



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

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In Reply Refer To:  
AFWO-14B0058-14F0151

**AUG 11 2014**

Ms. Jane M. Hicks  
Chief, Regulatory Division  
Department of the Army  
San Francisco District, Corps of Engineers  
1455 Market Street  
San Francisco, California 94103

Subject: Formal Consultation on the Martin Slough Tide Gate Replacement Project, Humboldt County, California

Dear Ms. Hicks:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion (BO) to the U.S. Corps of Engineers (Corps) based on our review of the proposed Martin Slough Tide Gate Replacement Project and effects to the federally-listed as endangered tidewater goby (*Eucyclogobius newberryi*; goby). We received your request for consultation on July 7, 2014. This document was prepared in accordance with the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act) and its implementing regulations (50 CFR §402).

Although the Corps requested formal consultation on effects of the project on designated tidewater goby critical habitat, the action area (see the Environmental Baseline section of this BO) for the project is outside designated critical habitat for the goby. Therefore, we do not expect any effects of the project on tidewater goby designated critical habitat.

This BO is based on information provided in the July 7, 2014, project description from the U.S. Army Corps of Engineers (Corps) consultation request letter to the Service, dated July 2, 2014; and other information contained in our files. Documents related to this consultation are on file in this office.

### CONSULTATION HISTORY

June 20, 2014	The Service received a copy of a Notice of Application, by the Northcoast Regional Land Trust, Bayside, CA, for the <i>Martin Slough Tide Gate</i>
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*Improvement Project*, from the Humboldt Bay Harbor, Recreation, and Conservation District.

- July 7, 2014      The Service received a copy of the *Martin Slough Tide Gate Replacement Project*, Biological Assessment (BA) from Trinity Associates, Arcata, CA, June 23, 2014.
- July 7, 2014      The Service received a July 2, 2014, letter from the Corps requesting initiation of formal section 7 consultation under the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.*).
- July 21, 2014      The Service sent a letter to inform the Corps that the Service had received a complete initiation package and would begin formal consultation on the proposed action.

## BIOLOGICAL OPINION

### DESCRIPTION OF THE PROPOSED ACTION

The Martin Slough Tide Gate Replacement Project will replace three failing culvert tide gates with a new concrete tide gate structure. The project will also excavate and fortify an inlet and outlet channel to the new tide gate. The project is located at approximately 40.7524°N Latitude by -124.18235°W Longitude and covers approximately 0.91 acre at the confluence of Martin and Swain Sloughs. The surrounding area is zoned for agriculture and is used for grazing cattle. The portion of Martin Slough where the project will occur is approximately 15 feet wide and 150 feet in length. Martin Slough is a perennial stream and currently discharges through three top hinged tide gates into Swain Slough. The existing tide gates leak and a muted tide cycle exists within the project area of Martin Slough. Aquatic habitat conditions are degraded, with no riparian cover and active grazing with no exclusionary fencing.

The project will replace three failing culvert tide gates with a new concrete tide gate structure. The project will also excavate and fortify an inlet and outlet channel to the new tide gate structure. The project will require construction of a temporary vehicular access, staging area, bypass channel and culvert tide gate, settling pond, and spoils area. At the conclusion of the project all temporarily disturbed ground will be de-compacted, with areas above high tide level seeded and mulched. New tide gates will replace the existing undersized tide gates where Martin Slough drains to Swain Slough. The replacement tide gates were designed to meet multiple objectives, including to:

- Maximize the amount of time the tide gates are open to provide for upstream and downstream movement of aquatic organisms;

- Maximize the amount of time water velocities through the gate openings meet passage criteria for adult and juvenile salmon and steelhead;
- Reduce the duration that floodwaters inundate adjacent and upstream properties; and
- Maintain tidal water within Martin Slough below elevation 6 feet (NAVD88) to protect adjacent pasture grasses.

A maximum allowable muted tide elevation of 6 feet (NAVD88) within Martin Slough was established to avoid brackish waters in the channel affecting the root-zone of the adjacent pasture grasses and turf upstream. In general, the muted high tide will only reach 6 feet for brief periods during spring tides.

The new tide gate will be a single concrete structure and will have three 6-foot by 6-foot gates that will drain outgoing flows and a separate small auxiliary door. The gates will be controlled by muted tide regulators (MTR) that will allow the gates to stay open until the water level reaches the design elevation, at which time they will close to prevent additional tide water from entering Martin Slough. The three gates will be constructed at an elevation of -1.0 feet to match current Swain Slough elevation and, in the event that the elevation of the slough drops, prevent the tide gate invert from becoming dry during low tides in Swain Slough. The invert of the separate auxiliary door will be constructed at an elevation of 1.0 feet. The center gate will be top-hinged and the outer two gates will be side hinged so that outflow is centered, helping to prevent the potential for undermining of the Pine Hill Road bridge from scour. The auxiliary door will be top hinged.

On an outgoing tide, all three of the 6-foot by 6-foot doors of the new tide gate will open fully to allow drainage. On an incoming tide, two of the 6-foot by 6-foot doors will close when water levels in Swain Slough are higher than in Martin Slough. Two other independently operated doors (one 6-foot by 6-foot and a 1.5 foot by 2-foot auxiliary door) will close when the water surface elevation within Martin Slough reaches specific elevations, allowing the muted tide within Martin Slough to follow the water surface elevation pattern of the natural tide within the elevation range of the muted tide. When the direction of the tide changes from outgoing to incoming, one of the 6-foot by 6-foot tide gate doors (MTR Gate) at an invert elevation of -1.0 feet will remain open to allow tidal inflow into Martin Slough. Once the tide reaches an elevation of 4.0 feet in Martin Slough, an MTR mechanism will close the gate.

After the single 6-foot by 6-foot MTR gate closes, the auxiliary door will continue to allow a small portion of tidal water to flow into Martin Slough. The auxiliary door is necessary to prolong the duration of upstream fish passage, create the diversity of tidal elevations necessary to achieve the zonation of salt marsh vegetation that is a project objective, and simulate natural tidal fluctuations. Once the tide in Martin Slough reaches an elevation of approximately 5.7 feet, an MTR mechanism will close the auxiliary door, preventing saltwater intrusion into Martin Slough.

above an elevation of 6 feet to help prevent salt burn of adjacent pasture grasses and of the golf course turf upstream.

### **Proposed Actions**

1. Place fill and grade (approximately 14.6 cubic yards (CY) each, 0.008 acre each) for two temporary gravel construction entrances at the existing tide gates.
2. Create a 0.32 acre temporary equipment/materials staging area north of a proposed temporary settling pond.
3. Install temporary fish screens and turbidity curtains along 90 feet of the right bank of Swain Slough and upstream approximately 160 feet across Martin Slough.
4. Seine net Martin Slough channel between existing tide gates and upstream fish screen and relocate fish consistent with NOAA and the Services fish relocation requirements.
5. Install temporary exclusionary cattle fencing if cattle are not moved to another area for the duration of construction.
6. Install a temporary coffer dam of sheet piles along 90 feet of the right bank of Swain Slough.
7. Install a second temporary coffer dam, approximately 12 to 14 feet wide (0.007 acre), of sheet pilings filled with gravel, upstream approximately 150 feet upstream across Martin Slough.
8. Install temporary fish screens at the inlet and outlet of temporary bypass channel.
9. Salvage native plant populations, such as Lyngbye's Sedge, in Martin Slough (0.016 acre) before excavation or grading occurs, to the extent feasible. Upon project completion the salvaged vegetation will be replanted in areas disturbed by the project as appropriate for elevation and location.
10. Create a temporary spoils area on 0.05 acre (30 feet by 70 feet) of pasture.
11. Excavate a 2-foot wide trench (approximately 93.3 CY, 0.002 acre) to temporarily bypass flows and fish around the construction area.
12. Excavate dike (11.67 CY, 0.001 acre) on Swain Slough and install a temporary culvert tide gate (24" culvert with flap gate) approximately 130 feet from Pine Hill Road at the confluence of the bypass channel and Swain Slough.
13. Excavate a temporary settling pond (444.44 CY, 0.09 acre, 100 feet by 40 feet 3 feet deep) and overflow channel (20 feet long by 1 foot deep) connecting to the temporary bypass channel.

14. Dewater construction site; pump water to temporary settling pond.
15. Excavate (approximately 200.00 CY, 0.0002 acre) the area to east of the temporary coffer dam on the bank of Swain Slough to remove the 3 existing culvert tide gates, construct a new concrete tide gate structure, and excavate and grade (approximately 825.93 CY, 0.07 acre) an inlet and outlet channel merging with existing Martin Slough channel 140 feet upstream.
16. Install 3 new tide gates (approximately 138.67 CY, 0.019 acre) and a "habitat" door.
17. Install rock rip rap protection (approximately 106.07 CY, 0.03 acre) on the banks above and below tide gate structure.
18. Place up to 3 feet of fill and grade on Swain Slough dike to an elevation of 9 feet and widen to 8 foot top-width minimum and transition to tide gate structure (elevation 11 feet) and Pine Hill road (elevation 10 feet) (0.06 acre).
19. Remove temporary sheet pile coffer dam at the new tide gate structure and coffer dam upstream in Martin Slough, re-establish flow.
20. Seine net temporary bypass channel and relocate any fish captured to Martin Slough.
21. Re-fill temporary bypass channel, settling pond and overflow channel.
22. Remove 2 temporary gravel construction entrances.
23. Remove temporary fencing, silt fences, and fish screens.
24. De-compact as needed, mulch and seed disturbed ground above high tide.  
Replant salvaged Lyngbye's Sedge.

### **Construction Dewatering and Stream Diversion Sequencing**

During excavation within the channel and replacement of the tide gate, management of the stream flow from Martin Slough tributaries will be required throughout the construction period. Preventing inflow into the active work zones (both tidal and freshwater) will be required to prevent aquatic and non-aquatic organisms from entering the construction site, to reduce the water to be managed in the active work area, and to reduce moisture content in the excavated soils.

Inflow control practices include placement of temporary sheet pile coffer dams to isolate the active work zone. A sheet pile coffer dam will be vibrated into the right bank of Swain Slough for approximately 90 feet to isolate the work area from tide water inflow. The second coffer dam will be located upstream approximately 150 feet in the Martin Slough channel and will be made of sheet piles filled with washed gravels.

Fish screens will be installed immediately upstream of the coffer dam and in Swain Slough below the sheet pile coffer dam. A temporary gravity flow bypass channel will be excavated to route stream flow around the tide gate construction site during tide gate replacement. The channel will begin upstream of the coffer dam and fish screen and terminate at the Swain Slough dike. Flow will be routed into the temporary channel and through the dike into Swain Slough to a temporary culvert tide gate which will be installed in the dike along Swain Slough while the tide gate replacement is occurring. This accommodation was requested by Service personnel to ensure that tidewater goby will have access conditions to Martin Slough similar to existing conditions during the tide gate replacement project. Once the new tide gate is in operation, the temporary channel will be filled in, the temporary culvert tide gate will be removed, and the dike at the temporary culvert will be repaired.

### **Conservation Measures**

The proposed project requires dewatering parts of the stream including tidewater goby habitat. Prior to dewatering, the applicant proposes to implement the following measures to minimize potential project effects to gobies:

1. Cofferdams and seine netting will be used to isolate the construction area in the Martin Slough channel.
2. Tidewater gobies will be translocated/removed by qualified biologists under a scientific recovery permit pursuant to section 10(a)(1)(A) of the Act, or otherwise authorized by the Service, in order to minimize potentially adverse effects to gobies.
3. A temporary bypass channel for tidewater gobies will be established during construction.
4. Construction activities will only occur between June 15 and October 31 (and November 15 if there is no significant rain event) to avoid or minimize adversely affecting fish, bird, and plant species of concern and to minimize soil compaction and sediment transport.
5. Equipment will not be operated directly within tidal waters or stream channels of flowing streams.
6. Work will be done during low tide when no water or fish are present, which will temporarily prevent fish species of concern gaining access to the vicinity of the work area. If water is present, the work area will be seined (3mm (1/16-in mesh)) and a fish barrier installed (3mm (1/16-in mesh)) to isolate the work area. At this time, gobies are susceptible to being injured or crushed by workers while they are entangled in, or being removed from netting.
7. Placement of tide gates will occur when the project site is exposed during low tide, if possible.

8. The temporary fish barrier will be removed during low tide, if possible, after work is completed.
9. Silt fences will be deployed at tide gate installation areas to prevent any sediment from flowing into the creek or wetted channels. If the silt fences are not adequately containing sediment, construction activity will cease until remedial measures are implemented that prevents sediment from entering the waters below.
10. Excess water will be pumped into the surrounding fields to prevent sediment-laden water from entering any water courses. A maximum 1/16-in opening mesh screen will be used around pump inlets to prevent the potential entrainment of fish species during dewatering.
11. All exposed surfaces will be mulched and seeded with appropriate seed, when the work has been completed.
12. Construction materials, debris, or waste, will not be placed or stored where it may be allowed to enter into or be placed where it may be washed by rainfall into waters of the U.S./State.
13. Turbid water 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 water diversion structures will be used to contain sediment. If sediment is not being contained adequately, as determined by visual observation, the activity will cease.
14. Exposed soil will be mulched and seeded with appropriate grass seed, once fill removal is completed.
15. Upland areas will be used for equipment refueling. If equipment must be washed, washing will occur where wash water cannot flow into wetlands or waters of the U.S./State.
16. Best Management Practices (BMPs) will be implemented to prevent entry of storm water runoff into the excavation site, the entrainment of excavated contaminated materials leaving the site, and to prevent the entry of polluted storm water runoff into coastal waters during the transportation and storage of excavated materials.
17. Disturbed, grazed, seasonal wetlands will be de-compacted and seeded as needed, with a commercially available seed mixture composed of the same grass species that currently dominate the area, following completion of work.
18. Tidewater goby habitat will be expanded and improved.

## STATUS OF THE SPECIES AND CRITICAL HABITAT

### Legal Status

On February 4, 1994, the tidewater goby was listed as endangered throughout its entire historic range (59 FR 5494). We did not designate critical habitat at the time we listed this species, explaining that, "In the case of the tidewater goby, critical habitat is not presently determinable. A final designation of critical habitat requires detailed information on the possible economic effects of such a designation. The Service does not currently have sufficient information needed to perform the economic analysis."

On September 18, 1998, the Natural Resources Defense Council, Inc. filed a lawsuit in Federal District Court in California against the United States Department of the Interior *et al.* for failure to designate goby critical habitat. On April 5, 1999, Judge Carlos R. Moreno ordered that the "Service publish a proposed critical habitat designation for the tidewater goby in 120 days" (*Natural Resources Defense Council, Inc. v. United States Department of the Interior et al. CV 98-7596*).

On June 24, 1999, we published a proposed rule to: (1) delist populations of goby in areas north of Orange and San Diego counties, California, and (2) retain goby populations in Orange and San Diego counties as endangered based on our re-evaluation of the species' status throughout its range (64 FR 33816).

On August 3, 1999, we proposed critical habitat for the goby in Orange and San Diego counties (64 FR 42250); we did not propose critical habitat for this species throughout the rest of its geographic range in 1999 because we had proposed to delist the species where it occurred in areas north of Orange County. On November 20, 2000, the Service designated critical habitat for the goby in Orange and San Diego counties (65 FR 69693). The critical habitat designation consisted of 10 coastal stream segments that collectively measured 9 linear miles (mi) (14.5 kilometers [km]) in length.

On November 7, 2002, we withdrew our proposal to delist the goby in areas north of Orange County (67 FR 67803). Therefore, the goby has remained listed as an endangered species throughout its historic geographic range since 1994.

On August 31, 2001, Cabrillo Power L.L.C. (Cabrillo) filed a lawsuit in the U.S. District Court for the Southern District of California challenging a portion of the final rule that designated the 10 critical habitat units in Orange and San Diego counties. Specifically, Cabrillo objected to the critical habitat unit involving Agua Hedionda Lagoon and Creek. In a consent decree dated February 27, 2003, the U.S. District Court: (1) agreed to vacate the critical habitat designation involving Agua Hedionda Lagoon and Creek; (2) stated the nine other critical habitat units should remain in effect; (3) stated the final rule designating critical habitat was remanded in its entirety for reconsideration; and (4) directed the Service to promulgate a revised critical habitat



rule that considers the entire geographic range of the goby and any currently unoccupied goby habitat.

A proposed revised critical habitat rule was published in the Federal Register November 28, 2006 (71 FR 68914). A final critical habitat rule was published in the Federal Register on January 31, 2008 (73 FR 5920). A proposed rule to revise the 2008 critical habitat designation was published in the Federal Register on October 19, 2011 (76 FR 64996). A final critical habitat rule was designated and published in the Federal Register on February 6, 2013 (78 FR 8745), and included approximately 12,156 acres (4,920 hectares) range-wide. This rule became effective on March 8, 2013.

### **Taxonomy and Life History**

Accounts of the taxonomy, ecology, and reproductive characteristics of the goby are found in the following publications: final rule listing the species (59 FR 5494), the proposed rule to delist northern goby populations (64 FR 33816), the final rule withdrawing the Service's proposal to delist the northern goby populations (67 FR 67803), the recovery plan (Service 2005), and the final critical habitat rule (78 FR 8745).

The goby is a small gray-brown fish rarely exceeding 2 inches (in.) (5 centimeters [cm]) in length. This species possesses large pectoral fins, and the pelvic, or ventral fins are joined to each other below the chest and belly from below the gill cover back to just anterior of the anus. Male gobies are nearly transparent with a mottled brownish upper surface. Females develop darker colors, often black, on the body and dorsal and anal fins.

The goby is a short-lived species; the lifespan of most individuals appears to be about 1 year (Irwin and Soltz 1984; Swift *et al.* 1989). They prey opportunistically on benthic invertebrates including small crustaceans, insect larvae and snails (Swift *et al.* 1989; Irwin and Soltz 1984; Swenson and McCray 1996). They use three different foraging styles to capture prey; plucking prey from substrate surface, sifting sediment in their mouth, and mid-water capture (Service 2005).

The goby has only been found in California, and occurs in coastal brackish water habitats, such as lagoons, tidal bays and estuaries of rivers and streams along the coastline. The species is unique among Pacific coast fish in its restriction to brackish waters of coastal wetlands where the water is fairly still but not stagnant. They are weak swimmers concentrating in slack-water areas and generally avoiding swiftly moving waters. The species appears to spend all life stages in these brackish waters but may enter marine environments when flushed out by flooding or breaching of sandbars.

Gobies are most commonly found in areas with a muted or intermittent connectivity to tidal waters (Chamberlain 2006). Relatively low salinities, (*i.e.*, less than 10-12 parts per thousand [ppt]), are frequently characteristic of these habitats. However, the species has been collected in salinities as high as 63 ppt (Goldsmith 2006). The species' tolerance of high salinities likely

enables it to withstand some exposure to the marine environment, allowing it to recolonize nearby lagoons and estuaries following flood events (71 FR 68914). Gobies also occur in freshwater streams up-gradient and tributary to brackish habitats; the salinity of these freshwater streams is typically less than 0.5 ppt. They can occur 1.6 to 7.3 mi (2.6 to 11.7 km) upstream from the ocean environment (Irwin and Soltz 1984; Swift *et al.* 1997; Chamberlain 2006; Goldsmith 2006). Although the reasons for the variation in up-stream movement between one locality and another have not been determined, stream gradient and velocity are likely to be important factors.

Previous sampling for gobies has most commonly occurred in water less than 6 feet (ft) (2 meters [m]) deep (Wang 1982; Worcester 1992). Consequently, most observations have been made within this depth range. However, gobies were recently collected in Big Lagoon in Humboldt County during the breeding season at a water depth of 15 ft (4.6 m) (Goldsmith 2006).

Gobies have been documented in habitats with water temperatures that range from 46 to 77 degrees Fahrenheit (F) (8 to 25 degrees Celsius [C]) (Irwin and Soltz 1984; Swift *et al.* 1989).

### **Current and Historical Range**

The goby historically ranged from Tillas Slough in Del Norte County south to Agua Hedionda Lagoon in San Diego County. The species is currently found entirely within the original known range. The known localities are discrete lagoons, estuaries, or stream mouths separated by marine conditions. Natural gaps in the species' distribution occur where the coastline is steep and streams do not form lagoons or estuaries. Some of the largest gaps in distribution occur in Humboldt and Mendocino counties, as well as in northern Sonoma County. From Tomales Bay southward to San Francisco, habitat loss and other anthropogenic-related factors have resulted in the creation of unnatural gaps in the species' distribution where the species is absent from several locations where it historically occurred (Capelli 1997). Several large natural and unnatural gaps occur between San Francisco Bay and San Diego County. Gobies have been documented at 134 localities within the historical geographic range of the species. Of these 134 localities, 23 (17 percent) are considered extirpated and 55 to 70 of the localities are naturally so small or have been degraded that long-term persistence is uncertain (Service 2005).

### **Reproductive Biology**

Reproduction can occur at all times of the year; however peak spawning usually occurs in the spring and then again in late-summer (Swenson 1995 and 1999). Males excavate burrows, typically in clean coarse sand but also in mud, in which females lay an average of about 400 eggs per clutch. Females can lay 6 to 12 clutches per year (Swenson 1995 and 1999). Males remain in the burrow to guard the eggs. Larvae emerge in 9 to 10 days, and live in a pelagic form, becoming benthic after reaching a length of about 0.5 to 0.7 in. (1.3-1.8 cm) (Moyle *et al.* 1995). Length of the pelagic larval period is not well studied, but is believed to last anywhere from a couple of days to two weeks or more. Spawning occurs in lagoons/estuaries from April through November. Suitable water temperatures for nesting are 75.6 to 79.6° F (24.2-26.4° C) (most

likely a limiting factor in Brainard Slough or Humboldt Bay), with salinities of 2 to 27 ppt. Larvae emerge and live in vegetated areas until they reach 0.5-0.7 in. (1.3-1.8 cm), when as juveniles they ascend and occupy streams for rearing.

### Threats

Factors responsible for the historic decline and extirpation of goby populations and habitat include: human development in coastal salt marsh and riparian habitats; dredging, channelization of rivers; loss of habitat due to sediment deposition from upstream watershed disturbances; water diversions that alter downstream flows; drought, groundwater overdrafting, and agricultural; and sewage discharge (*i.e.*, pollution) (59 FR 5494). Existing threats to the goby include historic threats, as well as artificial breaching of creek mouths and lagoons, extreme weather and streamflow conditions, predation by introduced species including mosquitofish (*Gambusia affinis*), sunfish (*Lepomis* spp.), and bass (*Micropterus* spp.), and competition with introduced species (*e.g.*, yellowfin goby [*Acanthogobius flavimanus*] and chameleon goby [*Tridentiger trigonocephalus*]) (Service 2005).

Excessive sedimentation is a threat to gobies and their habitat in that it may degrade substrate conditions needed for reproduction, and can result in the loss of habitat as shallow wetlands areas fill in and dewater. In addition, changes in tidal influence from removal of barriers that act to mute tidal exchange can result in the loss of suitable habitat when water velocity increases and protected areas become exposed from a high degree of water volume fluctuation.

### Conservation Strategy

The goby recovery plan provides a strategy for recovery that is designed to: (1) preserve the diversity of habitats throughout the range, (2) preserve the natural processes of recolonization and population exchange that enable population recovery following catastrophic events, and (3) preserve genetic diversity (Service 2005). Recovery actions include: (1) protecting and enhancing currently occupied habitat, (2) conducting biological research to enhance the ability to integrate land use practices with tidewater goby recovery; (3) evaluating and implementing translocation where appropriate; and (4) increasing public awareness about gobies.

The recovery plan subdivides the geographic distribution of the goby into 6 recovery units, encompassing a total of 26 sub-units defined according to genetic differentiation and geomorphology. A description of each recovery unit and subunit with recommended tasks for recovery are provided in Appendix G of the Recovery Plan (Service 2005).

The Recovery Plan states that downlisting may be considered when the following criteria have been met: (1) specific threats to each metapopulation, such as; habitat destruction and alteration; introduced predators; and competition with introduced species 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 monitoring over a 10-year period indicates that each Recovery Unit is viable. Downlisting criteria for the North

Coast Recovery Unit, which includes Humboldt Bay and the project area, specifies that 5 of the 6 identified sub-units must have at least 75 percent chance of persistence for a period of 100 years. The delisting criterion specifically calls for a 95 percent chance of persistence for a period of 100 years (Service 2005).

### **Current Conditions Range-wide**

Current conditions incorporate the effects of all past human and natural activities or events that have led to the present-day status of the species (Service and National Marine Fisheries Service (NMFS) 1998).

#### Habitat: Amount, Distribution and Quality

The wetland habitat of individual goby localities varies on a site-specific basis, and is affected in part by local precipitation patterns and topography. For example, in coastal areas where the topography is steep and precipitation is relatively low, the habitats occupied by tidewater gobies may be a few acres in size, only extend a few hundred feet inland from the ocean, and backwater marshes may be small or absent. In coastal areas, where topography is less steep and precipitation is more abundant, habitats occupied by gobies may be hundreds of acres in size, extend many miles inland, and contain extensive backwater marshes (Service 2005).

Appendix E in the Recovery Plan describes for each of 151 localities of known and potential habitat within 26 recovery subunits, the relative amount and quality of existing habitat (Service 2005). The amount of habitat is characterized by a description of the size of water bodies and available habitat: large, medium, and small. Large water bodies are those meeting at least one of the following general physical parameters: streams with channel bankfull widths in excess of 66 feet (20 m) at any point and/or with estuarine (areas with salt water intrusion) habitats exceeding 0.6 mi (1 km) in length; or lagoons and ponds larger than 5 ac (2 hectares [ha]) surface area. Medium sized water bodies include smaller streams less than 66 ft (20 m) bankfull width and/or estuaries longer than 328 ft (100 m) but less than 0.6 mi (1 km) in length. Medium sized lagoons and ponds have a surface area between 1 ac (0.4 ha) and 5 ac (2 ha) in size. Small water bodies include the remaining streams, ditches, sloughs, lagoons, and ponds that are smaller than the dimensions of medium sized water bodies.

Rangewide, 49 (32 percent) localities contain large water bodies, 44 (29 percent) contain medium sized water bodies, 55 (36 percent) contain small water bodies, and 3 (2 percent) localities were not ranked. The relative quality of habitat is characterized by a statement of the need for habitat restoration at a particular locality; much, some or none. Rangewide, 61 (40 percent) localities require much restoration, 80 (53 percent) require some restoration, 9 (6 percent) require no restoration, and 1 site was not ranked.

The distribution of currently occupied, historically occupied, and potential habitat is discontinuous along the California coast. Several large natural gaps in habitat occur throughout the North Coast Unit where the coastline is steep and streams do not form lagoons or estuaries.

The Greater Bay Unit contains unnatural gaps in suitable habitat due to habitat loss and anthropogenic-related factors that have degraded habitat and resulted in the extirpation of species from several historic sites. A large natural gap in habitat occurs in the north half of the Central Coast Unit. Both natural and unnatural gaps in habitat occur throughout the Conception, LA/Ventura and South Coast Units (Service 2005).

#### Population: Numbers, Distribution, and Reproduction

The current goby population is known to occur from Tillas Slough in Del Norte County to Cocklebur Canyon in San Diego County, 9.2 mi (14.8 km) north of Agua Hedionda Lagoon. Gobies do not currently occur in Agua Hedionda Lagoon (71 FR 68914). The Recovery Plan identifies the following 6 recovery units that encompass the historic and current geographic range of the species: North Coast Unit, Greater Bay Unit, Central Coast Unit, Conception Unit, LA/Ventura Unit, and South Coast Unit (Service 2005).

Female gobies are capable of producing as many as 400 eggs in a single reproductive effort. Female gobies frequently initiate more than one reproductive effort per year (Swenson 1995). Reproductive success of each effort is likely highly variable, with some egg laying efforts completely failing.

The goby is known to have formerly inhabited at least 134 localities. In 2005, approximately 17 percent of the 134 documented localities are considered extirpated and 41 to 52 percent are naturally so small or have been degraded over time that long-term persistence is uncertain (Service 2005). Recolonization of extirpated localities has been documented when extant populations are present within several kilometers (Holland 1992; Lafferty *et al.* 1999a, 1999b). However, recently gobies have been found in localities considered extirpated that are separated from the nearest population by 6 to 12 mi. These records suggest that distant movement and recolonization is possible (Service 2005).

Currently, there are no long-term monitoring programs in place for this species. Population dynamics are not well documented, and few data are available on the general size of goby populations. However, when present, gobies are frequently the most abundant fish species found at a site (Lafferty *et al.* 1999a). Goby densities are highly variable and can fluctuate from year to year, season to season, and within a sampled area. Therefore, determining goby density can be difficult. Gobies have been reported in densities as high as 0-138 per square meter, and as low as 0-4 individuals per square meter (Service 2005). The recovery plan for the goby discusses density surveys that were conducted by Worcester (1992) and Swift and Holland (1998) using meter-square (ms) drop nets. The distribution of gobies within an area, was found to be quite patchy and not evenly dispersed. The results indicated the following range of densities of tidewater gobies per square meter sampled (gobies/ms): Little Pico Creek, San Luis Obispo County: May 1990 0-67 gobies/ms, November 1990 0-138 gobies/ms, February 1991 0-27 gobies/ms; and Camp Pendleton Marine Corps Base, San Diego County: (all samples in October 1996) San Mateo Creek 2-11 gobies/ms, San Onofre Lagoon 1-102 gobies/ms, Hidden Creek 0-6 gobies/ms, Los Flores Creek 0-4 gobies/ms, and French Creek Lagoon 1-51 gobies/ms.

## Status of Critical Habitat

### Primary Constituent Elements

As part of our responsibility in designating critical habitat, the Service has identified the known physical and biological features essential to the conservation of the goby as primary constituent elements. Based on current knowledge of the life history, biology, and ecology of the goby, and the requirements of the habitat to sustain the essential life history functions of the species, we have determined that the primary constituent elements are:

1. Persistent, shallow (in the range of about 0.3 to 6.5 ft [0.1 to 2 m]), still to slow moving, aquatic habitat most commonly ranging in salinity from less than 0.5 ppt to about 10–12 ppt, which provides adequate space for normal behavior and individual and population growth.
2. Substrates (e.g., sand, silt, mud) suitable for the construction of burrows for reproduction.
3. Submerged and emergent aquatic vegetation, such as *Potamogeton pectinatus* and *Ruppia maritima*, that provides protection from predators.
4. Presence of a sandbar(s) or a sill formation 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.

### Current Condition in Critical Habitat Unit HUM-3 (Humboldt Bay)

HUM-3 consists of 839 ac (339 ha). This unit is located in Humboldt Bay, Humboldt County, within an approximate 8-mi (13-km) radius to the north, south, and west of the City of Eureka. The unit consists of 652 ac (264 ha) of Federal lands, 61 ac (24 ha) of State lands, 45 ac (18 ha) of local lands, and 81 ac (33 ha) of private lands. HUM-3 is located 18.4 mi (29.7 km) north of the Eel River (HUM-4), which is also the nearest extant subpopulation. HUM-3 was occupied at the time of listing. The tidewater goby subpopulation in HUM-3 is likely a source population, which is important in maintaining the metapopulation dynamics, and hence the long-term viability, of the North Coast Recovery Unit. This subpopulation may provide essential demographic and genetic support to HUM-4, especially after periods of extreme floods, for example, after the 1964 “Christmas Flood,” when the subpopulation of tidewater goby at the Eel River estuary may have been extirpated.

Humboldt Bay and its adjacent marshes and estuaries are a complex mixture of natural and human-made aquatic features that have experienced many decades of human-induced changes. These changes include the construction of levees, tide gates, culverts, and other water control structures, and extensive dredging of sandbars. Surrounding the Bay itself is a generally broad bench historically dominated by mudflats, tidal marshes, estuarine channels, and brackish marshes. Substantial portions of these habitats were converted to agricultural, urban, and

industrial uses in recent history, resulting in the loss of as much as 10,000 ac (4,047 ha) of potentially suitable tidewater goby habitat. This critical habitat unit consists of a complex of interconnected estuary channels and tide gates along the eastern edge of Humboldt Bay, which collectively mimic, on a much-reduced scale, suitable habitat for tidewater goby. Many of these channels and marshes are themselves the result of changes to historical habitats, and depend on specific, yet generally undocumented, management activities, such as dredging or sandbar breaches, for their continued function. To address the dynamic variability of these habitats resulting from seasonal and inter-annual precipitation differences, both the actual known locations where the tidewater goby has been documented, as well as portions of those channels contiguous to, and upchannel or downchannel from, occupied habitat have been included. Current and proposed estuarine restoration projects in Humboldt Bay area may improve dispersal of tidewater gobies, increase genetic diversity, and aid in recovery of the species.

### Conservation Strategy for Critical Habitat Unit HUM-3

We anticipate that the persistence of the goby source population within this unit may require protection of localities that are not occupied every year, but collectively form a source population through an interconnected complex of channels and shallow water habitats. That is, any of the known occupied localities within a channel complex may be used by gobies during various years in response to dynamic habitat conditions during seasonal, annual, and longer term climatic cycles (*e.g.*, drought). Data collected by the Service within the HUM-3 unit since 2004 suggests that in some locations where gobies were recently found to be present, they were subsequently found to be absent in later surveys. This data supports the idea that tidewater gobies within the unit may use locations intermittently.

The interconnectivity of habitat within the HUM-3 unit, and in association with protective measures included in this project, will reduce the chance of losing the goby along this portion of the coast, help conserve genetic diversity within the species, and help facilitate colonization of currently unoccupied locations.

Known threats in the HUM-3 unit that may require special management and include channelization of habitats, non-point and point source pollution, and cattle grazing. The threats related to channelization of habitats consist of creating, modifying, and maintaining artificial channels designed to drain agricultural lands of surface water. The resulting channels have had water control structures, usually tide gates, installed to protect these lands from tidal inundation. Pollution threats include; the potential for oil spills, and other spills associated with transportation on adjacent highways. Grazing threats in this unit include the potential for destruction of critical habitat due to animal impacts to channels, by trampling and eroding channel banks, aquatic vegetation, and modification of slough and stream channels.

### ENVIRONMENTAL BASELINE

Regulations implementing the Act (50 CFR §402.02) define the environmental baseline as 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 process.

### **Action Area**

According to 50 CFR § 402.02, pursuant to section 7 of the Act, the “action area” means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. Subsequent analyses of the environmental baseline, effects of the action, and levels of incidental take are based upon the action area. We consider the action area for the proposed project to be the approximate estuarine areas associated with the Martin Slough watershed. Martin Slough connects to Swains Slough, which flows to Humboldt Bay via the Elk River. Therefore, the action area includes all rivers, streams, and sloughs upstream from the tide gate at the confluence with Swains Slough.

### **Project Location and Surrounding Land Uses**

The Martin Slough Tide Gate Replacement Project encompasses the lower reach of Martin Slough. Most of the project area is composed of former tidelands that now support grazing. Much of the project areas are zoned Agriculture Exclusive (A-E) and Natural Resource (NR) with a Wetland and Creek Protection Overlay Zone. The site is in the 100 year FEMA (Federal Emergency Management Agency) floodplain, and is located in the coastal zone.

### **Status of the Species within the Action Area**

Tidewater gobies have been found throughout Martin Slough, including the 17<sup>th</sup> Hole pond at the Eureka Golf course, which is connected to the Slough. Tidewater goby surveys have been conducted in the project area periodically since 2008. In 2008, a total of 20 tidewater gobies were captured within, and upstream and downstream of, the 17<sup>th</sup> Hole pond. Annual surveys conducted by California Fish and Wildlife (formerly, California Department of Fish and Game) since 2011 have captured tidewater gobies in Martin Slough and the 17<sup>th</sup> Hole pond (Michael Wallace, CDFW, pers. comm. 2014).

There is 0.91 acre of jurisdictional wetland in the action area that will be affected by the proposed project. However, not all of this acreage is considered suitable goby habitat since much of it is terrestrial. The project action area contains approximately 0.052 acre (150 feet × 15 feet) of suitable goby habitat, out of a total of approximately 2.2 acres within Martin Slough (0.6 mile) that is assumed to be occupied by tidewater gobies.

### **Tidewater Goby Critical Habitat**

The action area is not located within designated tidewater goby critical habitat. However, critical habitat for the goby has been designated further upstream in the vicinity of the 17<sup>th</sup> Hole pond. Critical habitat has not been designated in the Martin Slough ditch in the project area.



### **Other Consultations in the vicinity of the Action Area**

Previous consultations, upstream of the action area, included an April 2009 formal consultation on the effects on tidewater gobies from the Martin Slough Interceptor Project Phase I. Phase I has been completed.

Another consultation, also upstream of the action area, was a May 2013 formal consultation on the effects on tidewater gobies, from the Martin Slough Interceptor Project Phase 2. Phase 2 has also been completed, above the action area, in Martin Slough.

### **EFFECTS OF THE ACTION**

This section presents an analysis of the direct and indirect effects of the proposed project on the goby and its designated critical habitat, together with the effects of other activities that are interrelated and interdependent with the proposed action. These effects are evaluated along with the environmental baseline and the predicted cumulative effects to determine the overall effect to the species and its critical habitat.

#### **Direct Effects**

##### Habitat Modification

The Corps anticipates that impacts to tidewater goby habitat will be temporary. Approximately 0.052 acre will be dewatered on Martin Slough and impact suitable goby habitat. None of the 0.052 acre of suitable goby habitat that may be impacted by the proposed project, is located within designated tidewater goby critical habitat. The project location is outside of designated goby critical habitat, but within suitable habitat for gobies, and is assumed to be occupied.

To minimize effects to suitable goby habitat, stream flows will be maintained as water is diverted around the dewatered work site. In addition, streamside vegetation that is removed and degraded within the footprint of the project (approximately 150 feet along the stream bank) during construction activities will be replaced, and the streambed and banks will be re-contoured to pre-project conditions (current vegetation consists of grasses and small shrubs). To reduce the potential of project-related sediments from entering the watercourse, the applicant will use silt fences and erosion control on slopes.

##### Injury or Mortality

Tidewater gobies, including their eggs or young, could be directly injured or killed as a result of a variety of construction related activities, including handling and removal of tidewater gobies from the work area, dewatering or lowering of water level within suitable habitat, sedimentation of burrows, and exposure to contaminants.

### *Handling and Removal of Gobies*

Handling and removal of gobies can make them susceptible to being injured or crushed by workers while they are entangled in, or being removed from netting. To minimize this potential effect, translocation and removal efforts will be conducted by qualified biologists under a scientific recovery permit pursuant to section 10(a)(1)(A) of the Act, or conducted by persons otherwise authorized by the Service pursuant to this biological opinion.

### *Dewatering*

Dewatering may expose tidewater gobies, especially larvae and juvenile size classes, which are very small, to predation, or they may become desiccated if they are not relocated outside of work areas. Approximately 150 feet of Martin Slough in the vicinity of the tide gate are proposed to be temporarily dewatered once, when the watercourse is at the low summer flows.

Surveys are limited for the proposed project area, and goby numbers can fluctuate with sampling method used, sampling location within a site, and vegetation and substrate type. Furthermore, adult gobies are small, furtive, cryptic, and difficult to quantify. Their densities are highly variable and can fluctuate year to year, season to season, and within sampled areas. Goby distribution can also be patchy and not evenly dispersed. Also, planktonic larvae and very small juvenile tidewater gobies are too small to effectively seine and quantify, meaning some goby will be missed. For these reasons, it is difficult to quantify how many gobies may be affected by the proposed action. It is not anticipated that many, if any, adult gobies will be killed during relocation. Previous surveys, over several years and in other locations, have almost always successfully captured and released many gobies without any known mortality. However, in one instance, when tidewater gobies were overlooked in a seine net that had been removed from the water, three tidewater gobies died (Michael Wallace, CDFW, pers. comm. 2013).

Proposed fish clearing methods, as described in the Conservation Measures, will reduce the potential for injury or mortality of tidewater gobies by reducing the need to physically handle fish by first herding fish downstream before the second block net is deployed. In addition dewatering will only occur once, when water levels are at its summer low, thereby affecting the least amount of occupied habitat as possible. Furthermore, dewatering will occur after the tidewater goby primary reproductive season.

### *Sedimentation*

Excavation work can cause excessive sedimentation of burrows containing eggs and adult males. To minimize the potential of project related sediments from entering the watercourse, the applicant will use silt fences and hay wattles on slopes.

### *Contaminants*

Contaminants (hydraulic fluids or fuels) can result in death of tidewater gobies that enter wetted streams. To minimize potential effects of contaminants on gobies or their habitat, equipment and storage decks will be located away from flowing streams. To minimize the potential for fuel and oil spills from entering the watercourse, equipment maintenance and fueling will occur away from suitable tidewater goby habitat.

### Disturbance

Disturbance can adversely affect tidewater gobies and their young when work activities result in behavioral modifications, such as displacement from a work site that causes a loss or reduction in reproductive effort or survival of individuals. The effects of disturbance depend on the frequency, timing, location, and intensity of the activities.

Disturbance will be minimized by restricting all heavy equipment and conducting the majority of the work outside wetted areas. Wetted areas will be dewatered before heavy equipment is used. However, removal of tidewater gobies from areas to be dewatered will temporarily force gobies from habitat. Disturbance of tidewater gobies will be minimized during translocation and removal efforts by using qualified biologists (who hold a scientific recovery permit pursuant to section 10(a)(1)(A) of the Act, or are otherwise authorized by the Service pursuant to this biological opinion) to conduct translocation and removal activities. Furthermore, disturbance will only occur once during the proposed project, and will affect 150 feet of Martin Slough in one location. The disturbance would occur only when water levels are at their summer low, thereby affecting the least amount of occupied habitat as possible.

### **Indirect Effects**

Indirect effects are defined as those effects that are caused by or will result from the proposed action at a later time, but are still reasonably certain to occur (50 CFR §402.02).

### Predation and Water Quality Degradation

Tidewater gobies may be indirectly killed or injured by predators or adversely affected by degraded water quality when they are relocated from the proposed work site. Tidewater gobies that are relocated may be disoriented, and may be susceptible to predation by birds or other fish due to unfamiliarity with habitat features at the relocation site. In addition, temporarily degraded water quality, such as from increased turbidity, may adversely affect tidewater gobies. However, degraded water quality is expected to be short duration and small magnitude. Furthermore, tidewater gobies are known to withstand a wide range of habitat conditions. Conservation Measures 9-17 will help minimize the potential for water quality degradation.

### Genetic Diversity and Potential Effects to Recovery

Low genetic diversity in tidewater gobies appears to be associated with highly manipulated habitats. Research on tidewater goby indicates that the Humboldt Bay population is genetically suppressed with little genetic diversity and high levels of inbreeding (McCraney et al. 2010). We do not anticipate that the proposed action would indirectly affect tidewater goby genetics, as the project is temporary in nature, and at a very small scale when compared to suitable habitat available within the recovery unit.

### **Summary of Projects Effects to Tidewater Gobies and their Habitat**

Our effects analysis and conclusions are based on the expectation that all of the projects features will be implemented. However, adverse impacts to tidewater goby habitat and individuals could occur, even with full implementation. Approximately 0.052 acre of goby habitat, which does not include designated goby critical habitat, will be temporarily affected by construction activities. In addition, gobies could be injured or die from handling and removal activities, dewatering, sedimentation, contaminants, and from behavioral modifications due to construction activities. Gobies could also be exposed to increased predation and water quality degradation from project implementation. However, genetic diversity in the recovery unit is not expected to be affected by the project. The Conservation Measures identified in the project description will help offset the above effects.

The exact number of breeding adults and young tidewater gobies that may be affected as a result of project implementation is difficult to determine, as planktonic larvae and very small juvenile tidewater gobies are too small to effectively seine and quantify. Adult gobies are also small, furtive, and cryptic and are also difficult to quantify; and goby numbers can fluctuate with sampling method used, sampling location within a site, and vegetation and substrate type. The number of adult and juveniles that are removed from the proposed work site prior to dewatering will be quantified; however, an unknown number of gobies will not be captured and may remain in proposed work areas during construction.

The impacts from installation of the pipe crossings are not expected to impede meeting the conservation needs of the species and/or goals for the HUM-3 Critical habitat Unit due to the relocation and removal of tidewater gobies from the project location, implementation of the conservation measures, the lack of affected tidewater goby critical habitat, and the temporary nature of the effects.

### **CUMULATIVE EFFECTS**

Cumulative effects include the effects of future State, Tribal, local or private actions that are reasonably certain to occur within the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

The only future project in the vicinity of the action area we are aware of is replacement of the Pine Hill Road Bridge over Swain Slough (at the confluence of Martin and Swain Slough), proposed by Humboldt County. At this time, it is unknown whether this proposed project will affect tidewater gobies. Furthermore, this project, and other proposed future actions within and adjacent to the action area are likely to have a Federal nexus with the Corps and require section 7 consultation with the Service.

## CONCLUSION

After reviewing the current status of the tidewater goby, the environmental baseline for the action area, the effects of implementing the proposed action, and the cumulative effects, it is the Service's biological opinion that the Martin Slough Tide gate Replacement Project, as proposed, is not likely to jeopardize the continued existence of the tidewater goby and is not likely to adversely modify critical habitat.

### **Tidewater Goby**

The Service reached the non-jeopardy conclusion based on the following:

1. Although the exact number of gobies inhabiting the construction footprint of the action area is unknown, the area to be impacted (0.052 acre of goby habitat) represents a small portion of the range-wide habitat for this species (12,156 acres of goby habitat range-wide).
2. The number of gobies adversely affected will be minimized through implementation of the conservation measures identified in the project description.
3. The project's effects will be temporary and areas impacted will be restored to pre-project conditions.

## INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the taking of endangered and threatened species, respectively, without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or 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 listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, 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 intended as part of the

agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the Corps so that they become binding conditions of any grant or permit issued to an applicant, as appropriate, for the exemption of 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps (1) fails to assume and implement the terms and conditions or (2) fails to require the applicant 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. In order to monitor the impact of incidental take, the Corps 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)]

#### AMOUNT OR EXTENT OF TAKE ANTICIPATED

It is difficult to quantify the number of gobies that could be affected by the action due to seasonal changes in goby distribution and abundance, the variability of environmental conditions, sampling method used, sampling location within a site, and vegetation and substrate type. In addition, survey efforts for project related purposes are generally confined to presence/absence surveys.

Any gobies captured will be relocated outside of the construction footprint, and some gobies may be missed and subsequently die as a result of project construction activities. Gobies may also be killed or injured as a result of capture and relocation efforts. Because we are unable to quantify the precise number of gobies that may be injured or killed during construction, we have established the following thresholds, if exceeded, will trigger reinitiation of consultation:

- Mortality of 5 adult gobies due to capture and release efforts.
- A maximum of 0.052 acre of suitable tidewater goby habitat is expected to be temporarily adversely affected from project implementation.

#### EFFECT OF THE TAKE

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the tidewater goby, or permanent destruction or adverse modification of critical habitat for the tidewater goby.

## REASONABLE AND PRUDENT MEASURES

We have not identified any additional measures necessary to further reduce impacts to the tidewater goby or designated critical habitat for the goby, beyond those measures identified in the description of the proposed action.

## MONITORING REQUIREMENTS

In order to monitor the impacts of incidental take, Corps and/or Applicant must report the progress of the action and its impacts on the species to the Service, as specified below:

1. The Corps and/or Applicant will ensure that pre-project tidewater goby relocation efforts are conducted and that the number of tidewater gobies that are relocated are recorded, prior to the initiation of the project. These relocation efforts will follow the Conservation Measures in the project description.
2. The Corps and/or Applicant will ensure that post-project tidewater goby habitat restoration occurs at the tide gate replacement section of the stream, within the project area, to pre-project contours of the bed and bank, and replanting the pre-existing vegetation. The Corps and/or Applicant will monitor stream restoration sites for a period of 5 years to ensure that restoration is successful and that the new tide gate is functioning properly.
3. By December 31 of the construction year, the Corps and/or Applicant will ensure that the Service receives the results of the relocation efforts for tidewater gobies as electronic files, in Word 2010 or pdf format, and hard copy, including data sheets. Data will also be provided in a format that can be used by the Service without requiring re-entry (Excel 2010).

## REPORTING REQUIREMENTS

Upon locating a dead or injured or stranded tidewater goby, initial notification must be made to the Service's Division of Law Enforcement in Sacramento, California at (916) 414-6660 and the Arcata Fish and Wildlife Office at (707) 822-7201 immediately, and in writing within three working days. Notification must include the date, time, and location of the carcass; cause of death or injury, if known; and any other pertinent information. Care must be taken in handling injured animals to ensure effective treatment and care and in handling dead specimens to preserve biological material in the best possible state for later analysis of cause of death. The finder has the responsibility to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed, unless to remove it from the path of further harm or destruction. Should any treated listed species survive, the Service should be contacted regarding the final disposition of the animals. In the case of take or suspected take of tidewater gobies not exempted in this biological opinion, the Arcata Fish and Wildlife Office and the Division of Law Enforcement shall be notified within 24 hours.

### CONSERVATION RECOMMENDATIONS

Sections 2(c) and 7(a)(1) of the Act direct Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species and the ecosystems upon which they depend. 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.

The Service has identified the following conservation recommendation, which could be implemented by the Corps and/or Applicant:

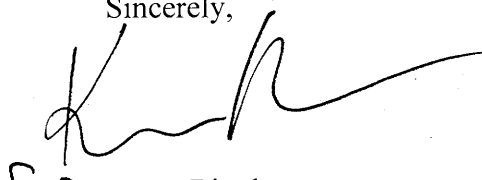
- The Corps and/or Applicant should survey for presence/absence of tidewater gobies in anticipation of future projects within suitable habitat surrounding the Humboldt Bay sub-unit that may require a Corps permit.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed, proposed, or candidate species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

### REINITIATION NOTICE

This concludes formal consultation on the Martin Slough Tide gate Replacement Project. 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, any operation causing such take must cease pending reinitiation. If you have any questions regarding this biological opinion, please contact Steve Kramer of my staff at (707) 822-7201.

Sincerely,

  
for Bruce Bingham  
Field Supervisor

cc:

Trinity Associates, 980 7<sup>th</sup> Street, Arcata, CA 95521 (Attn: Aldaron Laird)  
U.S. Army Corps of Engineers, San Francisco, CA (Attn: Jimmy Purchio)



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#### PERSONAL COMMUNICATION

- Michael Wallace, Fisheries Biologist, California Department of Fish and Wildlife, Arcata, CA. April 8, 2013 - telephone conversation.
- Michael Wallace, Fisheries Biologist, California Department of Fish and Wildlife, Arcata, CA. February 2014 – Martin Slough fish survey report.

