

U.S. Army Corps of Engineers
Proposed Additional Procedures and Criteria for Permitting
Projects under a Programmatic Determination of
Not Likely to Adversely Affect Select Listed Species in California
(the 2018 NLAA Program)

The U.S. Army Corps of Engineers (USACE) San Francisco and Sacramento Districts in the USACE South Pacific Division and NOAA's National Marine Fisheries Service (NMFS) California Coastal and Central Valley Divisions in NMFS' West Coast Region have jointly developed the following procedures and project criteria for USACE-permitted projects (2018 NLAA Program). The USACE believes adoption of these procedures and project criteria by the San Francisco and Sacramento District's Regulatory Branches in California will ensure that the proposed projects in the geographic areas within California described here are not likely to adversely affect the 21 listed species, distinct population segments (DPS), or evolutionarily significant units (ESU) (covered species) or their designated critical habitat in California. These procedures and criteria are part of the basis for USACE's request to NMFS for concurrence with the USACE's "is not likely to adversely affect" programmatic determination for the project types described in this document and referred to as the 2018 NLAA Program. The USACE will use these procedures and criteria for applicable projects for five years as described below.

The USACE has included criteria to protect both listed and non-listed marine mammals to avoid "take" of these protected species, per the Marine Mammal Protection Act (MMPA).

In addition, the USACE expects these criteria will result in only minimal or minor adverse effects to Essential Fish Habitat (EFH) protected under the Magnuson-Stevens Act (MSA). These procedures and criteria are also part of the basis for EFH consultation with NMFS.

Procedural Overview:

- 1) Following concurrence on this programmatic determination from NMFS, the USACE will not need to initiate informal ESA consultation for proposed projects that meet the criteria described below. Similarly, following completion of programmatic EFH consultation, the USACE will not need to initiate EFH consultation for proposed projects that meet the criteria described below. For each project proposed for inclusion under the 2018 NLAA Program, the USACE will record and provide the following information to NMFS: the project location (latitude and longitude in decimal degrees and datum used; county; waterbody name; nearest public road or the street address; project type; brief project description, and the USACE's determination and rationale for how the project meets the appropriate criteria described below.

Notification requirements. The USACE will provide NMFS the above project-specific information as far in advance of permit issuance as reasonable given project timing. Within 14 days of notification, NMFS shall reply to the Corps with: 1) Whether or not NMFS agrees with USACE's determination that the proposed action qualifies for inclusion under the 2018 NLAA Program, or 2) a request for information needed to determine if NMFS agrees the project qualifies.

If NMFS disagrees that the project qualifies, NMFS will suggest measures and/or revisions to the project that, if available, would result in NMFS' agreement that the project qualifies. If NMFS does not respond with 1) or 2) above within 14 days, the USACE may assume NMFS agrees the project qualifies for the 2018 NLAA Program. Following authorization by the USACE, the project applicant must inform NMFS and USACE by letter or email of the proposed date for initiation of construction.

Notification to NMFS by USACE and permit applicants can be an electronic mail or fax to specified contacts in NMFS Area Offices based on the location of the proposed project:

Northern California Office: Jeff Jahn, NMFS, 1655 Heindon Road, Arcata, CA 95521; Jeffrey.Jahn@noaa.gov; fax: (707)-825-4840.

Central California Coast Office: Gary Stern, NMFS, 777 Sonoma Ave, Room 325, Santa Rosa, CA 95404; Gary.Stern@noaa.gov; fax: (707) 578-3435.

Central Valley Office: Jeff McLain, NMFS, 650 Capitol Mall, Suite 5-100, Sacramento, CA 95814; Jeff.McLain@noaa.gov; fax: (916) 930-3629.

Projects that may affect marine mammals or sea turtles: Laura McCue, NMFS, 501 West Ocean Blvd, Suite 4200, Long Beach, CA 90802; Laura.McCue@noaa.gov; fax: (562) 980-4027.

- 2) If the USACE or NMFS determines that a project does not meet the project criteria below, or if there are species, critical habitat, or EFH within the action area that are not listed below as covered in the 2018 NLAA Program the USACE will make an effects determination(s) and will initiate, if appropriate, ESA and EFH consultation with NMFS.
- 3) Projects with interrelated and/or interdependent actions that may affect an ESA covered species or critical habitat are not covered under the 2018 NLAA Program. "Interrelated actions" are those that are part of a larger action and depend on the larger action for their justification. "Interdependent actions" are those that have no independent utility apart from the action under consideration. USACE will need to consult separately for projects with interrelated or interdependent actions.
- 4) In addition to the notification process described above, USACE will contact NMFS for those projects where technical assistance for fish passage, species presence, or grade control impacts on fish habitat is required as part of the project criteria below. Contact shall be made as early as possible to avoid project delay. Such technical assistance may take longer than 14 days. NMFS will notify USACE as to the time needed to determine whether or not NMFS agrees a project qualifies for inclusion into the 2018 NLAA Program when technical assistance is needed.
- 5) USACE expects that NMFS will provide USACE with the most recent *Federal Register* notices

and other relevant documents pertaining to covered species' location, distribution, timing, habitat requirements, and current information regarding critical habitat delineation and primary constituent elements or physical and biological features.

- 6) USACE will annually meet with NMFS, and as needed, to evaluate and discuss the continued effectiveness of these procedures and criteria for avoiding adverse effects to covered listed species, critical habitat, and for minimizing adverse effects to EFH, and to update procedures, project design criteria, and maps, if necessary. The annual meeting will occur on or before May 1st of each year.
- 7) The programmatic determination is effective for five years. USACE and NMFS may end this programmatic determination at any time or reinstate the programmatic informal consultation if either determines that it is not being implemented as intended, or if new information requires reinstatement of consultation. For example NMFS may revoke their programmatic concurrence if USACE fails to provide annual reports. NMFS may also revoke any programmatic concurrence provided for individual projects at any time.
- 8) *Annual reporting requirements.* For each project authorized by the Corps where section 7 compliance was provided by the 2018 NLAA programmatic consultation during the previous calendar year, the Corps shall provide the following information to NMFS annually no later than May 1st:
 - project name
 - project type,
 - description of action,
 - USACE file number,
 - location coordinates (latitude, longitude, and datum),
 - permittee,
 - waterway,
 - county,
 - listed species, designated critical habitat, and EFH in the action area, including habitat areas of particular concern (HAPC) and submerged aquatic vegetation (SAV).
 - status of construction (not constructed, under construction, or completed) and
 - USACE's determination and rationale for how each project met the "not likely to adversely affect" criteria and avoided and/or minimized adverse effects to EFH
 - date of project implementation and duration of each project that USACE authorized under the 2018 NLAA Program.
 - status of projects that were authorized by USACE but not implemented in the previous calendar year.

The annual report to NMFS will be submitted to Eric Shott, NMFS, 777 Sonoma Avenue, Room 325, Santa Rosa, CA, 95404, eric.shott@noaa.gov, 707-575-6089.

- 9) As requested by USACE, NMFS will provide training to USACE staff on effects determinations and the application of these procedures and guidelines. Training will be made available to USACE staff through workshops, or web-based training, or other appropriate forums, no more

than twice per year.

Proposed Project Types

This proposed programmatic determination covers seven (7) types of projects as listed below. The action area is a large portion of California, and covers the species listed below (collectively referred to as covered species) and any critical habitat designated for those species. USACE will use a variety of permits to authorize projects under this programmatic determination, including Nationwide Permits, other forms of general permits (i.e. Regional General Permits), or individual permits such as a Letter of Permission or Standard Permit.

The following types of projects may be eligible for coverage under this programmatic NLAA determination:

1. Boat Docks, Piers, Wharfs, and Overwater Decks
2. Bridge Repair/Widening/Replacement, or Removal
3. Culvert Repair/Replacement/Upgrade, or Removal
4. Buoys, Floats, and Other Devices to Facilitate Mooring of Vessels
5. Pipeline Repair or Replacement
6. Geotechnical Boring in Support of Project Designs
7. Aids to Navigation in Bays, Estuaries, and River Mouths

Covered Species, Critical Habitat, and Essential Fish Habitat

This programmatic determination applies to the list of species below and to their designated critical habitats, as applicable. Critical habitat has been designated for some of the species on the following lists. This programmatic determination also covers a species' critical habitat when an asterisk (*) is included after the species name. ESA-listed Pacific eulachon and white and black abalone are not included in this program because it is unclear how several project types under this programmatic determination may affect these three species.

NMFS Covered Species and Critical Habitats

Fish

Chinook Salmon (<i>Oncorhynchus tshawytscha</i>)	Sacramento River winter-run ESU* Central Valley spring-run ESU* California Coastal ESU*	Endangered Threatened Threatened
Coho Salmon (<i>Oncorhynchus kisutch</i>)	Central California Coast ESU* S. Oregon/N. CA Coast ESU*	Endangered Threatened
Steelhead (<i>Oncorhynchus mykiss</i>)	South-Central California DPS* Central California Coast DPS* California Central Valley DPS* Northern California DPS*	Threatened Threatened Threatened Threatened

Green Sturgeon
(*Acipenser medirostris*)

Southern DPS*

Threatened

Marine Mammals

Blue whale (<i>Balaenoptera musculus</i>)	Endangered
Fin whale (<i>Balaenoptera physalus</i>)	Endangered
Humpback whale (<i>Megaptera novaeangliae</i>)	
Central American DPS	Endangered
Mexico DPS	Threatened
Sei whale (<i>Balaenoptera borealis</i>)	Endangered
Sperm whale (<i>Physeter macrocephalus</i>)	Endangered
Western North Pacific grey whale (<i>Eschrichtius robustus</i>)	Endangered
Killer whales - southern resident DPS (<i>Orcinus orca</i>) ¹	Endangered
North Pacific right whale (<i>Eubalaena japonica</i>) ¹	Endangered
Guadalupe fur seals (<i>Arctocephalus townsendi</i>)	Threatened

Sea Turtles

Leatherback Sea Turtle (<i>Dermochelys coriacea</i>)*	Endangered
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¹ Critical habitat has been designated for this species but this critical habitat is not included in this programmatic determination. Projects proposed to occur in this critical habitat will be evaluated by the USACE. USACE will make an effects determination and will initiate consultation for each project (either formal or informal, as appropriate) with NMFS if the project may affect critical habitat for this species as per 50 CFR 402.

The following EFH for various federally managed fish species (and HAPCs) occurs in the project area:

- Pacific Coast Groundfish** (estuaries, seagrass, rocky reefs, canopy kelp)
- Pacific Coast Salmon** (estuaries, marine and estuarine submerged aquatic vegetation, complex channels and floodplain habitats, thermal refugia, spawning habitat)
- Coastal Pelagic Species** (no HAPC)
- Highly Migratory Species** (no HAPC)

California Areas in the Program Operating Area

Some of the specific design criteria below differentiate among some California areas in the 2018 NLAA Program based on species biological requirements, species vulnerability to project effects, and differing landscapes and habitat conditions. The three main geographic areas used in the project design criteria correspond to NMFS Area Office jurisdictions and are as follows:

Northern California Coast: Oregon border south to the Humboldt-Mendocino County line, including the counties of Del Norte, Siskiyou, Trinity, and Humboldt.

Central California Coast: Humboldt-Mendocino County line south to Monterey-San Luis Obispo County line and includes San Francisco Bay eastward to Chipps Island. The Central California Coast includes the entire Salinas River watershed.

Central Valley: Interior California watersheds that drain to the Sacramento and San Joaquin Rivers, the mainstem Sacramento and San Joaquin Rivers, the Sacramento-San Joaquin Delta, and lower mainstem Sacramento River to Chipps Island.

Sub-areas (and one habitat type) within these jurisdictions are:

San Francisco Bay: The eastern most extent of San Francisco Bay corresponds with the USACE San Francisco District's regulatory jurisdiction (ends at Chipps Island) and includes San Pablo Bay, the Carquinez Strait, Grizzly Bay, and Susiun Bay. River mouths within the Bay (except for the Sacramento-San Joaquin Delta) are included up to the extent of tidal influence (i.e., contains at least some salt or brackish water at some times). The western extent of the Bay ends at the Golden Gate Bridge.

Humboldt Bay: Humboldt Bay includes three geographic segments: South Bay, Central Bay (or Entrance Bay), and North Bay (or Arcata Bay). River and creek mouths within the Bay are included up to the extent of tidal influence (i.e., contains at least some salt or brackish water at some times). The western extent of the Bay ends at the western extent of the entrance channel.

Estuary: Any partially enclosed (by natural land formation) body of water that has one or more rivers flowing into it. The upstream extent of an estuary is the area of a river mouth influenced by tidal flows (i.e., contains at least some salt or brackish water at some times).

Bay: A body of water partially enclosed by land. Only bays named on standard USGS topographic maps are considered bays under the 2018 NLAA Program.

Coastal marine areas: Areas outside of estuaries or bays along the California coast from mean high tide to 3 miles offshore from the Oregon border to the Monterey-San Luis Obispo County line.

Delta: The Sacramento-San Joaquin Delta as defined by the California Water Code, Section 12220.

Submerged aquatic vegetation (SAV): Vascular plants that grow rooted in the sediments of marine, estuarine, and freshwater systems, and which grow completely submerged during a portion of the daily tidal cycle. For purposes of the 2018 NLAA Programmatic Consultation, SAV includes the following species:

- (1) kelps (*Laminaria* spp., *Macrocystis pyrifera*, and *Nereocystis leutkeana*)
- (2) eelgrass (*Zostera marina*)
- (3) widgeon grass (*Ruppia maritima*)
- (4) sago pondweed (*Stuckenia pectinata*)
- (5) fineleaf pondweed (*Stuckenia filiformis*)
- (6) various pondweed (*Potamogeton* spp.)

Project Design Criteria

USACE and NMFS developed project design criteria for the seven project types described below based on past consultations and technical assistance (including implementation of the 2013 NLAA Program).

The project design criteria presented below must be followed for a project to be eligible for USACE's programmatic NLAA determination. Criteria for all projects are listed first, followed by specific criteria for each project type. Projects deviating from the criteria require individual informal or formal consultation if they may affect listed species or designated critical habitats as per 50 CFR 402. USACE has determined the projects included under this programmatic determination are not likely to adversely affect listed species individually or as a whole because: 1) the projects will be implemented at a time when listed species are not likely to be present in the action area; or 2) the projects will be implemented in a manner to minimize exposure of threats to listed species and/or critical habitat and the response of any exposed individuals is expected to be insignificant. Similarly, USACE has determined the projects included under this programmatic determination are not likely to adversely affect the critical habitats of the listed species because: 1) the projects will be implemented in areas not designated as critical habitats for these species, or 2) the projects will be implemented in a manner to minimize any potential effects on the physical and biological features of critical habitat such that those effects are insignificant.

USACE has also used the project design criteria below to minimize adverse effects to EFH.

As described below, for some projects the USACE will provide additional information to NMFS and/or obtain technical assistance and confirmation for some specific project types.

CRITERIA FOR ALL PROJECT TYPES UNDER THE USACE'S NLAA PROGRAMMATIC DETERMINATION.

The following criteria apply to all projects under the 2018 NLAA Program that may affect ESA listed species under NMFS's jurisdiction, or their critical habitat. These criteria also apply to any projects that may adversely affect Essential Fish Habitat:

1. No large woody debris (LWD) or trees will be removed in active (wetted) channels. Trees outside the wetted channel may be removed for access routes for construction equipment. If trees need to be removed from other portions of the project site, do not remove native riparian trees or shrubs over 3 inches in diameter at breast height or reduce canopy cover provided by hardwoods or conifers. Replant any trees removed to achieve 1:1 successful revegetation by one of the following methods: a) trees removed can be replanted at 3:1, or b) site can be monitored for 2 years and replanted until 1:1 successful revegetation is achieved.
2. Limit new access routes requiring tree removal and grading to no more than two. Access routes should not be along the top of the stream bank but relatively perpendicular (45 to 90 degrees is acceptable) to bank.
3. Where available, use existing ingress or egress points, or perform work from the top of the stream banks.
4. Check heavy equipment daily for leaks. Do not use equipment until leak is fixed.
5. Refuel outside of active stream channel or above ordinary high water at designated sites.
6. A Spill Prevention and Control Plan shall be created, and the Plan and all materials necessary to implement shall be accessible on site.
7. No work during wet weather or where saturated ground conditions exist; if a 60% chance of a one half inch of rain or more within a 24-hour period is forecasted, then the site shall be treated with erosion control measures and construction operations will cease until 24 hours after rain has ceased.
8. Petroleum products, chemicals, fresh cement, or water contaminated by the aforementioned shall not be allowed to enter flowing waters.
9. Adequate erosion control supplies (gravel, straw bales, shovels, etc.) shall be stored on site.
10. Any disturbed ground must receive appropriate erosion control treatment (mulching, seeding, planting, etc.) prior to the end of the construction season, prior to a cease of operations due to forecasted wet weather, and within seven days of Project completion. Operations will use all feasible techniques to prevent any sediment from entering a drainage system.
11. Work pads, falsework, and other construction items will be removed from the 100 year floodplain by the end of the construction window.
12. In areas expected or forecasted to get rainfall during the construction season, effective erosion control measures shall be in place at all times during construction activities. Construction within the 5-year floodplain may not begin until all temporary erosion controls (e.g., straw bales, silt fences that are effectively keyed in) are in place, downslope of project activities within the riparian area. Erosion control structures shall be maintained throughout, and possibly after, construction activities. Sediment shall be removed from sediment

controls once it has reached one-third of the exposed height of the control. Whenever straw bales are used, they shall be staked and dug into the ground 12 cm. Catch basins shall be maintained so that no more than 15 cm of sediment depth accumulates within traps or sumps.

13. No projects in freshwater streams¹ may occur during the same summer work season within 1,000 linear feet of each other, and no pile driving may occur within 1,000 feet of flowing or standing water in a freshwater stream. No projects in bays, estuaries, or coastal marine areas may occur within 1,000 feet of each other, or within the distances calculated to protect marine mammals and sea turtles, whichever is greater, when pile driving would occur at the same time or with less than 24 hours in-between pile driving episodes for each project. These criteria are intended to avoid accumulation of sediment and turbidity in streams from these projects², and accumulation of underwater sound wave energy in bays, estuaries, and coastal marine areas.
14. Observations of all stranded marine mammals or sea turtles in the vicinity of Project activities should be reported immediately to the NMFS West Coast Region stranding coordinator, Justin Viezbicke ([562-980-3230](tel:562-980-3230)) regardless if there is any association with Project activities or not. In the unlikely event that a marine mammal or sea turtle is injured or killed as a result of any Project activities, the Project shall cease operations immediately and contact the regional stranding coordinator.
15. No fish relocations are permitted.
16. USACE will ensure that projects avoid or greatly minimize impacts to sensitive habitat resources, including rock habitat (e.g., bedrock, boulders, cobble, and gravel), submerged aquatic vegetation, kelp, and intertidal mudflats. For avoiding direct and indirect impacts, projects will follow the specific requirements provided below for each project types, including the SAV requirements for certain project types.

PROJECT-SPECIFIC CRITERIA FOR INCLUSION IN USACE's 2018 NLAA PROGRAM

Project design criteria for NMFS covered species are presented by project category below. Each category starts with a map (if needed) showing the general areas where projects under that category are included in the 2018 NLAA Program. Following the map (if provided), project criteria include prescriptions on work timing, methods and materials approved for use, text description of specific locations where the programmatic determination does or does not apply, and any special notification or assistance requirements beyond the notification requirements described in the Procedural Overview above.

¹ Freshwater stream means those portions of a river or stream that are freshwater all year.

² Sediment and turbidity from disturbed soils can combine during the first winter rains if projects are too close to each other and occur during the same year

1. Boat Docks, Piers, Wharfs, Overwater Decks and similar overwater structures

No map is provided because these projects may only occur under the 2018 NLAA Program in San Francisco Bay and the Delta.

Provided the applicable criteria below are incorporated, the 2018 NLAA Programmatic covers the following activities pertaining to docks, piers and other overwater structures: (1) construction of new docks, piers, and overwater structures that do not to exceed 1,500 square feet of overwater surface area; (2) the replacement and repair of pilings on existing structures; and (3) the repair of decking and other structural elements on existing overwater structures. Removal of pilings and overwater structures without replacement are also included provided the projects are conducted in accordance with the criteria specified below.

a. General Criteria:

No new creosote-treated piles may be installed. Any chemically treated wood pilings must be coated, wrapped, or sleeved with an impact-resistant, biologically inert substance. Floating docks or other floatation devices must be made of materials that will not disintegrate, including concrete, steel, plastic, or closed cell foam encapsulated in sun-resistant polyethylene. No cut and fill of shoreline areas is included in the Program, such as riprap bank stabilization, excavation, breakwaters, creation of embayments, or boat launch ramps. Removal of naturally occurring woody debris from the bank or channel is not included. Dredging of any kind is not included. Overwater structures intended to promote new or increased fishing opportunities are not included in the Program.

i. Work Windows:

1. Delta: July 1 through October 31
2. San Francisco Bay: June 15 through November 30

ii. Geographic Restrictions:

1. San Francisco Bay, includes all portions of South San Francisco, Central San Francisco, San Pablo and Suisun bays inside of the Golden Gate.
2. Sacramento-San Joaquin Delta
3. Does not include Northern California Coast or Central California Coast.
4. Does not include riverine areas in the Central Valley upstream of the Delta.

2. Specific Criteria:

i. New Construction Criteria:

1. The 2018 NLAA Program covers construction (including replacement) of single newly constructed boat docks, piers and overwater structures (floating or non-floating) that do not exceed 1,500 square feet of overwater

surface area. Projects with multiple docks cannot be separated to meet the requirements of the 2018 NLAA Program.

2. Projects must be designed to provide 40% light transmittance (*e.g.*, deck grating, board spacing).³
3. All new overwater structures must be located a minimum distance of 33 feet away from SAV (see SAV definition above in the California Areas section) and tidal marsh.
4. Overwater structures must use the fewest number of piles as practicable for necessary support of the structure to minimize pile shading, substrate impacts, and impacts to water circulation. Pilings must be spaced a minimum of 10 feet apart on center down the length of the dock.
5. All floating dock pilings, mooring dolphins, and fender piles must be capped with devices (bird spikes or similar) to prevent perching by piscivorous bird species.
6. Cross or transverse bracing must be placed above the mean higher high water line (MHHW) to avoid impacts to water flow and circulation.
7. Projects with in-water work that are located within a distance of 33 feet to 66 feet of SAV must adhere to the following measures:
 - a. Ensure that barges and vessel hull bottoms do not come within 18 inches of the bay bottom at MLLW
 - b. Ensure that barge spuds, anchors and chains, and other vessel equipment are not directly deployed in eelgrass or the 17-foot perimeter around eelgrass.
 - c. Ensure that vessel propellers do not scar or scour eelgrass or the 17-foot perimeter around eelgrass.
8. Only overwater structures that are water dependent may be constructed (*i.e.*, cannot be constructed over land). Project descriptions must articulate why projects are water dependent and clearly explain how the minimum size necessary to meet the water dependent purpose of the project has been achieved.

ii. Repair and Maintenance Criteria:

1. This 2018 NLAA Program provides for repair of small and large overwater

³ The forty percent light transmittance requirement does not apply if the new structure meets all the following conditions: (1) built with a north-south orientation (within 45 degrees); (2) all solid structure is elevated at a minimum of 5 feet above mean higher high water (MHHW); (3) individual surfaces are not wider than 4 feet; (4) turnarounds do not exceed 60 square feet; (5) no covered structure such as dry docks or boat houses, and not more than one uncovered boat lift; (6) terminal ends do not exceed 100 square feet; and (7) gaps between deck boards a minimum of 0.5 inches.

structures provided the repairs do not exceed a horizontal deck work area (floating or non-floating) greater than 1,500 square feet. Upgrades of structures must not increase the surface area, slip space, or slip capacity beyond 1,500 square feet. The addition of boat lifts is included in the Program. Projects with multiple docks cannot be separated to meet the requirements of the 2018 NLAA Program.

2. Repair and maintenance of structures over 1,500 square feet are included in the Program provided that repairs and maintenance are minor; such that the structure will continue to function as intended for the foreseeable future without the minor repair or maintenance.
3. New creosote piles may not be installed. Although removal is preferred, existing creosote piles may be repaired by coating, sleeving or wrapping. For projects where pile work is included, creosote piles that are exposed during the removal of decking must be replaced, wrapped, sleeved, or removed.
4. Projects with less than 400 square feet of overwater surface do not require light transmittance. Projects between 400 and 1,500 square feet must be designed to provide 40% light transmittance (*e.g.*, deck grating, board spacing).⁴
5. Pile removal, installation and/or replacement within 17 feet of SAV (as defined above in the California Areas section) is not permitted.
6. Projects with in-water work that are located within a distance of 17 feet to 66 feet of SAV must adhere to the following measures:
 - d. Ensure that barges and vessel hull bottoms do not come within 18 inches of the bay bottom at MLLW
 - e. Ensure that barge spuds, anchors and chains, and other vessel equipment are not directly deployed in eelgrass or the 17-foot perimeter around eelgrass.
 - f. Ensure that vessel propellers do not scar or scour eelgrass or the 17-foot perimeter around eelgrass.

iii. Pile Driving Criteria:

These criteria apply to both new construction and repair/maintenance of existing structures. There are additional criteria below for marine mammals.

1. Vibratory hammer – may use steel, wood, or concrete piles; any size pile, any number

⁴ The forty percent light transmittance requirement does not apply if the repair site on the existing structure or replacement structure meets all the following conditions: (1) built with a north-south orientation (within 45 degrees); (2) all solid structure is elevated at a minimum of 5 feet above mean higher high water (MHHW); (3) individual surfaces are not wider than 4 feet; (4) turnarounds do not exceed 60 square feet; (5) no covered structure such as dry docks or boat houses, and not more than one uncovered boat lift; (6) terminal ends do not exceed 100 square feet; and (7) gaps between deck boards a minimum of 0.5 inches.

2. Impact hammer with wood piles – limited to projects using only one hammer and less than 20 piles installed per day
3. Impact hammer with concrete piles – Piles must be 18 inches or less in diameter. Limited to projects using only one hammer and less than 20 piles installed per day.
4. Impact hammer with steel piles – Piles must be 12 inches or less in diameter, and hammer must be 3,000 pounds or smaller, and must use a wood or plastic cushion block between hammer and pile. Limited to projects using only one hammer and less than 20 piles installed per day.
5. Install and remove piles with a vibratory hammer whenever possible, rather than the direct pull or clamshell method. Under those conditions where impact hammers are necessary (*e.g.*, substrate type and seismic stability) the pile must be driven as deep as possible with a vibratory hammer prior to the use of the impact hammer.
6. Remove the pile slowly to allow sediment to slough off at, or near, the mud line.
7. The operator must first hit or vibrate the pile to break the bond between the sediment and pile to minimize the potential for the pile to break, as well as reduce the amount of sediment sloughing off the pile during removal.
8. Removed piles must be placed on a barge or onshore such that all sediment and runoff is captured in a basin and not allowed to enter the water.
9. If a piling breaks off above the mudline during removal, the loose piece of pile must first be placed on a barge or onshore prior to removing the remaining pile.
10. When removing creosote-treated timber piles, they must be cut into short lengths to prevent reuse. All debris, including attached, contaminated sediments, should be disposed of in an approved upland facility.
11. When contaminated sediment occurs in the footprint of the proposed project, cap all holes left by the piles with clean native sediments.
12. When pile driving in an intertidal area (a place that is exposed at low tide), drive piles during low tide when minimal water is present and substrates are exposed.

c. Marine Mammals and Sea Turtles:

Marine mammals are unlikely to occur in the Delta and Central Valley and as such are not included in the 2018 NLAA Program in these areas. If marine mammals are sighted in or near a project area in the Delta or Central Valley, NMFS West Coast Region Marine Mammal Team (562)-980-3232 will be called for further information and to obtain any authorizations or permits needed.

For boat dock, pier, and wharf pile driving projects affecting marine mammal species (in the water or at haul-out sites), work windows and other requirements are species specific. These projects may require on-site monitors and Marine Mammal Protection Act authorizations or permits. Contact NMFS West Coast Region Marine Mammal Team at (562) 980-3232 for further information. The criteria used for marine mammals also apply to sea turtles in the 2018

NLAA Program.

i. General Criteria for Marine Mammals:

1. Project activities are to occur only during daylight hours.
2. Maintain root mean square (rms) underwater sound pressure for impulse sound (e.g. impact pile driving) below levels that can affect the behavior (160 dB re 1 micro Pascal at 1 m) of, or injure, marine mammals or sea turtles. Injurious take is based on marine mammal hearing thresholds⁵ (Table 1) based on NOAA Fisheries’ acoustic guidance (NMFS 2018).

Table 1. Thresholds Identifying the Onset of Permanent Threshold Shift.

Hearing Group	Impulsive	Non-impulsive
Low-frequency (LF) cetaceans (e.g. baleen whales) ³	$L_{pk,flat}$: 219 dB $L_{E,LF,24h}$: 183 dB	$L_{E,LF,24h}$: 199 dB
Mid-frequency (MF) cetaceans (e.g. dolphins, toothed whales, beaked whales, bottlenose whales)	$L_{pk,flat}$: 230 dB $L_{E,MF,24h}$: 185 dB	$L_{E,MF,24h}$: 198 dB
Otariid pinnipeds (OW) (underwater) (e.g. sea lions and fur seals)	$L_{pk,flat}$: 232 dB $L_{E,OW,24h}$: 203 dB	$L_{E,OW,24h}$: 219 dB
<p>* Dual metric acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds should also be considered.</p> <p>Note: Peak sound pressure (L_{pk}) has a reference value of 1 μPa, and cumulative sound exposure level (LE) has a reference value of 1μPa²s. In this Table, thresholds are abbreviated to reflect American National Standards Institute standards (ANSI 2013). However, peak sound pressure is defined by ANSI as incorporating frequency weighting, which is not the intent for this Technical Guidance. Hence, the subscript “flat” is being included to indicate peak sound pressure should be flat weighted or unweighted within the generalized hearing range. The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, MF, and HF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The cumulative sound exposure level thresholds could be exceeded in a multitude of ways (i.e., varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these acoustic thresholds will be exceeded.</p>		

3. Maintain rms underwater sound pressure for continuous sound (e.g., vibratory pile driving) below levels that can affect the behavior (120 dB re 1 micro Pascal at 1 m, or, below ambient underwater noise levels, whichever is greater) of marine mammals.

⁵ In NMFS judgement, sea turtle hearing is likely similar to the low-frequency hearing specialist group.

4. Maintain and monitor a shutdown zone where received underwater sound pressure levels are less than the criteria described above. Refer to #6 and #8 below for shutdown zone procedures. Monitoring is to be done by a NMFS-approved observer. Multiple observers may need to be used to sufficiently monitor the shutdown zone. For projects that produce sound source levels equal to or greater than the criteria described above, additional authorization under the MMPA may be required.

6. If sound pressure levels are unknown, a proxy may be used for similar pile size and type, and similar environmental conditions. Isopleths⁶ should be calculated using proxy data and shutdowns should be set at this distance.

7. If any marine mammals or sea turtles are located within the shutdown zone where sound levels exceed thresholds for injury or adverse effects to behavior, the Permittee must wait until the animals leaves the area or until at least 30 minutes after the animal has last been observed before beginning pile installation or removal activities. If any marine mammals or sea turtles move within this zone, the Permittee will not continue these activities until 30 minutes has passed since the last such sighting. Ramp-up procedures described in #8 below will be used.

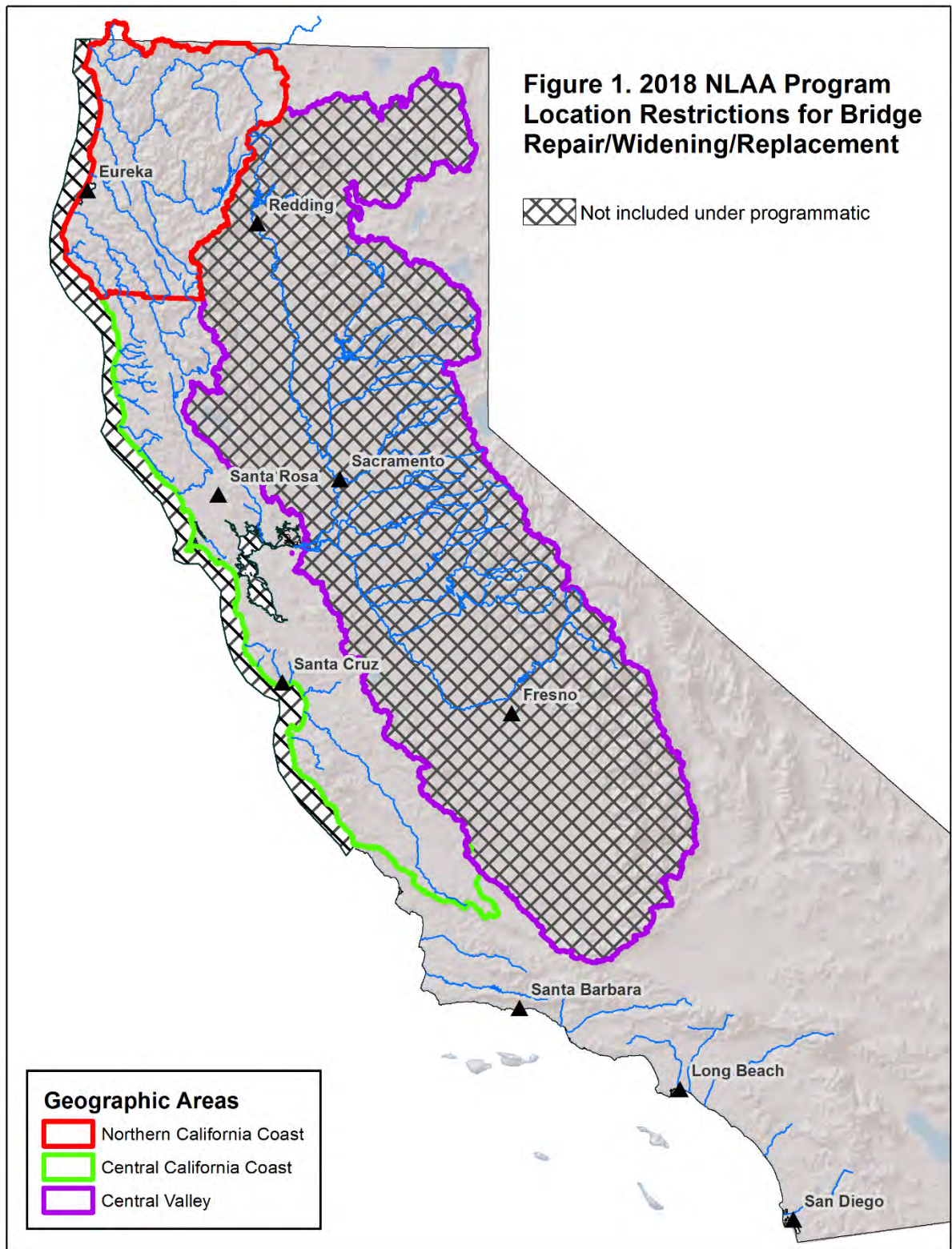
8. When pinnipeds (seals, sea lions) are seen by observers out of the water within the safety zone, maintain sound levels below 90 dB (A,-weighted) in air.

9. Use ramp-up procedures for impact pile driving to slowly increase the intensity of sound produced prior to the start of each day, after a break of 30 minutes or more, and if any increase in pile installation or removal intensity is required. Ramp-up procedures require an initial set of strikes at reduced energy, followed by a thirty-second waiting period, then two subsequent reduced energy strike sets prior to regular pile driving operations.

10. Vessel operators should adjust vessel speed (e.g. no wake speed) when marine mammals or sea turtles are in the project area. In the extremely unlikely event of a vessel collision with a marine mammal or sea turtle, the responsible party must immediately contact NMFS – Mr. Justin Viezbicke at [\(562\) 980-3230](tel:5629803230).

⁶ In the 2018 NLAA Program, isopleth refers to the extent in the aquatic environment of underwater sound pressure at a particular level.

2. Bridge Repair, Widening, and Replacement, or Removal



a. General Criteria:

The streambed within the work area and access routes must be outside of flowing or standing water. Dewatering shall not be used to obtain dry conditions. Construction activities must cease if flows rise above the silt fence levels. Except for project footprint, the bed and banks must be undisturbed. Bridge widening or replacement projects designed to accommodate a projected increase in traffic or provide access to new developments are not included in the 2018 NLAA Program. The 2018 NLAA Program does not apply to multi-year projects where falsework is left in the channel outside of the work windows. New bridges are not covered unless they replace an existing bridge that has been removed or will be removed prior to or concurrent with new bridge installation.

If an existing bridge is replaced, the new bridge must be sized to pass 100-year flow event without encroachment into stream channel. Piers must be cylindrical columns. If a natural channel is not left beneath the bridge, use requirements specific for culverts and arched culverts in *Culverts Replace/Upgrade* category.

i. Work Windows:

1. June 15 through October 15

ii. Geographic Restrictions

1. Projects in bays, estuaries, coastal marine areas, and the Central Valley, are not included in the 2018 NLAA Program.

iii. Special Notifications and Assistance:

1. USACE must provide NMFS with design drawings for examination by a NMFS fish passage engineer to ensure that salmonid migration will not be hindered by the proposed project. Such technical assistance and confirmation can occur via email or by letter. The 2018 NLAA Program does not apply to projects that: 1) do not meet current NMFS fish passage criteria, and 2) go down the scale in preferred fish passage types (i.e., from a bridge to a culvert)

b. Specific Criteria:

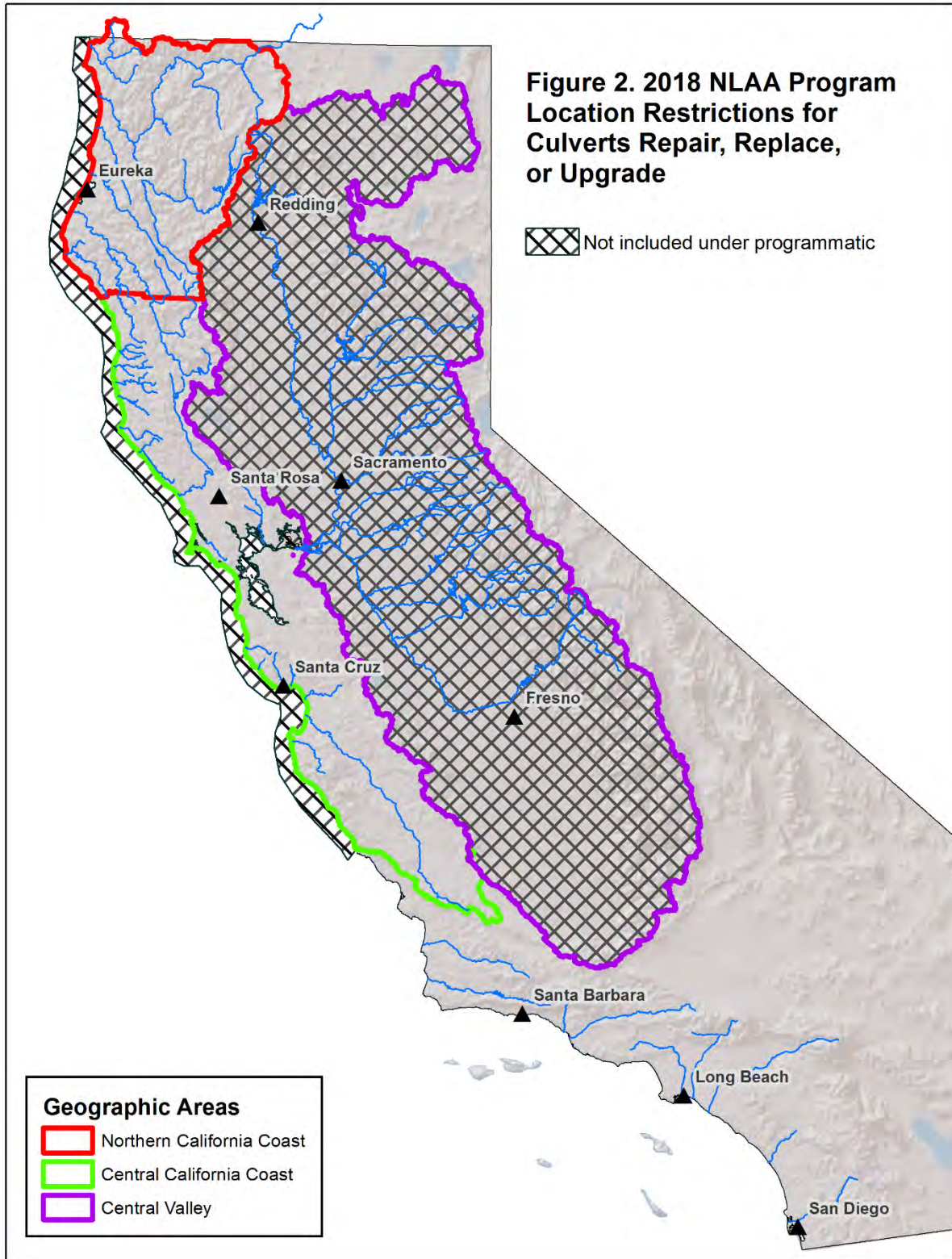
i. Pile Driving Criteria:

1. For Northern California Coast and Central California Coast streams:
 - a. Vibratory hammer – may use steel, wood, or concrete piles; any size pile, any number
 - b. Impact hammer – may not be used; likely to adversely affect, needs individual consultation

c. Marine Mammals and Sea Turtles:

Pile driving projects for bridge construction, repair, widening, or removal under the 2018 NLAA Program are not anticipated to affect marine mammals or sea turtles because these projects do not occur in bays, estuaries, or coastal marine areas. As such, marine mammals and sea turtles are not covered under the 2018 NLAA Program for bridge construction, repair, or widening. If marine mammals are sighted in or near a project area, NMFS West Coast Region Marine Mammal Team (562)-980-3232 will be called for further information and to obtain any authorizations or permits needed.

3. Culverts Repair, Replace or Upgrade



a. General Criteria:

Culverts to be repaired, replaced, or upgraded and covered by the 2018 NLAA Program must meet NMFS Fish Passage Guidelines (http://www.westcoast.fisheries.noaa.gov/publications/hydropower/fish_passage_at_stream_crossings_guidance.pdf) when completed. Each culvert will be no longer than 100 feet. The streambed within the work area and access routes must be outside of flowing or standing water. Dewatering shall not be used to obtain dry conditions. Except for project footprint, the bed and banks must be left as found.

Replaced or upgraded culverts must be equivalent or better in order of preference of alternatives and structure types set out in NMFS Fish Passage Guidelines and may not maintain or create a passage barrier for adult or juvenile salmonids. Culverts must be sized to accommodate a 100-year flow event and associated debris and sediment with headwater to diameter ratio of less than.

Fine sediment cleaned out from the inside of culverts must be placed in an upland location, where it cannot enter stream networks or road drainages that are hydrologically connected to a stream, and stabilized.

i. Work Windows:

1. June 15 through October 15

ii. Geographic Restrictions:

1. Projects in estuaries, bays, marine waters and the Central Valley are not included in the 2018 NLAA Program.

ii. Special Notification or Assistance:

1. USACE will provide NMFS with design drawings for examination by a NMFS fish passage engineer to ensure that salmonid migration will not be hindered by the proposed project. Such technical assistance and confirmation can occur via email or by letter. The 2018 NLAA Program does not apply to projects that do not meet this criteria.

4. Buoys, Floats and Other Devices to Facilitate Mooring of Vessels

No map is provided because there are no location restrictions on this project type within the 2018 NLAA Program Area

a. General Criteria:

The project purpose must be to facilitate moorage of vessels where the USCG has established such areas (anchorage or fleeting areas) for that purpose (e.g., non-commercial, single-boat, mooring buoy). Mooring anchors placed within submerged aquatic vegetation (SAV) or habitat suitable for SAV must use midline floats to prevent chain scour to the substrate. Sheet pile walls are not included. Floating breakwaters are allowed. Persistently moored vessels, i.e., houseboats, are not allowed. Proposed activities that exceed the limits and purpose of NWP #9 or NWP #10 are not included.

i. Geographic Restrictions

1. See marine mammal and sea turtle requirements below for projects in Northern California Coast, Central California Coast, and Central Valley that may affect those species.

ii. Work windows:

1. Unless otherwise noted below, work may only occur June 15 through October 15.
2. Work in San Francisco Bay may only occur June 15 through November 30.
3. Work in the Delta may only occur July 1 through October 31.
4. Work in Humboldt Bay may only occur July 1 through October 15. Work in river mouths and other small estuaries may only occur June 15 through September 15.

b. Specific Criteria

i. Avoidance

1. All new anchored moorings should be placed in areas in which specific EFH Habitat Areas of Particular Concern are absent, including submerged aquatic vegetation (SAV), canopy kelp, and rocky reef.

ii. Minimization

1. Mooring anchors placed within SAV or habitat suitable for SAV should be of the type which use midline floats to prevent chain scour to the substrate.
2. Moorings in SAV or suitable SAV habitat may only be placed in areas where boats will remain at least 18 inches above the substrate at low tide.

iii. Pile Driving Criteria:

1. For Northern California Coast and Central California Coast streams:
 - a. Vibratory hammer – may use steel, wood, or concrete piles; any size pile, any number
 - b. Impact hammer – may not be used; likely to adversely affect, needs individual consultation

2. For Central Valley San Francisco Bay, the Delta, and Humboldt Bay and river mouths/small estuaries:
 - a. Vibratory hammer – may use steel, wood, or concrete piles; any size pile, any number
 - b. Impact hammer with wood piles – limited to projects using only one hammer and less than 20 piles installed per day
 - c. Impact hammer with concrete piles – piles must be 18 inches or less in diameter. Limited to projects using only one hammer and less than 20 piles installed per day
 - d. Impact hammer with steel piles – piles must be 12 inches or less in diameter and hammer must be 3000 pounds or smaller and must use wood cushion between hammer and pile. Limited to projects using only one hammer and less than 20 piles installed per day.

3. All pilings must be fit with devices to prevent perching by piscivorous bird species where possible (e.g., devices to prevent perching cannot interfere with the visibility of navigational markers, instructions, warnings, etc.).

c. Marine Mammals and Sea Turtles:

Marine mammals are unlikely to occur in the Delta and Central Valley and as such are not included in the 2018 NLAA Program in these areas. If marine mammals are sighted in or near a project area in the Delta or Central Valley, NMFS West Coast Region Marine Mammal Team (562)-980-3232 will be called for further information and to obtain any authorizations or permits needed.

For pile driving projects affecting marine mammal species (in the water or at haul-out sites), work windows and other requirements are species specific. These projects may require on-site monitors and Marine Mammal Protection Act authorizations or permits. Please contact NMFS West Coast Region Marine Mammal Team (562) 980-3232 for further information. The criteria used for marine mammals also apply to sea turtles in the 2018 NLAA Program.

i. General Criteria for Marine Mammals:

1. Project activities are to occur only during daylight hours.
2. Maintain root mean square (rms) underwater sound pressure for impulse sound (e.g. impact pile driving) below levels that can affect the behavior (160 dB re1 micro Pascal at 1 m) of or injure marine mammals or sea

turtles⁷. Injurious take is based on marine mammal hearing thresholds (Table 1).

Table 1. Thresholds Identifying the Onset of Permanent Threshold Shift.

Hearing Group	Impulsive	Non-impulsive
Low-frequency (LF) cetaceans (e.g. baleen whales) ⁵	$L_{pk,flat}$: 219 dB $L_{E,LF,24h}$: 183 dB	$L_{E,LF,24h}$: 199 dB
Mid-frequency (MF) cetaceans (e.g. dolphins, toothed whales, beaked whales, bottlenose whales)	$L_{pk,flat}$: 230 dB $L_{E,MF,24h}$: 185 dB	$L_{E,MF,24h}$: 198 dB
Otariid pinnipeds (OW) (underwater) (e.g. sea lions and fur seals)	$L_{pk,flat}$: 232 dB $L_{E,OW,24h}$: 203 dB	$L_{E,OW,24h}$: 219 dB
<p>* Dual metric acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds should also be considered.</p> <p>Note: Peak sound pressure (L_{pk}) has a reference value of 1 μPa, and cumulative sound exposure level (LE) has a reference value of 1μPa²s. In this Table, thresholds are abbreviated to reflect American National Standards Institute standards (ANSI 2013). However, peak sound pressure is defined by ANSI as incorporating frequency weighting, which is not the intent for this Technical Guidance. Hence, the subscript “flat” is being included to indicate peak sound pressure should be flat weighted or unweighted within the generalized hearing range. The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, MF, and HF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The cumulative sound exposure level thresholds could be exceeded in a multitude of ways (i.e., varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these acoustic thresholds will be exceeded.</p>		

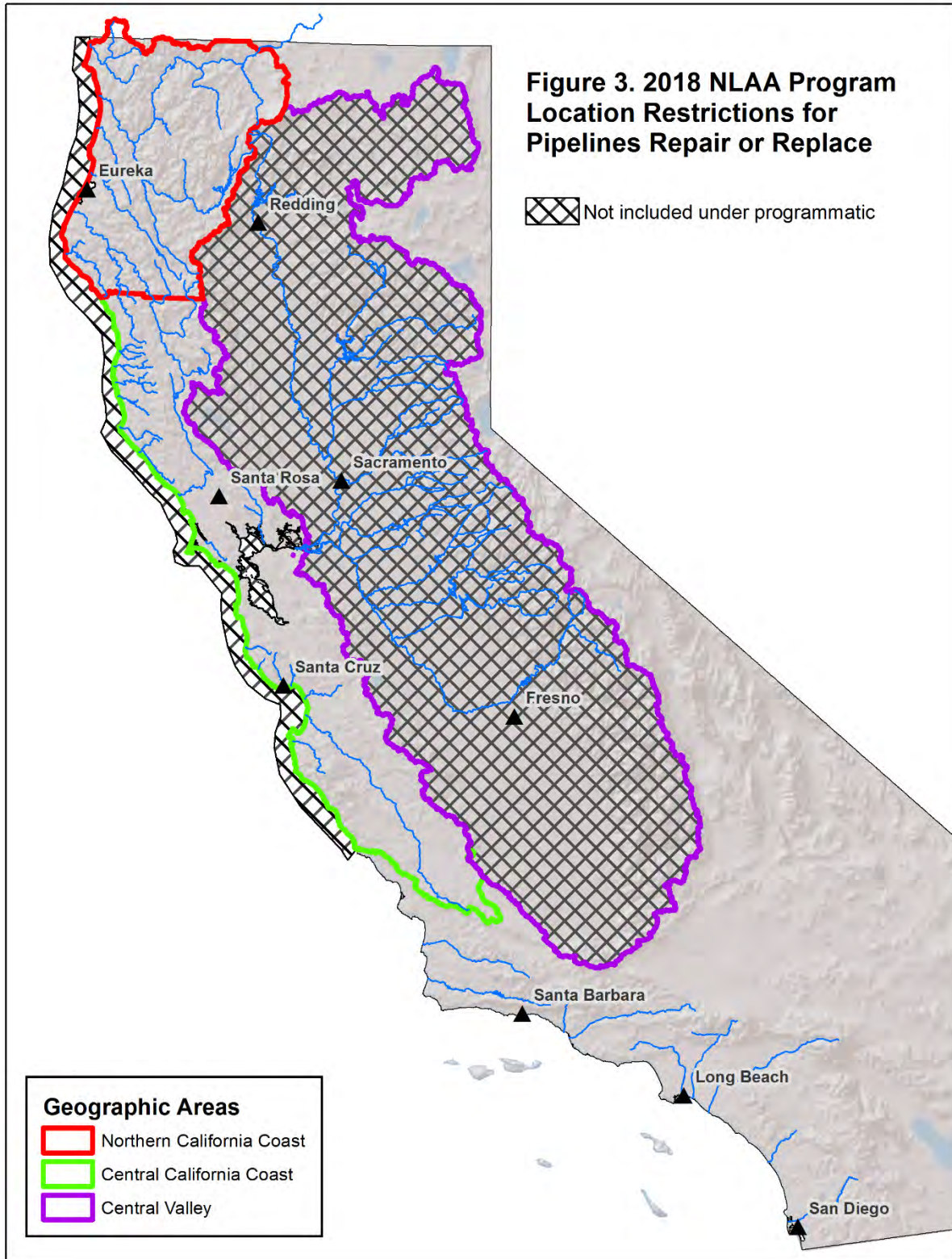
3. Maintain rms underwater sound pressure for continuous sound (e.g., vibratory pile driving) below levels that can affect the behavior (120 dB re 1 micro Pascal at 1 m, or, below ambient underwater noise levels, whichever is greater) of marine mammals.
4. Maintain and monitor a shutdown zone where received underwater sound pressure levels are less than the criteria described above. Refer to #6 and #8 below for shutdown zone procedures. Monitoring is to be done by NMFS-approved observer. For projects that produce sound source levels equal to or greater than the criteria described above, additional authorization under the MMPA may be required.

⁷ In NMFS judgement, sea turtle hearing is likely similar to the low-frequency hearing specialist group.

5. If sound pressure levels are unknown, a proxy may be used for similar pile size and type, and similar environmental conditions. Isopleths⁸ should be calculated using proxy data and shutdowns should be set at this distance.
 1. If any marine mammals or sea turtles are located within the shutdown zone where sound levels exceed thresholds for injury or adverse effects to behavior, the Permittee must wait until the animals leave the area or until at least 30 minutes after the animal has last been observed before beginning pile installation or removal activities. If any marine mammals or sea turtles move within this zone, the Permittee will not continue these activities until 30 minutes has passed since the last such sighting. Ramp-up procedures described in #8 below will be used.
6. When pinnipeds (seals, sea lions) are seen by observers out of the water within the safety zone, maintain sound levels below 90 dB (A,-weighted) in air.
7. Use ramp-up procedures to slowly increase the intensity of sound produced prior to the start of each day, after a break of 30 minutes or more, and if any increase in pile installation or removal intensity is required. Ramp-up procedures must include an initial set of strikes at reduced energy, followed by a thirty-second waiting period, then two subsequent reduced energy strike sets prior to regular pile driving operations.
8. Vessel operators should adjust vessel speed (e.g. no wake speed) when marine mammals or sea turtles are in the project area. In the extremely unlikely event of a vessel collision with a marine mammal or sea turtle, the responsible party must immediately contact NMFS – Mr. Justin Viezbicke at [\(562\) 980-3230](tel:5629803230).

⁸ In the 2018 NLAA Program, isopleth refers to the extent in the aquatic environment of underwater sound pressure at a particular level.

5. Pipeline Repair or Replacement



a. General Criteria:

Does not apply to new pipeline projects. Except for project footprint, the bed and banks shall be left as found. No more than 300 feet of stream bed or banks may be disturbed by construction activities for each project. No projects in bays, estuaries, or other marine areas.

i. Geographic Restrictions:

Only projects in freshwater streams are included in the 2018 NLAA Program.

ii. Work Windows:

1. June 15 through October 15

iii. Special Notification or Assistance:

1. If grade control structures are included, technical assistance and confirmation from NMFS is required to ensure such structures do not adversely affect salmonid habitat including fish passage. Written confirmation from NMFS is required (email acceptable). USACE will transmit design drawings to NMFS for review. Pre- project notification must include a list of all affected streams, if multiple crossings are included in the action.

b. Specific Criteria:

i. Trenching:

1. The streambed within the work area must be dry throughout the construction period – no flowing or ponded water.
2. Dewatering shall not be used to obtain dry conditions.
3. Streamside woody vegetation must not be disturbed.
4. Banks must be re-seeded with native vegetation to stabilize disturbed banks.
5. Channels must be restored to pre-project contours and characteristics (no loss of pools, riffles, or cover) prior to natural rewatering of work area.
6. Pipelines must be placed beneath a stream's scour line.
7. Replacement pipeline must be the same or less capacity as old pipeline.
8. Pipeline must be relatively perpendicular to stream banks (45-90 degrees) and cannot run along stream banks.
9. Replaced pipelines do not need to be in the same location as long as old pipeline is removed from stream bed and banks.

ii. Boring:

1. The applicant must perform a geologic analysis and there must be a low likelihood that a frac-out⁹ will occur.
2. A NMFS-approved contingency plan must be prepared and the project must have resources ready for plan implementation. An emergency response team and equipment must be maintained on site at all stream crossings.
3. No woody plant material may be removed from the bank or stream channel; construction equipment and personnel shall operate outside the stream channel and banks or levees so that no in-channel impacts occur.
4. USACE or applicant must provide NMFS the geotechnical survey prior to construction.
5. USACE or applicant must immediately contact the appropriate NMFS field office in the case of a frac-out.
6. Bentonite and other environmentally deleterious lubricants and fluids should not be used below ordinary high water.
7. Inactive pipelines and submerged cables should be removed unless they are located in sensitive areas. If allowed to remain in place, pipelines should be properly pigged, purged, filled with water, and capped prior to abandonment in place.

⁹ A frac-out occurs when drilling mud escapes from a drill hole into an aquatic or terrestrial environment.

6. Geotechnical Boring in Support of Project Designs

No map is provided because this project type may occur throughout the Corps 2018 NLAA Program area.

a. General Criteria:

All Geotechnical Boring projects covered under this programmatic are limited to investigations to explore surface and subsurface conditions and obtain data for the design of a future project. Boring near freshwater streams must be done outside of flowing or standing water. Boring in bays and estuaries must be performed with an auger casing that does not exceed 10 inches and the number of borings may not exceed five. Drilling fluids, other than water, used to advance borings must be recirculated through the drilling rig and ultimately collected for offsite disposal at an appropriate facility.

i. Work Windows

June 15 through October 15 unless otherwise specified below:

San Francisco Bay: June 15 through November 30

Delta: July 1 through October 31

Humboldt Bay: July 1 through October 15

ii. Geographic Restrictions

See above under a. General Criteria for location restrictions

b. Specific Criteria

- i. No woody plant material may be removed from the bank or stream channel; construction equipment and personnel shall operate outside the stream channel and banks or levees so that no in-channel impacts occur.
- ii. USACE or applicant must provide NMFS the geotechnical survey prior to construction.
- iii. USACE or applicant must immediately contact the appropriate NMFS field office in the case of a frac-out.

7. Aids to Navigation in Bays, Estuaries, and River Mouths

No map is provided because this project type is restricted to San Francisco Bay, the Delta, Humboldt Bay, river mouths and other small coastal estuaries, and nearshore marine areas only.

a. General Criteria

Maintenance, repair, and replacement of current buoys and aids to navigation are allowed under the 2018 NLAA Program. The installation of new buoys and aids to navigation is limited to five per project. Minor relocations (within 500 feet) are covered. Establishment of new shipping lanes, boat travel areas, or other new vessel routing approaches are not covered. For aids to navigation and other structures supported by piles, see specific criteria below. For tethered buoys, see specific criteria below.

i. Work Windows

San Francisco Bay: June 15 through November 30

Delta: July 1 through October 31

Humboldt Bay: July 1 through October 15

River mouths, other small estuaries, and nearshore marine areas: June 15 through September 15.

ii. Geographic Restrictions

San Francisco Bay, the Delta, Humboldt Bay, and nearshore marine areas (including other small estuaries and river mouths) only

b. Specific Criteria

i. Avoidance

1. All new aids to navigation should be placed in areas in which specific EFH Habitat Areas of Particular Concern are absent, including submerged aquatic vegetation (SAV), canopy kelp, and rocky reef.

ii. Minimization

1. Aids to navigation that are floating within SAV or habitat suitable for SAV should be of the type which use midline floats to prevent chain scour to the substrate.

iii. Pile Driving Criteria:

These criteria apply to both new construction and repair/maintenance of existing structures. There are additional criteria below for marine mammals.

1. Vibratory hammer – may use steel, wood, or concrete piles; any size pile, any number
2. Impact hammer with wood piles – limited to projects using only one

- hammer and less than 20 piles installed per day
3. Impact hammer with concrete piles – Piles must be 18 inches or less in diameter. Limited to projects using only one hammer and less than 20 piles installed per day.
 4. Impact hammer with steel piles – Piles must be 12 inches or less in diameter, and hammer must be 3,000 pounds or smaller, and must use a wood or plastic cushion block between hammer and pile. Limited to projects using only one hammer and less than 20 piles installed per day.
 5. Install and remove piles with a vibratory hammer whenever possible, rather than the direct pull or clamshell method. Under those conditions where impact hammers are necessary (*e.g.*, substrate type and seismic stability) the pile must be driven as deep as possible with a vibratory hammer prior to the use of the impact hammer.
 6. Remove the pile slowly to allow sediment to slough off at, or near, the mud line.
 7. The operator must first hit or vibrate the pile to break the bond between the sediment and pile to minimize the potential for the pile to break, as well as reduce the amount of sediment sloughing off the pile during removal.
 8. Removed piles must be placed on a barge or onshore such that all sediment and runoff is captured in a basin and not allowed to enter the water.
 9. If a piling breaks off above the mudline during removal, the loose piece of pile must first be placed on a barge or onshore prior to removing the remaining pile.
 10. When removing creosote-treated timber piles, they must be cut into short lengths to prevent reuse. All debris, including attached, contaminated sediments, should be disposed of in an approved upland facility.
 11. When contaminated sediment occurs in the footprint of the proposed project, cap all holes left by the piles with clean native sediments.
 12. When pile driving in an intertidal area (a place that is exposed at low tide), drive piles during low tide when minimal water is present and substrates are exposed.

d. Marine Mammals and Sea Turtles:

Marine mammals are unlikely to occur in the Delta and Central Valley and as such are not included in the 2018 NLAA Program in these areas. If marine mammals are sighted in or near a project area in the Delta or Central Valley, NMFS West Coast Region Marine Mammal Team (562)-980-3232 will be called for further information and to obtain any authorizations or permits needed.

For boat dock, pier, and wharf pile driving projects affecting marine mammal species (in the water or at haul-out sites), work windows and other requirements are species specific. These projects may require on-site monitors and Marine Mammal Protection Act authorizations or permits. Contact NMFS West Coast Region Marine Mammal Team at (562) 980-3232 for further information. The criteria used for marine mammals also apply to sea turtles in the 2018 NLAA Program.

i. General Criteria for Marine Mammals:

1. Project activities are to occur only during daylight hours.
2. Maintain root mean square (rms) underwater sound pressure for impulse sound (e.g. impact pile driving) below levels that can affect the behavior (160 dB re 1 micro Pascal at 1 m) of, or injure, marine mammals or sea turtles. Injurious take is based on marine mammal hearing thresholds¹⁰ (Table 1) based on NOAA Fisheries’ acoustic guidance (NMFS 2018).

Table 1. Thresholds Identifying the Onset of Permanent Threshold Shift.

Hearing Group	Impulsive	Non-impulsive
Low-frequency (LF) cetaceans (e.g. baleen whales) ³	$L_{pk,flat}$: 219 dB $L_{E,LF,24h}$: 183 dB	$L_{E,LF,24h}$: 199 dB
Mid-frequency (MF) cetaceans (e.g. dolphins, toothed whales, beaked whales, bottlenose whales)	$L_{pk,flat}$: 230 dB $L_{E,MF,24h}$: 185 dB	$L_{E,MF,24h}$: 198 dB
Otariid pinnipeds (OW) (underwater) (e.g. sea lions and fur seals)	$L_{pk,flat}$: 232 dB $L_{E,OW,24h}$: 203 dB	$L_{E,OW,24h}$: 219 dB
<p>* Dual metric acoustic thresholds for impulsive sounds: Use whichever results in the largest isopleth for calculating PTS onset. If a non-impulsive sound has the potential of exceeding the peak sound pressure level thresholds associated with impulsive sounds, these thresholds should also be considered.</p> <p>Note: Peak sound pressure (L_{pk}) has a reference value of 1 μPa, and cumulative sound exposure level (LE) has a reference value of 1μPa²s. In this Table, thresholds are abbreviated to reflect American National Standards Institute standards (ANSI 2013). However, peak sound pressure is defined by ANSI as incorporating frequency weighting, which is not the intent for this Technical Guidance. Hence, the subscript “flat” is being included to indicate peak sound pressure should be flat weighted or unweighted within the generalized hearing range. The subscript associated with cumulative sound exposure level thresholds indicates the designated marine mammal auditory weighting function (LF, MF, and HF cetaceans, and PW and OW pinnipeds) and that the recommended accumulation period is 24 hours. The cumulative sound exposure level thresholds could be exceeded in a multitude of ways (i.e., varying exposure levels and durations, duty cycle). When possible, it is valuable for action proponents to indicate the conditions under which these acoustic thresholds will be exceeded.</p>		

3. Maintain rms underwater sound pressure for continuous sound (e.g., vibratory pile driving) below levels that can affect the behavior (120 dB re 1 micro Pascal at 1 m, or, below ambient underwater noise levels, whichever is greater) of marine mammals.

¹⁰ In NMFS judgement, sea turtle hearing is likely similar to the low-frequency hearing specialist group.

4. Maintain and monitor a shutdown zone where received underwater sound pressure levels are less than the criteria described above. Refer to #6 and #8 below for shutdown zone procedures. Monitoring is to be done by a NMFS-approved observer. Multiple observers may need to be used to sufficiently monitor the shutdown zone. For projects that produce sound source levels equal to or greater than the criteria described above, additional authorization under the MMPA may be required.

5. If sound pressure levels are unknown, a proxy may be used for similar pile size and type, and similar environmental conditions. Isopleths¹¹ should be calculated using proxy data and shutdowns should be set at this distance.

6. If any marine mammals or sea turtles are located within the shutdown zone where sound levels exceed thresholds for injury or adverse effects to behavior, the Permittee must wait until the animal leaves the area or until at least 30 minutes after the animal has last been observed before beginning pile installation or removal activities. If any marine mammals or sea turtles move within this zone, the Permittee will not continue these activities until 30 minutes has passed since the last such sighting. Ramp-up procedures described in #8 below will be used.

7. When pinnipeds (seals, sea lions) are seen by observers out of the water within the safety zone, maintain sound levels below 90 dB (A,-weighted) in air.

8. Use ramp-up procedures for impact pile driving to slowly increase the intensity of sound produced prior to the start of each day, after a break of 30 minutes or more, and if any increase in pile installation or removal intensity is required. Ramp-up procedures require an initial set of strikes at reduced energy, followed by a thirty-second waiting period, then two subsequent reduced energy strike sets prior to regular pile driving operations.

9. Vessel operators should adjust vessel speed (e.g. no wake speed) when marine mammals or sea turtles are in the project area. In the extremely unlikely event of a vessel collision with a marine mammal or sea turtle, the responsible party must immediately contact NMFS – Mr. Justin Viezbicke at [\(562\) 980-3230](tel:5629803230).

¹¹ In the 2018 NLAA Program, isopleth refers to the extent in the aquatic environment of underwater sound pressure at a particular level.