

in air and underwater; however, some marine animals (e.g., marine mammals) can perceive and potentially be impacted by these sounds. Given the great differences between how a single sound is received and processed by different marine animal receptors, NOS determined that the impact of sound would be best assessed at the receptor level for the biological resources of marine mammals, sea turtles, fish, aquatic macroinvertebrates, and birds.

### 3.1 AFFECTED ENVIRONMENT METHODOLOGY

The affected environment summarizes the current physical, biological, social, and economic environments of the “action area,” which includes rivers; states’ offshore waters; the United States (U.S.) territorial sea; the contiguous zone; the U.S. Exclusive Economic Zone (U.S. EEZ); and coastal and riparian lands for projects such as the installation, maintenance, and removal of tide gauges. This includes the U.S. portions of the Great Lakes and internal waters including Lakes Tahoe, Mead, Champlain, Okeechobee, and major rivers such as the Mississippi, Missouri, Hudson, and Columbia rivers. For each resource, the affected environment describes the elements or components of the resource that may be potentially affected by the alternatives.

### 3.2 ENVIRONMENTAL CONSEQUENCES METHODOLOGY

The environmental consequences analysis considers how the condition of a resource would change as a result of implementing each of the alternatives and describes the impacts in terms of types (direct, indirect, cumulative, beneficial, adverse), context, intensity, and significance. The types of impacts are defined in Section 3.2.1 and the development of significance criteria is described in Section 3.2.2 below. The impacts analysis is performed using a framework that follows a logical sequence of analytical steps for each resource under each alternative:

- **Impact Causing Factors.** Evaluate proposed activities to identify which elements of the activities could lead to impacts - the impact causing factors. A systematic consideration of causes and effects is used to derive the impact causing factors from known actions and characteristics that define the activities.
- **Detailed Analysis of Impacts.** Evaluate the impact causing factors to produce a detailed analysis of the impacts. Assess the context and intensity of the impacts from each impact causing factor, then evaluate the impacts from all impact causing factors to define significance for the alternative.
- **Significance Criteria.** Develop and apply criteria that are standards for evaluating the significance of the impacts caused by the proposed activities.

#### 3.2.1 Types of Impacts

According to the Council on Environmental Quality’s (CEQ) National Environmental Policy Act (NEPA) Regulations at 40 Code of Federal Regulations (CFR) 1500-1508 (1978), direct and indirect effects are defined as:

**Direct effects:** Effects that are caused by the action and occur at the same time and place (1508.8(a)).

**Indirect effects:** Effects that are caused by the action and occur later in time or are farther removed in distance but are still reasonably foreseeable. Indirect effects also include “induced changes” in the human and natural environments (1508.8(b)).

For example, the ability of the water to sustain aquatic life may become temporarily impaired in the event of an accidental fuel or hazardous materials spill. Indirect impacts are those follow-on effects induced by the initial impact; for example, fuel or hazardous materials spills could lead to species population reduction or displacement, adversely affecting commercial harvest of marine species.

Identified impacts may be either adverse or beneficial. The CEQ Guidelines that govern NEPA implementation describe the need for identifying and differentiating between adverse and beneficial impacts, but do not offer a definition of these terms. This Draft PEIS considers both adverse and beneficial impacts as defined below:

**Adverse impacts:** Those impacts having a negative and harmful effect on the analyzed resource. An adverse impact causes a change that moves the resource away from a desired condition or detracts from its appearance or condition.

**Beneficial impacts:** Those impacts having a positive and supportive effect on the analyzed resource. A beneficial impact constitutes a positive change in the condition or appearance of the resource or a change that moves the resource toward a desired condition.

**Cumulative impacts:** Effects on the environment from the incremental impact of the Proposed Action when added to other past, present, and reasonably foreseeable future actions. See Chapter 4 for more information on cumulative impacts.

### 3.2.2 Significance Criteria

Significance criteria provide a structured framework for assessing impacts, supporting conclusions regarding the significance of effects, and comparing effects between alternatives. For this Draft PEIS, NOS developed significance criteria for each resource by defining the context and intensity of potential impacts and dividing those impacts into four categories. NOS then designated the significance conclusion for each category of impacts. The significance criteria for each resource analyzed are provided in Sections 3.4 through 3.13.

#### 3.2.2.1 Context and Intensity

As defined in 40 CFR 1508.27, determining the significance of impacts requires a consideration of both context and intensity. Context means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Both short- and long-term effects are relevant. Intensity refers to the severity of impact. See Section 1508.27 for the list of factors that can contribute to the intensity of an impact.

#### 3.2.2.2 Impact Descriptor

Four impact descriptors are used to categorize the context and intensity of impacts: negligible, minor, moderate, and major. Because context and intensity vary by resource, the four impact descriptors are defined in the methodology section for each resource (Sections 3.4 through 3.13).

### 3.2.3 Mitigation Measures

Pursuant to the CEQ regulations, agencies must analyze appropriate means to mitigate adverse effects that are not already included in the Proposed Action. See, e.g., 40 CFR 1502.16(a) (9) and 1502.14(e). The Proposed Action includes best management practices (BMPs) for some NOS activities that are discussed

in the effects analysis where relevant, such as avoiding bottom sampling on coral reefs, shipwrecks, obstructions, or hard bottom areas and ensuring that all instruments placed in contact with the sea floor are properly secured to minimize bottom disturbance.

Additionally, this analysis concludes that the Proposed Action is not anticipated to result in significant impacts for any resource. As such, NOS has not proposed a discrete set of additional mitigation measures for this Draft PEIS. NOS intends to engage in interagency consultation on environmental compliance regulations including the Marine Mammal Protection Act (MMPA), Endangered Species Act (ESA), Magnuson-Stevens Fishery Conservation and Management Act (MSA), and National Historic Preservation Act of 1966 (NHPA) following publication of this Draft PEIS. These regulations are described in more detail in Section 3.3. Additional mitigation measures would likely be identified through these consultations. Mitigation measures and BMPs developed through consultation, as well as measures suggested through public comment, will be considered as part of the analysis in the Final PEIS.

### **3.3 REGULATORY BACKGROUND**

In addition to NEPA, other federal environmental laws, regulations, and Executive Orders may be applicable to individual projects described in this PEIS. In accordance with CEQ regulations for implementing NEPA, NOS is integrating the requirements of NEPA with all other applicable environmental review requirements to the fullest extent practicable. NOS sought to incorporate the findings and conclusions from other regulatory agencies in this NEPA analysis. The full list of potentially applicable legal requirements is included in this section, with a detailed summary of selected requirements.

NOS is committed to public transparency and working with local, state, tribal, and federal partners to reduce environmental impacts from NOS projects. Although state and local statutes and regulations (particularly procedural requirements like permitting) are not typically binding on federal agencies, it is NOS's intent to comply with substantive state and local requirements to the maximum extent practicable.

#### **3.3.1 Marine Mammal Protection Act**

The Marine Mammal Protection Act (MMPA) of 1972 (16 United States Code [U.S.C.] §§ 1361 et seq.), as amended, prohibits, with certain exceptions, the "take" of marine mammals in U.S. waters and by U.S. citizens in international waters. The MMPA defines "take" as: "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture or kill any marine mammal" (16 U.S.C. § 1362). Harassment means "any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal or marine mammal stock in the wild; or has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering" (16 U.S.C. § 1362).

Section 101(a)(5)(A-D) of the MMPA provides a mechanism for allowing, upon request, the "incidental" but not intentional taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified geographic region. Jurisdiction for MMPA is shared by the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) (collectively, the Services). NMFS is responsible for the protection of whales, dolphins, porpoises, seals, and sea lions. The USFWS is responsible for the protection of walruses, manatees, sea otters, and polar bears.

Authorization for incidental takes may be granted if the Services find that the taking would be of small numbers, would have no more than a "negligible impact" on those marine mammal species or stocks, and

would not have an "unmitigable adverse impact" on the availability of the species or stock for "subsistence" uses. For species under the jurisdiction of NMFS, incidental take authorizations may be issued as either: 1) regulations and associated Letters of Authorization (LOAs), or 2) Incidental Harassment Authorizations (IHAs). LOAs are available for actions with potential to result in serious injury or mortality. LOAs are issued by region and can be valid for up to five consecutive years. An IHA is also issued by region, can only be valid for one year, and is limited to authorizing take by harassment. NOS will apply for an LOA for the Proposed Action. For species under the jurisdiction of USFWS, NOS will submit an Incidental Take Regulation (ITR) request. ITRs can be issued for periods of up to five years and can cover all forms of incidental take. NOS intends for this PEIS to serve as a consultation document to initiate consultation with NMFS and USFWS following publication of the Draft PEIS.

### **3.3.2 Endangered Species Act**

The Endangered Species Act (ESA) of 1973 as amended (16 U.S.C. §§ 1531, et seq.), provides for the conservation of species that are endangered or threatened throughout all or a significant portion of their range, and the conservation of the ecosystems on which they depend. The ESA directs all federal agencies to work to conserve endangered and threatened species and to use their authorities to further the purposes of the Act. Jurisdiction is shared by the Services. Generally, NMFS manages marine species, while the USFWS manages land and freshwater species. USFWS has jurisdiction over certain marine species, such as sea otters, manatees, and sea birds.

A species (or subspecies) is considered endangered if it is in danger of extinction throughout all or a significant portion of its range. A species (or subspecies) is considered threatened if it is likely to become an endangered species within the foreseeable future. When listing a species as threatened or endangered, the Services also designate critical habitat for the species to the maximum extent prudent and determinable (16 U.S.C. § 1533(a)(3)).

Under Section 7(a)(2) of the ESA, each federal agency shall, in consultation with the Services, ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. The ESA requires federal agencies to consult or confer with the Services when a federal agency's action "may affect" a protected species or critical habitat, whether that effect is adverse or beneficial. Consultation is initiated by the preparation of a Biological Assessment (BA) by the federal agency. Informal consultation is available if an action "may affect, but is not likely to adversely affect" protected species or designated critical habitat. The Services provide a letter of concurrence, which completes informal consultation. Formal consultation is required if adverse effects are anticipated. Formal consultation is concluded by the preparation of a Biological Opinion by the Services. If jeopardy is not likely, the agency may authorize incidental take of protected species in an incidental take statement.

NOS intends that this Draft PEIS serve as a BA. NOS intends to initiate consultation with USFWS and NMFS following publication of the Draft PEIS.

### **3.3.3 Magnuson-Stevens Fishery Conservation and Management Act**

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), enacted in 1976, is the primary law governing marine fisheries management in U.S. federal waters and is administered by NMFS. The MSA (16 U.S.C. § 1801, et seq.) encourages the conservation and restoration of essential fish habitat (EFH) and resources. EFH describes all waters and substrates necessary for fish for spawning, breeding, feeding, or growth to maturity. Section 305(b) of the MSA (16 U.S.C. § 1855(b)) requires federal agencies to consult

with the Secretary of Commerce on all actions, or Proposed Actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH.

“Adverse effect” is defined in the EFH regulations as: “any impact that reduces quality and/or quantity of EFH. Adverse effects may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality and/or quantity of EFH. Adverse effects to EFH may result from actions occurring within EFH or outside of EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.”

EFH consultation is managed by NMFS’s Office of Habitat Conservation. If adverse effects are anticipated, NMFS will recommend measures to avoid, minimize, or offset any adverse impacts associated with the activity to ensure no reduction in the quality or quantity of EFH occurs as a result of the proposed activity.

NOS intends to rely on this Draft PEIS as the EFH Assessment to initiate consultation for the Proposed Action. NOS intends to initiate consultation with NMFS following publication of the Draft PEIS.

### **3.3.4 Migratory Bird Treaty Act**

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. §§ 703-712) is the primary legislation in the U.S. established to conserve migratory birds and requires the protection of migratory birds and their habitats. It implements the U.S. commitment to four bilateral treaties or conventions with Canada, Japan, Mexico, and Russia for protection of a shared migratory bird resource. The MBTA prohibits, with certain exceptions, pursuing, hunting, taking, capturing, killing, or selling migratory birds or any part, nest, egg, or product of migratory birds. Migratory birds protected under the MBTA include those that are native to the U.S. which are listed in 50 CFR § 10.13. The USFWS has jurisdiction of the species protected by the MBTA.

On January 7, 2021, a new rule (the January 7 rule) (86 FR 1134), effective on March 8, 2021, was proposed to restrict the scope of the MBTA to cover only intentional killings or injuring of birds; however, on May 7, 2021, the USFWS proposed a new rule (86 FR 24573) to revoke the January 7 rule. The effect of the May 7 proposed rule would be to return to implementing the MBTA as prohibiting incidental take as well as intentional take. The effective date of the May 7 rule will follow the public comment period which has been scheduled to end on June 7, 2021.

### **3.3.5 Coastal Zone Management Act**

The Coastal Zone Management Act (CZMA) (16 U.S.C. §§ 1456 et seq) was enacted in 1972 to encourage coastal states, Great Lakes states, and U.S. Territories and Commonwealths (collectively referred to as “coastal states” or “states”) to be proactive in managing natural resources for their benefit and the benefit of the nation. The CZMA is a voluntary program for states; currently, all U.S. coastal states participate except Alaska, which voluntarily withdrew from the program in 2011. Section 307 of the CZMA is known as the “federal consistency” provision.

The federal consistency provision requires federal actions (inside or outside a state’s coastal zone) that affect any land or water use or natural resource of a state’s coastal zone, to be consistent with the enforceable policies of the state coastal management program (CMP). The term “effect on any coastal use or resource” means any reasonably foreseeable effect on any coastal use or resource resulting from the activity, including direct and indirect (cumulative and secondary) effects. The federal consistency

regulations at 15 CFR Part 930 set forth detailed timeframes and procedures. The consistency requirements apply to both federal agency activities (15 CFR Part 930, Subpart C), and federal license or permit activities (Subpart D), but the consistency review is different for each type of federal agency action.

Federal agency activities (Subpart C) are activities and development projects performed by a federal agency, or a contractor for the benefit of a federal agency. For federal agency projects occurring inside or outside a state's coastal zone, for states or territories with approved CMPs, the federal agency must submit a Consistency Determination to the state if the federal agency determines the activity may have reasonably foreseeable effects on the state's coastal uses or resources. If there are no reasonably foreseeable effects, the federal agency may be required to provide a Negative Determination to the state (detailed in 15 CFR § 930.35). If the state objects to the federal agency's consistency determination, the federal agency may proceed with its action if it finds that its action is consistent to the maximum practicable with the enforceable policies of the state's CMP.

Federal license or permit activities (Subpart D) are activities conducted by a non-federal entity that require a federal license, permit, or other type of authorization. If the proposed activity has reasonably foreseeable effects on a state's coastal uses or resources in states or territories with approved CMPs, then the permit applicant must submit a Consistency Certification to the state CMP. All federal license or permit activities occurring in the coastal zone are deemed to affect coastal uses or resources if the state CMP has listed the particular federal license, permit or authorization in the state CMP "federal consistency list" approved by NOAA. The federal consistency regulations also identify situations in which an applicant may need to submit a Consistency Certification to the state even if the proposed license or permit activity is not included on the state's federal consistency list. If an applicant is required to submit a Consistency Certification to a state, then the federal agency cannot authorize the proposed activity unless and until the state has concurred with the applicant's Consistency Certification.

In order to facilitate CZMA review for surveying and mapping projects, NOS will coordinate requirements for federal consistency with coastal states and territories pursuant to Section 307 of the CZMA. NOS will provide this Draft PEIS to coastal states or territories with approved CMPs.

### **3.3.6 National Historic Preservation Act and Other Cultural Resource Regulations**

The National Historic Preservation Act of 1966 (NHPA) is the primary federal statute addressing the management of historic properties. Section 106 of the NHPA (54 U.S.C. § 300101 et seq.) requires federal agencies to take into account the effects of their undertakings on historic properties in accordance with regulations issued by the Advisory Council on Historic Preservation at 36 CFR Part 800. Historic properties are properties that are included in the National Register of Historic Places or that meet the criteria for the National Register. If an agency's undertaking could affect historic properties, the agency must identify the appropriate State Historic Preservation Officer/Tribal Historic Preservation Officer (SHPO/THPO) to consult with during the process. It should also plan to involve the public, and identify other potential consulting parties. The agency must identify historic properties in the area of potential effects. If the agency finds that no historic properties are present or affected, it provides documentation to the SHPO/THPO and, barring any objection in 30 days, proceeds with its undertaking. If effects are found, consultation usually results in a Memorandum of Agreement (MOA), which outlines agreed-upon measures that the agency will take to avoid, minimize, or mitigate the adverse effects.

NOS intends to coordinate with the Advisory Council on Historic Preservation to develop potential approaches for addressing programmatic activities. Any programmatic approach developed in coordination with the Advisory Council on Historic Preservation would guide project-specific compliance.

NOS will also invite tribes to engage in government-to-government consultation pursuant to EO 13175, Consultation and Coordination with Indian Tribal Governments. NOS recognizes its unique relationship with tribes and trust responsibility with tribal governments as set forth in the U.S. Constitution, treaties, statutes, executive orders, and court decisions. It is the policy of NOAA to consult on a government-to-government basis with federally recognized tribal governments when the federal actions and decisions may affect tribal interests. This consultation and coordination process would be conducted in accordance with NOAA's Procedures for Government-to-Government Consultation with Federally Recognized Indian Tribes and Alaska Native Corporations (NOAA 13175 policy, November 12, 2013). NOS will invite tribal consultation following publication of the Draft PEIS.

Additional regulations that apply to work in tribal lands and waters and near submerged cultural resources include the Archaeological Resources Protection Act of 1979 (ARPA) (16 U.S.C. §§ 470aa et seq) and the Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. §§ 3001 et seq).

ARPA was enacted "to secure, for the present and future benefit of the American people, the protection of archaeological resources and sites which are on public lands and Indian lands, and to foster increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals" (16 U.S.C. § 470aa(b)). ARPA requires a permit for activities directed at archaeological resources located on public lands (16 U.S.C. § 470cc(a)). ARPA's definition of public lands expressly excludes the outer continental shelf (16 U.S.C. § 470bb(3)(B)); therefore, with regards to the marine environment, the permit system established under ARPA only applies within federal marine protected areas and submerged lands to which the U.S. retained title and which were not transferred under the Submerged Lands Act (SLA) or other laws.

NAGPRA describes the rights of Native American lineal descendants, Indian tribes, and Native Hawaiian organizations with respect to the treatment, repatriation, and disposition of Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony, referred to collectively in the statute as cultural items, with which they can show a relationship of lineal descent or cultural affiliation. NAGPRA regulates the intentional excavation or inadvertent discovery of Native American human remains and cultural items on Federal or tribal lands (25 U.S.C. §§ 3002(c)-(d)). NAGPRA requires a permit for the intentional removal from or excavation of Native American cultural items from federal or tribal lands (25 USC 3002(c)) and in the case of an inadvertent discovery, NAGPRA requires that the person must stop the activity in the area of the inadvertent discovery and make a reasonable effort to protect the cultural items, (25 U.S.C. § 3002(d)). Federal lands under NAGPRA include lands owned or controlled by Federal agencies (25 U.S.C. § 3001(5)); this includes submerged lands within the outer continental shelf and EEZ.

### **3.3.7 National Marine Sanctuaries Act**

The National Marine Sanctuaries Act (NMSA) (16 U.S.C. § 1431 et seq.) authorizes the Secretary of Commerce to designate and manage areas of the marine environment with special national significance due to their conservation, recreational, ecological, historical, scientific, cultural, archeological, educational, or esthetic qualities as national marine sanctuaries.

The Office of National Marine Sanctuaries (ONMS) serves as the trustee for a network of National Marine Sanctuaries encompassing more than 1,553,993 km<sup>2</sup> (600,000 mi<sup>2</sup>) of marine and Great Lakes waters from Washington state to the Florida Keys, and from Lake Huron to American Samoa. The network includes 14 National Marine Sanctuaries.

The NMSA prohibits injury to sanctuary resources. Each sanctuary has individual regulations that include prohibited activities. ONMS has the authority to issue permits for prohibited activities for the purpose of research, education, or management. NOS program offices would obtain all necessary permits to conduct any prohibited activities in national marine sanctuaries, consistent with regulations at 15 CFR 922.

Section 304(d) of the NMSA requires interagency consultation between NOAA and federal agencies taking actions, including authorization of private activities, "likely to destroy, cause the loss of, or injure a sanctuary resource." In addition, federal agencies are required to consult on Proposed Actions that "may affect" the resources of Stellwagen Bank National Marine Sanctuary. Consultation is initiated by submitting a sanctuary resource statement (SRS) to the ONMS describing the potential effects of the activity on sanctuary resources. If the ONMS finds injury is likely, it must recommend "reasonable and prudent alternatives" for the agency to implement to protect sanctuary resources.

NOS will prepare an SRS for consultation that includes a programmatic-level evaluation of impacts from the NOS Preferred Alternative (Alternative B) on each sanctuary. NOS intends to initiate 304(d) consultation after the publication of the Draft PEIS.

### 3.3.8 Executive Orders

Compliance with the following Executive Orders (EO) has been considered in the preparation of this PEIS:

- EO 12114: Environmental Effects Abroad of Major Federal Actions. NOS crewed vessels (Section 2.4.1) and autonomous vehicles (Section 2.4.3) may transit through waters outside the U.S. EEZ; however, no data collection will occur outside the U.S. EEZ.
- EO 11988: Floodplain Management. For more information on floodplains and terrestrial habitat impacts, see Section 3.4, Habitats).
- EO 11990: Protection of Wetlands. For more information on wetlands, habitats (Section 3.4).
- EO 13158: Marine Protected Areas. NOS has determined that the impact of NOS activities on individual Marine Protected Areas (MPAs) and resources within MPAs would be the same as the impacts on the resources within the applicable geographic region evaluated in this PEIS.
- EO 13175: Consultation and Coordination with Indian Tribal Governments. NOS has invited tribes to comment on the Draft PEIS. For more information on the consideration of tribal resources see Cultural and Historic Resources (Section 3.11) and Environmental Justice (Section 3.13).
- EO 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. For more information see Environmental Justice (Section 3.13).
- EO 13112: Invasive Species. For more information on invasive species see Habitats (Section 3.4), Aquatic Macroinvertebrates (Section 3.8), and Essential Fish Habitat (Section 3.8).
- EO 13693: Planning for Federal Sustainability in the Next Decade. The preparation of this PEIS will enable NOS to more meaningfully and efficiently consider the environmental effects of NOS surveying and mapping projects. For more information on how Alternatives B and C will adopt

new techniques and technologies to encourage greater program efficiencies see Chapter 2, Sections 2.5.2 and 2.5.3.

- EO 14008: Tackling the Climate Crisis at Home and Abroad. For more information on climate change see Section 4.1.4, Climate Change and cumulative effects on the environment (Section 4.2).
- EO 13186: Responsibilities of Federal Agencies to Protect Migratory Birds. For more information on birds see Seabirds, Shorebirds and Coastal Birds, and Waterfowl (Section 3.10).