg 2030 General Plan Policy Document* (City of Healdsburg 2009)<br>▪ *City of Rohnert Park General Plan* (City of Rohnert Park 2017)<br>▪ *Sebastopol General Plan* (City of Sebastopol 2023)<br>▪ *City of Ukiah 2040 General Plan* (City of Ukiah 2022) |

[a] This column includes species of mitigation need that could benefit from these objectives.
[b] More information on these plans is provided in Chapter 3, *Relevant Plans, Policies, and Regulations*, and Chapter 4, *Existing Mitigation Opportunities*.
[c] As identified in recovery plans and other pertinent documents (see Table 7-2).

**Figure 7-3. SWAP Conservation Target Habitats**



## 7.8 Summary

Caltrans anticipates that future SHOPP and STIP-eligible transportation projects may be conditioned by CCC, CDFW, FWS, and NMFS to address the pressures and stressors that threaten species of mitigation need in the GAI. The pressures and stressors include:

- Habitat loss, fragmentation, and degradation;
- Invasive species; and
- Climate change, drought, and sea level rise.

Caltrans will seek to align advance mitigation project scopes with conservation goals and objectives that address the identified pressures and stressors, thereby aligning advance mitigation efforts with regional conservation efforts.

Regional conservation goals and objectives provide a framework for scoping compensatory mitigation credit establishment that would successfully offset future transportation project impacts on wildlife resources by creating function lift or conservation benefits and by mitigating the pressures and stressors on wildlife resources in the GAI. To summarize Table 7-3:

- **Goals WILD-1** and **WILD-2** seek to conserve and expand habitat for species of mitigation need within the GAI and increase connectivity between blocks of habitat. The objectives to fulfill these goals are acquisition, protection, restoration, and/or enhancement of land. Caltrans intends to prioritize efforts that provide the greatest functional lift for the species of mitigation need and that provide a conservation benefit in terms of size, connectivity, quality, and contribution to the climate resilience of habitats within the GAI. By increasing connectivity for species of mitigation need, Caltrans anticipates that co-occurring species will realize these same benefits. These goals and objectives were selected to address habitat loss, fragmentation, and degradation and to address impacts from climate change, drought, and sea-level rise. Further, Caltrans anticipates that actions completed through restoration, enhancement, and/or preservation may also provide opportunities to address invasive species.
- **Goal WILD-3** seeks to support climate resiliency for species of mitigation need habitat in the GAI. The primary objectives are to reduce the effects of climate change and sea-level rise on sensitive species by increasing the protection and functionality of land that is identified as crucial for climate resiliency, including corridors that allow these species to migrate from areas of low climate resilience into areas with higher resilience and addressing the climate change-related threat from invasive species. In addition to addressing climate change in general, these goals and objectives address habitat loss, fragmentation, and degradation, and invasive species.
- **Goal WILD-4** seeks to decrease mortality of species of mitigation need from known immediate and ongoing threats to individuals or populations by protecting native vegetation. This objective addresses issues related to habitat loss, fragmentation, and degradation, and threats from invasive species.

- **Goal WILD-5** seeks to guide advance mitigation scoping to prioritize multi-species and multi-resource benefits to maximize ecological benefits in the GAI. Advance mitigation provides the opportunity to maximize Caltrans' benefit to conservation in the GAI, including to species other than the species of mitigation need and other land management objectives. Goal WILD-5 was developed to include conservation for multiple species.

Each of the goals and objectives have sub-objectives intended to guide advance mitigation scoping toward natural resource regulatory agencies' regional conservation goals. These sub-objectives will prompt Caltrans to incorporate priority habitats or corridors into advance mitigation scopes and address important threats in the area through an advance mitigation project. This concept is an important way Caltrans seeks to use advance mitigation scoping to set the stage, once funding approval is received, for specific advance mitigation projects that will provide a functional lift for the species of mitigation need and maximize conservation benefits from mitigation within the GAI.

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# 8. AQUATIC RESOURCES CONSERVATION GOALS AND OBJECTIVES

Caltrans' primary objective for aquatic resources is to avoid and minimize all impacts on fish, wetlands, non-wetland waters, and riparian habitat from Caltrans transportation projects in the GAI. However, when avoidance and minimization are insufficient or infeasible, compensatory mitigation may be used to offset impacts. Credits or values established through SHC § 800.6(a)-authorized advance mitigation projects offer the unique opportunity to consolidate needed compensatory mitigation. This consolidation helps to provide strategically placed and environmentally sound compensatory mitigation options, including restoration, enhancement, and preservation, and to provide an improved environmental outcome that may not be available through the usual transportation project-by-project approach to compensatory mitigation.

Caltrans seeks to align its advance mitigation projects with natural resource regulatory agencies' conservation goals and objectives and to contribute to an improved environmental outcome in the GAI. With this in mind, this chapter presents Caltrans' understanding of natural resource regulatory agencies' regional conservation goals and objectives that could be applied to advance mitigation projects undertaken in the GAI to offset forecast impacts from SHOPP transportation projects.

The goals and objectives developed in this chapter are intended to guide advance mitigation scoping decisions toward those choices that will provide for the greatest environmental benefit available through the advance mitigation planning and delivery processes. Such advance mitigation projects undertaken by Caltrans should contribute to aquatic resource and riparian habitat restoration and enhancement and should yield compensatory mitigation usable by future transportation projects, as specified in SHC § 800. Compensatory mitigation usable by future transportation projects should be expressed in standard units or terms recognized by the natural resource regulatory agencies.

Information presented in this chapter is for advance mitigation project scoping purposes only.[1] Transportation projects must still go through environmental and permitting processes and must demonstrate avoidance and minimization efforts prior to compensation.

## 8.1 Approach

For the purposes of this RAMNA, conservation goals and objectives are a broad set of regional natural resource sustainability goals and objectives that are consistent with both

[1] Pursuant to SHC § 800.9, to the maximum extent practicable, the information required for an RCIS is presented in this RAMNA. During CDFW's review of an RCIS, CDFW determines whether the goals and objectives presented in the RCIS are consistent with FGC § 1852, subdivision (c)(8).

regulatory requirements and conservation science. To determine the aquatic resource conservation goals and objectives applicable to the GAI, Caltrans:

- First, in Section 8.2, identifies natural resource regulatory agencies with the authority to condition transportation projects with aquatic resource-related and riparian habitat compensatory mitigation in the GAI.
- Then, in Section 8.3, summarizes information for the wetland, non-wetland waters, and fish species addressed by the assessment.
- Next, in Sections 8.4, 8.5, and 8.6, for aquatic resources identifies:
  - Federal and state policies, and binding and non-binding regional conservation and land management plans
  - Current and projected pressures and stressors, including climate change and sea-level rise, for which there is a transportation nexus
  - Opportunities to enhance conservation benefits through advance mitigation projects
  - Opportunities to provide co-benefits, where possible, to water quality, groundwater recharge, and species that require aquatic habitats
- Last, Caltrans analyzes the aforementioned information in relation to the transportation-related activities that could potentially affect aquatic resources and riparian habitats, and the potential range of compensatory mitigation that could satisfy a transportation project condition associated with the activities.

The result of this analysis is a framework of conservation goals and objectives for use in advance mitigation project scoping (Section 8.7).

## 8.2 Natural Resource Regulatory Agencies with Aquatic Resources Oversight

Table 8-1 lists the natural resource regulatory agencies with the authority to condition transportation projects delivered in the GAI with aquatic resource-related compensatory mitigation. Terrestrial special-status wildlife species are known to use streams, wetlands, and other aquatic resources that are regulated by federal and state agencies specific to those habitat types. This RAMNA identifies goals and objectives for terrestrial species separately in Chapter 7, *Wildlife Resources Conservation Goals and Objectives*.

**Table 8-1. Natural Resource Regulatory Agencies with the Authority to Approve Aquatic Resource Compensatory Mitigation Credits (or Values)**

| Agency | Summary |
|---|---|
| CCC | CCC protects the coast by planning for and regulating new development in the coastal zone pursuant to the policies of the Coastal Act. Through the issuance of CDPs, CCC implements the policies of the Coastal Act, including protecting sensitive resources (for example, wetlands, waters, ESHAs), water quality, public access to the coast, and more, and requires mitigation for unavoidable impacts on these resources. CCC also coordinates with local governments in developing and certifying LCPs, which allow local governments to assume the authority to issue CDPs within their jurisdiction. The agency also provides comprehensive guidance to local governments and project applicants regarding planning for and adapting to climate change and sea-level rise. The CCC, agency, or authorized local government with a certified LCP also determines how an ESHA is defined. |
| CDFW | CDFW oversees the conservation, protection, and management of fish, wildlife, native plants, and the habitats necessary for biologically sustainable populations of those species in California. California law (FGC § 1602) also requires an entity to notify CDFW prior to commencing any activity that may substantially divert or obstruct the natural flow of any river, stream, or lake; substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or deposit or dispose of debris, waste, or other materials containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. CDFW issues agreements to project proponents under its authorities, including Lake and Streambed Alteration Agreements, approvals of conservation and mitigation banks, approvals of MCAs and RCISs, and NCCP permits. Under CESA, CDFW also has authority to issue Incidental Take Permits for state-listed species and Consistency Determinations for state and federally listed species. Additionally, CDFW's Environmental Review and Permitting, Conservation and Mitigation Banking, NCCP, and RCIS programs implement sections of the FGC, Division 1 of Title 14 of the California Code of Regulations, et seq. These programs help fulfill CDFW's mission to manage California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values. |
| Corps | It is the mission of the Corps' Regulatory Program (33 CFR Part 230 and Parts 320–332) to protect the nation's aquatic resources and navigation capacity while allowing reasonable development through fair, flexible, and balanced permit decisions. The Corps is responsible for administering laws for the protection and preservation of aquatic resources pursuant to Section 10 of the Rivers and Harbors Act of 1899 and CWA Section 404. Pursuant to the Rivers and Harbors Act, all work or structures in, over, or under navigable WOTUS require Corps authorization. The Corps authorizes, under CWA Section 404, the discharge of dredged or fill material into WOTUS, including wetlands. When the Corps' civil works projects are proposed to be used or altered by another entity, CWA Section 408 permission (33 USC 408 or Section 14 of the Rivers and Harbors Act of 1899, as amended) must be obtained in addition to the CWA Section 404 authorization. According to the 2008 mitigation rule, in general it is the preference of the Corps to use the following order of priority for mitigation: mitigation bank, in-lieu fee program, on-site permittee responsible mitigation, and off-site permittee responsible mitigation, but the preference may change based on what is environmentally preferable. |

| Agency | Summary |
|---|---|
| EPA | EPA has authority under the CWA (33 USC § 11251–1357) to restore and maintain the chemical, physical, and biological integrity of the nation's waters. EPA and the Corps jointly implement the CWA Section 404 program, which regulates discharge of dredge or fill material into WOTUS. Federal authorizations also need to be reviewed for compliance with CWA Section 401. EPA has been delegated the responsibility of implementing CWA Section 401 for projects on tribal land, unless EPA has delegated 401 authority to a recognized tribe. |
| FWS | FWS has jurisdiction over a broad range of fish and wildlife resources. FWS does not, however, have jurisdiction over anadromous fish. FWS authorities related to these resources are codified under multiple statutes, including, but not limited to, the ESA. Most statutes give FWS an advisory role in mitigation. However, if a non-federal entity applies for an incidental take permit for a listed animal species, Section 10(a)(2)(b) of the ESA requires that the impact of any incidental take be minimized and mitigated to the maximum extent practicable. Section 7(a)(1) of the ESA also requires all federal agencies to use their authorities to conserve listed species. Many federal agencies have developed programs to include mitigation as part of the Section 7(a)(2) consultation on their proposed actions to partially fulfill this Congressional mandate.<br><br>Conservation banking can assist federal and non-federal participants in the Section 7 and Section 10 process. In May 2003, FWS issued comprehensive federal guidelines designed to promote conservation banks as a tool for mitigating adverse impacts on species; the guidelines foster national consistency by standardizing establishment and operational criteria. Many activities conducted under Section 7 and Section 10 of the ESA result in adverse effects on listed species, including habitat loss or modification. One way to offset these types of impacts is to include in the project design a plan that involves the restoration and/or protection of similar habitat on site and/or off site. Purchasing credits in conservation banks is one method of protecting habitat on site or off site. |
| SWRCB and RWQCB | The Porter-Cologne Act governs water quality regulation in California and gives SWRCB and the RWQCBs the authority to condition projects, through waste discharge requirements, to protect water quality and the beneficial uses of waters of the state, as identified in Basin Plans. Basin Plans, adopted by the RWQCBs, incorporate the beneficial use designation of surface waters of the state and must take into consideration the use and value of water for protection and propagation of fish, shellfish, and wildlife. SWRCB and the RWQCBs have been delegated the responsibility of implementing CWA Section 401, which regulates the discharge of pollutants into WOTUS. SWRCB and the RWQCBs may determine that compensatory mitigation is necessary to offset unavoidable impacts on aquatic resources. Compensatory mitigation can be achieved through purchase of credits as outlined in the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (SWRCB, adopted 2019). Projects that occur in one region are regulated by that regional board, whereas projects that cross regions are regulated by SWRCB. |

## 8.3 Aquatic Resources

An overview of aquatic resources was provided in Chapter 2, *Environmental Setting*, and is summarized below.

### 8.3.1. Wetlands and Non-wetland Waters

The GAI conforms to the Big-Navarro-Garcia, Russian, and Upper Eel HUC-8 boundaries. In the GAI, major stream systems include the Eel, Garcia, Russian, Navarro, and Noyo Rivers (North Coast RWQCB 2018). Additionally, there are hundreds of named and unnamed tributaries, most of which flow into these rivers. Flow into these systems originates from rainfall and snowfall in the Cascade Range and Coast Range Mountains (Figure 2-4).

Aquatic habitat types with the potential to occur in the GAI are mapped in Appendix H, *Aquatic Resource Locations*. Based on the SAMNA Reporting Tool's wetlands and waters layer, the GAI has a total of 52,546 acres of aquatic habitat, consisting of 32 wetland and non-wetland waters habitats listed in Table 2-6 (Caltrans 2021e, 2021f). Eight beneficial uses that support the preservation and enhancement of wildlife habitat and aquatic resources in the GAI also align with the AMP's objective to contribute to an improved environmental outcome through transportation project mitigation and are relevant to this RAMNA. They are detailed in Table 2-5.

### 8.3.2. Riparian Habitat

Riparian habitat is discussed in Section 2.18. Because no detailed riparian GIS layer is currently available, riparian habitat information was excerpted from the SAMNA's vegetation layer. The riparian habitats identified in the GAI are montane riparian and valley foothill riparian (Table 2-3).

### 8.3.3. Threatened and Endangered Fish Species of Mitigation Need

Threatened and endangered fish species are identified in Section 2.17.2 and their SAMNA results are provided in Section 5.2.1. Caltrans has selected coho salmon and steelhead as species of mitigation need for this RAMNA. It is expected that additional fish species would benefit from activities identified in this document.

#### *Coho Salmon*

Two ESUs of coho salmon overlap the GAI: SONCC ESU and central California coast ESU (Section 2.17.2). The SONCC ESU is federally and state listed as threatened, and federally designated critical habitat for this species does occur in the GAI (Section 2.9, Figure 2-8). The central California coast ESU is federally and state listed as endangered, and federally designated critical habitat for this species does occur in the GAI (Section 2.9, Figure 2-10). The SONCC ESU includes naturally spawned coho salmon originating from coastal streams and rivers between Cape Blanco, Oregon, and Punta Gorda, California. Coho salmon from the following three artificial propagation programs are also included in the SONCC ESU: Cole Rivers Hatchery Program, Trinity River Hatchery Program, and Iron Gate Hatchery Program (70 *Federal Register* 37160–37204). Typical habitat for juveniles of this species is cool pools with overhead cover and a water

depth of at least 1 meter, and a moderate amount of instream cover, such as logs and undercut banks. The central California coast ESU includes naturally spawned coho salmon originating from coastal streams and rivers between Punta Gorda in Humboldt County to Aptos Creek in Santa Cruz County (79 *Federal Register* 20802). Adult coho salmon migrate from the ocean to natal streams in the fall and spawn from November to March based on latitude. Spawning occurs in streams that flow directly into the ocean or in large tributaries, typically at the head of riffles with medium- to small-sized gravel (NMFS 2012).

***Steelhead***

The northern California coast DPS of steelhead is federally threatened, and federally designated critical habitat for this species does not occur in the GAI (Section 2.9, Figure 2-8). This DPS contains all naturally spawned steelhead originating below natural and human-made impassable barriers in California coastal river basins from Redwood Creek south to and including the Gualala River [70 *Federal Register* (123): 37160–37204]. Steelhead in this DPS exhibit both winter- and summer-run migration timing and both runs are federally listed. The summer-run steelhead is also a state endangered species but the listing decision by the California Fish and Game Commission excludes the GAI from this DPS (California Fish and Game Commission 2022). Summer-run steelhead typically enter freshwater between April and June or July and spend the summer holding in freshwater streams before spawning the following winter. Spawning habitat consists of freshwater streams with cold, clear water and suitable spawning substrates.

## 8.4 Regional Conservation Efforts

Caltrans' understanding of natural resource regulatory agency conservation goals and objectives is that they are generally designed to protect aquatic resources. Several conservation and land management plans listed in Table 3-1, relevant to the aquatic resources, identify key habitats, specific designated waters, or areas for aquatic resource enhancement and restoration. For example, some LCPs include ESHAs with aquatic resource attributes. Others identify key qualities, such as water quality, that are essential for aquatic resource enhancement and restoration. Still others name specific National Hydrologic Dataset features, presented in Table 8-2, for aquatic resource enhancement and restoration. Additionally, the documents include strategies for aquatic resource protection and measures to address specific known, ongoing threats to aquatic resources. These conservation and land management plans are presented in Table 8-3.

## Table 8-2. Named Aquatic Features in the GAI with Aquatic Resource Goals and Objectives, by HUC-8

| Big-Navarro-Garcia Sub-basin HUC-8 18010108 | Russian Sub-basin HUC-8 18010110 | Upper Eel Sub-basin HUC-8 18010103 |
|---|---|---|
| ▪ Albion River<br>▪ Big River<br>▪ Caspar Creek<br>▪ Cottaneva Creek<br>▪ Elk Creek<br>▪ Garcia River<br>▪ Greenwood Creek<br>▪ Gualala River<br>▪ Jackass Creek<br>▪ Little River<br>▪ Navarro River<br>▪ North Fork Garcia River<br>▪ North Fork Navarro River<br>▪ Noyo River<br>▪ Pudding Creek<br>▪ Redwood Creek[a]<br>▪ South Fork Garcia River<br>▪ Ten Mile River | ▪ Ackerman Creek<br>▪ Dry Creek<br>▪ Foss Creek<br>▪ Green Valley Creek<br>▪ Laguna de Santa Rosa<br>▪ Lake Mendocino<br>▪ Russian River<br>▪ Santa Rosa Creek<br>▪ Strawberry Creek | ▪ Eel River |

[a] Although multiple features called Redwood Creek occur in the GAI, the plans in Table 8-3 refer to the creeks in the Big-Navarro-Garcia HUC-8.

## Table 8-3. Documents Identifying Aquatic Resource Goals and Objectives in the GAI

| Document | Reference | Information Identified |
|---|---|---|
| **Policies, Procedures, Guidelines, and Water Quality Plans** | See below | See below |
| *2008 Final Compensatory Mitigation Rule* | 73 *Federal Register* 19593 | Corps' ruling to establish standards and criteria for the use of all types of compensatory mitigation, including on-site and off-site permittee-responsible mitigation, mitigation banks, and in-lieu fee mitigation to offset unavoidable impacts on WOTUS. Recognizes that consolidating mitigation may be environmentally preferable for linear projects (because advance or at least concurrent compensatory mitigation is environmentally preferable but not always possible to achieve) (Preamble and 33 Section 332.3). |
| *2020 Fish Passage Annual Legislative Report* | Caltrans 2021h | In compliance with SHC § 156, this report identifies priority fish passage barriers on the SHS. Priorities are determined through FishPAC collaboration and are based on the following:<br>▪ Species diversity – listed threatened and endangered salmon and steelhead species currently or historically present in the watershed<br>▪ Habitat – suitable habitat quality and quantity above each crossing, relative to recovery of threatened and endangered species<br>▪ Best professional knowledge – professional, discretionary value for science-based information known to fisheries and engineering subject matter experts<br>Subject matter experts include CDFW, NMFS, FWS, CCC, CalTrout, Pacific States Marine Fisheries Commission, and other local fish passage advocates. |
| *303(d) List of Impaired Water Bodies* | SWRCB 2021 | Section 303(d) of the CWA requires that every 2 years, each state submit to EPA a list of rivers, lakes, and reservoirs in the state for which pollution control or requirements have failed to provide for water quality. Based on a review of this list and its associated Total Maximum Daily Load Priority Schedule (Appendix G), 37 waterbodies are listed as impaired in the GAI. Of the 37, 4 have an established TMDL. |
| *California Coastal Act of 1976* | Public Resources Code Division 20 | California law that, in part, establishes and protects a coastal zone, sets forth a wetland definition to be regulated, creates broad management policies in the coastal zone, and establishes regulations for coastal zone protection. |
| *California Wetlands Conservation Policy* | Executive Order W-59-93 | The "No Net Loss Policy" for wetlands aims to "[e]nsure no overall net loss and achieve a long-term net gain in the quantity, quality, and permanence of wetlands acreage and values in California in a manner that fosters creativity, stewardship and respect for private property." |

| Document | Reference | Information Identified |
|---|---|---|
| *Definition and Delineation of Wetlands in the Coastal Zone* | CCC 2011 | Identifies wetland delineation procedures and the use of a one-parameter approach for identifying a wetland. |
| *National Wetlands Mitigation Action Plan* | EPA and Corps 2002 | An EPA and Corps comprehensive, interagency document to further achievement of the goal of no net loss of wetlands. The goals and objectives of the *National Wetlands Mitigation Action Plan* were incorporated into the 2008 Final Compensatory Mitigation Rule, which was updated in 2015 and includes the no net loss policy. |
| *Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division* | Corps 2015 | Provides guidelines for compensatory mitigation site selection. A watershed approach should be used when selecting sites to establish compensatory mitigation. |
| *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* | SWRCB 2019b | Creates a State of California wetland definition, a framework for determining jurisdiction of state wetlands, wetland delineation procedures, and application procedures for discharges of dredge and fill material to waters of the state. |
| *Water Quality Control Plan for the North Coast Region* | North Coast RWQCB 2018 | Identifies water quality objectives and beneficial uses for the North Coastal Basin. |
| **Species and Habitat Recovery Plans** | | |
| *Coastal Multispecies Plan Volume III Northern California Steelhead* | NMFS 2016a | Identifies the Eel River watershed as essential habitat for the northern California DPS steelhead. Includes salmonid viability and habitat conditions rankings. In the Eel River, riparian vegetation, sediment transport, and habitat complexity are some of the many ranked as poor. |

| Document | Reference | Information Identified |
|---|---|---|
| *Final Recovery Plan for the Southern Oregon/Northern California Coast Evolutionarily Significant Unit of Coho Salmon* | NMFS 2014 | Recovery goals apply to core, non-core, and dependent coho salmon populations with separate criteria based on either a minimum number of spawners or occupancy of juveniles, all of which are grouped into diversity strata. The Southern Coastal Basins and Interior Eel River Diversity Strata occur in the GAI. Within the GAI, core coho salmon populations occur in the South Fork Eel River and Middle Mainstem Eel River. Non-core populations occur in Matthole River. |
| *Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California* | FWS 2013 | None of the five recovery units or five specific species that are identified occur in the GAI. The Humboldt Bay and North Coast area is covered under a regional-level recovery strategy focused on general habitat enhancement for the following rare species that use aquatic habitat: steelhead, tidewater goby, Bryant's savannah sparrow (*Passerculus sandwichensis alaudinus*), marsh locoweed (*Astragalus pycnostachyus* ssp. *pycnostachyus*), Point Reyes bird's-beak (*Chloropyron maritimum* ssp. *palustre*), and Humboldt Bay owl's-clover (*Castilleja ambigua* ssp. *humboldtiensis*). Additional recommendations include control of dense-flowered cordgrass (*Spartina densiflora*) and the restoration at tidal marshes at the mouths of coastal streams such as those at the mouth of Big River and Ten Mile River. |
| *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* | FWS 2005 | Regions in the GAI covered by the plan are the Lake Napa region, containing the Diamond Mountain core area in the GAI, as well as the Mendocino region containing the Manchester core area.<br>Listed species for recovery that use aquatic habitat in these core areas include Loch Lomond button-celery (*Eryngium constancei*) and Contra Costa goldfields (*Lasthenia conjugens*). |
| *Recovery Strategy for California Coho Salmon* | CDFG 2004 | Identifies goals to maintain and improve designated recovery units of the central California Coast ESU coho salmon. There are two designated recovery units in the GAI: Mendocino Coast (Cottaneva, Pudding, Caspar, and Elk Creeks and Albion, North Fork Navarro, and South Fork Garcia Rivers are located within the GAI) and the Russian River (Green Valley Creek is located within the GAI). Management actions include:<br>▪ Restoring riparian vegetation to provide in-stream large woody debris in Inman Creek, and the North Fork Garcia and South Fork Garcia Rivers.<br>▪ Reestablish connectivity of the North Fork Garcia River to the mainstem.<br>▪ Enhance riparian habitat by removing exotic species.<br>▪ Improve native vegetation cover in Dry Creek. |

| Document | Reference | Information Identified |
|---|---|---|
| *Species in the Spotlight Priority Actions: 2016–2020 Central California Coast Coho Salmon* | NOAA 2016 | Includes goal to restore the Garcia River through removing passage barriers, improving tidal and floodplain habitats, replanting riparian vegetation lost to grazing, and controlling sources of erosion. |
| *Steelhead Restoration and Management Plan for California* | CDFG 1996 | Identifies restoration recommendations for the Eel, Garcia, and Russian Rivers. Recommendations consist generally of habitat restoration, improving instream flow, and removing fish passage barriers. |
| *Volume I: Recovery Plan for the ESU of Central California Coast Coho Salmon* | NMFS 2012 | Identifies restoration recommendations in the Noyo and Navarro Rivers. Recommendations consist generally of habitat restoration and improving land and water use practices. |
| **Conservation and Land Management Documents** | See below | See below |
| *City of Cloverdale General Plan* | City of Cloverdale 2015 | Includes a goal to restore riparian and wetland areas adjacent to the Russian River. |
| *City of Ukiah 2040 General Plan* | City of Ukiah 2022 | Includes a goal to restore Russian River riparian habitat. |
| *Ecological Restoration Implementation Plan* | USFS 2013 | Within the Mendocino National Forest, includes a general goal to restore water resources and watershed health. |
| *Greenwood State Beach General Plan* | California State Parks 1994 | Includes identification of the importance of Greenwood Creek. |
| *Healdsburg 2030 General Plan Policy Document* | City of Healdsburg 2009 | Includes general goal to enhance conditions of the Russian River and Foss Creek, which support central California coast ESU coho salmon populations. |

| Document | Reference | Information Identified |
|---|---|---|
| *Hopland Band of Pomo Indians Wetlands Program Plan* | Hopland Band of Pomo Indians 2011 | Includes a goal to restore riparian wetland, vernal pool, and seep meadow habitat on reservation lands. |
| *Jackson Demonstration State Forest Management Plan* | California State Parks 2016 | Includes a goal to restore riparian habitat to benefit salmonids in the state forest. |
| *Mendocino County Coastal Element Chapter 3 – The Land Use Plan: Resources and Development Issues and Policies* | Mendocino County 1991 | Identifies the following features as important anadromous fish streams for steelhead and coho salmon: Ten Mile, Noyo, Big, Navarro, Garcia, and Gualala Rivers. |
| *North Coast Integrated Regional Water Management Plan Phase 3* | North Coast Resource Partnership 2014 | Includes goals to improve water quality in the plan area and enhance and/or restore aquatic ecosystems with a focus on benefiting salmonids. |
| *North Coast Resource Partnership Plan* | North Coast Resource Partnership 2020 | Includes goals to improve water quality in the plan area and enhance and/or restore aquatic ecosystems, in particular coastal wetlands and streams inhabited by salmonids. |
| *Pinoleville Pomo Nation Wetland Program Plan* | Pinoleville Pomo Nation 2014 | Includes a general goal to restore Ackerman Creek and associated riparian wetlands for steelhead and other anadromous fish species. Active restoration measures proposed include removal of giant reed and Himalayan blackberry, streambank stabilization, and bioswale construction. |
| *Record of Decision Arcata Resource Management Plan and Environmental Impact Statement* | BLM 1992 | Includes goals to manage the Eel River as a wild and scenic river using a one-quarter mile corridor on either side. |

| Document | Reference | Information Identified |
|---|---|---|
| *Russian River Estuary Adaptive Beach Management Plan 2023* | Sonoma Water 2023 | The plan includes a general goal to improve rearing habitat for salmonids by promoting fresh and brackish water conditions in the estuary at the mouth of the Russian River. |
| *Santa Rosa General Plan 2035* | City of Santa Rosa 2020 | Includes a goal to restore Santa Rosa Creek, which supports steelhead populations. |
| *Sinkyone Wilderness State Park Final General Plan & EIR* | California State Parks 2006 | Includes a goal to restore salmonid habitat at Jackass Creek. |
| *Sugarloaf Ridge State Park Final General Plan and EIR* | California State Parks 2004 | Includes goals to restore degraded riparian and aquatic systems in the park, improve steelhead habitat and stabilize stream banks in Santa Rosa Creek, and control giant reed and other nonnative vegetation in riparian and wetland areas. |
| *SWAP* | CDFW 2015 | Aquatic species targets for the North Coast area include 7 invertebrates, such as vernal pool tadpole shrimp and conservancy fairy shrimp, and 21 fish species, such as river lamprey, coho salmon, Gualala roach, and reticulate sculpin. |
| *Ukiah Resource Management Plan* | BLM 2006 | Includes a goal to restore riparian and wetland areas by eradicating nonnative vegetation on 272 miles of streams. |
| *Van Damme State Park General Plan* | California State Parks 1995 | Includes a general goal to restore riparian and wetland habitat for anadromous fish and aquatic vegetation on the Little River. |

## 8.5 Pressures and Stressors

Pressures and stressors refer to environmental trends or physical, chemical, or biological factors or conditions that affect aquatic resources. According to the SWAP (CDFW 2015), a pressure is defined as "an anthropogenic (human-induced) or natural driver that could result in changing the ecological conditions of the target. Pressures can be positive or negative depending on intensity, timing, and duration. Negative or positive, the influence of a pressure to the target is likely to be significant." Additionally, stress is defined in the SWAP as "[a] degraded ecological condition of a target that resulted directly[2] or indirectly from negative impacts of pressures (e.g., habitat fragmentation)" (CDFW 2015). The Corps defines human stressors as human-caused sources of disturbance in an ecosystem, such as roads, urban areas, and agricultural lands (Corps 2015).

The documents in Table 8-3 identify multiple pressures and stressors on aquatic resources in the GAI where hydrology, land use and management, and climate intersect. These pressures and stressors were evaluated in relation to the types of direct and indirect effects that could result from transportation projects funded through SHOPP and could benefit from in-kind mitigation purchased or established through an advance mitigation project. When designating an area as an ESHA, the CCC and LCPs also consider the pressures and stressors discussed below.

### 8.5.1. Habitat Loss, Fragmentation, and Degradation

Urbanization and other anthropogenic factors such as roads, poor grazing practices, barriers, and habitat invasion by nonnative species have led to the loss and degradation of aquatic resources. Additionally, the expansion of roads and urbanization have resulted in habitat fragmentation and a decrease in connectivity between habitats that support different life stages and have contributed to nonpoint source pollution from chemicals and toxins. Roads have also affected local hydrological conditions by changing sheet flow and altering water movement in drainages (CDFW 2015, 2016a). In the GAI, urbanization and development are minimal and are primarily limited to the areas along U.S. Highway 101 and State Routes 116, 12, and 222 (Figure 2-7).

A lack of both summer- and winter-rearing habitat has been identified as one of the key stressors to SONCC ESU coho salmon. Rearing coho salmon require pools of cool water to survive the warm summer months, and low-velocity off-channel areas during the winter to avoid being swept downstream during high flows. Many streams within the SONCC ESU remain straightened, diked, and leveed, which results in unsuitable rearing habitat for coho salmon. Additionally, channel simplification causes indirect changes in the timing of peak flows, increases in the frequency of scour events, and changes in the movement of sediment through the system (NMFS 2016b).

[2] Direct effects occur at the time of construction and indirect effects are reasonably certain to occur, but later in time.

Loss of estuary and wetland habitat is a posed threat to coho salmon. For populations along the coast, seasonal lagoons form in spring or summer, separating the freshwater and marine environments and providing a highly productive environment where rearing juvenile salmonids can experience rapid growth and where brackish waters provide an opportunity for the juveniles to acclimate to saltwater prior to ocean entry. Past and present land development adjacent to coastal estuaries and lagoons has degraded tidally inundated habitat, altered natural estuarine processes, and generally impaired water quality (NMFS 2016c).

Timber production is a dominant land use throughout the range of the northern California coast DPS steelhead and has impaired the state of instream aquatic habitat through high stream sediment loads and poor large wood debris recruitment (NMFS 2016d).

### 8.5.2. Invasive Species

Transportation projects and associated ongoing maintenance activities have the potential to introduce and/or spread nonnative, invasive species. When invasive, nonnative species enter an ecosystem, they can disrupt the natural balance, resulting in a reduction of biodiversity, degradation of habitats, alteration of native genetic diversity, shifting of wetland type, disruption of aquatic and terrestrial connectivity, and further threats to already endangered or threatened natural resources (FWS 2012). Invasive plant species that affect riparian systems in the GAI include tree-of-heaven, giant reed, common velvet grass, Mediterranean barley, pennyroyal, parrotfeather, Eurasian watermilfoil, and big periwinkle (Cal-IPC 2022; CDFW 2015). Invasive wildlife species that affect riparian systems in the GAI include New Zealand mudsnails, largemouth bass, smallmouth bass, brown trout, brook trout, Sacramento pikeminnow, yellow perch, sunfish, black and white crappie, bullhead, and American bullfrog (CDFW 2015). The nonnative Sacramento pikeminnow is observed throughout the Eel River basin and poses a predation threat to coho salmon and steelhead recovery (NFMS 2016c, 2016d).

### 8.5.3. Altered Hydrology, Geomorphology, and Water Quality

Water quality and hydrology can be directly altered by physical barriers such as culverts, dams (including cofferdams), dikes, trash racks, bridges, roads, canals, and other human-made infrastructure, which can have effects both upstream and downstream by truncating connectivity, altering sediment transport processes, altering natural flow regimes, and changing water surface elevations, adding to the downstream loss of habitat. Stable geomorphology and sediment transport are critical to maintaining healthy streams so that degradation and aggradation do not destroy habitats in the stream and riparian and wetland habitats downstream. The loss of wetlands can result in increased flooding and decreased water quality in downstream tributaries. Water diversions, in-channel construction, riparian vegetation reduction, agriculture, alteration of streambed and banks, components of timber management, and point and nonpoint source pollution have affected the aquatic ecosystem by altering historical flooding regimes, erosion, and deposition of sediments that maintain floodplains (CDFW 2015).

These stressors affect coho salmon and steelhead by reducing survival rates for juvenile steelhead and reproductive rates for adult coho salmon and steelhead. Flow reductions through water use can also increase the likelihood of insufficient flow to support rearing coho salmon as well as loss of hydraulic connectivity in riffles, reducing food availability for juvenile salmonids and hence reducing growth rates (NMFS 2016c). Other stressors affecting water quality and posing toxic to coho salmon and steelhead include runoff of urban stormwater and pesticide products into aquatic habitats (NMFS 2016d).

### 8.5.4. Climate Change, Drought, and Sea-level Rise

Section 2.5 provided a brief overview of the GAI's climate and available planning-level predictions for climate change and sea-level rise for the region. In the next 30 years, the climate is expected to change. Expected changes include greater minimum, average, and maximum temperature changes over time, more frequent drought periods, heavier intermittent rainfall, a decline in snowpack, increased drought stress on soils, and an increased risk of wildfire (Grantham 2018). Other expected changes include sea-level rise and storm surges in coastal areas, which can increase coastal erosion and landslides, causing shoreline retreat and exposing roadways to increased impacts from flooding (Caltrans 2019c). Climate change is expected to amplify the pattern of wet high river flows in the winter and dry low river flows in the summer, which could contribute to water quality degradation through increased sedimentation and elevation of temperature in summer months attributable to lower-than-average flows (Grantham 2018).

Steelhead and coho salmon have both been identified as having a critical level of concern with respect to their vulnerability to climate change (Grantham 2018). One of the most widespread stressors for SONCC ESU coho salmon, central California coast ESU coho salmon, and northern California coast DPS steelhead is increased water temperature, which regulates feeding, spawning, growth, and migration (NFMS 2016b, 2016c, 2016d). Increases in water temperature may result from changes in the quantity and quality of riparian vegetation, the presence of dams, water diversions, or other anthropogenic activities, and have also been correlated to large-scale (or localized) climate change and precipitation (NMFS 2016c).

Additionally, severe weather patterns have been observed to cause increased sedimentation during flood events and pool disconnection during drought events, which are listed as high level threats to steelhead (NMFS 2016d). A recent study found that steelhead in California were most at risk from instream flooding, sea surface temperature changes, and ocean acidification (Crozier et al. 2019).

### 8.5.5. Wildfire Risk

Vegetation can be altered by large-scale wildfire effects by altering microclimatic regimes, increasing runoff and river discharge and enhancing erosion and sediment inputs, transport, and deposition. Fires can also affect the physical characteristics of riparian and wetland ecosystems by transitioning vegetation from aquatic and riparian areas to uplands (Bixby et al. 2015). Fire in riparian zones can reduce canopy cover, resulting in increased water temperatures (CDFW 2015). Elevated fire frequency and intensity will

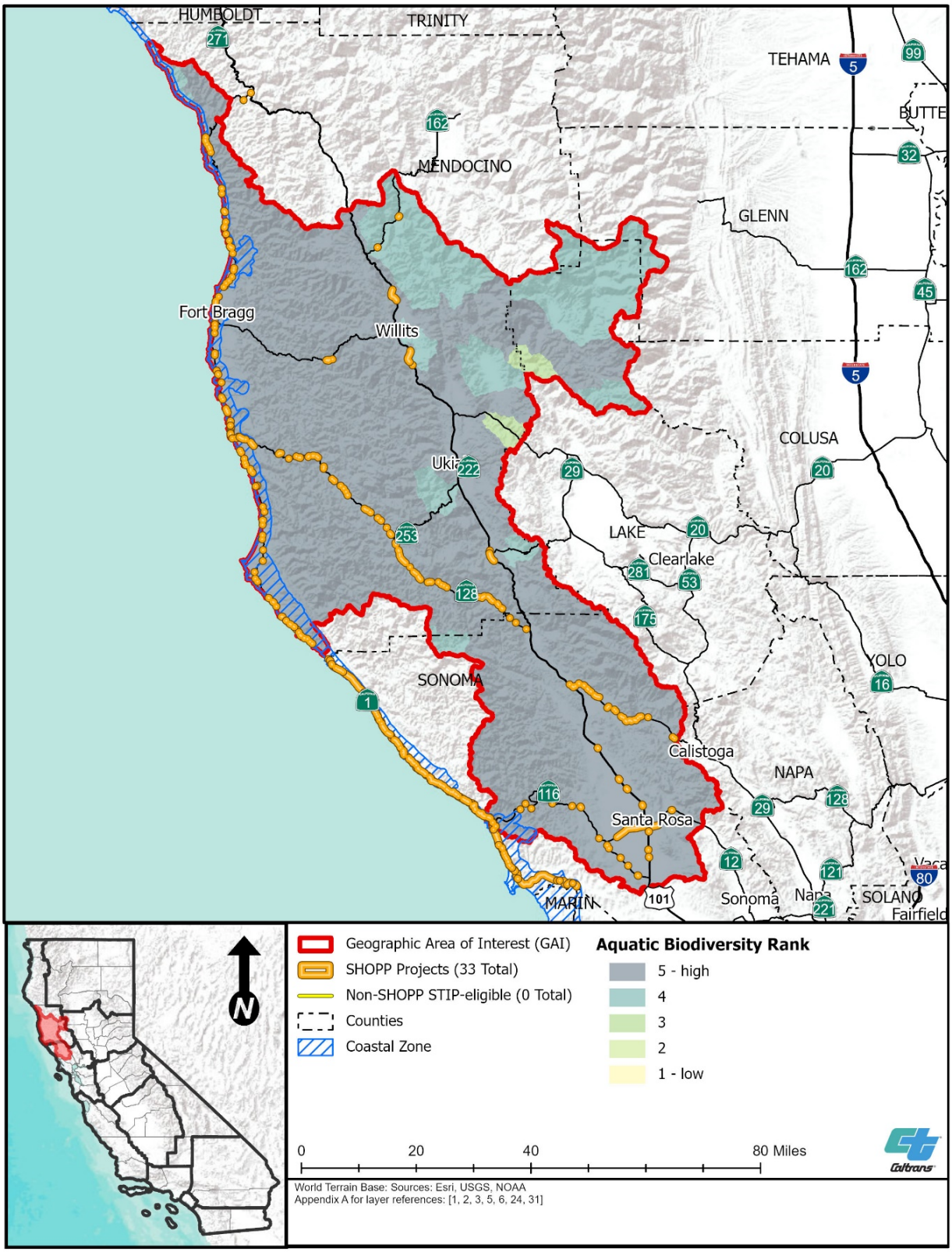
continue to degrade stream conditions through sedimentation and loss of riparian vegetation, and therefore, represent a growing threat to coho and steelhead populations (NMFS 2016d).

## 8.6 Multi-resource Benefits

Advance mitigation planning provides Caltrans an opportunity to integrate the enhancement and/or restoration of multiple aquatic resource related values into its advance mitigation scoping to benefit California native aquatic biodiversity, aquatic and terrestrial connectivity, special-status species, wetlands, and non-wetland aquatic resources.

- Figure 8-1 illustrates the regional aquatic biodiversity in the GAI, as provided by CDFW's ACE GIS dataset. According to these data, high aquatic biodiversity dominates the GAI.
- Enhancing and/or restoring the aquatic resources of the GAI is expected to contribute to biologically sustainable populations of special-status aquatic, wetland, and riparian plant and wildlife species. For example, increasing the amount, complexity, and connectivity of riparian habitat will provide additional shaded riverine aquatic habitat in the GAI that can benefit fish species such as tidewater goby, Russian river tule perch (*Hysterocarpus traskii pomo*), northern coastal roach (*Hesperoleucus venustus navarroensis*), Gualala roach (*Hesperoleucus parvipinnis*), and pacific lamprey (*Entosphenus tridentatus*) as well as other species that use aquatic habitat such as California red-legged frog, northern red-legged frog (*Rana aurora*), foothill yellow-legged frog, coastal tailed frog (*Ascaphus truei*), California tiger salamander, California giant salamander (*Dicamptodon ensatus*), southern torrent salamander (*Rhyacotriton varigatus*), red-bellied newt (*Taricha rivularis*), western pond turtle (*Actinemys marmorata*), and coast fawn lily (*Erythronium revolutum*).
- Enhancing and/or restoring the aquatic resources of the GAI is expected to support or contribute to beneficial uses of wetland and non-wetland waters of the GAI. For example, enhancement and/or restoration of wetlands adjacent to wildlife habitat would likely improve wildlife habitat water quality. Further, enhancement and/or restoration of wetlands adjacent to GAI waters could sequester contaminants in waters identified as 303(d) impaired and/or with an established TMDL.

**Figure 8-1. Aquatic Biodiversity of the GAI**



Caltrans will consider aquatic resources' biodiversity values, special-status species with the potential to co-occur in aquatic habitats, ESHAs, the beneficial uses of waters, and impaired waters during advance mitigation project scoping—thereby improving the conservation benefits of mitigation in the GAI.

## 8.7 Advance Mitigation Conservation Goals and Objectives

The conservation goals and objectives compiled in Table 8-4 are intended to be relevant to anticipated future SHOPP transportation project compensatory mitigation needs, be consistent with the goals and objectives of natural resource regulatory agencies for aquatic resources, address pressures and stressors on aquatic resources, and support mitigation success in the GAI. Each conservation goal is supported by one or more conservation objectives; objectives are more specific, measurable, achievable, relevant, and time-bound measures that align to a desired result specified by a goal. At the broad scale, these aquatic resources goals and objectives encompass ecological processes, address functions and values of aquatic systems, and prioritize regional conservation that preserves intact aquatic resources, restores aquatic function, and supports climate change planning.

Sub-objectives are included for each objective to guide Caltrans' advance mitigation scoping toward those actions that would create the greatest functional lift or conservation benefit, support long-term preservation, restore surface water flows, protect and restore hydrologic processes such as channel stability, and reduce climate change effects on aquatic resources in the GAI. Sub-objectives also capture specific measures from conservation and land management plans that address threats to aquatic resources. Several of the goals are interrelated, and many objectives could apply to more than one goal; objectives were grouped with the goal to which they most specifically aligned. Goals and objectives are generally presented in order from general to more specific.

The goals, objectives, and sub-objectives presented in Table 8-4 reflect Caltrans' intention to develop advance mitigation project scopes for in-kind mitigation and are intended to reflect the watershed approach, as practiced by natural resource regulatory agencies. The watershed approach is an analytical process through which the CCC, Corps, EPA, NMFS, SWRCB, and RWQCBs make decisions that support the sustainability or improvement of aquatic resources, with the goal of maintaining and improving the quality and quantity of aquatic resources through strategic selection of compensatory mitigation sites. The Corps subscribes to a watershed approach for compensatory mitigation that uses the HUC-based classification system, a topographic watershed-based system, or littoral cell boundary, in the case of coastal and marine resources, depending on the size and location of a transportation or other project (Corps 2015). SWRCB and the RWQCBs generally subscribe to an approach for compensatory mitigation decisions that follows the Corps' watershed approach; however, the HU classification system may be used on a case-by-case basis (SWRCB 2019).

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**Table 8-4. Advance Mitigation Conservation Goals and Objectives for Aquatic Resources**

| Objective | Sub-Objective | Alignment with Documents Identified in Table 8-3 |
|---|---|---|
| ***Goal AR-1: No net loss to area, functions, values, and condition of wetland and non-wetland water resources.*** | See below | See below |
| **Objective AR-1.1:** Improve quality and function of wetland and non-wetland water resources. | **Sub-Objective AR-1.1.1:** Enhance and/or rehabilitate wetland and non-wetland water resources such that the greatest functional lift to the aquatic resource is provided, including by consolidating compensatory mitigation consistent with Executive Order W-59-93.<br>**Sub-Objective AR-1.1.2:** Enhance and/or rehabilitate key wetland and non-wetland water habitats that are identified in the SWAP, FWS recovery plans, LCPs, and other land management plans identified in Table 8-3.<br>**Sub-Objective AR-1.1.3:** Prioritize enhancement and/or restoration of riparian vegetation in the GAI, particularly the Eel, Russian, Navarro, and Noyo Rivers, and other named and unnamed tributaries, many of which are listed in Table 8-2.<br>**Sub-Objective AR-1.1.4:** Enhance and/or rehabilitate wetland and non-wetland water resource functions, such as connectivity, abundance of native plants, stream geomorphology, hydrologic regime, substrate diversity and complexity, and water quality, that define habitat value for aquatic organisms and increase basin-wide value of resources. | ▪ *2008 Final Compensatory Mitigation Rule* (73 *Federal Register* 19593)<br>▪ *303(d) List of Impaired Water Bodies* (SWRCB 2021)<br>▪ *California Wetlands Conservation Policy* (Executive Order W-59-93)<br>▪ *City of Cloverdale General Plan* (City of Cloverdale 2015)<br>▪ *City of Ukiah 2040 General Plan* (City of Ukiah 2022)<br>▪ *Coastal Multispecies Plan Volume III Northern California Steelhead* (NMFS 2016a)<br>▪ *Ecological Restoration Implementation Plan* (USFS 2013)<br>▪ *Healdsburg 2030 General Plan Policy Document* (City of Healdsburg 2009)<br>▪ *Hopland Band of Pomo Indians Wetlands Program Plan* (Hopland Band of Pomo Indians 2011)<br>▪ *Jackson Demonstration State Forest Management Plan* (California State Parks 2016)<br>▪ *Mendocino County Coastal Element Chapter 3 – The Land Use Plan: Resources and Development Issues and Policies* (Mendocino County 1991)<br>▪ *National Wetlands Mitigation Action Plan* (EPA and Corps 2002)<br>▪ *North Coast Integrated Regional Water Management Plan Phase 3* (North Coast Resource Partnership 2014)<br>▪ *North Coast Resource Partnership Plan* (North Coast Resource Partnership 2020)<br>▪ *Pinoleville Pomo Nation Wetland Program Plan* (Pinoleville Pomo Nation 2014)<br>▪ *Record of Decision Arcata Resource Management Plan and Environmental Impact Statement* (BLM 1992)<br>▪ *Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California* (FWS 2013)<br>▪ *Recovery Strategy for California Coho Salmon* (CDFG 2004)<br>▪ *Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division* (Corps 2015)<br>▪ *Russian River Estuary Adaptive Beach Management Plan 2023* (Sonoma Water 2023)<br>▪ *Santa Rosa General Plan 2035* (City of Santa Rosa 2020)<br>▪ *Sinkyone Wilderness State Park Final General Plan & EIR* (California State Parks 2006)<br>▪ *Species in the Spotlight Priority Actions: 2016–2020 Central California Coast Coho Salmon* (NOAA 2016)<br>▪ *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material in Waters of the State* (SWRCB 2019)<br>▪ *Steelhead Restoration and Management Plan for California* (CDFG 1996)<br>▪ *Sugarloaf Ridge State Park Final General Plan and EIR* (California State Parks 2004)<br>▪ *Ukiah Resource Management Plan* (BLM 2006)<br>▪ *Van Damme State Park General Plan* (California State Parks 1995)<br>▪ *Volume I: Recovery Plan for the ESU of Central California Coast Coho Salmon* (NMFS 2012)<br>▪ *SWAP* (CDFW 2015)<br>▪ *Water Quality Control Plan for the North Coast Region* (North Coast RWQCB 2018) |
| **Objective AR-1.2:** Avoid a net loss of aquatic resource acreage by establishing aquatic resources. | **Sub-Objective AR-1.2.1:** Establish and/or reestablish wetland and non-wetland waters, particularly in key wetland and non-wetland water habitats that are identified in the SWAP, FWS recovery plans, LCPs, and other land management plans identified in Table 8-3.<br>**Sub-Objective AR-1.2.2:** Establish and/or reestablish riparian vegetation in the HUC-8s of the GAI, particularly in the Eel, Russian, Navarro, and Noyo Rivers and in other named and unnamed streams, many of which are listed in Table 8-2. | Same references as listed with Objective AR-1.1. |

| Objective | Sub-Objective | Alignment with Documents Identified in Table 8-3 |
|---|---|---|
| ***Goal AR-2: Restore and/or enhance the chemical, physical, and biological integrity of wetlands and non-wetland waters.*** | See below | See below |
| **Objective AR-2.1:** Restore and/or enhance water quality. | **Sub-Objective AR-2.1.1:** In coordination with the RWQCB, restore and/or enhance wetland and non-wetland waters with RWQCB biology-related beneficial use designations such as cold freshwater habitat; freshwater replenishment; groundwater recharge; migration of aquatic organisms; rare, threatened, or endangered species; spawning, reproduction, and/or early development; warm freshwater habitat; and wildlife habitat.<br>**Sub-Objective AR-2.1.2:** In coordination with natural resource regulatory agencies, address aggradation, erosion, nutrients, contaminants, sedimentation, and temperatures in the HUC-8s identified in Table 8-2.<br>**Sub-Objective AR-2.1.3:** In coordination with the RWQCB, implement restoration and enhancement actions that address water quality for aquatic resources, such as the Navarro River.<br>**Sub-Objective AR-2.1.4:** Restore or create riparian floodplain habitat, adjacent wetlands, and adjacent non-wetland aquatic features to enhance water quality in tributaries and downstream systems.<br>**Sub-Objective AR-2.1.5:** Rehabilitate and/or enhance small streams and sections of larger streams by removing nonnative plant species that degrade stream water quality, such as tree-of-heaven, giant reed, common velvet grass, Mediterranean barley, pennyroyal, parrotfeather, Eurasian watermilfoil, and big periwinkle.<br>**Sub-Objective AR-2.1.6:** Improve stream temperatures by increasing shaded riverine aquatic habitat in the Eel, Russian, Navarro, and Noyo Rivers for fish and other aquatic life. | ▪ *2008 Final Compensatory Mitigation Rule* (73 *Federal Register* 19593)<br>▪ *303(d) List of Impaired Water Bodies* (SWRCB 2021)<br>▪ *California Wetlands Conservation Policy* (Executive Order W-59-93)<br>▪ *City of Cloverdale General Plan* (City of Cloverdale 2015)<br>▪ *City of Ukiah 2040 General Plan* (City of Ukiah 2022)<br>▪ *Coastal Multispecies Plan Volume III Northern California Steelhead* (NMFS 2016a)<br>▪ *Ecological Restoration Implementation Plan* (USFS 2013)<br>▪ *Healdsburg 2030 General Plan Policy Document* (City of Healdsburg 2009)<br>▪ *Hopland Band of Pomo Indians Wetlands Program Plan* (Hopland Band of Pomo Indians 2011)<br>▪ *Jackson Demonstration State Forest Management Plan* (California State Parks 2016)<br>▪ *Mendocino County Coastal Element Chapter 3 – The Land Use Plan: Resources and Development Issues and Policies* (Mendocino County 1991)<br>▪ *National Wetlands Mitigation Action Plan* (EPA and Corps 2002)<br>▪ *North Coast Integrated Regional Water Management Plan Phase 3* (North Coast Resource Partnership 2014)<br>▪ *North Coast Resource Partnership Plan* (North Coast Resource Partnership 2020)<br>▪ *Pinoleville Pomo Nation Wetland Program Plan* (Pinoleville Pomo Nation 2014)<br>▪ *Record of Decision Arcata Resource Management Plan and Environmental Impact Statement* (BLM 1992)<br>▪ *Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California* (FWS 2013)<br>▪ *Recovery Strategy for California Coho Salmon* (CDFG 2004)<br>▪ *Regional Compensatory Mitigation and Monitoring Guidelines for South Pacific Division* (Corps 2015)<br>▪ *Santa Rosa General Plan 2035* (City of Santa Rosa 2020)<br>▪ *Sinkyone Wilderness State Park Final General Plan & EIR* (California State Parks 2006)<br>▪ *Species in the Spotlight Priority Actions: 2016–2020 Central California Coast Coho Salmon* (NOAA 2016)<br>▪ *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material in Waters of the State* (SWRCB 2019)<br>▪ *Steelhead Restoration and Management Plan for California* (CDFG 1996)<br>▪ *Sugarloaf Ridge State Park Final General Plan and EIR* (California State Parks 2004)<br>▪ *SWAP* (CDFW 2015)<br>▪ *Ukiah Resource Management Plan* (BLM 2006)<br>▪ *Van Damme State Park General Plan* (California State Parks 1995)<br>▪ *Volume I: Recovery Plan for the ESU of Central California Coast Coho Salmon* (NMFS 2012)<br>▪ *Water Quality Control Plan for the North Coast Region* (North Coast RWQCB 2018) |
| **Objective AR-2.2:** Improve surface water hydrology. | **Sub-Objective AR-2.2.1:** Restore and/or enhance natural hydrologic regimes, natural sediment transport, and geomorphic processes.<br>**Sub-Objective AR-2.2.2:** Reconnect severed aquatic systems and improve connectivity in aquatic and riparian systems, with particular focus on reconnecting higher watershed areas with lower watershed areas, such as reconnecting tributaries to the Eel, Russian, Navarro, and Noyo Rivers.<br>**Sub-Objective AR-2.2.3:** Reestablish hydrologic regimes or drainage patterns for better function of depressional, estuarine, freshwater wetland, freshwater pond, vernal pool, lake, riverine, and slope natural habitats. | Same references as listed with Objective AR-2.1. |

| Objective | Sub-Objective | Alignment with Documents Identified in Table 8-3 |
|---|---|---|
| **Objective AR-2.3:** Improve water storage and groundwater recharge. | **Sub-Objective AR-2.3.1:** Promote restoration of stream and riparian areas' natural functions to provide water storage and release.<br>**Sub-Objective AR-2.3.2:** Reduce excessive and invasive vegetation along stream/riparian corridors to lower vegetative transpiration rates to sustainable levels and increase water storage in soils and streams.<br>**Sub-Objective AR-2.3.3:** Create or restore wetlands adjacent to streams to enhance groundwater-surface water dynamics in tributaries. | Same references as listed with Objective AR-2.1. |
| ***Goal AR-3: Restore and/or enhance and expand habitat for fish species of mitigation need.*** | See below | See below |
| **Objective AR-3.1:** Restore and/or enhance habitat. | **Sub-Objective AR-3.1.1:** Consult with FishPAC to select and implement habitat restoration and enhancement actions that support key populations and important habitat and contribute to the recovery of threatened and endangered salmon and steelhead. Enhancement or restoration may include placement of large pieces of wood in alcoves and pools and stream channel restoration.<br>**Sub-Objective AR-3.1.2:** Consult with FishPAC to select and implement FishPAC and legislative priorities in the GAI to restore access to habitats that support key populations for recovery of threatened and endangered salmon and steelhead. The highest value for fish passage remediation and habitat restoration should be given to the current high-priority locations on the SHS (listed in each years' Fish Passage Annual Report to Legislature). FishPAC priority locations have the highest biological value for recovery and should have the greatest support for remediating, both internally and from natural resource regulatory agencies.<br>**Sub-Objective AR-3.1.3:** Align with LCP ESHA requirements to prioritize restoration and/or enhancement in ESHAs containing fish species of mitigation need such that a functional lift to the ESHA is provided, when feasible. | ▪ *2020 Fish Passage Annual Legislative Report* (Caltrans 2021h)<br>▪ *Coastal Multispecies Plan Volume III Northern California Steelhead* (NMFS 2016a)<br>▪ *Final Recovery Plan for the Southern Oregon/Northern California Coast Evolutionarily Significant Unit of Coho Salmon* (NMFS 2014)<br>▪ *Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California* (FWS 2013)<br>▪ *Recovery Strategy for California Coho Salmon* (CDFG 2004)<br>▪ *Russian River Estuary Adaptive Beach Management Plan 2023* (Sonoma Water 2023)<br>▪ *Species in the Spotlight Priority Actions: 2016–2020 Central California Coast Coho Salmon* (NOAA 2016)<br>▪ *Steelhead Restoration and Management Plan for California* (CDFG 1996)<br>▪ *Volume I: Recovery Plan for the ESU of Central California Coast Coho Salmon* (NMFS 2012) |

| Objective | Sub-Objective | Alignment with Documents Identified in Table 8-3 |
|---|---|---|
| ***Goal AR-4: Support resiliency of aquatic resources to climate change and sea-level rise.*** | See below | See below |
| **Objective AR-4.1:** Reduce impacts from climate change and sea-level rise. | **Sub-Objective AR-4.1.1:** Enhance and/or restore aquatic resource function and value in areas of lower climate resilience, such as the southern portion of the GAI, to reduce climate change effects on aquatic resources.<br>**Sub-Objective AR-4.1.2:** Prioritize enhancement and/or restoration that will increase resilience to climate change, such as aquatic features with hydrologic connections to the Eel, Russian, Navarro, and Noyo Rivers, such that the potential for aquatic resource migration increases.<br>**Sub-Objective AR-4.1.3:** Prioritize riparian areas of the HUC-8s identified in Table 8-2 and implement improvements that involve enhancement and/or restoration to improve freshwater quantity and quality, floodplain connectivity, and instream cover continuity.<br>**Sub-Objective AR-4.1.4:** Enhance, rehabilitate, establish and/or reestablish aquatic habitats by using native species such as willows (*Salix* spp.), cattails (*Typha* spp.), rushes (*Juncus* spp.), and bulrushes (*Schoenoplectus* spp.) to reduce the effects of climate change.<br>**Sub-Objective AR-4.1.5:** Reduce adverse instream flooding effects by restoring affected headwater and tributary hydrological functions for the Eel, Russian, Navarro, and Noyo Rivers.<br>**Sub-Objective AR-4.1.6:** Prioritize habitat establishment and reestablishment in areas that can also reduce risk in floodprone systems, in particular areas along the Laguna de Santa Rosa, Lake Mendocino, Russian River, and Santa Rosa Creek. | ▪ *California Wetlands Conservation Policy* (Executive Order W-59-93)<br>▪ *City of Cloverdale General Plan* (City of Cloverdale 2015)<br>▪ *City of Ukiah 2040 General Plan* (City of Ukiah 2022)<br>▪ *Coastal Multispecies Plan Volume III Northern California Steelhead* (NMFS 2016a)<br>▪ *Ecological Restoration Implementation Plan* (USFS 2013)<br>▪ *Final Recovery Plan for the Southern Oregon/Northern California Coast Evolutionarily Significant Unit of Coho Salmon* (NMFS 2014)<br>▪ *Healdsburg 2030 General Plan Policy Document* (City of Healdsburg 2009)<br>▪ *Hopland Band of Pomo Indians Wetlands Program Plan* (Hopland Band of Pomo Indians 2011)<br>▪ *Jackson Demonstration State Forest Management Plan* (California State Parks 2016)<br>▪ *Mendocino County Coastal Element Chapter 3 – The Land Use Plan: Resources and Development Issues and Policies* (Mendocino County 1991)<br>▪ *National Wetlands Mitigation Action Plan* (EPA and Corps 2002)<br>▪ *North Coast Integrated Regional Water Management Plan Phase 3* (North Coast Resource Partnership 2014)<br>▪ *North Coast Resource Partnership Plan* (North Coast Resource Partnership 2020)<br>▪ *Pinoleville Pomo Nation Wetland Program Plan* (Pinoleville Pomo Nation 2014)<br>▪ *Recovery Strategy for California Coho Salmon* (CDFG 2004)<br>▪ *Santa Rosa General Plan 2035* (City of Santa Rosa 2020)<br>▪ *Sinkyone Wilderness State Park Final General Plan & EIR* (California State Parks 2006)<br>▪ *Species in the Spotlight Priority Actions: 2016–2020 Central California Coast Coho Salmon* (NOAA 2016)<br>▪ *Steelhead Restoration and Management Plan for California* (CDFG 1996)<br>▪ *Sugarloaf Ridge State Park Final General Plan and EIR* (California State Parks 2004)<br>▪ *SWAP* (CDFW 2015)<br>▪ *Ukiah Resource Management Plan* (BLM 2006)<br>▪ *Van Damme State Park General Plan* (California State Parks 1995)<br>▪ *Volume I: Recovery Plan for the ESU of Central California Coast Coho Salmon* (NMFS 2012) |
| **Objective AR-4.2:** Improve aquatic habitat resiliency. | **Sub-Objective AR-4.2.1:** Promote native plant species that can stabilize banks, improve filtering of nutrient loads from water, and maintain the flood conveyance properties of streams and estuaries, such as rushes, bulrushes, cattail, and willows.<br>**Sub-Objective AR-4.2.2:** Prioritize management of invasive species that occur in large contiguous areas in aquatic habitats, such as tree-of-heaven, giant reed, common velvet grass, Mediterranean barley, pennyroyal, parrotfeather, Eurasian watermilfoil, big periwinkle, New Zealand mudsnails, largemouth bass, smallmouth bass, brown trout, brook trout, Sacramento pikeminnow, yellow perch, sunfish, black and white crappie, bullhead, and American bullfrog that may be exacerbated by climate change such that the greatest functional lift is provided.<br>**Sub-Objective AR-4.2.3:** Enhance and/or restore small (that is, low order) tributaries/streams that discharge into larger rivers such as the Eel, Russian, Navarro, and Noyo Rivers. | Same references as listed with Objective AR-4.1. |

| Objective | Sub-Objective | Alignment with Documents Identified in Table 8-3 |
|---|---|---|
| ***Goal AR-5: Provide multi-resource benefits.*** | See below | See below |
| **Objective AR-5.1:** Maximize mitigation opportunities for multiple environmental benefits. | **Sub-Objective AR-5.1.1:** Enhance, rehabilitate, establish, and/or reestablish aquatic resource areas currently occupied by, or that provide habitat for, one or more special-status species, or areas that contribute to the protection of ecologically, geographically, and/or genetically distinct populations or sub-populations of obligate aquatic special-status species.<br>**Sub-Objective AR-5.1.2:** Enhance and/or restore habitats for other aquatic species such as vernal pool crustaceans and plants, fish species included in Section 2.17.2, and species included in Appendix E that could benefit from aquatic habitat enhancement and/or restoration.<br>**Sub-Objective AR-5.1.3:** Address additional RWQCB beneficial use designations, such as recreation (for example, bird watching), through enhancement, rehabilitation, establishment, and/or reestablishment actions.<br>**Sub-Objective AR-5.1.4:** Align with LCP ESHA requirements to prioritize enhancement, rehabilitation, establishment, and/or reestablishment actions that provide a functional lift to the ESHA, when feasible. | ▪ *Hopland Band of Pomo Indians Wetlands Program Plan* (Hopland Band of Pomo Indians 2011)<br>▪ *Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California* (FWS 2013)<br>▪ *Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon* (FWS 2005)<br>▪ *Species in the Spotlight Priority Actions: 2016–2020 Central California Coast Coho Salmon* (NOAA 2016)<br>▪ *SWAP* (CDFW 2015) |

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## 8.8 Summary

Caltrans anticipates that future SHOPP transportation projects may be conditioned by the CCC, Corps, SWRCB, RWQCBs, and/or CDFW to address the pressures and stressors that threaten aquatic resources in the GAI. The pressures and stressors include:

- Habitat loss, fragmentation, and degradation;
- Invasive species;
- Altered hydrology, geomorphology, and water quality;
- Climate change, drought, and sea-level rise; and
- Wildfire risk.

Hence, Caltrans will seek to align advance mitigation scopes with conservation goals and objectives that address the identified pressures and stressors, thereby aligning advance mitigation efforts with regional conservation efforts. As noted in 33 CFR § 332.3, consolidating compensatory mitigation is generally ecologically preferable.

Regional conservation goals and objectives provide a framework for scoping mitigation credit establishment that would likely successfully offset future transportation project impacts on aquatic resources by creating functional lift or conservation benefits, and by mitigating the pressures and stressors on aquatic resources in the GAI. To summarize Table 8-4:

- **Goal AR-1** seeks to achieve no net loss of area, functions, values, and the condition of wetland and non-wetland water resources in the GAI. The primary objectives associated with this goal are to improve existing wetland and non-wetland water resources and create new ones. The sub-objectives were selected to address the following pressures and stressors: altered hydrology, geomorphology, and water quality; habitat loss, fragmentation, and degradation; invasive species; and wildfire risk.
- **Goal AR-2** seeks to restore and maintain the chemical, physical, and biological integrity of waters. The primary objectives associated with this goal are to restore and/or enhance water quality, improve surface water hydrology, and improve water storage and groundwater recharge. The sub-objectives were selected to address the following pressures and stressors: altered hydrology, geomorphology, and water quality.
- **Goal AR-3** seeks to direct advance mitigation planning toward fish species of mitigation concern. The objectives are designed to restore and/or enhance habitat for coho salmon and steelhead and increase the survivability of these species. The sub-objectives were selected to address the following pressures and stressors: altered hydrology and water quality; habitat loss, fragmentation, and degradation; and invasive species.
- **Goal AR-4** seeks to support climate resiliency for aquatic resources in the GAI. The primary objectives are to reduce impacts on aquatic resources from climate change and to improve aquatic habitat climate resiliency. The sub-objectives were

selected to address the following pressures and stressors: climate change, drought, and sea-level rise; invasive species; and wildfire risk.

- **Goal AR-5** seeks to guide advance mitigation project scoping to prioritize multi-resource benefits, with the only objective being to coordinate mitigation efforts for multi-resource benefits. The sub-objectives of Goal AR-5 describe what additional benefits exist for other resources in the GAI, including benefits to upland terrestrial habitat. Goal AR-5 was developed to include conservation for multiple resources while seeking to address in-kind transportation projects' effects on aquatic resources.

Each of the goals and objectives have sub-objectives intended to further guide advance mitigation project scoping toward resource and regulatory agencies' regional conservation goals and objectives. These sub-objectives will prompt Caltrans to incorporate multiple benefits into advance mitigation project scopes and address important threats in the area through an advance mitigation project. This concept is an important way Caltrans seeks to use advance mitigation scoping to set the stage, once funding approval is received, for specific advance mitigation projects to provide a functional lift for aquatic resources and to maximize conservation benefits from mitigation in the GAI.

# 9. ASSESSMENT OF AUTHORIZED ACTIVITIES

Informed by this RAMNA and its reviewers' comments and feedback, Caltrans District 1 will nominate advance mitigation projects to the Caltrans Director and request funding approval (see Step 4 on Figure 1-1; Figure 6-1; Caltrans 2019a). Each advance mitigation project nominated to the Director will consist of a scope, schedule, and cost for an SHC § 800.6(a)-authorized activity. With respect to scope, in this chapter, Caltrans analyzes the information presented previously to identify advance mitigation project scope options that have a high probability of successfully meeting the AMP's transportation project and environmental objectives. Understanding the regulatory framework, environmental setting, available opportunities to purchase credits, impact forecasts, transportation project schedule needs, and natural resource regulatory agency goals and objectives will assist Caltrans District 1 with scoping of SHC § 800.6(a)-authorized activities to be considered further for potential funding by the AMA (see Step 4 of Figure 1-1 and Section 9.4).

Note that the analysis presented in this chapter is for advance mitigation project scoping purposes only. Transportation projects must still go through environmental and permitting processes and must demonstrate avoidance and minimization efforts prior to compensation.

## 9.1 Overview of Advance Mitigation Project Scope Development

Advance mitigation project scopes will provide enough information, at the appropriate level of detail, for the Caltrans Director to concur with funding. Appropriately, advance mitigation project scopes will address transportation project delivery acceleration and environmental objectives:

- To meet the AMP's objective of accelerating transportation project delivery, advance mitigation project scopes will be consistent with the AMP's founding legislation and the state's competitive bid requirements and will address transportation project schedule milestones and constraints.
- To meet the environmental objectives through transportation project mitigation, an advance mitigation project scope will be consistent with natural resource regulatory agency goals and objectives expressed in an approved regulatory instrument or interagency agreement, and/or be aligned with conservation goals and objectives identified in Chapter 7, *Wildlife Resources Conservation Goals and Objectives,* or Chapter 8, *Aquatic Resources Conservation Goals and Objectives*.

Summaries of transportation-related advance mitigation project scope requirements and conservation-related advance mitigation project scope goals and objectives are provided in Tables 9-1 and 9-2, respectively.

## Table 9-1. Summary of Transportation-related Advance Mitigation Project Scope Requirements

| Advance mitigation project scopes must: |
|---|
| Be an authorized activity in accordance with SHC § 800.6(a) |
| Benefit multiple transportation projects' delivery schedules |
| Deliver mitigation anticipated to be needed to fulfill the mitigation requirements of transportation improvements[a] |
| Be consistent with natural resource regulatory agency(ies) goals and objectives |
| Yield mitigation in units and terms approved by natural resource regulatory agencies with the authority to condition transportation project permits with compensatory mitigation |
| Employ, as appropriate, existing applicable state and federal standards and instruments, mitigation-related agreements, advance mitigation project-specific agreements,[b,c] and contracts with qualified third parties[d] |
| Address overlapping mitigation requirements |
| Implement the state's competitive proposal and bidding processes[d] |
| Strategically exercise the AMA |
| Manage the financial, technical, and strategic risks associated with Caltrans' investments |

[a] California Constitution, Article XIX, § 2, subdivision (a)
[b] An advance mitigation project-specific interagency agreement is a general term to describe an agreement between natural resource regulatory agencies that attaches or binds advance mitigation requirements to a sponsor, qualified third party, or permittee; natural resource regulatory agencies agree that the action provides mitigation. Examples of advance mitigation project-specific interagency agreements include cooperative agreements, MCAs, or other interagency agreements. Advance mitigation project-specific interagency agreements are developed after a Caltrans advance mitigation project is funded.
[c] The authority for Caltrans to enter into interagency agreements with public entities such as CDFW is under SHC § 114 and SHC § 130.
[d] Procedures for Caltrans to enter in contracts with third parties are available at: http://ppmoe.dot.ca.gov/des/oe/contractor-info.html.

**Table 9-2. Summary of Conservation-related Advance Mitigation Project Scope Goals and Objectives**

| Advance mitigation project scopes will strive to: |
|---|
| Benefit multiple wildlife species and aquatic resources |
| Be consistent with existing regional conservation planning expressed in a natural resource regulatory agency strategic plan, conservation plan, HCP, NCCP, watershed plan, restoration plan, investment strategy, RCIS, BEI, in-lieu fee program instrument, land management plan, or other documented conservation effort |
| Benefit regional biodiversity |
| Contribute to landscape climate change resiliency |
| Contribute to landscape connectivity |
| Contribute to federal and/or California special-status species population recovery |
| Mitigate effects of stressors on wildlife species and aquatic resources |
| Restore and rehabilitate wildlife habitat and aquatic resources |

## 9.2 Benefiting Transportation Project Needs Summary

The proximity of planned SHOPP transportation projects to natural resources is shown on figures throughout this document; non-SHOPP STIP-eligible projects were not identified for the planning period, and so are not shown. Estimated transportation project mitigation needs within the GAI for fiscal years 2021/22 to 2030/31 are presented in Chapter 5, *Modeled Estimated Impacts*, and the timing of the needs is analyzed in Chapter 6, *Benefiting Transportation Project Considerations*. For the time interval under consideration, 2021/22 to 2030/31, Caltrans District 1 intends to prioritize purchasing or developing mitigation credits or values that address the Road Repair and Accountability Act of 2017 (also known as Senate Bill 1) priorities and that are planned for the middle and end of the planning period. Given the expected timing of mitigation need, at this time (October of fiscal year 2023/24) mitigation that can be purchased or established by 2025/26 (within the next 2 years) could potentially address mitigation for impacts on aquatic resources in the following sub-basins:

- Big-Navarro-Garcia Sub-basin:
  - 2 acres of fish habitat, 2.1 acres of wetland, 2 acres of non-wetland waters, and 1 acre of riparian habitat impacts, potentially contributing to the acceleration of 10, 8, 10, and 3 transportation projects, respectively
- Russian Sub-basin:
  - 1 acre of fish habitat, 1 acre of wetland, 1 acre of non-wetland waters, and 0.1 acre of riparian habitat impacts, potentially contributing to the acceleration of 7, 2, 7, and 2 transportation projects, respectively

- Upper Eel Sub-basin:
  - 0.3 acre of fish habitat, 0.2 acre of wetland, and 0.3 acre of non-wetland waters impacts, potentially contributing to the acceleration of 2, 1, and 2 transportation projects, respectively

There are no impacts on terrestrial species of mitigation need forecast in the 10-year planning period covered by this RAMNA.

All or some of these needs could form the basis for Caltrans District 1 to develop an advance mitigation project scope.

## 9.3 Authorized Activity Summary

Advance mitigation project scope options that have a high probability of successfully meeting the AMP's objectives are feasible. Below, a brief description of each of the 11 SHC § 800.6(a)-authorized advance mitigation project types is provided, followed by a discussion of its feasibility. Listed in Table 9-3, some advance mitigation project types are not currently feasible because they are not available in the GAI. Others are not currently feasible because a regulatory and administrative pathway is not available. Others have potential but may not be feasible to implement on a schedule to contribute to accelerated transportation project delivery. Further, the activity authorized by SHC § 800.6(a)(4) is only feasible if § 800.6(a)(1)–(3) options are not feasible. Results of the feasibility analysis are summarized in the subsections below and in Table 9-4 (wildlife resources) and Table 9-5 (aquatic resources) later in this chapter.

**Table 9-3. Advance Mitigation Project Types[a]**

| Advance Mitigation Project Type | Authorization | Section |
|---|---|---|
| Caltrans pays mitigation fees or other costs or payments associated with coverage of transportation projects under an approved NCCP[b] and/or an approved HCP. | SHC § 800.6(a)(2) | 9.3.1 |
| Caltrans purchases credits from an existing conservation bank. | SHC § 800.6(a)(1) | 9.3.2 |
| Caltrans purchases credits from an existing mitigation bank. | SHC § 800.6(a)(1) | 9.3.3 |
| Caltrans purchases credits from an existing in-lieu fee program. | SHC § 800.6(a)(1) | 9.3.4 |
| Caltrans purchases credits developed through an MCA, established under a CDFW-approved RCIS.[c] | SHC § 800.6(a)(3)(A) | 9.3.5 |
| Caltrans funds the establishment of a Caltrans or third-party sponsored and operated conservation bank, in accordance with applicable state and federal standards. | SHC § 800.6(a)(1) | 9.3.6 |
| Caltrans funds the establishment of a Caltrans or third-party sponsored and operated mitigation bank in accordance with applicable state and federal standards. | SHC § 800.6(a)(1) | 9.3.7 |
| Caltrans funds the establishment of a Caltrans or third-party sponsored and operated in-lieu fee program in accordance with applicable state and federal standards. | SHC § 800.6(a)(1) | 9.3.8 |

| Advance Mitigation Project Type | Authorization | Section |
|---|---|---|
| Caltrans funds the implementation of conservation actions and habitat enhancement actions[c,d] to generate mitigation credits pursuant to an MCA[b] established under a CDFW-approved RCIS.[c] The scope may include Caltrans first entering into or funding the preparation of an MCA.[c] The scope may also include Caltrans first entering into or funding the preparation of an RCIS.[c] | SHC § 800.6(a)(3)<br>SHC § 800.6(a)(3)(A) | 9.3.9 |
| Caltrans acquires, restores, manages, monitors, enhances, and preserves[e] lands, waterways, aquatic resources, or fisheries, or funds the acquisition, restoration, management, monitoring, enhancement, and preservation of lands, waterways, aquatic resources, or fisheries, that would measurably advance a conservation objective specified in an RCIS if the department concludes that the action or actions could conserve or create environmental values that are appropriate to mitigate the anticipated potential impacts of planned transportation improvements. | SHC § 800.6(a)(3)(B) | 9.3.10 |
| When the other mitigation options (above) are not practicable, Caltrans may perform mitigation in accordance with a programmatic mitigation plan[f] pursuant to SHC § 800.9. The programmatic mitigation plan shall include, to the maximum extent practicable, the information required for an RCIS.[c] | SHC § 800.6(a)(4)<br>SHC § 800.9 | 9.3.11 |

[a] Caltrans intends to contract or subcontract implementation tasks when appropriate and as required.
[b] When Caltrans is a permittee under the NCCP, or if Caltrans qualifies as a Participating Special Entity and the project is a covered activity in the NCCP
[c] See: https://www.wildlife.ca.gov/Conservation/Planning/Regional-Conservation
[d] Under specific conditions, fish passage and wildlife crossing structures may qualify as enhancement actions under an RCIS in accordance with FGC § 1850–1861.
[e] SWRCB and the RWQCBs do not typically approve establishment of or accept preservation credits.
[f] Programmatic mitigation plans are defined in 23 USC § 169(a) (SHC § 800.9). No more than 25 percent of the funds in the AMA may be allocated for this purpose over a 4-year period [SHC § 800.6(a)(4)].

### 9.3.1. NCCP and/or HCP Fees

NCCPs and HCPs are discussed in Section 4.2. NCCPs and HCPs are species-focused and are aligned with and plan for natural resource protection. HCPs, including multiple species HCPs, and NCCPs provide for incidental take under ESA and CESA, respectively. FWS is the signatory agency to HCPs. CDFW is the signatory agency to NCCPs.

Caltrans identified no HCPs or NCCPs with plan areas that overlap the GAI and that include transportation-related projects.

**Feasibility**. This authorized activity is not feasible. At this time (October of fiscal year 2023/24), there are no HCPs or NCCPs that Caltrans can contribute or pay fees to in the GAI.

### 9.3.2. Conservation Bank Credit Purchase

Conservation banks are discussed in Section 4.3. Conservation banks are species-focused, and each bank's alignment with natural resource protection is documented through its BEI. In the GAI, CDFW is a signatory to three conservation banks, none of which offer credits for the species of mitigation need (Table 4-2). FWS is a signatory to

six conservation banks, none of which offer credits for the species of mitigation need (Table 4-2). CDFW and FWS are cosignatories for three of the conservation banks.

**Feasibility**. This authorized activity is not feasible. Conservation bank service areas are shown on Figures 4-1 to 4-5. At this time (October of fiscal year 2023/24), no conservation bank credits are available for purchase in the GAI for the species of mitigation need.

### 9.3.3. Mitigation Bank Credit Purchase

Mitigation banks are discussed in Section 4.3. Mitigation banks are wetlands- and non-wetland waters-focused, and each bank's alignment with natural resource protection is documented through its BEI. Three mitigation banks occur in the GAI, two of which provide wetland credits, including riparian habitat. The Corps is a signatory on all mitigation banks in the GAI (Table 4-2, Figures 4-1 to 4-5).

**Feasibility**. This authorized activity may be feasible. After the Caltrans Director's approval for funding, delivering an advance mitigation project to purchase credits or fees is expected to take 1 to 3 years, at which point the credits or values would be available to transportation projects. For existing banks, a BEI amendment would be required to formalize a process for bulk pre-transfer credit purchases, and additional time for amending the bank instrument should be considered. In 2021, the Interagency Project Delivery Team finalized new bank templates that incorporate pre-transfer purchase terms; additional Caltrans-specific terms would also need to be negotiated with bank sponsors. The decision to amend a BEI is at the discretion of the bank sponsor.

### 9.3.4. In-lieu Fee Credit Purchase

In-lieu fee programs are discussed in Section 4.4.[1] In-lieu fee mitigation occurs when a permittee provides funds to an in-lieu fee sponsor instead of either completing project-specific mitigation or purchasing credits from a conservation or mitigation bank and offers permittees an in-lieu fee option to satisfy its compensatory mitigation obligations as determined by the applicable regulatory agencies for impacts on aquatic resources authorized under the CWA, Rivers and Harbors Act, ESA, Porter-Cologne Water Quality Control Act, and other applicable laws. Once enough money is received by an in-lieu fee program, it implements wetland, stream, or threatened or endangered species habitat restoration, creation, enhancement, or preservation activities in a watershed or other defined area.[2] The in-lieu fee program's alignment with natural resource protection is documented through its enabling instrument and will be incorporated into future biological opinions on transportation projects.

There is one active in-lieu fee program with a service area that overlaps the GAI—the NFWF Sacramento District California ILF Program—and it includes pre-transfer credit purchases. However, it overlaps only a portion of the GAI within northern Lake County

[1] Up-to-date information on approved in-lieu fee programs, including available credits, can be found at: https://ribits.ops.usace.army.mil/ords/f?p=107:47:13453394859366::NO
[2] https://www.fhwa.dot.gov/innovation/everydaycounts/edc-1/pdf/banking_faq.pdf

where no state highways or SHOPP transportation projects are located, and as such cannot be used for advance mitigation within the GAI.

**Feasibility**. This authorized activity is not currently feasible because there are currently no in-lieu fee programs in the GAI with a service area that overlaps state highways.

### 9.3.5. MCA Credit Purchase

As discussed in Section 4.5, MCAs are an advance mitigation tool that can be developed when and where an RCIS is approved by CDFW. CDFW has released RCIS program guidelines, including guidance for the creation of MCAs (CDFW 2023).[3] However, there are no active or pending RCISs with service areas that overlap the GAI.

**Feasibility**. At this time (October of fiscal year 2023/24), this authorized activity is not feasible because no MCA credits are available for purchase in the GAI.

### 9.3.6. Conservation Bank Establishment

Instructions and guidance for establishing conservation banks are available from CDFW[4] and FWS.[5] Conservation banks are species-focused, and each bank's alignment with natural resource protection will be documented through its BEI. CDFW, FWS, and NMFS are potential signatories, and there also may be circumstances where the Corps and/or SWRCB would participate.

To support future transportation project conditions, a conservation bank funded through the AMA would establish CESA and ESA credits. At a minimum, conservation bank establishment project scopes will refer to and rely on GAI information provided in:

- Chapter 2, *Environmental Setting*
- Chapter 3, *Relevant Plans, Policies, and Regulations*
- Chapter 7, *Wildlife Resources Conservation Goals and Objectives*
- Chapter 8, *Aquatic Resources Conservation Goals and Objectives*
- Appendix D, *Land Cover Types*
- Appendix E, *Complete SAMNA Species Results*

An understanding of CDFW and FWS' goals and objectives for wildlife resources in the GAI will improve the chances that credits established through an advance mitigation project will meet the compensatory mitigation needs of Caltrans' future transportation projects. In Chapter 7, *Wildlife Resources Conservation Goals and Objectives,* Caltrans analyzed and synthesized the relevant and applicable information listed in Chapter 3, *Relevant Plans, Policies, and Regulations*, to develop its understanding of natural resource regulatory agency goals and objectives for the GAI. In brief, it is Caltrans' understanding that a conservation bank that addresses the following goals would be consistent with CDFW and FWS goals:

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[3] https://wildlife.ca.gov/Conservation/Planning/Regional-Conservation
[4] https://wildlife.ca.gov/Conservation/Planning/Banking/Templates
[5] https://www.fws.gov/endangered/esa-library/pdf/Conservation_Banking_Guidance.pdf

- Conserve and expand habitat for species of mitigation need within the GAI to support ecosystem functions that are essential to recovery of the species (WILD-1).
- Preserve, enhance, and increase connectivity between blocks of habitat supporting species of mitigation need to allow for dispersal that will maintain resilience and variability of populations (WILD-2).
- Support resiliency of the landscape to climate change and sea-level rise (WILD-3).
- Decrease mortality and competition, and protect population health for species of mitigation need (WILD-4).
- Provide multi-species and multi-resource benefits (WILD-5).

Further, for each objective, Table 7-3 presents sub-objectives, which are intended to help guide Caltrans advance mitigation project scoping toward protecting natural resources through transportation project mitigation.

**Feasibility**. This authorized activity may be feasible. As pointed out previously, instructions and guidance for establishing conservation banks are available from CDFW and FWS. After the Caltrans Director's approval for funding, delivering an advance mitigation project to establish a conservation bank is expected to take 2 to 6 years before the initial credit release; the credits or values would be available to transportation projects according to the credit release schedule in the Interagency Review Team-approved BEI (CNRA et al. 2011). Caltrans may contract or subcontract bank establishment and/or implementation tasks, including site selection.

### 9.3.7. Mitigation Bank Establishment

Instructions and guidance for establishing mitigation banks are available from the Corps[6] and CDFW.[7] At a minimum, mitigation bank establishment project scopes will refer to and rely on GAI information provided in:

- Chapter 2, *Environmental Setting*
- Chapter 3, *Relevant Plans, Policies, and Regulations*
- Chapter 7, *Wildlife Resources Conservation Goals and Objectives*
- Chapter 8, *Aquatic Resources Conservation Goals and Objectives*
- Appendix F, *Hydrologic Units*
- Appendix H, *Aquatic Resource Locations*

To support future transportation project permits, Caltrans would prioritize wetlands and waters credit establishment under the Corps' jurisdiction (wetlands and WOTUS) and RWQCB jurisdiction (waters of the state), as well as riparian credit establishment under CDFW's Lake and Streambed Alteration Program.

[6] https://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/mitig_info/
[7] https://wildlife.ca.gov/Conservation/Planning/Banking/Templates

Mitigation banks are wetland- and waters-focused, and each bank's alignment with natural resource protection is documented through its BEI. The Corps, RWQCB, FWS, CDFW, NMFS, and CCC are potential signatories. In some circumstances, CDFW's participation in a bank could be documented through an MCA.

An understanding of Corps, RWQCB, FWS, CDFW, NMFS, and CCC's goals and objectives for aquatic resources in the GAI will improve the chances that credits established through an advance mitigation project will meet the compensatory mitigation needs of Caltrans' future transportation projects. In Chapter 8, *Aquatic Resources Conservation Goals and Objectives*, Caltrans analyzed and synthesized the relevant and applicable information listed in Chapter 3, *Relevant Plans, Policies, and Regulations*, to develop its understanding of natural resource regulatory agency goals and objectives for the GAI. In brief, it is Caltrans' understanding that a mitigation bank that addresses the following goals would be consistent with natural resource regulatory agency goals:

- Ensure no net loss to area, functions, values, and condition of WOTUS and waters of the state to ensure no overall net loss and long-term net gain in the quantity, quality, and permanence of wetland acreage and values in California in a manner that fosters creativity, stewardship, and respect for private property, as described in Executive Order W-59-93[8] (AR-1).
- Restore and/or enhance the chemical, physical, and biological integrity of wetlands and non-wetland waters (AR-2).
- Restore and/or enhance and expand habitat for fish species of mitigation need (AR-3).
- Support resiliency of aquatic resources to climate change and sea-level rise (AR-4).
- Provide multi-resource benefits (AR-5).

Further, for each objective, Table 8-4 presents sub-objectives, which are intended to help guide Caltrans advance mitigation project scoping toward protecting natural resources through transportation project mitigation.

**Feasibility**. This authorized activity may be feasible. As discussed above, instructions and guidance for establishing mitigation banks are available from the Corps and CDFW and, hence, establishing credits is feasible. After the Caltrans Director's approval for funding, delivering an advance mitigation project to establish a mitigation bank is expected to take at least 2 to 6 years before the initial credit release, at which point the credits or values would be available to transportation projects. Caltrans may contract or subcontract bank establishment and/or implementation tasks, including site selection.

### 9.3.8. In-lieu Fee Program Establishment

In-lieu fee programs are wetlands, waters, and/or wildlife oriented and their alignment with natural resource protection will be documented through its enabling instrument.

[8] Preservation alone is not recognized by the Corps or RWQCB as providing no net loss.

Instructions and guidance for establishing in-lieu fee programs are available from the federal agencies.[9] With respect to wildlife, like the Corps, FWS also follows federal guidance for establishing an in-lieu fee program; however, a supportive regulatory and administrative pathway for CDFW to develop an in-lieu fee program has not been developed.

To support future transportation project conditions, in-lieu fee program establishment projects would rely on the same information as mitigation bank establishment (Section 9.3.7). At a minimum, in-lieu fee establishment project scopes will refer to and rely on GAI information provided in:

- Chapter 2, *Environmental Setting*
- Chapter 3, *Relevant Plans, Policies, and Regulations*
- Chapter 7, *Wildlife Resources Conservation Goals and Objectives*
- Chapter 8, *Aquatic Resources Conservation Goals and Objectives*
- Appendix H, *Aquatic Resource Locations*

To support future transportation project permits, Caltrans would seek CWA credit establishment under the Corps' jurisdiction (WOTUS) and RWQCB jurisdiction (waters of the state). The Corps, EPA, SWRCB, RWQCB, and CCC are potential signatories to the in-lieu fee program enabling instrument. Caltrans may also seek to establish credits that could be applied as compensatory mitigation to offset impacts as part of future ESA biological assessments/opinions in coordination with FWS and NMFS.

**Feasibility**. This authorized activity may be feasible. As pointed out above, instructions and guidance for establishing an in-lieu fee program for CWA credits are available from the federal agencies. After the Caltrans Director's approval for funding, delivering an advance mitigation project to establish an in-lieu fee program is expected to take 2 to 6 years. Credits or values would be available to transportation projects according to the Interagency Review Team-approved in-lieu fee enabling instrument. Caltrans may contract or subcontract implementation tasks.

### 9.3.9. MCA Credit or Value Establishment

As discussed in Section 4.5, MCAs are an advance mitigation tool that can be developed when and where an RCIS is approved by CDFW. In accordance with the *Regional Conservation Investment Strategies Program Guidelines*, MCAs are species- and species habitat-focused and can include credits under CESA and/or for riparian habitat to meet mitigation needs under a Lake and Streambed Alteration Agreement. An MCA's alignment with natural resource protection will be documented through the foundational RCIS and the MCA itself (CDFW 2023). RCIS development is also an SHC § 800.6(a)-authorized advance mitigation project deliverable.

[9] https://www.spl.usace.army.mil/Missions/Regulatory/Mitigation/

At this time, Caltrans cannot be an MCA sponsor[10] and is limited to purchasing MCA credits from third-party sponsors. Hence, Caltrans envisions that credits or values created through an MCA and funded through the AMA could be established under two scenarios:

- Caltrans funds the performance of conservation actions and habitat enhancement actions as needed to generate mitigation credits pursuant to an MCA, in which a third party is the MCA sponsor. The MCA sponsor, CDFW, and landowner would be signatories to the MCA. This scenario assumes an existing RCIS anticipates the requirements and needs for MCA credits to apply to transportation projects.
- Caltrans funds the preparation of an RCIS that anticipates transportation project requirements and needs for MCA credits prior to funding the preparation of an MCA by a third-party who is the MCA sponsor, as in the scenario above.[11]

To support future transportation project permits, an MCA or, if needed, an RCIS in concert with an MCA, funded through the AMA, would establish CESA and/or Lake and Streambed Alteration Program credits[12] and CDFW would be the signatory. Caltrans may also request other natural resource regulatory agencies to be signatories to the MCA or may request project-specific interagency agreements with other natural resource regulatory agencies whose jurisdiction overlaps with CDFW's [13] However, participation in an MCA may be more feasible for state agencies than federal agencies. Under federal definitions, MCAs may be treated as permittee-responsible mitigation. Federal agencies prioritize credits purchased or established through banking and in-lieu fee programs over permittee-responsible mitigation.

**Feasibility**. At this time (October of fiscal year 2023/24), RCIS Program guidelines, which include guidance for the creation of MCAs, are available (CDFW 2023b).[14] Once an MCA has been approved by CDFW, mitigation credits created through the agreement would be available to be applied to Caltrans transportation projects.

However, at this time, timelines and specifics related to the MCA creation are uncertain and, consequently, scoping and delivering an advance mitigation project within the AMP's timeline needs is not assured. Caltrans will stay involved to understand the MCA credit establishment process but, given the nature of the AMP's revolving account, which

[10] CDFW's legislation requires that MCA securities take the form of a letter of credit or cash according to California Fish and Game Code § 1856 subdivision (g)(17), which includes and references all of § 1798.5 subdivision (a)(2). Caltrans cannot provide a letter of credit or cash in accordance with the prohibition against pledging the credit of the state, based on Article XVI of the California Constitution, § 6, and Government Code § 16305.3. This conflict to establish security funds will need to be resolved before Caltrans can perform the role of MCA sponsor.
[11] In accordance with SHC § 800.6(a)(3)(A), advance mitigation project scopes funded through the AMA may also include Caltrans first entering into or funding the preparation of an RCIS.
[12] Caltrans is the Lead Agency under CEQA; CDFW's permitting authority does not include conditioning transportation projects under CEQA (Section 7).
[13] Parallel evaluations are undertaken when, for the same environmental enhancement/action, two or more agencies must employ different mechanisms to approve the credits.
[14] https://wildlife.ca.gov/Conservation/Planning/Regional-Conservation

sustains itself through transportation project reimbursements, Caltrans has determined that it cannot commit AMA funds until the creation process can predictably deliver credits on a schedule.

***Wildlife Crossing and Aquatic Corridor Enhancements***

As described in Section 4.6, CDFW is authorized through FGC § 1957(a) to approve compensatory mitigation credits for wildlife connectivity actions under both the Conservation and Mitigation Banking Program and the RCIS Program. Consequently, through these mechanisms, CDFW and other natural resource regulatory agencies may be able to recognize credits established through wildlife crossing and aquatic corridor enhancement made separate and distinct from specific transportation projects. A BEI and an MCA for connectivity would be consistent with Caltrans' understanding of natural resource regulatory agency goals and objectives to preserve, enhance, and increase connectivity between blocks of species of mitigation need habitat (WILD-2), support resiliency of the landscape and aquatic resources to climate change and sea-level rise (WILD-3 and AR-3), and provide multi-resource benefits (WILD-5 and AR-4).

The AMP is authorized to fund the creation of credits through conservation banks [SHC § 800.6(a)] and MCAs created pursuant to a CDFW-approved RCIS [SHC § 800.6(b)]. California Fish and Game Code § 1957(a) thus provides a means by which the AMP could potentially fund credit establishment or creation through fish and wildlife connectivity projects. Caltrans will reassess wildlife crossing and aquatic corridor enhancements related to feasibility with respect to the AMA expenditures and mitigation needs covered in this RAMNA once CDFW's guidelines for wildlife crossing and aquatic corridor enhancements are finalized.

### 9.3.10. Mitigation That Meets an RCIS Conservation Objective

SHC § 800.6(a)(3)(B) authorizes the following expenditure from the AMA:

> *Caltrans acquires, restores, manages, monitors, enhances, and preserves lands, waterways, aquatic resources, or fisheries, or funds the acquisition, restoration, management, monitoring, enhancement, and preservation of lands, waterways, aquatic resources, or fisheries that would measurably advance a conservation objective specified in an RCIS if the department concludes that the action or actions could conserve or create environmental values that are appropriate to mitigate the anticipated potential impacts of planned transportation improvements.*

**Feasibility**. At this time (October of fiscal year 2023/24), this authorized activity is not feasible. A supportive regulatory and administrative pathway for a natural resource regulatory agency to recognize credits or values outside of existing advance mitigation mechanisms, such as the procedures to establish banks, does not exist. Without an existing regulatory pathway, the time to establish credits or values for this advance mitigation project type is uncertain. Consequently, at this time, scoping and delivering an advance mitigation project within the AMP's timeline needs through this authorized activity is unlikely.

### 9.3.11. Mitigation in Accordance with a Programmatic Mitigation Plan

This project type may be undertaken by Caltrans if all of the other advance mitigation project types discussed above are not feasible [SHC § 800.6(a)(4)]. In brief, SHC § 800.6(a)(4) and SHC § 800.9 authorize the following expenditure from the AMA:

> *Caltrans performs mitigation in accordance with a programmatic mitigation plan pursuant to SHC §800.9. The programmatic mitigation plan shall include, to the maximum extent practicable, the information required for a RCIS.*

This authorized activity would likely require an advance mitigation project-specific agreement, such as a cooperative agreement, and the time needed to establish credits or values for this advance mitigation project type is uncertain. In general, unless otherwise prescribed in regulation, an advance mitigation project-specific interagency agreement should include the agency's jurisdiction, resource type, resource value, protection level, service area, time frame, performance and compliance requirements, mitigation accounting procedures, funding, monitoring, and the advance mitigation project's closeout terms and conditions.

**Feasibility**. At this time (October of fiscal year 2023/24), a number of the authorized activities listed in Table 9-3 appear to be feasible (see Tables 9-4 and 9-5). This suggests that addressing a Caltrans SAMNA-estimated need will not require another approach in accordance with SHC § 800.6(a)(4). At this time, management of the AMA does not need to consider limiting any advance mitigation project type to 25 percent of the fund.

### 9.3.1. Discussion

Caltrans modeled its compensatory mitigation needs in the GAI for fiscal years 2021/22 to 2030/31 (Chapter 5, *Modeled Estimated Impacts*) and evaluated its needs in light of when transportation projects might need the mitigation (Chapter 6, *Benefiting Transportation Project Considerations,* and Section 9.2). Summarized in Tables 9-4 and 9-5, Caltrans identified a number of options for how to meet its mitigation needs. The authorized activities consist of options to purchase existing mitigation credits (Sections 9.3.1 to 9.3.5) or establish additional mitigation (Sections 9.3.6 through 9.3.11).

Based on its evaluation, Caltrans found that, at this time (October of fiscal year 2023/24), a few authorized activities are feasible and, under several scenarios, advance mitigation project scopes could cover multiple resources and address overlapping natural resource regulatory agency jurisdictions (see Section 9.2). For example, state waters/streams and riparian habitat could be addressed through the same credit purchase or by establishing a single credit establishment project. Under some conditions, establishing new mitigation credits through existing mechanisms may also be possible.

**Table 9-4. Wildlife Resources Credit Options and Feasibility, October 2023**

| Authorized Activity | Regulatory and Administrative Pathway Available | Available/Opportunity Exists in the GAI | Potential to Address Overlapping Jurisdictions | Time to Complete[a] |
|---|---|---|---|---|
| Pay NCCP and/or HCP fees | Maybe[b] | No, zero HCP/NCCPs in the GAI that apply to transportation | No; CDFW only; FWS is not authorized to participate | 1 to 3 years |
| Purchase conservation bank credits | Yes, may require instrument amendment | No, none of the conservation banks with service areas in the GAI have credits for species of mitigation need | Not appicable | 1 to 3 years |
| Purchase in-lieu fee credits | Yes | No. One Corps in-lieu fee program is in the GAI, but service area does not overlap the planned SHOPP projects; its instrument has been amended; none for FWS. CDFW is not authorized to participate in in-lieu fee programs. | Not applicable | Not available |
| Purchase MCA credits | No, zero approved RCISs in the GAI | Not available | Not available | Not available |
| Establish conservation bank | Yes | Yes, CDFW, FWS, NMFS, and CCC | Yes, with CDFW, FWS, NMFS, and CCC | 2 to 6 years |
| Establish in-lieu fee program | Yes | Yes, with FWS, NMFS, and CCC | Yes, with FWS, NMFS, and CCC<br>Potential to align with Corps in-lieu fee program | 2 to 6 years |
| Establish MCA credits or values[c] | No; zero approved RCISs; MCA creation guidelines available | No—MCA creation guidelines available but no approved RCISs in the GAI | Maybe; CDFW program – CDFW approves the credits; allows other regulatory agencies to acknowledge MCA credits, if desired<br>Potential for parallel evaluations with other natural resource regulatory agencies. | Not available |

| Authorized Activity | Regulatory and Administrative Pathway Available | Available/Opportunity Exists in the GAI | Potential to Address Overlapping Jurisdictions | Time to Complete[a] |
|---|---|---|---|---|
| Establish RCIS and MCA[c] | No; zero approved RCISs; RCIS and MCA creation guidelines available | No—RCIS and MCA creation guidelines available but no approved RCISs in the GAI | Maybe; CDFW program – CDFW approves the credits; allows other regulatory agencies to acknowledge MCA credits, if desired<br>Potential for parallel evaluations with other natural resource regulatory agencies. | Not available |
| Establish mitigation that meets an RCIS objective | No | Not available | Not available | Not available |
| Establish mitigation in accordance with a programmatic mitigation plan | No | Not available | Not available | Not available |

[a] Caltrans contracting processes and agency interactions are incorporated into this time estimate.
[b] When Caltrans is a permittee under the NCCP, or if Caltrans qualifies as a Participating Special Entity and the project is a covered activity in the NCCP
[c] Either Caltrans or a third party would be the signatory with CDFW.

**Table 9-5. Aquatic Resources Credit Options and Feasibility, October 2023**

| Authorized Activity | Regulatory and Administrative Pathway Available | Available/Opportunity Exists in the GAI | Potential to Address Overlapping Jurisdictions | Time to Complete[a] |
|---|---|---|---|---|
| Purchase mitigation bank credits | Yes, may require instrument amendment | Yes, three Corps banks | Yes, Corps, CDFW, EPA, FWS, NMFS, RWQCB, and CCC | 1 to 3 years |
| Purchase in-lieu fee credits | Yes | Yes, in part. One Corps in-lieu fee program in the GAI, but service area does not overlap the SHOPP projects; its instrument has been amended. | Not applicable | 1 to 3 years |
| Purchase MCA credits | No, zero approved RCISs in the GAI | Not available | Not available | Not available |
| Establish mitigation bank | Yes | Yes, Corps, EPA, CDFW, FWS, NMFS, and CCC | Yes, RWQCB, Corps, EPA, CDFW, FWS, NMFS, and CCC | 2 to 6 years |
| Establish in-lieu fee program | Yes | Yes, for Corps, EPA, FWS, NMFS, and CCC | Maybe, Corps, FWS, NMFS, EPA, RWQCB, and CCC | 2 to 6 years |
| Establish MCA credits or values[b] | No; zero approved RCISs; MCA creation guidelines available | No—MCA creation guidelines available but no approved RCISs in GAI | Maybe, CDFW program – CDFW approves the credits; allows other regulatory agencies to acknowledge MCA credits, if desired<br>Potential for parallel evaluation(s) with other natural resource regulatory agencies. | Not available |

| Authorized Activity | Regulatory and Administrative Pathway Available | Available/Opportunity Exists in the GAI | Potential to Address Overlapping Jurisdictions | Time to Complete[a] |
|---|---|---|---|---|
| Establish RCIS and MCA[b] | No; zero approved RCISs; RCIS and MCA creation guidelines available | No—RCIS and MCA creation guidelines available but no approved RCISs in GAI | Maybe, CDFW program – CDFW approves the credits; allows other regulatory agencies to acknowledge MCA credits, if desired<br>Potential for parallel evaluation(s) with other natural resource regulatory agencies. | Not available |
| Establish mitigation that meets an RCIS objective | No | Not available | Not available | Not available |
| Establish mitigation in accordance with a programmatic mitigation plan | Maybe | Maybe | Not available | Not available |

[a] Caltrans contracting processes and agency interactions are incorporated into this time estimate.
[b] Either Caltrans or a third party would be the signatory with CDFW.

## 9.4 Next Steps

Caltrans is required to avoid and minimize any impacts on the environment where practicable, but some impacts are unavoidable. When this is the case, as determined by a natural resource regulatory agency, Caltrans may use compensatory mitigation to offset these unavoidable impacts on the environment. Compensatory mitigation involves the restoration, establishment, enhancement, and/or preservation of the environment, including wetlands, non-wetland waters, and threatened or endangered species and/or their habitats, including riparian habitat.

Caltrans District 1 will consider all feasible options when developing advance mitigation project scopes. The feasibility of each authorized activity to meet the mitigation need depends on the availability of a regulatory and administrative pathway and other conditions summarized in Tables 9-4 and 9-5. Not included in the tables is an explicit comparison of other desired qualities, outcomes, or other factors of performing any particular authorized activity, which Caltrans District 1 will also consider based on its localized knowledge of delivering mitigation in its region. As just one example, Caltrans may prioritize advance mitigation projects that reduce risk in implementation and long-term management by eliciting others to be bank or in-lieu fee sponsors.

As described in the introduction to this chapter and in Section 9.1, to inform the advance mitigation project scope, Caltrans District 1 will use information in the RAMNA. Each scope will consider mitigation needs; the timing of mitigation needs; conservation data and plans; input from natural resource regulatory agencies, interested parties, and tribes; feasibility; timing; and other financial, strategic, and technical risks associated with transportation project delivery and conservation actions. Advance mitigation project scopes will also employ, as appropriate, existing applicable state and federal standards and instruments, mitigation-related agreements, advance mitigation project-specific agreements, and contracts with qualified third parties.

Caltrans District 1 will submit a nominated advance mitigation project's scope, schedule, and budget to the Caltrans Director for approval. When the Director concurs and funding is approved, Caltrans District 1 will commit to delivering the advance mitigation project within the scope, schedule, and budget communicated with nomination materials. At that point, Caltrans District 1 will initiate project delivery (see Steps 6 through 10 on Figure 1-2; Caltrans 2021b). Advance mitigation project delivery includes stakeholder engagement, project alternative analysis, coordination with natural resource regulatory agencies with the authority to approve compensatory mitigation, contracting with third parties and/or credit sponsors, and developing an agency-approved instrument and/or one or more advance mitigation project-specific interagency agreement. In addition:

- Stakeholder engagement will be conducted in accordance with each advance mitigation project's communication plan and be consistent with the applicable and appropriate requirements of existing applicable state and federal standards and instruments.

- When required by the advance mitigation project type, site selection may be performed by Caltrans or under contract to Caltrans through a competitive bid process, and may include existing mitigation providers—for example, banks, NCCPs, MCAs, and the identification of new acquisitions. When a competitive bid process is used, sites are subject to what bid respondents put forward in their proposals. Site selection should be consistent with appropriate conservation goals and objectives identified in Chapter 7, *Wildlife Resources Conservation Goals and Objectives*, and Chapter 8, *Aquatic Resources Conservation Goals and Objectives*.
- When appropriate for the advance mitigation project type, it may be necessary to identify the steps required to meet the goal of satisfying overlapping jurisdictional mitigation requirements.
- Instruments and advance-mitigation project-specific interagency agreements will specify the terms of use of the credits, including the service areas. Service areas will be defined based on feedback from the natural resource regulatory agencies. It is intended for the ecological units used for this RAMNA to lead to ecologically based advance mitigation project scopes and service areas; Caltrans uses HUC-8 sub-basins to be consistent with the 2008 Mitigation Rule and ecoregions to be consistent with the SWAP.

As with all credits and values established through advance mitigation processes, the credits' suitability for application to a specific transportation project is determined in the future, on a case-by-case basis, when transportation project mitigation requirements are known.

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