United States Department of the Interior
U.S. FISH AND WILDLIFE SERVICE
Ecological Services
Ventura Fish and Wildlife Office
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IN REPLY REFER TO:
2022-0025695-S7

April 25, 2022

Barrett Holland
District Biologist
California Department of Transportation, District 5
50 Higuera Street
San Luis Obispo, California 93401

Subject: Biological Opinion on South Bay Boulevard Bridge Replacement Project, San Luis Obispo County, California

Dear Barrett Holland:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the California Department of Transportation's (Caltrans) proposed funding and oversight of the San Luis Obispo County's (County) replacement of South Bay Boulevard Bridge over Los Osos Creek (project) and its effects on the federally threatened California red-legged frog (*Rana draytonii*), the federally threatened Morro shoulderband snail (*Helminthoglypta walkeriana*), the federally endangered tidewater goby (*Eucyclogobius newberryi*), the federally threatened Morro manzanita (*Arctostaphylos morroensis*), and designated critical habitat for both the Morro shoulderband snail and the tidewater goby, in accordance with section 7 of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 et seq.).

We received your request for formal consultation on October 20, 2021, via electronic mail. After reviewing your request, we sent you an electronic mail on November 24, 2021, informing you that we did not concur with your determination that the proposed action may affect, but is not likely to adversely affect the California red-legged frog. We received your December 27, 2021, request to initiate formal consultation on the proposed action's impacts to the California red-legged frog and for our concurrence that the proposed project meets the criteria for inclusion under the Programmatic Biological Opinion for Projects Funded or Approved under the Federal Highway Administration's Federal Aid Program (PBO) (Service 2011). We have based this biological opinion on information that accompanied your October 20, 2021, request for consultation, including the biological assessment (Caltrans 2021), the Mitigated Negative Declaration (SLO 2019), various correspondences, and information in our files.

California Red-Legged Frog

Under the administration of the PBO (Service 2011), you are required to notify us of project activities that may adversely affect the California red-legged frog and its designated critical habitat. Caltrans has assumed the Federal Highway Administration's (FHWA) responsibilities under the Act for this action in accordance with Section 1313, Surface Transportation Project Delivery Program, of the Moving Ahead for Progress in the 21st Century Act (MAP-21) of 2012, as described in the National Environmental Policy Act Assignment Memorandum of Understanding between FHWA and Caltrans (effective October 1, 2012) and codified in 23 U.S.C. 327. You have determined that the proposed action may affect and is likely to adversely affect the California red-legged frog and requested that such effects be addressed via the PBO. The project is not located within designated critical habitat for the species. Caltrans will implement all minimization measures described on pages 7 through 12 of the PBO.

The proposed project is discussed in detail in the project's biological assessment (Caltrans 2021) and below in the project description. Summarized briefly, Caltrans, in cooperation with the County, is proposing to replace the South Bay Boulevard Bridge (49C-0351) at Los Osos Creek with a new bridge.

You have determined that replacing the bridge on South Bay Boulevard at Los Osos Creek, as described in the biological assessment (Caltrans 2021), satisfies the four criteria outlined in the PBO for projects that are likely to result in adverse effects to the California red-legged frog, but would not affect the long-term viability of those populations. Project effects of this nature were analyzed in the PBO under the Effects of the Action section (Service 2011, pp. 29-34). You also propose to implement the measures outlined in the PBO for avoiding and minimizing effects to the California red-legged frog. Based on the information in your biological assessment (Caltrans 2021), the proposed project is consistent with, and appropriate for, inclusion under the PBO. Caltrans must implement all avoidance and minimization measures, reasonable and prudent measures, and terms and conditions of the PBO. You have requested our concurrence with your determination that the potential adverse effects of the proposed action on the California red-legged frog are appropriate for analysis under the PBO. We have reviewed the project activities and determined that the project is suitable for inclusion under the PBO. We will not discuss this species for the remainder of this biological opinion.

BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

The County, with oversight by Caltrans, proposes to replace the South Bay Boulevard Bridge (No. 49C-0351), which spans Los Osos Creek within unincorporated San Luis Obispo County, approximately 2,000 feet southeast of the City of Morro Bay, California. The bridge has been identified as seismically deficient. The bridge has been programmed to be replaced rather than retrofitted under the Highway Bridge Program, as replacement was identified as the most cost effective retrofit alternative. The project is funded by the FHWA as administered by Caltrans.

The County would replace the existing 189-foot long, 37-foot-wide bridge with a new 300-foot-long, 50-foot-wide bridge immediately east of the existing bridge. The proposed replacement bridge consists of a two-span concrete bridge on pile foundations with a center support pier. The replacement bridge deck would be widened to accommodate a pedestrian lane for public access and future extension of the California Coastal Trail along South Bay Boulevard. Approach lanes would be realigned within the minimum length necessary to meet the new bridge. The County would demolish the existing roadway approaches along with the existing bridge after construction of the new bridge and roadway approaches are complete and operational. The County also would remove the abandoned approach road sections, and those areas would be used for stormwater features and habitat mitigation areas. The primary mitigation area is a 0.4-acre area on Santa Ysabel Road that would be used for staging and storage during construction and converted to Morro manzanita chaparral as part of the mitigation strategy after construction has been completed. The project area is entirely within a County right-of-way, including all permanent and temporary impact areas and proposed habitat mitigation and restoration.

The County has divided the project into three phases: year 1, construction of new bridge; year 2, demolition of old bridge; and 5 years of habitat restoration, mitigation, maintenance and monitoring. Within the construction and demolition phases, activities are divided between dry season, June through October (22 weeks or 110 work days), and outside the dry season, November through June (30 weeks or up to 150 work days). Construction is estimated to take 30 months to complete and is estimated to commence in June 2022 (ending in November 2024) or June 2023 (ending in November 2025). However, the intended schedule to construct the new bridge in the first year and demolish the existing bridge in the second year may not be feasible given contractor approach and construction contingencies. All work below the high tide line in Los Osos Creek will be conducted during two consecutive dry seasons of 5 months duration, June 1 to October 31. Work in upland areas will take place outside the dry season, which will include implementation of wet weather minimization measures, as appropriate. All work will take place during daytime hours, unless special permission is acquired from the County engineer for night work necessary for critical work items on a case-by-case basis.

Proposed Mitigation

To offset the effects to special status species and habitats, the County is proposing to restore temporary impacts at a 1:1 ratio, permanent impacts to Morro manzanita chaparral at a 3:1 ratio, and permanent impacts to oak woodland at a 4:1 ratio. All mitigation activities are proposed to occur within the action area and replace impacted habitats with native plant species. The mitigation activities proposed are:

- Drainage patterns and topography will be restored or improved to pre-project conditions.

- Temporary impact areas will be restored to pre-existing conditions by removing all structures (trestles, trestle piles, cofferdams) and restoring pre-existing substrate contours and vegetation by hydroseeding, container plants, or both.

- Temporary impacts to Morro manzanita chaparral will be restored to pre-existing contours, soil conditions, and vegetation using a combination of hydroseeding and container plants. The 33 Morro manzanita plants to be removed for construction access and staging will be stored during construction and replanted after construction.

- Permanent Morro manzanita chaparral impacts to 0.24 acre and 13 individual plants will be mitigated at a 3:1 mitigation ratio, requiring 0.72 acre and approximately 39 Morro manzanita plants.

- Oak woodland impacts include removal of trees with diameter at breast height (DBH) of 4 inches or more is anticipated to include 9 trees in the permanent impact footprint for the realigned approach roads and additional trees in the temporary construction disturbance area, for a total of 15 to 25 trees. Replacement plantings at a 4:1 replacement ratio would correspond to up to 100 replacement plantings. All plantings will occur within 1 acre in the action area.

- Weed control will be implemented using hand methods in the restoration and mitigation areas for 5 years.

- Maintenance and monitoring of restoration and mitigation areas will occur for 5 years. The County proposes to maintain at least 75 percent success of replaced plants in the restoration and mitigation areas.

General Conservation Measures

1. Prior to initiation of any construction activities, including vegetation clearing or grubbing, sturdy high visibility fencing will be installed to protect wetlands adjacent to designated work areas. This fencing will be placed to avoid unnecessary adverse impacts to these areas. No construction work (including storage of materials) will occur outside of the specified project limits. The fencing will remain in place during the entire construction period, be monitored periodically by a Service-approved biologist, and maintained as needed by the contractor.

2. Prior to any vegetation removal or ground disturbance, a Service-approved biologist will conduct a training session for all construction personnel. At a minimum, the training will include a description of the special status species and their habitats, the specific measures that are being implemented to conserve the species for the project, and the boundaries within which the project may be accomplished. Brochures, books, and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.

3. The Service-approved biologist will conduct pre-activity surveys for Morro shoulderband snails no more than 1 week prior to onset of initial ground disturbance activities within or adjacent to vegetation, including vegetation removal, materials and

equipment staging, and any earthwork. The survey process will involve moving and searching under all vegetation, and anthropogenic artifacts present (e.g., woodpiles, tires, debris), and will result in destruction or uprooting of vegetation. In addition, if any live snails are found during the preconstruction surveys, the Service-approved biologist will conduct daily Morro shoulderband snail pre-activity surveys at the beginning of each work day to check for and remove any Morro shoulderband snails. Pre-activity Morro shoulderband snail surveys will be conducted before work occurs during any day with rainy or wet weather. Morro shoulderband snails of any life stage will be captured and moved out of harm's way to a pre-approved receiver site. The size, age class, location of capture, and release site location will be recorded for each relocated Morro shoulderband snail. Empty shells will be noted on a map, counted, and classified by size and age and will be left in place.

4. Vegetation clearing will be done outside nesting bird season (February 1 to September 1). If it is not possible to avoid nesting season, preconstruction nesting bird surveys will be conducted by a qualified biologist experienced in bird identification and nest surveys, prior to the onset of work activities, including vegetation removal. If an active nest is detected during the preconstruction surveys, the qualified biologist will notify Caltrans and the California Department of Fish and Wildlife (CDFW) to coordinate the appropriate course of action required. Caltrans will contact the Service if the species is federally listed or protected under the Migratory Bird Treaty Act. In addition, any unoccupied nests (excluding raptors) found within the action area will be removed to discourage nesting. Demolition of the existing bridge will be scheduled to avoid the swallow nesting season, if feasible. Nesting swallows may use the existing bridge commencing in March or April. To deter swallows from nesting on the existing or new bridge, appropriate nesting deterrent methods will be implemented prior to the start of nesting season to deter active nesting during the proposed construction period (applicable to both construction and demolition construction phases). Nesting deterrents may include removal of unoccupied nests or installation of netting over appropriate nesting surfaces, or both.

5. Temporary erosion control measures (such as silt fences, sterile rice straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) will be employed for disturbed areas. Earth dikes, drainage swales, and ditches will be provided to intercept, divert, and convey surface runoff and sheet flow, prevent erosion, and reduce pollutant loading. Specific areas that may need such measures will be identified on the construction drawings.

6. All oils, fuels, and other toxicants spilled or deposited near the project site will be removed and disposed of according to applicable laws and regulations.

7. Fueling of machinery and equipment will be conducted only in designated upland areas that will prevent accidental spills from reaching the creek, wetlands, or other sensitive plant communities.

8. The topography of the equipment access route(s) will be restored when each construction phase is complete.

9. Native vegetation will be used to revegetate and stabilize affected stream banks and disturbed areas.

10. Standard dust control measures will be implemented to avoid excessive dust transported outside the action area.

11. Native grasses and vegetation will be established in areas disturbed by construction to minimize erosion as soon as possible after disturbance.

12. Erosion control and stabilization measures will be incorporated into road construction.

13. Temporary construction impact areas will be restored to pre-existing conditions as defined in the finalized Habitat Mitigation and Monitoring Plan (HMMP).

14. Authorization from the U.S. Army Corps of Engineers and a coastal development permit from the California Coastal Commission and the Local Coastal Program will be obtained prior to construction, and any additional minimization and avoidance measures provided in these permits will be implemented.

Measures for Aquatic Work for Water Quality and Tidewater Goby

1. Work below the mean high tide line will be limited to the work window June 1 to October 31 or as otherwise directed by the regulatory permits to minimize migratory fish presence, potential for precipitation events and associated runoff effects, increased creek flow, and potential for more extreme storm induced tide and wave conditions.

2. A qualified, Service-approved biologist will monitor installation of the approved dewatering containment system and all dewatering activities that could impact tidewater goby and their habitat.

3. Following installation of the approved dewatering containment system, the Service-approved biologist will use seines and dipnets to capture and translocate fishes and other aquatic organisms trapped within the containment area. All captured organisms will be immediately released into areas of the creek that will not be affected by dewatering.

4. All dewatering pump intakes will be screened with screening appropriate to exclude all life stages of tidewater goby from entrainment in the pumping system.

5. Dewatering operations will be halted periodically to allow the qualified Service-approved biologists to seine the exclusion area for additional trapped fishes and aquatic

organisms. All captured organisms will be immediately released into areas of the creek that will not be affected by dewatering.

6. Installation of the approved dewatering containment system will be conducted, to the greatest extent possible (detailed in M. Stillman, County of San Luis Obispo, pers. comm. 2022), at low tidal levels when water within the containment area is at minimal levels and fishes and other aquatic organisms may be in lower abundance.

7. Equipment will not be operated directly within tidal waters or the live Los Osos Creek channel. The containment system will be removed after work is completed.

8. Turbid water from construction activities in the creek will be contained and prevented from being transported in amounts that are deleterious to fish, or in amounts that could violate state pollution laws. Silt fences or other means will be used to contain sediment. If sediment is not being contained adequately, as determined by visual observation, the activity will cease.

9. Appropriate best management practices (including filtration, as appropriate) will be implemented to prevent the entry of excavated material, silt laden water, and other contaminants into the live creek channel. Due to the high salt content and other potential contaminants, water pumped from the containment area will not be deposited in upland areas. All potentially contaminated materials from the containment areas will be removed from the site and properly disposed of in compliance with State and Federal law.

10. The equipment access route to the streambed to install or remove temporary piles, construct the trestles and bridge components, and demolish the existing bridge will be selected to minimize disturbance of wetlands.

11. The access route within wetlands (salt marsh) will be covered with crane pads, plywood or similar materials to minimize rutting, vegetation trampling and other ground disturbance. These materials will be removed as soon as equipment access needs are complete.

12. Roads used during construction will be swept and cleaned of accumulated earth and debris in the construction zone during project construction, particularly before predicted rainfall events.

13. Excavated materials deposited or stored onsite temporarily, including sediment excavated from the creek bed, will not be placed in or adjacent to open water channels or wetlands and will be wetted and/or covered as necessary to prevent runoff and erosion.

14. A Spill Prevention Control and Countermeasure Plan (SPCCP) will be prepared for construction to minimize the potential for spills or leaks of fuels and other potentially

hazardous substances, and to provide maximum efficiency in response to and cleanup of any spills or leaks.

15. Bridge abutments will be designed to minimize disturbances to essential fish habitat and stream banks.

16. Sidecasting of road materials into Los Osos Creek will be prohibited.

17. In-water structures will be composed of clean materials and will be limited to the minimum necessary footprint to support construction activities.

18. Cofferdams will be designed to exclude anticipated high-water conditions plus an additional reasonable margin of safety.

19. Construction schedule will be managed to achieve removal of instream structures at the end of the dry season to the maximum extent possible.

20. Piles will not be installed using an impact hammer, except to test vertical pile capacity.

21. Hollow steel piles will not be used unless required to meet engineering requirements.

22. Peak sound pressure levels will be monitored during any driving of steel piles using an impact hammer.

23. If monitored sound pressure levels exceed 180 dB, additional measures will be implemented potentially including an air bubble curtain, dewatering the area using a cofferdam or use of a smaller hammer.

24. All temporary piles and old bridge piles will be removed completely, to the extent feasible.

25. Piles will be removed using a crane or vibratory hammer.

26. The project will obtain coverage under the General Permit for Storm Water Discharges associated with Construction and Land Disturbance Activities (Order no. 20120006DWQ), and a SWPPP will be prepared.

27. During construction, erosion control measures (e.g., silt fencing, fiber rolls, and barriers) will remain available on site and will be utilized as necessary to prevent erosion and sedimentation in wetland areas. No synthetic plastic mesh products will be used for erosion control and use of these materials on site is prohibited.

28. Erosion control measures will be checked to ensure that they are intact and functioning effectively and maintained on a weekly basis throughout the duration of construction.

29. The contractor will also apply adequate dust control techniques, such as site watering, during construction to protect water quality.

30. Groundwater discharged to Los Osos Creek from dewatering activities during the construction period will be allowed to settle in a temporary tank (or equivalent) prior to discharge and provided with erosion protection at the pipe outlet.

31. Dewatering discharge will be allowed to settle prior to discharge to the creek.

32. Drilling for the cast-in-drilled-hole piles will utilize a temporary steel casing installed to the full depth of the drill hole, if feasible.

33. If full length temporary casing is not feasible, steel casing will be installed to at least three feet below the ground surface.

34. Drilling will be monitored to detect any discharge of drilling fluid from the casing, streambed or adjacent areas.

35. Containment (washed gravel-filled bags wrapped in plastic sheeting, or equivalent) will be used at the drill hole to collect and contain any drilling fluid leakage and prevent any discharges to the streambed.

36. Absorbent material and disposal bags (or equivalent cleanup materials) will be maintained onsite to cleanup any drilling fluid spillage.

37. All spillage of drilling fluids (including residual solids) will be removed from the streambed and adjacent areas using cleanup materials.

38. Any discharge of drilling fluids to the streambed will be reported to Regional Water Quality Control Board, California Department of Fish and Wildlife, and the Service within 24 hours of discharge.

ANALYTICAL FRAMEWORK FOR THE JEOPARDY DETERMINATION

Jeopardy Determination

Section 7(a)(2) of the Act requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of listed species. "Jeopardize the continued existence of" means "to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 CFR 402.02).

The jeopardy analysis in this biological opinion relies on four components: (1) the Status of the Species, which describes the current rangewide condition of the Morro shoulderband snail, tidewater goby, and Morro manzanita, the factors responsible for that condition, and their survival and recovery needs; (2) the Environmental Baseline, which analyzes the condition of the Morro shoulderband snail, tidewater goby, and Morro manzanita in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of species; (3) the Effects of the Action, which determines all consequences to the Morro shoulderband snail, tidewater goby, and Morro manzanita caused by the proposed action that are reasonably certain to occur in the action area; and (4) the Cumulative Effects, which evaluates the effects of future, non-Federal activities, that are reasonably certain to occur in the action area, on the Morro shoulderband snail, tidewater goby, and Morro manzanita.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the current status of the Morro shoulderband snail, tidewater goby, and Morro manzanita, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to reduce appreciably the likelihood of both the survival and recovery of the Morro shoulderband snail, tidewater goby, and Morro manzanita in the wild by reducing the reproduction, numbers, and distribution of that species.

Adverse Modification Determination

Section 7(a)(2) of the Act requires that Federal agencies ensure that any action they authorize, fund, or carry out is not likely to destroy or to adversely modify designated critical habitat. Destruction or adverse modification means a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species.

The destruction or adverse modification analysis in this biological opinion relies on four components: (1) the Status of Critical Habitat, which describes the rangewide condition of the critical habitat for the Morro shoulderband snail and the tidewater goby; (2) the Environmental Baseline, which evaluates the condition of the critical habitat in the action area, the factors responsible for that condition, and the recovery role of the critical habitat in the action area; (3) the Effects of the Action, which are all consequences to critical habitat caused by the proposed action that are reasonably certain to occur in the action area; and (4) Cumulative Effects, which evaluate the effects of future non-Federal activities in the action area that are reasonably certain to occur.

For the section 7(a)(2) determination regarding destruction or adverse modification, the Service begins by evaluating the effects of the proposed Federal action and the cumulative effects. The Service then examines those effects against the condition of all critical habitat described in the listing designation to determine if the proposed action’s effects are likely to appreciably diminish the value of critical habitat as a whole for the conservation of the species.

STATUS OF THE SPECIES

Morro Shoulderband Snail

Legal Status

The Service listed the Morro shoulderband snail as endangered on December 15, 1994 (Service 1994). We completed a recovery plan for the species and four plants from western San Luis Obispo County in September 1998 (Service 1998). We designated critical habitat on February 7, 2001 (Service 2001) and completed a 5-year status review for the species in 2006 (Service 2006). In 2019, we completed a species status assessment (SSA) report the recommended downlisting the Morro shoulderband snail from endangered to threatened status (Service 2019). We published the reclassification of Morro shoulderband snail from endangered to threatened with section 4(d) rule on February 3, 2022 (Service 2022).

Natural History

The Morro shoulderband snail is a member of the terrestrial snail family Helminthoglyptidae. Its genus, *Helminthoglypta*, is a complex of many species of shoulderband snail, each with a relatively small range (Burke et al. 1999). The Big Sur shoulderband snail (*H. umbilicata*) occurs sympatrically (occupies the same geographic area but does not interbreed) with the Morro shoulderband snail (Walgren 2003). We once considered that that the Chorro shoulderband snail (*H. morroensis*) occupied a distinctly different geographic distribution from the Morro shoulderband snail (Roth and Tupen 2004); however, now have information that Morro and Chorro shoulderband snails occur sympatrically (Tenera Environmental 2006). Walgren (2003) previously documented intermediate forms of these two species.

At the time of listing, the Service believed the species was restricted to sandy soils of coastal dune and dune scrub habitats in the area of Los Osos, Baywood Park, and Morro Bay. Roth (1985) speculated perhaps as few as several hundred Morro shoulderband snails remained throughout the geographic range of the species. A very limited survey for the species conducted in 1992 did not identify any live snails (Service 1994); however, subsequent surveys conducted primarily in association with proposed development projects have consistently identified live individuals indicating the population is more robust than previously thought. Pre-construction surveys conducted as part of the Los Osos Wastewater Project demonstrate that the Morro shoulderband snail occupies a diversity of both native and non-native habitats throughout its geographic range (SWCA 2013, SWCA 2014).

In native habitat underlain by Baywood fine sand soils, the Morro shoulderband snail typically occurs in accumulated organic understory or duff and on the undersides of shrub branches near the soil surface. Plant species commonly associated with the presence of Morro shoulderband snail include mock heather (*Ericameria ericoides*), dune lupine (*Lupinus chamissonis*), seaside wooly sunflower (*Eriophyllum staechadifolium*), deerweed (*Acmispon glaber* [*Lotus scoparius*]), and sand almond (*Prunus fasciculata var. punctata*). Morro shoulderband snails also occur in

non-native iceplant species (e.g., *Carpobrotus edulis, C. chilensis*) and the nonnative grassland dominated by perennial veldt grass (*Ehrharta calycina*). Past and current observations (Walgren 2003, SWCA 2013, SWCA 2014) indicate that the microclimate necessary for the species' survival and reproduction is defined more by plant species physiognomy and soils than presence of any particular plant species.

Morro shoulderband snails are most active when increased moisture availability facilitates their ability to disperse, find food, and mate. In the dry season, Morro shoulderband snails, like other terrestrial snail species, aestivate in accumulated litter or attached to the branches of shrubs. As with other snails in the genus *Helminthoglypta*, this species aestivates by producing an epiphragm (a seal of dried mucus in the aperture of the shell) to reduce water loss during the dry season. Information on the bronze shoulderband (*Helminthoglypta arrosa*), a similar terrestrial snail species found in coastal scrub in northern California, indicates that smaller individuals are more often found aestivating under vegetation and leaf litter. They also aestivate under vegetation on the ground (van der Laan 1973a) or on the twigs of shrubs. This may also be the case for Morro shoulderband snail as it if found in habitats with a similar plant species composition to that of the bronze shoulderband.

Like most terrestrial snails, the Morro shoulderband snail is an herbivore, feeding predominantly on detritus. Fungi may be a potential food source for Morro shoulderband snails although as with the bronze shoulderband, dead material is strongly preferred over living material for those acceptable plant species (van der Laan 1973b).

Rangewide Status

Based on the recovery plan and our SSA report (Service 1998, Service 2019), we conclude that the status of the Morro shoulderband snail has improved throughout its range due to the substantial amount of habitat that has been preserved that was previously at risk for development, along with land use decisions and management activities undertaken by the County and landowners since the time of listing. The SSA report contains an accounting of conservation and management efforts (Service 2019). Overall, our analysis indicates that the intent of the downlisting criteria for the Morro shoulderband snail has been met (Service 2022); however, delisting criteria have not yet been achieved.

At the time of its listing, threats to the Morro shoulderband snail included habitat loss and degradation, competition from non-native snail species, negative effects of off-highway vehicle activity, and use of pesticides. Since then, several of these threats have been ameliorated; however, habitat loss, and especially habitat degradation due to changes in habitat community structure and composition, continue to constitute a substantial threat to the species. Dehydration is a major threat to all terrestrial mollusks; therefore, another threat to the Morro shoulderband snail is exposure resulting from partial or complete removal of protective, sheltering vegetation that provides a more mesic microclimate. As with other species of *Helminthoglypta*, the Morro shoulderband snail is subject to predation by small mammals and snakes (van der Laan 1980, Huntzinger et al. 2008). Although no formal studies have provided evidence that disturbance

during aestivation may adversely affect Morro shoulderband snails, individuals likely survive careful capture and relocation into nearby suitable habitat (SWCA 2014). Absent any additional studies, we must consider that some individuals could suffer physiological stress or even death if their epiphragm is affected or individuals experience desiccating conditions because of disturbance during aestivation.

Recovery

The Service prepared a recovery plan for Morro shoulderband snail and four plants from western San Luis Obispo County in 1998 (Service 1998). The recovery goal for the Morro shoulderband snail is delisting. Recovery actions for the Morro shoulderband snail focus on securing and protecting suitable occupied habitat in all identified conservation planning area sufficient to support populations of the species in the long-term (i.e., at least 50 years). There are four Conservation Planning Areas defined: Area 1: Morro Spit, Area 2: West Pecho, Area 3: South Los Osos, Area 4: Northeast Los Osos. The recovery plan specifies that Morro shoulderband snail populations and their habitats are secured in all four Conservation Areas with populations large enough to minimize the short-term chance of extinction, as shown by life history studies. There must be adequate progress on control of exotic pest plants (including veldt grass) to assure that occupied habitat can remain intact and usable to the snail. Progress must have been made toward assessing possible threats, including competition from, or predation by non-native snails and use of pesticides. It is important to continue efforts to survey for Morro shoulderband snail in potential habitat within the snail's historic range to ascertain whether undiscovered populations exist; if so, delisting criteria will have to be reviewed. Delisting criteria for the Morro shoulderband snail are the following: sufficient populations and suitable habitats (as shown by life history studies) from each of the four Conservation Planning Areas (and, if necessary, any newly located populations) must be secured from the known threats, including exotic pest plants. Possible threats, including competition from non-native snails, predation by non-native snails, and use of pesticides, must have been assessed and effectively controlled or removed. The sites must be under permanent management to maintain the desired vegetation structure and control pests and human incursions.

The SSA report concluded that the intent of the downlisting criteria for the Morro shoulderband snail has been met; however, delisting criteria have not yet been achieved (Service 2019). The Service reclassified the Morro shoulderband snail from endangered to threatened in 2022 (Service 2022).

Critical Habitat for Morro Shoulderband Snail

The Service designated critical habitat for the Morro shoulderband snail on February 7, 2001 (Service 2001). It includes three units covering 2,566 acres in western San Luis Obispo County. The action area is within designated Unit 3.

The phrases "primary constituent elements" (PCEs) and "physical and biological features" (PBFs) are synonymous. Critical habitat rules published before February 11, 2016, used the

term PCE, while critical habitat rules published after that date use the term PBF. In cases where a critical habitat rule numbers PCEs specifically (e.g., PCE-1, PCE 1), we will use the terms as defined in the critical habitat designation to avoid confusion.

The critical habitat designation for Morro shoulderband snail does not contain a numerical list of what are termed in the document as "primary constituent elements", but instead, describes designated units as providing the following physical and biological features: sand or sandy soils needed for reproduction; a slope not greater than 10 percent to facilitate movement of individuals; and the presence of native coastal dune scrub vegetation. This vegetation is typically, but not exclusively, represented by mock heather, buckwheat (*Eriogonum* spp.), eriastrum, chamisso lupine, dudleya (*Dudleya* spp.), and in more inland locations, California sagebrush (*Artemisia californica*), coyote brush (*Baccharis pilularis*), and black sage (*Salvia mellifera*). Critical habitat was delineated in the Los Osos area in three units: Unit 1: Morro Spit and West Pecho; Unit 2: South Los Osos; and Unit 3: Northeast Los Osos. Some of the habitat in the critical habitat units could be improved through habitat rehabilitation or improved management (e.g., removal of nonnative species).

Tidewater Goby

Legal Status

The Service listed the tidewater goby as endangered on March 7, 1994 (59 FR 5494) and designated critical habitat for the tidewater goby on February 6, 2013 (78 FR 8745). We published a recovery plan for the tidewater goby on December 12, 2005 (Service 2005) and a 5-year review in September 2007 (Service 2007). The Service published a proposed rule to downlist the tidewater goby on March 13, 2014 (79 FR 14339). During the public comment period, the Service received substantial comments regarding the proposed change in species status, and the tidewater goby remains listed as endangered.

Natural History

The tidewater goby is endemic to California and is one of the only species of fish to live exclusively in brackish water coastal lagoons, estuaries, and marshes in California (Swift et al. 1989, Moyle 2002). Tidewater goby habitat is characterized by fairly still, but not stagnant, brackish water. They can withstand a wide range of habitat conditions and have been documented in waters with salinity levels that range from 0 to 42 parts per thousand (ppt), temperatures ranging from 46 to 77 degrees Fahrenheit and water depths from 10 to 79 inches (Irwin and Soltz 1984, Swift et al. 1989, Smith 1998). Most tidewater goby collections occurred in water of approximately one-third ocean salinity; (i.e., 12 ppt or less; Service 2005). Tidewater gobies are generally found over substrate that has a high percentage of sand and gravel (Worcester 1992) and are often clumped in areas that have sparse to medium dense cover by aquatic plants or algae (Worcester 1992). Tidewater gobies often migrate upstream and are commonly found up to 0.6 mile up from a lagoon or estuary (Service 2005), and have been recorded as far as 3 to 5 miles upstream of tidal areas (Irwin and Soltz 1985).

Tidewater gobies feed on small invertebrates, including amphipods, ostracods, snails, mysids, and aquatic insect larvae, particularly chironomid larvae (Swift et al. 1989). Predators of tidewater gobies include staghorn sculpin (*Leptocottus armatus*), prickly sculpin (*Cottus asper*), starry flounder (*Platichthys stellatus*), and largemouth bass (*Micropterus salmoides*); native birds and other predatory fish likely also prey on gobies (Swift et al. 1997, Swift et al. 1989).

The tidewater goby is primarily an annual species (Swift et al. 1989), although there is some variation in life history and some individuals have lived up to 3 years in captivity (Swenson 1999). If reproductive output during a single season fails, few (if any) tidewater gobies survive into the next year. Reproduction typically peaks from late April or May to July and can continue into November or December depending on the seasonal temperature and amount of rainfall (Swift et al. 1989, Worcester 1992, Goldberg 1977). Males begin the breeding ritual by digging burrows at least 3 to 4 inches apart in clean, coarse sand of open areas. Unlike most other fish, females court the males (Swift et al. 1989). Once chosen by a male, females will then deposit eggs into the burrows, averaging 400 eggs per spawning effort (Swift et al. 1989, Swenson 1995). Males remain in the burrows to guard the eggs and fan the eggs to circulate water, frequently foregoing feeding (Moyle 2002).

Within 9 to 11 days after eggs are laid, larvae emerge and are approximately 0.16 to 0.24 inch (Swift et al. 1989, Service 2005). Larval traits (larval duration, size at settlement, and growth rate) are correlated with water temperature, which varies considerably in the seasonally closed estuaries that tidewater gobies inhabit (Spies and Steele 2016). Larval tidewater gobies are pelagic for an average of 21 to 27 days and settle once they grow to approximately 0.47 to 0.51 inch in standard length (Spies et al. 2014). When they reach this life stage, they become substrate-oriented, spending the majority of time on the bottom rather than in the water column. Both males and females can breed more than once in a season, with a lifetime reproductive potential of 3 to 12 spawning events (Swenson 1999). Vegetation is critical for over-wintering tidewater gobies because it provides refuge from high water flows and tidewater goby densities are greatest among emergent and submerged vegetation (Moyle 2002).

Because they typically live for approximately one year and inhabit a seasonally changing environment, population sizes of tidewater gobies vary greatly spatially and seasonally, with recorded numbers ranging from 0 to 18.39 individuals per square foot (Swenson 1995). After the spring spawning season, there is typically an annual die-off of adults (Swift et al. 1989; Swenson 1995).

Rangewide Status

Historically, the tidewater goby occurred in at least 150 California coastal lagoons and estuaries, from Tillas Slough near the Oregon/California border south to Agua Hedionda Lagoon in northern San Diego County (Swift et al. 1989); the southern extent of its distribution has been reduced by several miles after the mouth of Agua Hedionda Lagoon was permanently modified to be open to the ocean and no longer supports tidewater gobies. The species is currently known to occur in 103 localities, although the number of sites fluctuates with climatic conditions and

the current status is unknown in 12 localities. Currently, the most stable populations are in lagoons and estuaries of intermediate size (5 to 124 acres) that are relatively unaffected by human activities (Service 2005).

Local populations of tidewater gobies are best characterized as metapopulations (Lafferty et al. 1999a), or "a network of semi-isolated populations with some level of regular or intermittent migration and gene flow among them, in which individual populations may go extinct but can then be recolonized from other populations" (Groom et al. 2006). Therefore, the stability of a metapopulation depends on the connectivity of subpopulations.

Tidewater gobies enter the marine environment when sandbars are breached during storm events. Lafferty et al. demonstrated that tidewater gobies were able to disperse at least 5.6 miles (Lafferty et al. 1999b), and genetic analysis suggests that this species can disperse much further, with genetic assignment tests showing movement of individuals up to approximately 30 miles (Jacobs et al. 2005). The species' tolerance of high salinities for short periods of time enables it to withstand marine environment conditions of approximately 35 ppt salinity, thereby allowing the species to re-establish or colonize lagoons and estuaries following flood events (Swift et al. 1997). Genetic studies indicate that the tidewater goby population is highly geographically structured, indicating that there is low geneflow (Dawson et al. 2001; Dawson et al. 2002) and thus natural recolonization events are likely rare. Swift et al. (2016) estimates that the southernmost population of tidewater goby has been separated from other lineages for 2 to 4 million years, and it has been recognized as a distinct species (*Eucyclogobius kristinae*, the southern tidewater goby), but as of now the tidewater goby remains listed under the Endangered Species Act as one entity.

Native predators are not known to be important regulators of tidewater goby population size in the lagoons of southern California. Rather, population declines are attributed to environmental conditions. The decline of the tidewater goby is attributed primarily to habitat loss or degradation resulting from urban, agricultural, and industrial development in and around coastal wetlands, lagoons, and estuaries (Irwin and Soltz 1985). High flows naturally and periodically breach lagoon barriers and expose tidewater gobies to tidal conditions, but artificial breaching has been observed to cause tidewater goby stranding and mortality (Swift et al. 2018). Artificial breaching, especially during periods of low inflow, not only flushes tidewater gobies out into the ocean but also drains water from the lagoon and thus reduces the size of available habitat for this species; this can also concentrate predators within this reduced lagoon footprint. Some extirpations appear to be related to pollution, upstream water diversions, and the introduction of non-native predatory fish species, most notably centrarchid sunfish (*Lepomis* spp.) and bass (*Micropterus* spp.) (Swift et al. 1989). These threats continue to affect some of the remaining populations of tidewater gobies. Climate change and the attendant sea level rise may further reduce suitable habitat for the tidewater goby as lagoons and estuaries are inundated with saltwater (Cayan et al. 2006) and severe storms interacting with increased sea levels may breach lagoons more frequently.

In 2014, the Service issued a 12-month finding proposing to reclassify the tidewater goby as threatened under the Act. During the public comment period, we received substantive comments regarding the proposed change in the species' status and new scientific information has been published regarding the species. The tidewater goby remains listed as endangered and its overall population and range is currently stable, but still faces ongoing and likely increasing threats of urbanization, artificial breaching, stochastic environmental conditions, and introduced predators. The southernmost population of tidewater goby remains critically endangered because this species has become extirpated from 5 of the 13 historical localities, 4 of which cannot be restored.

Recovery

The goal of the tidewater goby recovery plan (Service 2005) is to conserve and recover the tidewater goby throughout its range by managing threats and maintaining viable metapopulations within each recovery unit while retaining morphological and genetic adaptations to regional and local environmental conditions. The decline of the tidewater goby is attributed primarily to habitat loss or degradation resulting from urban, agricultural, and industrial development in and around coastal wetlands. The recovery plan identifies six recovery units: North Coast Unit, Greater Bay Unit, Central Coast Unit, Conception Unit, Los Angeles/Ventura Unit, and South Coast Unit.

The recovery plan specifies that the tidewater goby may be considered for downlisting when:

1. Specific threats to each metapopulation (e.g., coastal development, upstream diversion, channelization of rivers and streams) have been addressed through the development and implementation of individual management plans that cumulatively cover the full range of the species; and

2. A metapopulation viability analysis based on scientifically-credible monitoring over a 10-year period indicates that each recovery unit is viable. The target for downlisting is for individual sub-units within each recovery unit to have a 75 percent or better chance of persistence for a minimum of 100 years.

The tidewater goby may be considered for delisting when the downlisting criteria have been met and a metapopulation viability analysis projects that all recovery units are viable and have a 95 percent probability of persistence for 100 years.

Tidewater Goby Critical Habitat

We originally designated critical habitat for the tidewater goby on November 20, 2000 (65 FR 69693). In January 2008, we finalized a revised designation of critical habitat (73 FR 5920). On October 19, 2011, we published another proposed revision to critical habitat (76 FR 64996), and on February 6, 2013, we published a final rule designating revised critical habitat for the tidewater goby (78 FR 8745).

Under the Act and its implementing regulations, we are required to identify the physical and biological features (PBFs) essential to the conservation of the tidewater goby in areas occupied at the time of listing. We consider the PBFs that, when present in the appropriate quantity and spatial arrangement to provide for a species' life-history processes, are essential to the conservation of the species. The PBFs specific to the tidewater goby include:

PBF 1: Persistent, shallow (in the range of approximately 0.3 to 6.6 feet), still-to-slow-moving water in lagoons, estuaries, and coastal streams with salinity up to 12 ppt, which provide adequate space for normal behavior and individual and population growth that contain one or more of the following:

- PBF 1a: Substrates (e.g., sand, silt, mud) suitable for the construction of burrows for reproduction;

- PBF 1b: Submerged and emergent aquatic vegetation, such as *Potamogeton pectinatus*, *Ruppia maritima*, *Typha latifola*, and *Scirpus* spp., that provides protection from predators and high flow events; or

- PBF 1c: Presence of a sandbar(s) across the mouth of a lagoon or estuary during the late spring, summer, and fall that closes or partially closes the lagoon or estuary, thereby providing relatively stable water levels and salinity.

Critical habitat includes areas outside the geographical area occupied at the time of listing that contain suitable aquatic habitat in coastal lagoons or estuaries, provide connectivity between source populations or may provide connectivity in the future, or may be more isolated but represent unique adaptations to local features (habitat variability, hydrology, microclimate). In total, we designated 45 critical habitat units within the geographical area occupied at listing and 20 critical habitat units outside the geographical area occupied at listing that we have determined are essential for the conservation of the species.

Approximately 12,156 acres fall within the boundaries of the 65 critical habitat units designated by the 2013 final revised critical habitat rule. Revised critical habitat for the tidewater goby now occurs in Del Norte, Humboldt, Mendocino, Sonoma, Marin, San Mateo, Santa Cruz, Monterey, San Luis Obispo, Santa Barbara, Ventura, Los Angeles, Orange, and San Diego Counties, California. Overall, the critical habitat for this species has remained stable but is still threatened by coastal development.

Morro Manzanita

Legal Status

The Service listed the Morro manzanita as threatened in 1994 (59 FR 64613). The Morro manzanita was included in the Recovery Plan for Morro Shoulderband Snail and Four Plants

from Western San Luis Obispo County published on September 28, 1998 (Service 1998). The Service completed a 5-year review for Morro manzanita on December 12, 2013 (59 FR 64613).

Natural History

Morro manzanita is a long-lived shrub in the heath family (Ericaceae), with mature individuals reaching 12 feet in height. Morro manzanita produces white to pink downward-facing, urn-shaped flowers starting in December. Orange-red fruits mature in summer and contain 8 to 10 seeds each; seed dispersal occurs in the fall.

Although we do not know whether the flowers are self-compatible, extensive research revealed that pollination is required for reproduction. In 1998 and 1999, Tyler and Odion found that bumblebees (*Bombus vosnesenskii*) are the dominant pollinators, though anthophorid bees (*Anthophora urbana*), several bee flies (*Bombylius* spp.), and syrphid flies (family Syrphidae) are also known pollinators. The authors also noted surprisingly low pollinator activity for both years surveyed (Tyler et al. 1998 and 2000). Only 10 percent of flowers examined in 1998 produced fruits. Pollinator abundance and abiotic factors (i.e., climate) may play a role in annual and seasonal variation (Tyler et al. 1998).

Birds and large mammals (coyote (*Canis latrans*) and mule deer (*Odocoileus hemionus*)) are thought to aid Morro manzanita in seed dispersal (Keeley and Hays 1976). This secondary dispersal (which occurs after the parent plant initially sets seed) is limited, however, as evidenced by 90 percent fewer seeds present in soil cores 5 feet (1.5 meters) away from Morro manzanita compared to samples taken from beneath the canopy (Tyler and Odion 1996).

There is a clear difference in a basic life history trait that separates the genus *Arctostaphylos* into two functional groups. One group resprouts from a woody burl following canopy removal by fire or mechanical action. The other group has lost this ability to resprout and, as such, reproduce only by seed. Lacking a woody burl from which it can resprout, Morro manzanita is an obligate-seeding species. Seeds of obligate seeders are long-lived and inhibited from germinating until primary dormancy is released by a specific mechanism. The dormancy mechanism allows the species to build up a seed bank that is persistent (Tyler and Odion 1996).

For Morro manzanita and other obligate-seeding species of manzanita, maintenance and regeneration are dependent upon mass germination triggered by fire (Tyler and Odion 1996). Fire breaks also create open areas where seedlings can germinate and individuals establish. The life history of an obligate seeder can only be successful if the interval between fires is long enough for seeds to accumulate the quantity required to replace the parent generation. The number of seeds in the soil that must accumulate is very high, as seed mortality has been found to be substantial in chaparral burns (Tyler et al. 2000). However, suppressing fire for too long could lead to the development of climax, closed-canopy chaparral stands, eventually having an adverse effect on populations of Morro manzanita by precluding expansion into otherwise suitable habitat and maintenance of even-aged, eventually-senescing stands; this is referred to as “senescence risk” (Ne’eman et al. 1999).

Morro manzanita is found in association with coastal dune scrub, maritime chaparral, and coast live oak woodland communities (Service 1998). In openings between the shrubs, these communities support a diversity of native and nonnative herbaceous species.

Morro manzanita is primarily found on Baywood fine sand soils (ancient wind-blown beach sands), developed on ancient sand dunes deposited during the Pleistocene epoch. The species is found on a variety of slopes and aspects, though cover is concentrated within two slope categories: 9 to 15 percent slopes, and 15 to 30 percent slopes (McGraw 2005, Tyler and Odion 1996). On steep slopes, particularly on the north-facing slopes of the Irish Hills, it can be found in almost pure stands. This narrow habitat preference makes this species particularly vulnerable to habitat loss and fragmentation. Approximately 75 percent of its historical habitat has been converted for residential use, resulting in highly fragmented populations. The limited dispersal abilities of this species further exacerbates the threat of habitat fragmentation.

Rangewide Status

Morro manzanita ranges from the northeast side of Morro Bay to the southern end of Montaña de Oro State Park, a distance of less than 10 miles. The distribution of Morro manzanita is correlated with the distribution of Baywood fine sands. Based on the distribution of these sands, the historical distribution of Morro manzanita is estimated to have comprised between 2,000 and 2,700 acres. In 1994 when the species was listed, it was estimated that the range covered by Morro manzanita was 840-890 acres (Service 1994). In 2013, we estimated that approximately 75 percent of the former range of the species had been converted to urban development, and the existing extent of Morro manzanita has been reduced to less than 400 acres. The species is continuously threatened by habitat conversion and fragmentation.

Because stands of Morro manzanita, and maritime chaparral in general, grow so densely, it is difficult to count numbers of individuals during surveys. As variation in stand density and the growth habits of the species make demographic studies difficult, actual abundance may have been significantly lower than those reported by LSA Inc. (LSA 1992) (McGuire and Morey 1992). Therefore, estimates of abundance have typically been based on the density of cover instead. During their surveys in 1991, LSA (1992) used five cover classes and percent, 50 to 75 percent, 25 to 50 percent, 5 to 25 percent, and 1 to 5 percent. Based on this approach, LSA estimated approximately 153,000 Morro manzanita plants occurred across the species' range at the time of listing. LSA made these estimates based on a helicopter flyover and walkover surveys of Morro manzanita populations within Montaña de Oro State Park and above Cabrillo Estates. LSA assumed that an individual plant covered approximately 100 square feet (9.3 square meters) or 11.3 feet (3.4 meters) in diameter. However, McGuire and Morey produced a lower estimate than LSA (using a 15-foot diameter per individual), estimating that the total species population would be closer to 86,500 individuals (McGuire and Morey 1992).

Recovery

The recovery objective for Morro manzanita is delisting. Morro manzanita can be considered for delisting when all three of the following have been achieved: (1) 90 percent of existing acreage supporting high (75-100 percent) and medium (25-75 percent) cover of Morro manzanita and 85-90 percent of low (1-24 percent) cover supporting Morro manzanita are secured from human-induced threats in preserves in the Northeast Los Osos, South Los Osos and West Pecho Conservation Planning Areas with no greater fragmentation by roads, residences, or other areas of human use than currently exists, (2) evidence that the acreage and approximate cover classes of Morro manzanita in preserves can be maintained over time and that preserves are not made unmanageable by small size, proximity to urban development, or fragmentation, and (3) site-specific management plans have been successfully implemented for the preserves. Because habitat in the Conservation Planning Areas must remain unfragmented to recover this species, habitat attrition must be restricted to isolated or remnant patches of Morro manzanita that are unlikely to be viable over the long term. Highest priority for securing sites should be given to stands where Morro manzanita is the dominant in terms of cover, where large blocks of occupied habitat are still present, and where Morro manzanita habitat can be secured that abuts other protected lands, as in the South Los Osos Conservation Planning Area.

ENVIRONMENTAL BASELINE

The implementing regulations for section 7(a)(2) (50 CFR 402.02) define the environmental baseline as “the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency’s discretion to modify are part of the environmental baseline.”

Action Area

The implementing regulations for section 7(a)(2) of the Act (50 CFR 402.02) define the “action area” as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. The action area includes the bridge construction impact area, construction staging areas, potential mitigation areas and a minimum 100-foot-wide buffer. The total size of the action area is approximately 49 acres. The action area is approximately 700 feet wide at the location of the bridge; because of a large creek meander, the action area includes approximately 1,350 linear feet of the Los Osos Creek channel (1,050 feet downstream of the bridge and 300 feet upstream).

Habitat Characteristics of the Action Area

The action area is within Morro Bay State Park and Morro Estuary Natural Preserve, and includes a portion of the estuary at the mouth of Los Osos Creek. The Morro Bay watershed covers approximately 76 square miles and includes two major tributaries: Chorro Creek and Los Osos Creek. The 2,300-acre Morro Bay estuary is one of 28 estuaries in the National Estuary Program (managed by the Morro Bay National Estuary Program), a program designated and funded by the U.S. Environmental Protection Agency to protect estuaries of national significance.

The habitats of the action area consist of Morro manzanita chaparral, coyote brush scrub, Lompoc ceanothus chaparral, eroded dune slope, coast live oak woodland, pickleweed salt marsh, California bulrush marsh, arroyo willow stands, non-native grass and iceplant stands, ruderal disturbed areas, and open water in the Los Osos Creek channel.

Existing Conditions in the Action Area

The action area includes the South Bay Boulevard Bridge and its right-of way. Although this is a developed feature, the action area contains and is adjacent to unique ecosystems endemic to the specific location. Although there are stands of invasive species, such as iceplant and veldt grass, and some small disturbed areas, the majority of vegetated areas are dominated by native habitat types, including local endemic species, in relatively good condition.

Previous Consultations in the Action Area

We are unaware of previous consultations that overlap with the action area.

Condition (Status) of the Species in the Action Area

Morro shoulderband snail

Within the action area, suitable Baywood fine sand soils occur south of Los Osos Creek. Coyote brush scrub has colonized historic fill northwest of the existing bridge. Although coastal dune scrub vegetation does not occur within the action area, a few areas of open Morro manzanita chaparral, Lompoc ceanothus chaparral, and coyote brush scrub may provide suitable habitat for Morro shoulderband snail. The species may also be associated with nonnative species such as veldt grass and ice plant that occur in the action area.

Protocol-level surveys were not conducted for this project. Several survey efforts have been conducted in the action area and vicinity over the last 15 years. No live Morro shoulderband snails were found during these efforts, but a total of six empty shells have been found. No Morro shoulderband snail surveys were conducted at the Santa Ysabel Avenue staging area for this project. However, there is a Morro shoulderband snail relocation receiver site nearby to receive Morro shoulderband snails relocated from the County sewer project. Therefore, because Morro

shoulderband snails occur nearby and the action area contains suitable habitat and vegetation, we consider Morro shoulderband snails to be present within the action area.

Morro shoulderband snail Recovery

The action area is within Conservation Planning Area 4, Northeast Los Osos, and contains suitable habitat on Baywood fine sand soils. The action area is adjacent to protected lands with known populations of Morro shoulderband snail and is in the County right-of-way, and thus will be managed in a manner similar to a protected land because activities will be analyzed for potential environmental impacts. The habitats within the action area are suitable but are not characterized as the ideal coastal dune scrub. Instead, Morro manzanita chaparral, Lompoc ceonothus chaparral, and coyote brush scrub provide suitable habitat for the species. The habitats are relatively intact, with areas of invasive veldt grass and iceplant on the edges of the action area.

Condition of Morro shoulderband snail Critical Habitat in the Action Area

The action area is within Morro shoulderband snail designated critical habitat Unit 3. The action are contains two of the three primary constituent elements defined in the 2001 designation of critical habitat: sand or sandy soils and a slope not greater than 10 percent. Although there are no areas characterized as coastal dune scrub within the action area, the third PCE, we now know Morro shoulderband snails occupy many different native and non-native vegetation types. Within the action area, Baywood fine sand soils occur south of Los Osos Creek and north of the existing bridge. Although coastal dune scrub vegetation does not occur within the action area, a few areas of open Morro manzanita chaparral, Lompoc ceonothus chaparral, and coyote brush scrub within the action area can be considered to provide all three primary constituent elements.

Tidewater Goby

Tidewater goby was detected within or nearby the action area in 1968-70, 1981, and 2001, but was not detected within the action area during protocol surveys conducted for the project in 2016. The survey was conducted during drought conditions, as reflected in high salinity levels (above 32 ppt) in the survey area, likely due to the lack of freshwater inputs from Los Osos Creek. Since that time, normal inflow of fresh water reestablished in the creek during subsequent rain events, particularly during 2019 and 2020. During these more favorable conditions, the tidewater goby population in Los Osos Creek likely recovered and could utilize additional areas within the creek. This species has been found within Los Osos Creek in previous years, which indicates suitable habitat for tidewater goby is present. Therefore, tidewater goby has the potential to occur within the action area. However, the lack of sandy substrate in Los Osos Creek creates unfavorable breeding conditions.

Tidewater Goby Recovery

The action area for the proposed project is located within Los Osos Creek recovery sub-unit CC 3j. The recovery plan described the habitat of this sub-unit as being 250 acres within the Morro Estuary Natural Preserve. The most recent observation of tidewater gobies was in 2001 (Service 2005), and prior to that, tidewater gobies have not been observed here since 1981. Infrequent tidewater goby observations could be due to the designation of Los Osos Creek as "Water Quality Limited" by the State Water Resources Control Board caused by excessive pollutants and stressors entering the creek from urban and agricultural development within the watershed resulting in low dissolved oxygen, high nutrients, and sedimentation and siltation.

Condition of Tidewater Goby Critical Habitat in the Action Area

Los Osos Creek, upstream of the existing bridge, falls within tidewater goby critical habitat Unit SLO-9. Based on data collected during the protocol surveys for tidewater goby, the water depth within the action area is adequate (less than 6 feet) and the Los Osos Creek channel within the action area provides adequate space for growth and reproduction. Water depths due to the tides range from 0 feet (exposed) to an average of 2 to 3 feet at high tide, or up to 5 feet at spring high tides. The channel width, including the shoreline salt marsh, increases with higher tide stages up to approximately 100-feet wide. The action area provides suitable substrates (soft mud) for burrowing, but no sandy substrates for breeding. Submerged and emergent aquatic vegetation of the types listed was not found within the action area during the field surveys, but emergent aquatic vegetation is present in salt marsh and will be accessible to tidewater goby at higher tide stages for refuge. In regard to salinity, tidewater goby is more commonly associated with lower salinity levels than ocean and estuarine salinities that will occur in the absence of a barrier, about 35 ppt. Elevated salinity levels do occur regularly in the action area (Caltrans 2021). The confluence of Los Osos Creek with Morro Bay is not closed by a sand bar; however, the large water volume of the adjacent Morro Bay may stabilize conditions somewhat compared to a site closer to an ocean inlet. Overall, it is assumed the action area offers the primary constituent elements of critical habitat for tidewater goby at various times.

Morro Manzanita

Morro manzanita is typically associated with Baywood fine sand soils. Morro manzanita occurs throughout the action area, but not exclusively on Baywood fine sands. It also occurs on fill installed when the existing bridge was constructed, and a few individuals occur in substrate with Baywood fine sands outside the historic fill limit to the northwest of the bridge.

Morro manzanita is found on a variety of slopes and aspects in association with coast live oak woodland, and in abundance within Morro manzanita chaparral and Lompoc ceanothus chaparral in the action area. Approximately 46 Morro manzanita shrubs are located within the project impact area.

Morro Manzanita Recovery

The Northeast Los Osos Conservation Planning Area supports the most northern intact population of Morro manzanita. The action area does not meet one of the three recovery objectives for habitat needed for recovery of Morro manzanita. The small linear shape of the action area is not ideal to support the need for broad swaths of protected habitat dominated by Morro manzanita. Because the action area is adjacent to larger parcels of protected lands, improvements and maintenance of Morro manzanita habitat in the action area can benefit Morro manzanita recovery.

EFFECTS OF THE ACTION

The implementing regulations for section 7(a)(2) define effects of the action as "all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action" (50 CFR 402.02).

In conducting this analysis, we have considered factors such as 5-year reviews, published scientific studies and literature, and professional expertise of Service personnel in determining whether effects are reasonably certain to occur. We have also determined that certain consequences are not caused by the proposed action, such as the increase or spread of disease, poaching, or collecting, because they are so remote in time, or geographically remote, or separated by a lengthy causal chain, so as to make those consequence not reasonably certain to occur.

Effects of the Proposed Action

Effects of the Proposed Action on the Morro shoulderband snail

<u>Construction of New Bridge</u>

Pre-activity surveys for Morro shoulderband snail will be conducted prior to ground-disturbing activities and during wet weather work or foggy work days that provide conditions for snail movement. If the Service-approved biologist locates a live Morro shoulderband snail in the action area, it will be captured and relocated to a pre-determined receiver site. The Morro shoulderband snail could be injured or killed during capture and relocation. The individual Morro shoulderband snail may not survive the relocation process. The County proposes to obtain a Service-approved biologist to perform these activities, who will have the experience needed to minimize impacts to Morro shoulderband snail from capture and relocation.

Construction activities could result in direct impacts to Morro shoulderband snails during clearing and grubbing and construction activities in upland portions of the action area. Construction disturbance could affect all life stages of Morro shoulderband snails, if present in

upland areas in the action area. Suitable Morro shoulderband snail habitats, including Morro manzanita chaparral, Lompoc ceanothus chaparral, and coyote brush scrub, will be directly and indirectly be impacted by project activities. Permanent impacts to habitats will result from realigning the north approach road (0.24 acre of Morro manzanita chaparral), and potentially from stormwater runoff from the realigned road to adjacent intact habitats. Temporary impacts to habitats will occur in construction access and staging areas (0.6 acre of Morro manzanita chaparral, 0.08 acre of Lompoc ceanothus chaparral, and 1.37 acres of coyote brush scrub), and there is a potential for additional impacts from construction-related disturbance outside the construction area within the action area during the 30-month construction period.

The County proposes to further refine the direct impact areas to minimize habitat disturbance. Project areas will be confined within high visibility fencing which will minimize additional impacts to habitats. The County also proposes to implement erosion control measures which will minimize impacts to habitats from stormwater runoff.

Demolition of Old Bridge

Pre-activity surveys for Morro shoulderband snail will be conducted prior to bridge demolition activities that may occur during wet weather or foggy work days that provide conditions for snail movement. If the Service-approved biologist locates a live Morro shoulderband snail in the action area, it will be captured and relocated to a pre-determined receiver site. The Morro shoulderband snail could be injured or killed during capture and relocation. The County proposes to obtain a Service-approved biologist to perform these activities, who will have the experience needed to minimize impacts to Morro shoulderband snail from capture and relocation.

If Morro shoulderband snails are present during bridge demolition activities, they could be injured or killed by equipment or personnel. Morro shoulderband snail habitat could be impacted by stormwater runoff from work areas or fuel or oil leaks from equipment into adjacent intact Morro shoulderband snail habitat. The County proposes to implement pre-activity surveys during conditions suitable for Morro shoulderband snail movement, as well as erosion control measures and spill prevention measures that will reduce the likelihood of these impacts to Morro shoulderband snail habitat and individuals.

Habitat Restoration, Mitigation and Monitoring

Removal of plants for storage and relocation could result in injury or mortality to all life stages of Morro shoulderband snail if present in leaf litter below the plants or in the base or canopy of plants. All life stages of Morro shoulderband snail could be injured or killed during weed control activities, habitat monitoring, and installation of irrigation equipment within restored habitat and mitigation sites. Trash and debris and restoration and mitigation sites could attract predators that could prey upon Morro shoulderband snails. The County proposes to obtain a Service-approved biologist to conduct these activities with the necessary experience to minimize the likelihood of these impacts.

Effects of the Proposed Action on Morro Shoulderband Snail Recovery

Construction and Demolition

Permanent and temporary impacts to suitable Morro shoulderband snail habitat from construction of the new bridge and demolition of the existing bridge could result in a decrease of suitable habitat available for Morro shoulderband snail recovery within Conservation Planning Area 4, Northeast Los Osos. The construction and demolition phase is expected to last 30 months, during which time the suitable habitat impacted temporarily and permanently by the project activities will be unavailable to support recovery of Morro shoulderband snail. The County proposes to restore temporary impact areas and mitigate for permanent impacts to Morro shoulderband snail habitats, which, over time, would offset the removal of this habitat during the construction and demolition phase.

Habitat Restoration, Mitigation and Monitoring

Once habitat restoration and mitigation activities are complete and success criteria has been reached, the restoration of temporary habitat impacts and creation of mitigation sites to offset permanent impacts would result in overall improvement of habitats available for recovery. Restoration and mitigation activities include species monitoring which will improve our knowledge of population dynamics. Weeds will be controlled for 5 years within restoration and mitigation sites resulting in improved habitat conditions within the Northeast Los Osos Conservation Planning Area, and could result in improved opportunities for species recovery.

Effects of the Proposed Action on Critical Habitat of the Morro Shoulderband Snail

Construction of the new bridge will result in 2.29 acres of critical habitat being removed for at least 30 months during construction and demolition phases. Following construction, 2.08 acres will be restored within 5 years. The 0.24 acre of permanent critical habitat loss will be replaced within the action area at a ratio of 3:1, resulting in a net gain of 0.48 acre of critical habitat. With the implementation of the Habitat Mitigation and Monitoring Plan, the condition of the critical habitat will likely improve as a result of maintenance, irrigation, and weed control activities.

Other impacts to critical habitat could result from stormwater runoff from road surfaces into habitat outside the restoration and mitigation areas. The County proposes to implement erosion control measures that will minimize the likelihood of these impacts.

Effects of the Proposed Action on the Tidewater Goby

Construction of the New Bridge

Due to salinity levels of Los Osos Creek, tidewater gobies are more likely to be upstream of the action area where salinity level is more favorable to tidewater goby, and we expect very few, if

any tidewater gobies to be in the action area. Potential impacts to tidewater goby are injury or death during installation of in-water structures, such as temporary trestle, cofferdams, and falsework for permanent pile construction. However, installation techniques, which include a gradual increase in noise and vibration, will decrease the likelihood of potential injury or death of tidewater gobies because gobies would be able to leave the area of impact before incurring harm.

Cofferdam installation could trap fish that will be stranded when the area is dewatered. However, cofferdams will be installed from shoreline to channel if feasible to encourage tidewater goby in the area to leave. Dewatering of cofferdams will be monitored and any trapped fish will be captured and released in a suitable channel location to avoid stranding of fish. Cofferdams will be designed to exclude anticipated high water levels so that once dewatered, tidewater goby are not expected to be able to get into dewatered areas.

The installation and removal of in-water structures may cause localized increases in turbidity. However, while suitable habitat requirements for tidewater goby have been documented for dissolved oxygen, pH, salinity, temperature, they have not been documented for turbidity (Ambrose and Orme 2000). Similarly, turbidity is not listed as a key habitat parameter for tidewater goby (Stillwater Science 2006). Although adverse effects from turbidity have not been documented, the County proposes to keep increases to turbidity to a minimum. The requirements to reduce or eliminate construction-related turbidity increases specified in the Water Quality Control Plan are expected to prevent significant increases in turbidity. Provided construction activities are managed such that these objectives are met, adverse effects to water quality from increased turbidity are not expected to occur.

Noise and turbidity from trestle installation and cofferdam installation could make conditions in Los Osos Creek even less favorable to foraging. However, the amount of tidewater goby foraging in the area is expected to be very low if at all due to the lack of vegetation and high salinity level in this portion of Los Osos Creek. The bridge is slightly larger than the existing bridge, so ultimately, the shading will be increased by an insignificant increment. The aquatic substrate in the action area is unvegetated, and so shading will not reduce existing vegetation. The shading will not impact tidewater goby individuals and will not cause a significant adverse change in the tidewater goby habitat from pre-project condition.

For most installation activities, including oscillation, rotation, vibration, or screw-in pile installation methods, fish may be driven from the project area by noise or vibration, but this effect is not expected to be significant. However, it is possible that the level of water column noise generated by pile driving could cause physical injury to fish. The project has been designed to minimize pile driving, the primary source of underwater noise and vibration. A very small amount of pile driving may be required to verify pile capacity but will be very limited in duration and intensity. A pile drivability study was performed by the project geotechnical engineer to determine approximately how many pile strikes per pile will be required to verify load capacity of the temporary piles. The study concluded that seven to ten strikes per pile will be sufficient for this purpose. If the contractor load tests three to four piles per day maximum as proposed, it

would total 30 total pile strikes per day. The short and temporary duration of this activity will not cause a significant impact to tidewater goby juveniles and adults who may be upstream of the action area.

Tidewater goby could be impacted by stormwater runoff during the construction and demolition phases by removing the vegetation surrounding Los Osos Creek. However, conservation measures have been proposed that will avoid the impacts from stormwater runoff from terrestrial construction areas. In addition, the design of the new bridge construction includes greatly improved stormwater control structures and design as a result of increased water quality requirements. Therefore, it is expected that the new bridge will result in a reduction of road-based pollutants, debris, and sediment entering Los Osos Creek and an overall improvement of water quality, which would likely result in a benefit to tidewater gobies and their habitat.

Demolition of Old Bridge

Demolition of the existing bridge will require installation of in-water structures such as temporary demolition trestle and cofferdams. Impacts to tidewater goby from bridge demolition are the same as discussed for bridge construction.

Removal of the existing bridge will restore full sunlight to that portion of the channel, which is expected to result in improved marsh productivity and benthic community structure (invertebrate density and diversity). Recovery of the benthic community and increased salt marsh productivity should occur relatively quickly following bridge demolition.

For permanent impacts, the project will have an incremental beneficial effect by restoring 32 square feet of soft-bottom habitat from removal of the existing bridge supports. No new in-water structures are proposed, so there will be no direct adverse effects from structures on tidewater goby.

Habitat Restoration, Mitigation and Monitoring

Habitat restoration could impact tidewater goby or habitat if stormwater or irrigation runoff is allowed to enter Los Osos Creek. Decreased water quality could reduce the ability of the water to support tidewater goby by increasing nutrients or decreasing oxygen. However, the proposed conservation measures will reduce the likelihood of these impacts.

Effects of the Proposed Action on Tidewater Goby Recovery

As discussed in the effects to the species section, we expect that the proposed action could result in some mortality of tidewater gobies. We expect that tidewater goby populations in the vicinity of the action area would persist despite these effects. As discussed in the status of the species section, tidewater goby populations naturally fluctuate widely within and between years, and we expect that the tidewater goby within and upstream of the action area would be able to rebound from any losses caused by the proposed project. We do not expect the proposed action to affect

genetic diversity between recovery subunits or our ability to address the habitat and predation-related threats identified in the recovery plan (Service 2005).

The design of the new bridge construction includes greatly improved stormwater control. Therefore, by decreasing transport of road-based pollutants, debris, and sediment into Los Osos Creek, it is expected that the new bridge will result in increasing the quality of habitat for tidewater goby, if present.

Effects of the Proposed Action on Tidewater Goby Critical Habitat

The action area contains two elements of PCE 1 of tidewater goby critical habitat unit SLO-9: slow moving shallow water in coastal streams and soft substrate for burrowing, but not breeding. The proposed project will temporarily impact these two elements of PCE 1 from dewatering, temporary pile installation and removal. These activities will temporarily remove the slow moving water and burrowing substrate. Project impacts to tidewater goby critical habitat, include temporary construction impacts to 0.49 acre below the high tide line, which includes 0.38 acre of unvegetated channel and 0.11 acre of pickleweed salt marsh. Approximately half of these impacts will occur during each of two dry season construction periods. Impacts will occur within approximately 200 linear feet of the Los Osos Creek channel. Temporary trestles will extend across 30 linear feet of channel length, and shoreline dewatering areas between 40 and 50 linear feet.

No permanent adverse impacts to tidewater goby critical habitat are proposed. Removal of the existing bridge piers will permanently restore approximately 32 square feet (less than 0.001 acre) of critical habitat.

The design of the new bridge construction includes greatly improved stormwater control as a result of increased requirements. Therefore, it is expected that the new bridge will result in a benefit to tidewater goby critical habitat by decreasing transport of road-based pollutants, debris, and sediment to the waterway.

Effects of the Proposed Action on Morro Manzanita

Construction of the New Bridge

Project impacts to Morro manzanita habitat include temporary construction impacts to 33 Morro manzanita individuals within 0.60 acre of Morro manzanita chaparral, and permanent impacts to 13 Morro manzanita individuals within 0.24 acre of Morro manzanita chaparral. Morro manzanita individuals could be trampled or crushed by equipment or vehicles. Runoff from work areas and road surfaces could impact Morro manzanita chaparral outside the temporary and permanent impact areas. The County proposes reduce the project footprint as much as possible and to delineate work areas with high visibility fence. The County also proposes to implement robust erosion control measures. These measures will reduce the likelihood of stormwater runoff and construction equipment impacts to Morro manzanita outside the project impact areas.

Demolition of the Existing Bridge

Runoff from work areas and road surfaces could impact Morro manzanita chaparral outside the temporary and permanent impact areas. If project boundary fencing is disregarded, Morro manzanita individuals could be trampled or crushed by equipment or vehicles.

Habitat Restoration, Mitigation and Monitoring

Morro manzanita individuals removed from the project site and stored for later use could die if they were removed improperly of not maintained. Morro manzanita planted following construction could die if adequate maintenance is not maintained. Weed control using herbicide could injure or kill Morro manzanita individuals if herbicide contacts the plant or soil within the dripline.

Effects of the Proposed Action to Morro Manzanita Recovery

The creation of the Morro manzanita mitigation site will be a benefit to recovery by increasing the total area occupied by Morro manzanita within its range by 0.48 acre. The restoration and mitigation areas will be managed under the Habitat Mitigation and Monitoring Plan finalized in collaboration with the Service. Further, the County will be developing and documenting improved techniques for removal, storage, and reinstallation of Morro manzanita individuals. More knowledge about Morro manzanita preservation and propagation will be a valuable tool to offset future impacts to Morro manzanita throughout its range and support its recovery.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. We do not consider future Federal actions that are unrelated to the proposed action in this section because they require separate consultation pursuant to section 7 of the Act. We are unaware of any non-Federal actions that are reasonably certain to occur in the action area that would adversely affect the Morro shoulderband snail, tidewater goby, or Morro manzanita.

CONCLUSION

The regulatory definition of “to jeopardize the continued existence of the species” focuses on assessing the effects of the proposed action on the reproduction, numbers, and distribution, and their effect on the survival and recovery of the species being considered in the biological opinion. For that reason, we have used those aspects of the status of the Morro shoulderband snail, tidewater goby, and Morro manzanita as the basis to assess the overall effect of the proposed action on the species.

Summary of Effects to Morro Shoulderband Snail

Morro Shoulderband Snail Reproduction

Injury or mortality of individuals would result in a decrease in reproductive capacity in the action area; however, due to the small number of individuals expected to occur in the action area, we do not expect an appreciable reduction for the species. We do not expect that the capture and relocation of individuals will measurably affect the reproductive capacity of these individuals.

Morro Shoulderband Snail Numbers

Injury or mortality of individuals would reduce the number of Morro shoulderband snails within the action area; however, due to the small numbers of individuals expected on the subject parcel, this loss would not appreciably reduce the numbers of individuals in this geographic area.

Morro Shoulderband Snail Distribution

The action area represents only a very small portion (less than 0.78 percent) of the estimated 6,250-acre range of the species. As such, the loss of individuals within the action area is not expected to change or reduce the distribution of Morro shoulderband snail.

Morro Shoulderband Snail Recovery

The action area is within Conservation Planning Area 4, Northeast Los Osos from the recovery plan (Service 1998). The action area is also within critical habitat unit 3, Northeast Los Osos. The proposed project will result in a loss of suitable habitat for 30 months during construction. However, after restoration and mitigation measures are complete, the Conservation Planning Area will receive a net increase of 0.48 acre of suitable habitat managed under a Habitat Mitigation and Monitoring Plan. Thus, the overall impact of the project is not expected to reduce the likelihood of recovery for the Morro shoulderband snail.

After review of the current status of the Morro shoulderband snail, the environmental baseline for species in the action area, the effects of the proposed action, the effects on recovery, and the potential for cumulative effects, it is the Service's biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the Morro shoulderband snail. We reached this conclusion because:

1. With the implementation of the proposed conservation measures, we expect very few Morro shoulderband snails to be injured or killed during the implementation of the proposed action.

2. The project activities include restoration and mitigation of habitat for the Morro shoulderband snail that includes maintenance activities. The restored and created habitats could be higher quality than what was available within the action area prior to proposed project activities, which may improve Morro shoulderband snail recovery potential.

Summary of Effects to Tidewater Goby

Tidewater Goby Reproduction

The action area does not contain suitable breeding habitat for tidewater goby, so we do not expect any impacts to tidewater goby reproduction from the proposed activities.

Tidewater Goby Numbers

There is a small chance that the proposed action could result in mortality of an unknown quantity, but likely small, number of tidewater gobies. Tidewater goby habitat would be temporarily disturbed during project activities, which could cause tidewater gobies to avoid the project area. Dewatering activities could kill or injure tidewater gobies if they are present in the project area. The impacts to tidewater goby habitat will be temporary, and the impacts to tidewater goby individuals will be minor, because few if any tidewater gobies are expected to occur in the project area. Therefore, we do not expect the loss of individuals to have long-term population-level effects that would reduce appreciably the likelihood of both the survival and recovery of the tidewater goby.

Tidewater Goby Distribution

We expect the proposed action to have no effects to the distribution of the tidewater goby. The proposed action could result in occasional mortality of individuals or removal of valuable habitat features, but we do not expect these effects to be of a magnitude that would result in a reduction in the species' distribution.

Tidewater Goby Recovery

We expect that the proposed action could result in mortality of tidewater gobies and temporarily disturb habitat within the action area. Because of the proposed conservation measures, we expect the extant Los Osos Creek population within and upstream of the action area to persist despite the loss of individuals from proposed activities, and that effects to habitat would be limited to small areas and occur infrequently. As discussed in the status of the species section, tidewater goby populations naturally fluctuate widely within and between years, and we expect that the populations within the action area would be able to rebound from any mortality of individuals caused by the proposed action. We do not expect the proposed action to affect our ability to address the habitat degradation and predation related threats identified in the recovery plan (Service 2005). Therefore, we do not expect the effects of the proposed action to appreciably reduce the likelihood of recovery of the tidewater goby.

After reviewing the current status of the tidewater goby, the environmental baseline for the action area, the effects of the proposed woody materials management, and the cumulative effects, it is the Service's biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the tidewater goby because:

1. The project will impact a small portion of tidewater goby habitat. The stormwater runoff control improvements in the new bridge design will reduce discharge of road-borne contaminants into Los Osos Creek, which would likely result in improved water quality of tidewater goby habitat as compared to pre-project conditions.

2. With the implementation of the proposed conservation measures, we expect very few tidewater gobies to be injured or killed during the implementation of the proposed action.

Summary of Effects to Morro Manzanita

Morro Manzanita Reproduction

The proposed project will impact Morro manzanita reproduction by temporarily and permanently removing Morro manzanita from the action area. The restoration and mitigation sites will take some time to reestablish conditions that will support reproduction. An increase in Morro manzanita numbers will be supported by installation of container stock to offset losses. Management and maintenance of restoration and mitigation sites will improve the conditions for reproduction by removing invasive species that may encroach on Morro manzanita and prevent seed germination.

Morro Manzanita Numbers

The proposed project will decrease Morro manzanita numbers by 46 individuals for at least 30 months. Ultimately, 33 Morro manzanita individuals that will be stored during that time will be reinstalled in the temporary disturbance areas. Thirteen individual Morro manzanita removed from permanent impact areas will be replaced at a ratio of 3:1, or 39 individuals, for a net increase of 26 Morro manzanita individuals within the action area.

Morro Manzanita Distribution

We expect the effects from the proposed action to have a small local effect on the distribution of Morro manzanita due to the relatively small area where Morro manzanita will be impacted by the proposed project. The mitigation area created by removal of Santa Isabel Road will result in an overall increase in Morro manzanita distribution locally. Therefore, we do not anticipate the proposed action to appreciably influence the overall distribution of Morro manzanita within the action area or rangewide.

Morro manzanita Recovery

The creation of the Morro manzanita mitigation site will be a benefit to recovery by increasing the total area occupied by Morro manzanita within its range. The conversion of Santa Ysabel Road to Morro manzanita chaparral habitat will reduce habitat fragmentation in the Northeast Los Osos Conservation Planning Area. The restoration and mitigation areas will be managed under the HMMP, finalized in collaboration with the Service. Further, the County will be developing and documenting improved techniques for removal, storage, and reinstallation of Morro manzanita individuals, as well as propagation from seed. More knowledge about Morro manzanita preservation and propagation will be a valuable tool to help offset future impacts to Morro manzanita throughout its range and support its recovery.

After reviewing the current status of Morro manzanita, the environmental baseline for the action area, the effects of the proposed South Bay Boulevard Bridge Replacement project and the cumulative effects, it is the Service's biological opinion that the project, as proposed, is not likely to jeopardize the continued existence of Morro manzanita because:

1. The project area is small; and therefore, the level of impact to the Morro manzanita population, as a whole, will be negligible.

2. The County will implement avoidance and minimization measures that will greatly reduce the quantity of Morro manzanita plants impacted and will mitigate for unavoidable impacts, which may result in an overall increase in Morro manzanita plants. The conversion of Santa Ysabel Road to Morro manzanita chaparral habitat for mitigation will reduce habitat fragmentation in the Northeast Los Osos Conservation Planning Area, which will improve the conditions to support recovery.

Summary of Effects to Morro Shoulderband Snail Critical Habitat

We anticipate that the proposed project will result in the removal 2.05 acres of critical habitat for 30 months. However, the habitat restoration and mitigation activities will result in a net gain of 0.48 acre of suitable habitat within the critical habitat unit. Also, impacts to critical habitat from stormwater runoff from work areas or road surfaces will be avoided with the implementation of the proposed conservation measures.

After reviewing the current status of the critical habitat of the Morro shoulderband snail, the environmental baseline of critical habitat for the action area, the effects of the proposed project activities on critical habitat, and the cumulative effects, it is the Service's biological opinion that the action, as proposed, is not likely to result in the destruction or adverse modification of critical habitat of the Morro shoulderband snail because:

1. The effects on the primary constituent elements would be small; and

2. The effects on the conservation value and function of critical habitat would be minimized.

Summary of Effects to Tidewater Goby Critical Habitat

We expect that the proposed action could result in some temporary reduction in quality of tidewater goby habitat during the construction of the bridge and from temporary increase in shading of the water column. However, we expect these temporary impacts to be minor relative to the pre-project habitat quality and the conservation measures that are proposed. In summary, we expect adverse effects to tidewater goby critical habitat, but we expect them to be very limited in severity and scope.

After reviewing the current status of the critical habitat of the tidewater goby, the environmental baseline of critical habitat for the action area, the effects of the proposed project activities on critical habitat, and the cumulative effects, it is the Service's biological opinion that the action, as proposed, is not likely to result in the destruction or adverse modification of critical habitat of the tidewater goby because:

1. The effects on the various primary constituent elements would be small; and

2. The effects on the conservation value and function of critical habitat would be minimized.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened wildlife species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not the purpose of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

Sections 7(b)(4) and 7(o)(2) of the Act generally do not apply to listed plant species; however, limited protection of listed plants is provided at section 9(a)(2) to the extent that the Act prohibits the removal and reduction to possession of federally listed plants or the malicious damage of such plants on areas under Federal jurisdiction, or the destruction of listed plants on

non-Federal areas in violation of State law or regulation or in the course of a violation of a State criminal trespass law.

AMOUNT OR EXTENT OF TAKE

We anticipate that Morro shoulderband snail and tidewater goby could be taken as a result of the proposed action. We expect the incidental take to be in the form of death, injury, or capture if they are present during vegetation removal or project activities. Both Morro shoulderband snails and tidewater gobies could be killed or injured if they are captured for relocation. Furthermore, Morro shoulderband snails and tidewater gobies may be harmed if their reproductive fitness is decreased by having to search for alternative foraging sites or, for Morro shoulderband snail, alternative aestivation sites during the length of the project.

We cannot quantify the precise number of Morro shoulderband snails or tidewater gobies that may be taken as a result of the action that Caltrans and the County has proposed because both Morro shoulderband snails and tidewater gobies are small in size and cryptic in nature. Morro shoulderband snails of all age classes can be very difficult to locate during pre-activity surveys, and could easily be missed and subsequently injured or killed by project equipment or activities. Tidewater gobies could easily migrate into the action area undetected during project activities and be injured or killed by project equipment or workers. The protective measures proposed by Caltrans and the County are likely to prevent mortality or injury of most individuals. In addition, finding a dead or injured Morro shoulderband snail or tidewater goby is unlikely.

Consequently, we are unable to reasonably anticipate the actual number of Morro shoulderband snails or tidewater gobies that would be taken by the proposed action; however, we must provide a level at which formal consultation would have to be reinitiated. The Environmental Baseline and Effects Analysis sections of this biological opinion indicate that adverse effects to Morro shoulderband snail and tidewater goby would likely be low given the nature of the proposed activities, and we, therefore, anticipate that take of Morro shoulderband snail and tidewater goby would also be low. We also recognize that for every Morro shoulderband snail or tidewater goby found dead or injured, other individuals may be killed or injured that are not detected, so when we determine an appropriate take level we are anticipating that the actual take would be higher and we set the number below that level.

Therefore, if two Morro shoulderband snails or two tidewater gobies of any age class are found dead or injured at any time throughout the project, Caltrans must contact our office immediately to reinitiate formal consultation. Project activities that are likely to cause additional take should cease as the exemption provided pursuant to section 7(o)(2) may lapse and any further take could be a violation of section 9 prohibitions.

REASONABLE AND PRUDENT MEASURES

The measures described below are non-discretionary, and must be undertaken by Caltrans or made binding conditions of any grant or permit issued to the County, as appropriate, for the

exemption in section 7(o)(2) to apply. Caltrans has a continuing duty to regulate the activity covered by this incidental take statement. If Caltrans (1) fails to assume and implement the terms and conditions or (2) fails to require the County to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, Caltrans must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR 402.14(i)(3)].

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize the impacts of the incidental take of Morro shoulderband snail and tidewater goby:

1. Biologists must be authorized by the Service before they survey for, capture, or relocate Morro shoulderband snail and tidewater goby in the action area as described in the terms and conditions below.

2. Morro shoulderband snail and tidewater goby relocation receiver sites should be located with habitat characteristics that will provide optimum survivability of translocated individuals.

3. The mitigation and monitoring strategy will be finalized in collaboration with the Service.

TERM AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, Caltrans must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline reporting and monitoring requirements. These terms and conditions are nondiscretionary.

1. The following term and condition implement reasonable and prudent measure 1:

    a Caltrans must request our approval of any biologist that conduct project activities (i.e., survey) associated with the Morro shoulderband snail and tidewater goby, pursuant to this biological opinion in the action area. Such requests must be in writing, and be received by the Ventura Fish and Wildlife Office at least 30 days prior to any such activities being conducted. Information included in a request for authorization should include: (1) relevant education; (2) relevant training on species identification, survey techniques; (3) a summary of field experience conducting requested activities (to include project/research information); (4) a summary of biological opinions under which they were authorized to work with the listed species and at what level (such as construction monitoring versus surveying), this should also include the names and qualifications of persons under which the work was supervised as well as the amount of work experience on the actual project; (5) any

Federal recovery permits [10(a)1(A)] authorizing the individual to work with the species (to include permit number, authorized activities, and name of permit holder); and (6) any relevant professional references with contact information.

2. The following term and condition implement reasonable and prudent measure 2:

    a. Caltrans and the County will provide the Service the location of relocation receiver sites for Morro shoulderband snail and tidewater goby for approval. Receiver site information will include microhabitat, physiognomy, and GIS shapefiles and metadata.

3. The following terms and conditions implement reasonable and prudent measure 3:

    a Caltrans and the County will collaborate with the Service to finalize the Habitat Mitigation and Monitoring Plan within 120 days from the construction start date.

    b. The applicant must allow Service access to the action area to observe how the project is being implemented, particularly with regard to measures to minimize take, adherence to the project description and these terms and conditions.

REPORTING REQUIREMENTS

Pursuant to 50 CFR 402.14(i)(3), Caltrans must report the progress of the action and its impact on the species to the Service as specified in this incidental take statement. Caltrans must submit annual monitoring reports that are created by the County as described in the biological assessment (Caltrans 2021) for 5 years after initial mitigation activities take place. Caltrans must submit a report to the Service following initial pre-activity surveys and vegetation removal. The initial activity report should be sent to fw8venturasection7@fws.gov. The initial activity report should include:

1. The Service-approved Morro shoulderband snail receiver site location.

2. The number of Morro shoulderband snails observed, relocated, and GIS shapefiles of receiver site with microhabitat characteristics including physiognomy, soil moisture, litter type, litter moisture, number of Morro shoulderband snail individuals incidentally observed.

Furthermore, Caltrans must submit a final construction report to the Service's Ventura Fish and Wildlife Office via electronic mail within 90 days following completion of the proposed project. The final construction report should be sent to fw8venturasection7@fws.gov and must describe all activities that were conducted under this biological opinion, including activities and conservation measures that were described in the proposed action and required under the terms and conditions, and discuss any problems that were encountered in implementing conservation

measures or terms and conditions and any other pertinent information. The final construction report must also include the following information:

1. The type of activities that occurred in the action area (e.g., construction activities, monitoring, surveying).

2. The location of these activities, including shapefiles and metadata.

3. Description of the habitat in which these activities occurred.

4. The Morro shoulderband snail and tidewater goby observed in the action area.

5. The results of any surveys conducted for Morro shoulderband snail and tidewater goby.

6. The number of Morro shoulderband snail, tidewater goby, and Morro manzanita killed or injured during project activities, if any, the dates and times of mortality or injury, the veterinarian or repository that specimens were sent to.

7. The locations of mitigation sites.

8. Morro shoulderband snail and tidewater goby relocation locations and conditions, including GPS coordinates and shapefiles.

9. Summary of invasive species removal, both plant and animal.

10. An analysis of the effectiveness of the avoidance and minimization measures and recommendations for future measures.

11. Any other pertinent information.

DISPOSITION OF DEAD OR INJURED SPECIMENS

As part of this incidental take statement and pursuant to 50 CFR 402.14(i)(1)(v), upon locating dead or injured species discussed in this document, initial notification within 3 working days of its finding must be made by telephone and in writing to the Ventura Fish and Wildlife Office (805-644-1766). The report must include the date, time, location of the carcass, a photograph, cause of death or injury, if known, and any other pertinent information.

Caltrans must take care in handling injured animals to ensure effective treatment and care, and in handling dead specimens to preserve biological material in the best possible state. Caltrans must transport injured animals to a qualified veterinarian. Should any treated animals survive, Caltrans must contact the Service regarding the final disposition of the animal(s). The remains of any animals must be placed with educational or research institutions holding the appropriate State and Federal permits, such as the Santa Barbara Natural History Museum (Contact: Paul

Collins, Santa Barbara Natural History Museum, Vertebrate Zoology Department, 2559 Puesta Del Sol, Santa Barbara, California 93460, (805) 682-4711, extension 321), or any other place designated in writing by the Service.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. We recommend that Caltrans and/or the County develop and publish methodologies for Morro manzanita removal, storage and transplantation, and seed propagation.

2. We recommend that the Service-approved biologist(s) relocate any other native reptiles or amphibians found within work areas to suitable habitat outside of project areas if such actions are in compliance with State laws.

3. We encourage Caltrans, the County, and/or other researchers to participate in and support research on Morro shoulderband snail. Research topics could include, but are not limited to: survey techniques for non-protocol conditions, relocation survivorship, micro-habitat conditions for aestivation, preferred habitat physiognomy, dispersal and migration studies, and the effects of predation or competition on Morro shoulderband snail. We encourage Caltrans to coordinate with the Service and the California Department of Fish and Wildlife to develop research proposals under the Service's Endangered Species Conservation Grants (Section 6 Traditional) Program.

4. We encourage Caltrans and the County to conduct protocol surveys for Morro shoulderband snail within restoration and mitigation sites to support recovery by increasing our knowledge of Morro shoulderband snail populations in the Northeast Los Osos Conservation Planning Area.

5. We encourage Caltrans and the County to implement recovery goals for tidewater goby recovery sub-unit CC 3j by implementing a regular water quality monitoring program, conducting regular surveys for tidewater goby, working with urban and agricultural use planning to reduce water quality impacts, and increasing public awareness of the species and its unique habitat requirement and dependence on water quality.

6. Oak tree replacement is generally conducted at a 10:1 to 20:1 ratio due to the extended length of time it takes for them to grow back to the same stature. Therefore, we recommend that Caltrans and the County adopt this level of replacement for oak trees to be consistent with other mitigation efforts. Manzanitas are also very slow growing and

take many years to recover to their previous stature and we recommend a similar replacement ratio for them as well.

The Service requests notification of the implementation of any conservation recommendations so we may be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats.

REINITIATION NOTICE

This concludes formal consultation on the actions outlined in the request. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, the exemption issued pursuant to section 7(o)(2) may have lapsed and any further take could be a violation of section 4(d) or 9. Consequently, we recommend that any operations causing such take cease pending reinitiation.

If you have any questions about this biological opinion, please contact Debora Kirkland of our staff by electronic mail at debora_kirkland@fws.gov.

Sincerely,

JENNY MAREK Digitally signed by JENNY MAREK
Date: 2022.04.25 18:46:20 -07'00'

Acting for Stephen P. Henry
Field Supervisor

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IN LITTERIS

Stillman, M. 2022. Environmental Specialist III, Public Works, County of San Luis Obispo. Electronic mail to B. Holland, District 5 Biologist, California Department of Transportation, regarding clarification of dewatering measure. Dated April 21, 2022.