DEPARTMENT OF DEFENSE

Department of the Navy

Record of Decision for the Final Environmental Impact Statement for the Swimmer Interdiction Security System (SISS) at Naval Base Kitsap-Bangor, Silverdale, Kitsap County, Washington

AGENCY: Department of the Navy, Department of Defense

ACTION: Notice of Record of Decision

SUMMARY: The United States (U.S.) Department of the Navy (Navy), after carefully weighing the environmental consequences, announces its decision to install a Swimmer Interdiction Security System (SISS) that would employ teams of Marine Mammal Program (MMP) personnel, sea lions, and dolphins at Naval Base Kitsap-Bangor (NBK-Bangor) to support Naval security operations and rapidly respond to security alerts as set out in the Marine Mammal Alternative identified as the preferred alternative in the Final Environmental Impact Statement (FEIS). The marine mammals would be obtained from the MMP at Space and Naval Warfare Systems Center Pacific (SSC Pacific). Thus, no marine mammals would be collected from the wild for this SISS. Under the preferred alternative, California sea lions and Atlantic bottlenose dolphins would be transported from the MMP in San Diego, California to an MMP facility at NBK-Bangor for deployment on a long-term basis. The animals would reside within in-water enclosures attached to a dock that would be connected to an existing pier at the NBK-Bangor waterfront. The dolphins would be housed in closed-circuit, temperature-controlled enclosures.

The Navy marine mammals would be deployed along the waterfront in conjunction with MMP personnel operating from small power boats. The marine mammals would respond to security alerts by finding, identifying, and interdicting intruders. When an intruder is identified, the animal locating the intruder would be provided with marking hardware to localize the intruder and/or interdiction hardware to enable apprehension of the intruder by security personnel. The Navy marine mammals would also participate in periodic training exercises.

The Navy analyzed environmental impacts and the potential magnitude of those impacts relative to the following categories of environmental resources: marine environment (e.g., hydrography, water quality, sediments, marine fish and mammals,

threatened and endangered species); upland (terrestrial) environment (e.g., surface and groundwater, geology and soils, vegetation, wildlife) and, social and anthropogenic environment (e.g., noise, air quality, cultural resources, socioeconomics and environmental justice).

Analyses determined that there would only be negligible or minor effects to all marine, terrestrial, and social and anthropogenic environmental resources. The National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USF&WS) concurred that the project may affect, but is not likely to adversely affect Endangered Species Act (ESA) fish and the marbled murrelet. NMFS concurred that the project would have no effect on ESA marine mammals. There are no ESA marine mammal species in the area under USF&WS jurisdiction. The Washington Department of Ecology (WDOE) concurred that the proposed project was consistent to the maximum extent practicable with the enforceable polices of Washington's approved Coastal Zone Management Program and will not result in any significant impacts to the State's coastal resources.

An analysis to evaluate potential effects of temperature, noise, transport, water quality, toxins and the presence of other marine mammals in the NBK-Bangor environment on the Navy marine mammals was also conducted. The conclusion of this analysis demonstrated that the Navy bottlenose dolphins and sea lions are not expected to experience adverse environmentally-related effects from transfer to and residence at NBK-Bangor.

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SUPPLEMENTARY INFORMATION: Pursuant to Section 4321 *et seq.* of Title 42 of the U.S. Code (Section 101 *et seq.* of the National Environmental Policy Act (NEPA)); the regulations of the President's Council on Environmental Quality (CEQ) that implement NEPA procedures (40 Code of Federal Regulations [CFR] Parts 1500-1508); and Department of Navy, SECNAV Instruction 5090.6A, Environmental Planning For Department of the Navy Actions, the Navy announces its decision to install a SISS that would employ teams of MMP personnel, sea lions and dolphins at Naval Base Kitsap-Bangor (NBK-Bangor) to support Naval security operations and rapidly respond to security alerts as set out in the Marine Mammal Alternative identified as the preferred alternative in the Final Environmental Impact Statement (FEIS).

PURPOSE AND NEED: The purpose of the proposed SISS is to provide waterside security at NBK-Bangor capable of countering

threats from intruders. In response to recent terrorist attacks, the U.S. government has increased security requirements at its military installations. Several classified Navy instructions establish requirements for security and protection of Navy assets at Navy bases, including NBK-Bangor. The project need increases Navy's compliance with these security requirements. The Classified Annex to the SISS EIS provides additional detail of the proposed action's purpose and need.

The proposed action would be located at NBK-Bangor, Washington, specifically along its waterfront on Hood Canal, which is approximately 20 miles west of Seattle, Washington. NBK-Bangor provides housing, security, food service, training, recreation, physical fitness, public works services, and training and support for submarines located at NBK-Bangor. These include eight of the Navy's 14 Trident submarines, two cruise-missile submarines and one fast-attack submarine as well as other fleet assets. Currently, 9,500 sailors, civilians and contractors work at NBK-Bangor and the base is home to 63 commands. Major commands at NBK-Bangor include the Trident Training Facility, Strategic Weapons Facility Pacific, Puget Sound Naval Shipyard and Intermediate Maintenance Facility, and Commander, Navy Region Northwest. The entirety of NBK-Bangor, including the land areas and adjacent marine water in Hood Canal, is restricted from general public access.

The proposed action is to install and operate a SISS at NBK-Bangor. The implemented system must be able to find, identify, and interdict surface and underwater intruders for engagement by harbor security forces. The implemented system would remain in operation until a superior system becomes available or the purpose and need for the system no longer exist.

The Navy concluded that some of the information required for the proposed action, purpose and need are classified in accordance with U.S. law, regulation and Navy Instructions. Classified details involving the proposed action's purpose and need are in a Classified Annex to the SISS FEIS, which is classified SECRET/formerly restricted data (FRD), pursuant to Chief of Naval Operations Instruction (OPNAVINST) S5513.5B. The FEIS contains as much unclassified information as can be provided.

The Navy marine mammals would be deployed along the waterfront in conjunction with MMP personnel operating from small power boats. The marine mammals would respond to security alerts by finding, identifying, and interdicting intruder(s). When an intruder is identified, the animal locating the intruder

would be provided with marking hardware to localize the intruder and/or interdiction hardware to enable apprehension of the intruder by security personnel. The marine mammals would also participate in periodic training exercises.

The dolphin component of the SISS provides a biosonar capability to detect and discriminate targets in a noisy, cluttered environment unparalleled in hardware systems for this application. This capability also exceeds the capability of the sea lion's vision in widely varying visibility of the water (day/night, low/high visibility). This ability to detect and discriminate targets results in a much lower false alarm rate than that of electronic sonar systems. In addition, the dolphin's biosonar is fully mobile. As the dolphin swims, it can change its position to enhance the signal or obtain additional information from target echoes in order to optimize detection and discrimination performance. Of all the alternatives considered, only the Marine Mammal alternative has the capability to supplement and improve initial detection and vectoring capability. Use of the marine mammals' speed, maneuverability, detection, and discrimination capability results in the Marine Mammal Alternative having the highest probability of interdiction of all the alternatives considered.

The Department of the Navy's decision to utilize the Marine Mammal Alternative for the SISS is the culmination of a three and one-half year process involving operational assessments, technical analysis, environmental analysis under NEPA, and identification of recurring and non recurring costs associated with each alternative. The Marine Mammal Alternative exceeds the capabilities of all other alternatives, has been demonstrated to be reliable and effective, is immediately available for implementation and would require no other development costs.

PUBLIC INVOLVEMENT: The scoping period for the SISS EIS process began with the publication of the Navy's Notice of Intent (NOI) to prepare an EIS in the Federal Register on February 12, 2007 (72 FR 6536). The 45-day public scoping period closed on April 16, 2007.

A scoping notification letter was distributed to federal, state, and local elected officials, agency representatives, and other interested parties. The letter described the proposed action and alternatives and requested comment on the scope of the EIS. The letters were mailed following publication of the NOI. The NOI was published in the Seattle Post-Intelligencer,

Seattle Times, Tacoma News Tribune, and Kitsap Sun. A project website (http://www.nbkeis.gcsaic.com) was also established; the website included scoping information and the opportunity to submit scoping comments electronically. Public scoping meetings were held on March 27 and 28, 2007, at the Naval Undersea Museum in Keyport, WA and the Holiday Inn on Dexter Avenue North in Seattle, WA, respectively. These meetings gave the public opportunities to comment on the scope of the EIS. Approximately 82 people attended the two public meetings.

The U.S. Environmental Protection Agency (USEPA) published a notice of availability (NOA) in the *Federal Register* on December 29, 2008 (73 FR 79473), initiating the Draft EIS (DEIS) comment period. The DEIS is available on the project website. The website also provided the opportunity to submit comments on the DEIS electronically during the comment period. The comment period for the DEIS closed on March 2, 2009.

The DEIS was distributed to officials of federal, state, and local governments, citizen groups and associations, and other interested parties. The document also was made available in 11 libraries serving the Kitsap Peninsula and greater Seattle areas.

Two combined informational meeting/hearings were held to inform members of the public of the results of the DEIS and to take comments. Advertisements for the meetings appeared during the week and on Sunday in the *Kitsap Sun* serving the Kitsap Peninsula area, and the *Seattle Times* serving the greater Seattle area.

The meeting format combined open house information sessions and formal hearings. The open house portion that preceded the hearing consisted of a series of display stations, each of which dealt with a specific topic related to the project. Navy representatives staffed the stations and comment table. They provided information, answered questions, and took comments. Fact sheets were available that contained supporting information for each topic. Attendees had the opportunity to provide comments verbally or in writing during the public hearings. Court reporters recorded verbal comments and statements offered during the hearings. All oral and written comments received during the open house, at the hearing, via mail, via voicemail, and via email during the public comment period, became part of the official record for the EIS.

A total of 168 unique comments were contained in submissions from 3 federal agencies, 11 non-government organizations (NGOs), 48 individuals from the general public and 762 identical emails. All comments were considered in the preparation of the FEIS. Appendix I of the FEIS contains the Navy Responses to the public comments. When necessary, modifications of the SISS EIS text were made to address the comments received. The FEIS is available on the project website.

The NOA for the FEIS was published in the Federal Register (74 FR 48951) and in the *Kitsap Sun* serving the Kitsap Peninsula area, and the *Seattle Times* serving the greater Seattle area on September 11, 2009. Public notices and news releases announced the availability of the FEIS at 11 libraries in the greater Kitsap peninsula and Seattle areas and on a public website devoted to this project. In addition, notification letters were sent to federal, state and local agencies and officials, and interested groups and individuals.

AGENCY CONSULTATION AND COORDINATION: On December 8, 2008, the Navy submitted a Joint Aquatic Resources Permit Application (JARPA) to the U.S. Army Corps of Engineers (USACOE) for a Section 10 Permit under the Rivers and Harbors Act of 1899 (33 USC 401 et seq.) to install a 9,892 square foot floating dock adjacent to an existing pier at NBK-Bangor. The USACOE issued a Public Notice of Application for Permit for the proposed project on February 19, 2009. On March 24, 2009 the Navy received notice from the U.S. Coast Guard that they had no objection to the placement of the proposed dock structure and did not find it necessary to require the structure to be marked with Private Marine Aids to Navigation (PATON). On June 9, 2009 the Navy received authorization from the USACOE to perform the work described in the JARPA Permit application.

The Navy submitted a Coastal Zone Management Act Consistency Determination (CCD) to the WDOE on December 8, 2008. On January 26, 2009, WDOE concurred with the Navy's determination that the proposed project was consistent to the maximum extent practicable with the enforceable polices of Washington's Coastal Zone Management Program and will not result in any significant impacts to the State's coastal resources.

On December 8, 2008, the Navy submitted a Biological Assessment (BA) for the proposed project to the USF&WS and the NMFS to meet consultation requirements under Section 7(a)(2) of the Endangered Species Act. The Navy received concurrence from the USF&WS that the proposed project may affect, but is not

likely to adversely affect the threatened bull trout (*Salvelinus confluentus*)and marbled murrelet (*Brachyramphus marmoratus*), on January 15, 2009. On January 29, 2009, the Navy received concurrence from the NMFS that the proposed project was not likely to adversely affect the Puget Sound Chinook salmon (*Oncorhynchus tschawytscha*), Puget Sound steelhead (*Oncorhynchus mykiss*), or the Hood Canal summer-run chum salmon (*Oncorhynchus keta*).

The Navy sought concurrence from the Washington Department of Archeology and Historic Preservation (WDAHP) on December 8, 2008 on Navy's determination of no adverse effects on historic properties associated with the proposed project. On December 12, 2008, the Navy received concurrence from the WDAHP that no historic properties would be affected by the proposed project.

TRIBAL INTERACTION AND GOVERNMENT-TO-GOVERNMENT CONSULTATIONS: At the June 12, 2007 semi-annual meeting hosted by Commander, Navy Region Northwest for all tribes from western Washington; a representative from SSC Pacific provided a briefing on the SISS project. There were no concerns expressed by these tribes with the SISS at this meeting.

Five Native American Tribes have a usual and accustom (U&A) treaty for fishery harvest areas, which include the NBK-Bangor waterfront. The Skokomish, Jamestown S'Klallam, Port Gamble S'Klallam, Lower Elwha Klallam Tribes reserved the right to fish in their U&A in the Treaty of Point-No-Point of 1855. The Suquamish Tribe reserved the right to fish in their U&A in the Point Elliott Treaty of 1855. The Skokomish, Jamestown S'Klallam, Port Gamble S'Klallam, and Lower Elwha Klallam Tribes have primary fishing rights on Hood Canal and harvest shellfish from a beach area near Devil's Hole under a 1987 cooperative agreement with the Navy.

Environmental managers from NBK-Bangor met with tribal managers for the Jamestown S'Klallam, Port Gamble S'Klallam, Skokomish and the Lower Elwha Klallam. Tribal council members were present at the Lower Elwha Klallam/Navy meeting. At these meetings, tribal fisheries managers expressed concern over the potential for fecal coliform to adversely affect their shellfish harvest areas adjacent to the Devil's Hole Beach. Based on comments from the tribes, the Navy modified the preferred alternative in the DEIS to house the marine mammals in enclosed pools (instead of open-mesh pens), thus eliminating fecal discharges to marine waters and concerns about impacts to the shellfish harvest.

On August 22, 2008, the NBK-Bangor Commanding Officer sent letters to the five tribes with U&A on Hood Canal, inviting them to conduct Government-to-Government consultation to discuss and address any concerns regarding potentially affected tribal resources resulting from the SISS project or any aspects of seven other projects proposed for implementation along the NBK-Bangor waterfront.

On October 24, 2008, the NBK-Bangor Commanding Officer presented the preferred alternative of SISS to the Jamestown S'Klallam, Port Gamble S'Klallam, and Lower Elwha Klallam tribes. The tribal chairmen for the Jamestown S'Klallam and Port Gamble S'Klallam tribes and two council members from the Lower Elwha Klallam tribe were present. The Point-No-Point Treaty Council Director was also present with various staff members from each of the represented tribes. The tribes expressed appreciation for modifying the preferred alternative to eliminate impacts to the shellfish harvest area.

On November 24 and 25, 2008, the NBK-Bangor Commanding Officer formally presented the preferred alternative of the SISS to the Suquamish Tribe and the Skokomish Tribe, respectively. The tribal chairmen and staff members were present.

None of the five tribes expressed concern that the preferred alternative would adversely impact their treaty-protected resources or their cultural resources.

ADDITIONAL BACKGROUND: The FEIS is a result of the resolution of a lawsuit filed nearly 20 years ago against the Navy's initial proposal to deploy dolphins for underwater surveillance and security at NBK-Bangor. The lawsuit was filed in 1989 by the Progressive Animal Welfare Society and a number of other organizations against the Navy and other government defendants in the U.S. District Court for the Western District of Washington. The plaintiffs sought to enjoin the deployment of the dolphins on the grounds that, among other things, the Navy violated NEPA in failing to analyze reverse impacts (i.e., the impacts of the proposed action on the dolphins themselves) in the supporting environmental assessment (EA).

After the district court decided that NEPA compliance required an impact analysis of the deployment on the Navy dolphins (see *Progressive Animal Welfare Society, et al. v. Department of the Navy, et al.*, 725 Federal Supplement 475 [Western District Washington 1989]), the parties resolved the lawsuit in 1990 through a court-approved joint stipulation. In the stipulation, the Navy stated that "it will not deploy

dolphins for operational purposes in Western Washington until NEPA documentation (i.e., either an [Environmental] [Assessment] or Environmental Impact Statement (EIS)) is complete." In the years immediately following this decision, funding for security requirements at U.S. military installations in general was reduced. Accordingly, the Navy ended plans to deploy a dolphin-based swimmer defense system at NBK-Bangor. More recently, terrorist attacks on U.S. military and civilian targets resulted in the U.S. government revising security priorities and funding, and identifying a need for a SISS at NBK-Bangor. This EIS provides the NEPA documentation to meet the agreement reached in the joint stipulation.

1. ***Alternatives Eliminated from Detailed Consideration:*** In addition to the five alternatives evaluated for detailed consideration, additional alternatives were evaluated as summarized below. These alternatives were not analyzed in detail because they did not meet all of the components required for the purpose and need (finding, identifying, and interdicting intruders) or were environmentally impracticable.

a. Fencing Alternatives: The Navy considered underwater fencing that would attach to an existing floating security barrier. A primary weakness of the fencing alternative is the inability to accomplish the proposed action of finding, identifying, and interdicting intruders. In addition, an intruder could get through the fencing by cutting or defeating it. In addition, these fences hinder movement of underwater organisms and marine mammals, and would accumulate marine vegetation and fouling benthic communities over time, thereby further hindering movement of underwater organisms.

b. Beluga Whale Alternative: An advantage of using beluga whales for the SISS is that these whales normally occur in colder waters. These whales would be used similarly to that planned for the Navy dolphins and sea lions. Beluga whales have been used by the Navy in the past for military support. However, only one beluga whale is currently in the MMP inventory and there are not enough beluga whales at zoos and aquariums to provide an adequate supply of these animals for the Navy's MMP at NBK-Bangor. This alternative was determined to be impractical and was eliminated from detailed consideration.

c. Use of Explosives: This category includes explosive sources (e.g., standard grenades, depth grenades, mortar rounds, 40-millimeter underwater warning munitions, and others) that produce an impulse pressure wave created by a collapsing bubble. Explosives were eliminated from detailed consideration because

they are indiscriminate. There is no capability for detection and classification of an underwater contact, and the explosives would harm other natural resources within the NBK-Bangor waterfront.

d. Acoustic Pulse Generators: These systems use the same principle as the explosive sources (i.e., generate an impulse wave by creating a collapsing bubble) through means other than explosives. Sample methods are spark-gap generators (i.e., an oversized spark plug-like device that uses high electrical current to create a collapsing plasma bubble in the water); air guns that release high-pressure; and compressed air and water guns that typically include high-pressure to drive a piston, which in turn ejects a column of sea water at extreme velocity. Similar to explosives, acoustic pulse generators were eliminated from consideration because they are indiscriminate.

e. Low-Frequency Continuous Acoustic Wave Transmitters: This technology relies upon mechanical or electrical transducers capable of generating a continuous pressure wave. The continuous wave enables concentration of energy in the frequency band with the greatest desired effects on humans. This technology lacks the ability to find and identify an intruder and is indiscriminate.

f. Entanglers: These interdiction systems involve entangling gear, such as fish nets or trawls used in the fishing industry to encircle or trap the intruder; and grappling or fishhooks to snare the intruder (or similar types of systems) that can be deployed against a detected, localized intruder. Besides being indiscriminate and lacking a detection and classification capability, entanglers are not scalable to the size of the intruder. In addition, these entanglers could potentially trap fish and marine mammals, thus resulting in an environmental concern.

g. Electrical Stimulators: Electrical devices currently used as non-lethal weapons include close-range or contact devices, such as stun guns and tasers. The taser is not scalable and results in an immediate risk of the subject drowning. Electrical stimulators are not designed for use below the surface of the water. Tasers were thus determined to be impractical.

h. Underwater Guns: Underwater guns are designed for use by combat swimmers against intruders. Munitions are optimized for travel through water rather than air and typically assume a dart-like appearance. Underwater guns are not effective from

the surface. Although considered as an emergency component for the Combat Swimmers Alternative, underwater guns as a separate alternative were eliminated from detailed consideration because they cannot be used to find and identify intruders.

i. Alternative Locations: The Navy considered all possible locations for the SISS at the NBK-Bangor waterfront. However, due to other continuing and future planned naval operations and explosive handling distance requirements, only one location for the SISS was available within the restricted waterfront area.

ALTERNATIVES CONSIDERED: The Navy conducted a literature review and held discussions with subject matter experts to identify and evaluate alternatives for implementing the proposed action. These data were compiled in an *Interdiction Technology Assessment*. Several action alternatives and a no-action alternative were evaluated systematically using objective performance criteria. Details on the performance criteria, the interface and functional requirements and Technology Readiness Level assessment for each of the alternatives is set out in Chapter 2 of the FEIS.

The three highest-rated action alternatives were the Marine Mammal Alternative (Preferred Alternative), the Combat Swimmers Alternative, and the Remotely Operated Vehicle (ROV) Alternative. The Sea Lions Only Alternative was not reviewed in the *Interdiction Technology Assessment* but was added based on comments evaluated from public scoping. Based on this analysis, the Navy determined that the Sea Lions Only Alternative was a viable alternative. These four alternatives and the No-Action Alternative are described in the following sections. Because the Marine Mammal Alternative has been used for SISS's at other installations, more detailed information is available for that alternative than for the others. However, sufficient information is available for all four alternatives to evaluate environmental effects.

All action alternatives would use an initial detection and vectoring system for potential threats, although some alternatives would be more reliant on this system than others as detailed in the following description of each alternative. The detection and vectoring system is an active-acoustic underwater surveillance system that operates within the NBK-Bangor waterfront. Initial detection and vectoring involves the ability to identify a potential underwater threat and respond to it with forces that can determine whether it is in fact a threat and then respond as necessary. The more rapidly and efficiently

the Navy can identify and respond to threats, the less likely the naval forces located at NBK-Bangor are to be attacked.

The DEIS and FEIS assessed the impacts of four action alternatives and the no action alternative. The action alternatives included a broad range of options that included a combination of dolphins and sea lions, sea lions only, human combat swimmers and remotely operated vehicles (ROV). For all action alternatives, in-water and upland facilities would be located at the same sites. These facilities would include a floating dock with equipment storage at the dock and an upland site, which would include temporary offices.

1. ***Marine Mammal Alternative (Preferred Alternative):*** In the DEIS and FEIS, the Navy identified the Marine Mammal Alternative as the Preferred Alternative. Under the Marine Mammal Alternative, teams of humans and marine mammals (sea lions and dolphins) would support Naval security operations and respond rapidly to security alerts. The Navy marine mammals would be deployed along the waterfront in conjunction with MMP trainers aboard small power boats. The marine mammals would respond to security alerts by finding, identifying, and interdicting intruder(s). When an intruder is identified, the animal locating the intruder would be provided with marking hardware to localize the intruder and/or interdiction hardware to enable apprehension of the intruder by security personnel. The Navy marine mammals would also participate in periodic training exercises.

The dolphin component of the Marine Mammal Alternative augments the capabilities of the sea lions by providing a biosonar capability to detect and discriminate targets in a noisy, cluttered environment unparalleled in hardware systems for this application. This capability also exceeds the capability of the sea lion's vision in all water conditions (day/night, low/high visibility). This ability to detect and discriminate targets results in a much lower false alarm rate than that of electronic sonar systems. In addition, the dolphin's biosonar is fully mobile. As the dolphin swims, it can change its position to enhance the signal or obtain additional information from target echoes in order to optimize detection and discrimination performance. The Marine Mammal Alternative's speed, maneuverability, detection and discrimination capability results in this alternative having the highest probability of interdiction of all alternatives considered.

2. ***Sea Lions Only Alternative:*** Under the Sea Lions Only Alternative, teams of MMP personnel and California sea lions would support Navy operations and respond rapidly to security alerts. The animals would reside within closed-circuit enclosures attached to a dock that would be connected to an existing pier at the NBK-Bangor waterfront, and would be deployed along the waterfront in conjunction with humans aboard small power boats. The animals would respond to security alerts by finding, identifying, and interdicting intruder(s). When an intruder is identified, the animals would be provided with interdiction hardware to enable apprehension of the intruder by Harbor Security Boat personnel. The Navy sea lions would also participate in periodic training exercises. Because it lacks the biosonar of the dolphins, acquisition of the target is therefore limited to the sea lion's visual and hearing range with this alternative. The Sea Lions Only Alternative would rely heavily on the existing NBK-Bangor detection and vectoring system to interdict intruders.

3. ***Combat Swimmers Alternative:*** Under this alternative, the combat swimmers would respond to security alerts when vectoring is complete by finding, identifying, and interdicting intruders. The combat swimmers would be transported by boat to the specific location where the intruder was located by the existing detection and vectoring system, and then would be deployed into the water to identify and interdict the intruders. Combat swimmers would be stationed at an existing pier at the NBK-Bangor waterfront, and would be deployed along the waterfront aboard small power boats equipped with necessary dive support gear. In-water and upland facilities would be located at the same sites as described for the other action alternatives. The combat swimmers would also participate in periodic training exercises. The Combat Swimmer Alternative assumes that a fully-developed and tested system is already in place or available, however, no such system currently exists. The Combat Swimmers would rely completely on the NBK-Bangor existing detection and vectoring system to arrive at a position to interdict the intruders.

4. ***Remotely Operated Vehicle (ROV) Alternative:*** Under this alternative, remotely operated vehicles (ROVs) would be deployed from a boat located and available for use at the waterfront. As with divers, the ROV must rely completely on the NBK-Bangor initial detection and vectoring system to arrive at a position to interdict the intruders. The ROVs would respond to security alerts by finding, identifying, and interdicting

intruders. In-water and upland facilities would be located at the same sites as the other action alternatives.

ROVs have been utilized for decades by the Navy and industry to conduct a variety of difficult underwater tasks. ROVs are available that have demonstrated the ability to accomplish complex missions and other abilities are under development for a variety of Navy applications. However, the ROV Alternative also assumes that a fully-developed and tested system exists or is ready to be fielded, however, no such system currently exists.

5. ***No-Action Alternative:*** The No Action Alternative provides a baseline against which the impacts of the proposed action are compared. Under this alternative, no SISS would be implemented. This would not meet the project purpose and need. No new facilities would be constructed. The existing initial detection and vectoring system would be used to alert for potential threats, and harbor security forces would find and attempt to apprehend intruders without the aid of an underwater interdiction system. The No Action Alternative is the environmentally preferred alternative.

SUMMARY OF ENVIRONMENTAL IMPACTS: The Navy analyzed environmental impacts and the potential magnitude of those impacts relative to the following categories of environmental resources: marine environment (e.g., hydrography, water quality, sediments, marine fish and mammals, threatened and endangered species); upland (terrestrial) environment (e.g., surface and groundwater, geology and soils, vegetation, wildlife) and, social and anthropogenic environment (e.g., noise, air quality, cultural resources, socioeconomics and environmental justice). Analyses determined that there would only be negligible or minor effects to all marine, terrestrial and social and anthropogenic environmental resources as a result of implementing the preferred alternative.

1. Marine Environment

The Navy sought and received a Section 10 permit under the Rivers and Harbors Act of 1899 (33 USC 401 et seq.) for all new structures to be placed in navigable waters as part of the proposed action.

a. Hydrography

(1) *Construction*: The marine mammal enclosures, floating dock, and anchors would be placed into the water by a crane operating from an existing pier; this would change water

flow in the immediate vicinity of the enclosure and dock for a distance of up to approximately 100 feet. The overall effects on hydrography would be negligible.

(2) *Operation*: The marine mammal enclosures and associated floating docks would be installed at an existing pier at NBK-Bangor that has already affected movement of the water mass immediately below the pier. This change in circulation would not affect marine water outside the immediate vicinity of the enclosures. Marine water would also flow over the anchors with no overall change in flow patterns. The uptake of ambient seawater within the multiple enclosure water circulation system on a weekly basis would have a negligible impact on water flow and the physical characteristics of the water column. When in operation, the propeller wash from boats would create small, localized movement of surface water that would dissipate rapidly. The resulting effect on marine hydrography would be negligible.

b. Water Quality

(1) *Construction*: During construction, measures would be taken to prevent the discharge of debris into the water. The structures would have a negligible effect on water flow, and their presence would not affect temperature, salinity, or stratification of marine waters at NBK-Bangor. Placement of the enclosures and floating docks would have an overall negligible effect on water quality.

The Navy would not be required to seek a Section 404 permit under the Clean Water Act (CWA) because the proposed action would not result in discharge of dredged or fill material or affect jurisdictional wetlands.

(2) *Operation*: One aspect of the operation of the marine mammal alternative with the potential for water quality effects, involve the release of waste products (urine and feces) from the Navy marine mammals. Based on the proposed scheduled amount of time the marine mammals would be in the water, it is estimated that no more than 10 percent of the Navy mammals' wastes would be released to the waters of the NBK-Bangor waterfront during patrols, training, and enclosure cleaning and maintenance.

The proposed action would not require a CWA Section 401 Water Quality Certification from the Washington State Department of Ecology (WDOE) because there would be no discharges into Hood Canal.

(i) Nutrients: For nitrogen and phosphorus, the incremental concentration resulting from the marine mammal waste material would be negligible. Washington State has no standards for nutrients. There would be minimal changes in nutrient levels from the project, and negligible additive effects among nutrients. The overall nutrient effect would be negligible.

(ii) Dissolved Oxygen (DO): The effect of the marine mammal waste on DO within the waterfront restricted area of the NBK-Bangor waterfront would be negligible. For the Navy marine mammals, the change in Biological Oxygen Demand (BOD) at the NBK-Bangor waterfront would not result in a change to DO levels at the NBK-Bangor waterfront or in Hood Canal in general. The project would not exceed water quality standards for DO. The overall impact on DO would be negligible.

(iii) Bacteria: Navy marine mammal wastes would result in a very small increase in fecal coliform levels at the NBK-Bangor waterfront. Analyses and impact conclusions for fecal coliforms are assumed to apply to other fecal pathogens produced by the Navy marine mammals. The project would not measurably affect fecal coliform levels or affect compliance with the state water quality standard. The resulting impact on levels of fecal coliform would be negligible. Thus, the resulting fecal coliform levels would not affect shellfish harvest, human contact, or marine organisms.

(iv) Pharmaceuticals: MMP animals receive daily vitamin supplements and routine antihelminthics (dewormers) to prevent disease. On occasion and when warranted, veterinarians judiciously prescribe medications to treat disease or to prepare animals for medical procedures (e.g., surgery). No MMP animals are provided routine, prophylactic antibiotics. There are few to no data regarding excretion of unaltered medications or their metabolites in the feces and urine of dolphins and sea lions, and there are no established standards to assess impacts on water quality.

(v) Temperature/Salinity/Stratification: Water temperatures in the immediate vicinity of the enclosures would not be measurably increased during the times when the enclosures are heated. There would be a negligible effect on water temperature, including temperature stratification in the water column, along the NBK-Bangor waterfront.

Because water from the enclosures would not be discharged to the environment, the project would not change the salinity of

surrounding waters. There would be no impact on temperature, salinity, or stratification.

(vi) Turbidity: Marine mammal waste would not cause an overall increase in turbidity at the waterfront. The potential for turbidity effects from small boat operations from the project is discussed below.

(vii) *pH:* Based on the small release of waste material from the Navy marine mammals, the Washington State-designated pH standard of 7.0 to 8.5 for extraordinary quality marine surface waters would not be violated within the NBK-Bangor waterfront. This is considered a negligible effect on pH. No other aspect of operations has the potential to affect pH.

(viii) Boat Operations (Turbidity and Fuel Spills): The resulting turbidity plume from boat prop wash that would disturb bottom sediments would be negligible. The fuel spill prevention and response plan implemented by the Navy for the NBK-Bangor waterfront would include boat operations associated with the Marine Mammal Alternative. Considering the above factors, operation of boats under the marine mammal alternative would have a negligible effect on water quality.

(3) *Mitigation Measures:* The Navy, in coordination with WDOE and USEPA, would develop a water quality monitoring program to validate the model-predicted water quality effects described in the EIS. Should this monitoring demonstrate a statistically significant increase in a water quality parameter that can be attributed to the Marine Mammal Alternative, the Navy would identify the source of the problem and take action, as needed, to correct the increase. This monitoring program would be initiated approximately one year prior to implementation of the SISS to establish a baseline against which to evaluate effects of the Marine Mammal Alternative. Other potential sources of water quality effects, such as large concentrations of wild marine mammals or birds or exceptional weather events, would also be monitored to help in determining the source of any observed increase in a monitored parameter. If an extended period of monitoring indicates no water quality effects attributable to the Marine Mammal Alternative, the number and frequency of samples of the monitoring would be reduced, in coordination with WDOE and USEPA.

The Navy will use materials that reduce the amount and toxicity of waste products, recycle those materials that can be recycled, and ensure that releases into marine and freshwater

meet WDOE Marine Surface Waters Designated Uses and Water Quality Criteria in compliance with the Pollution Prevention Act.

c. Sediment

(1) Construction: Construction activities would have negligible effects on sediment quality. Measures would be implemented to prevent the discharge of debris into the water and minimize the likelihood of related fuel spills. These measures would also serve to protect sediment quality. The resulting effect on bottom sediments would be negligible considering the small area of coverage.

(2) *Operation*: Effects on sediment quality from project operations would be negligible and related primarily to inputs of organic matter associated with settling fecal materials from sea lions. The sea lion food would consist primarily of vendor-supplied fish, and sea lion fecal material would be expected to contain concentrations of chemical contaminants that occur in wild fish. Thus, sediment quality would not be altered and sediment quality criteria would not be exceeded within the study area as a result of operations.

Measures will be implemented to minimize the likelihood of or effects from fuel spills during boat operations that would serve to protect sediment quality. The resulting effect from project operations on site sediments would be negligible.

d. Marine Vegetation

(1) *Construction*: Limited direct effects on marine vegetation would occur during construction. Increases in turbidity and suspended solids during placement of the anchors would be minimal, temporary, and localized. Similarly, there would be temporary and small-scale reductions in light penetration and DO, and minimal release of contaminants associated with sediment disturbance. Overall, construction would have negligible effects on marine vegetation.

(2) *Operation*: Due to the existing level of nighttime artificial lighting at the facility, the additional lighting needed to illuminate the marine mammal docks, enclosures, and support facilities would have a negligible effect on marine vegetation.

Macroalgae are sparse in the study area, therefore, the potential for shading effects is limited and would result in a

negligible effect on submerged aquatic vegetation. No shading effects would occur to eelgrass beds.

Eelgrass beds would not experience increased turbidity or substrate disruption as a result of boat operations. Furthermore, fuel spills with the potential to damage marine vegetation would be avoided through adherence to the existing NBK-Bangor fuel spill and response plan.

The long-term, but small-scale, release of nutrients as waste products from the Navy marine mammals would meet all Washington State water quality standards and have a negligible effect on marine vegetation communities. The Marine Mammal Alternative would not affect currents or tides. Changes in DO and fecal coliform would be negligible. Therefore, enrichment of the marine vegetation community would not occur and overall effects on marine vegetation would be negligible.

e. Plankton

(1) ***Construction:*** No direct effects on plankton would occur during construction since plankton are not sessile or subject to effects associated with placement of the anchoring system or, dock assembly and attachment. Indirect effects associated with increases in turbidity and suspended solids during construction and assembly would be temporary and localized and would not have long-term effects on plankton. Thus, construction of the Marine Mammal Alternative would result in negligible effects on the plankton community along the NBK-Bangor waterfront.

(2) ***Operation:*** No adverse effects on plankton movement would occur from the new facilities. Predation pressure on the plankton community would be considered negligible over existing conditions.

Nighttime artificial lighting is already present at the facility, and additional lighting associated with the project would have negligible effects on feeding opportunities by predators on plankton.

There would be negligible effects on plankton by the increase in small boat use as there are no substantial changes to water quality from the six additional boats that would be used for the project.

The added nutrients from the marine mammal waste products would be localized and dissipated by currents. Therefore, the

project would not affect the frequency or duration of algae blooms that may occur in the project vicinity. Overall, the operation of the project would have negligible effects on plankton.

f. Benthic Communities and Shellfish

(1) ***Construction:*** Limited direct effects on the subtidal benthic community would occur during construction. Anchor placement would result in the immediate loss of existing soft-bottom benthic organisms within the anchor footprints on the sea floor.

Increases in turbidity and suspended solids during construction and installation of the floating dock and enclosures would be temporary and localized. Short-term changes in water quality from anchor placement would be minor to the benthic community, including shellfish.

(2) ***Operation:*** Anchors placed to stabilize the floating dock would result in a long-term effect of converting the existing soft bottom to hard substrate within the anchor footprints. The small decrease in soft-bottom habitat and increase in hard substrate habitat would result in a minor and localized change in species composition but would not result in any net loss of biological productivity.

The addition of overhead lighting units along the marine mammal facility dock would result in a minor incremental increase in lighting. No measurable increase in predation rates on mobile invertebrates would occur and shading on sessile benthic organisms would be negligible. Mobile shellfish would not be affected.

The added nutrients from the marine mammal waste products would result in negligible changes in benthic community composition associated with organic enrichment. In addition, there would be a negligible effect on fecal coliform levels, and compliance with Washington State fecal coliform standards would not be affected. Therefore, benthic organisms and shellfish would not be adversely affected, and there would be no effect on the opportunity to harvest shellfish at the NBK-Bangor waterfront.

The small increase in small boat activity is not expected to affect the benthic community. Overall, disturbance to benthic communities from use of small boats is expected to be minor.

g. Marine Fish

(1) ***Construction:*** During construction, the in-water structures would be installed away from the primary juvenile salmon migration route through intertidal and shallow subtidal nearshore waters. Therefore, negligible effects on juvenile salmonid migration or forage fish habitat use would occur from installation of the in-water marine mammal facility. Adult salmonids, returning to their natal streams to spawn in late summer to fall, would likely avoid the immediate area during construction. Construction noise levels would not be greater than existing noise levels and, thus, would not be harmful to fish. Overall construction effects would be considered minor.

(2) ***Operation - Salmonids and Other Marine Fish:***

(i) **Shading Effects:** Due to the distance from shore, shade from the in-water structures would occur in deeper water habitats where shading effects on fish would be negligible because shading would not affect preferred fish aquatic habitat (eelgrass). Eelgrass beds would not be adversely affected by operations. Thus, the Marine Mammal Alternative would not result in the loss of or adverse effects on nearshore habitat utilized by juvenile salmonids, forage fish, or nearshore non-salmonids.

(ii) **Lighting:** The construction of the Marine Mammal Alternative would add negligible lighting relative to existing lighting at the waterfront. Therefore, the additional lighting would have a negligible effect on salmonid or forage fish.

(iii) **Migration:** The migration of larger juvenile salmon would be affected in the immediate vicinity of the structures. The submerged enclosures would also affect adult forage fish, which occur in both nearshore and offshore waters. Activities related to marine mammal and support vessel operation would not create fish disturbance behavior different from that expected from existing daily security and waterfront vessel operation. The marine mammal enclosures and associated floating docks would not block fish migration between habitats. The effect on fish migration would be negligible.

(iv) **Water Quality:** Water quality effects from the proposed project would be within WDOE standards and would not affect the health or well being of native fish that occur in the area. The Marine Mammal Alternative would not result in the introduction of pollutants into Hood Canal. Given the localized

and small-scale water quality effects, water quality changes under the Marine Mammal Alternative are expected to have negligible effects on fish species.

(v) Noise: Navy bottlenose dolphins are expected to use echolocation clicks (underwater acoustic signals) during routine training and work sessions, in particular for object detection and identification. However, the acoustic energy contained in the dolphins' clicks would be insufficient to cause physical harm to fish and are of high enough frequency as to be imperceptible to most species. No impacts on fish are anticipated as a result of dolphin echolocation.

(vi) Predation: It is possible that Navy sea lions and dolphins would prey on fish when outside the enclosures during mission activities. However, this predation would have a negligible effect on fish at the NBK-Bangor waterfront because the mammals would be well fed with a diet closely monitored by program veterinarians, and they would be kept under close control by their human trainers with little opportunity to pursue wild fish. Predation by dolphins on adult salmonids is not expected.

Predation of juvenile salmonids or forage fish by Navy marine mammals at NBK-Bangor would be considered negligible in comparison to those fish consumed by naturally occurring populations of marine mammals. Effects of fish predation by Navy marine mammals would therefore be negligible, with no effects on the overall fish population at the NBK-Bangor waterfront.

(vii) Essential Fish Habitat - Coastal Pelagic Species: No increase in fishing, loss of fish habitat, changes in marine hydrology, or entrainment through water intakes would occur under the Marine Mammal Alternative. In addition, there would be no exceedance of state water quality standards. Thus, the Marine Mammal Alternative would not adversely affect habitats vital for the continuation of coastal pelagic species in Hood Canal.

(viii) Essential Fish Habitat - Pacific Salmon: Under the Marine Mammal Alternative, no increase in fishing, loss of suitable spawning habitat, changes in estuarine hydrology, exceedance of state water quality standards, reduction of sediment quality, or decreases in prey food source would occur. The potential barriers to fish migration are limited to the offshore in-water marine mammal enclosures

discussed above, and these structures would not block adult salmon attempting to return to their natal streams to spawn. Changes in artificial lighting levels, water quality, in-water noise, and predation levels would be negligible to minor. Thus, construction and operation would not adversely affect habitats vital for the continuation of Pacific salmon species in Hood Canal.

(ix) Essential Fish Habitat - Pacific Groundfish: No loss of Pacific groundfish habitat, increase in fishing, exceedance of state water quality standards, or reduction in sediment quality would occur with the project. Artificial lighting levels, water quality, in-water noise, and predation levels would be negligible to minor and would not adversely affect Pacific groundfish. Construction and operation of the Marine Mammal Alternative would not adversely affect habitats vital for the continuation of Pacific groundfish species.

h. Wild Marine Mammals: Wild marine mammals would avoid the immediate area during construction of the SISS but would return following completion of construction. Naturally occurring marine mammals in nearshore waters would avoid vessels associated with the operation of the SISS, with minimal additional effort above the existing level of behavioral avoidance by marine mammals that normally occurs in the vicinity of the working pier. The Marine Mammal Alternative would have negligible effects on the abundance and distribution of wild marine mammals that occur along the NBK-Bangor waterfront. The marine mammal alternative would not result in the capture, harassment, or harm of wild marine mammals. Through review of the proposed action, the Navy has determined that there would be no reasonably foreseeable "takes" as defined by the MMPA.

i. Other Marine Wildlife: The Marine Mammal Alternative would not affect the distribution and abundance of other marine wildlife (including birds protected under the Migratory Bird Treat Act) over the long term. There would not be a direct loss (take) of a substantial number of a specific sea bird species that would affect the species population. The potential direct and indirect impacts of the proposed project on seabirds include behavioral disruption, and impacts on sea bird food sources. There would not be a permanent loss of breeding, feeding or nesting areas nor a substantial interference with movement of any species. Short-term displacement would occur to marine wildlife that forage in the immediate vicinity of the enclosures

during construction and small boat operations, but these effects would be negligible.

2. ***Protected Species***

a. Bald Eagle

(1) ***Construction:*** Construction of the Marine Mammal Alternative enclosures and floating dock would have negligible effects on bald eagles. There would be no incidental take of bald eagles under the Bald and Golden Eagle Protection Act and no special measures are needed to avoid adverse effects on bald eagles.

(2) ***Operation:*** Daily operation at the upland facility and traffic along the adjacent roadway would not affect bald eagles because bald eagles do not utilize areas near the project site or roadway. Therefore, there would be negligible overall effects on bald eagles from project operations.

3. ***Threatened and Endangered Species***

a. Fish

(1) ***Construction***

(i) **Puget Sound Chinook Evolutionarily Significant Unit (ESU):** The construction of the Marine Mammal Alternative would result in minor effects on Puget Sound Chinook salmon.

(ii) **Hood Canal Summer-Run Chum ESU:** Construction of the Marine Mammal Alternative would result in minor effects on Hood Canal summer-run chum salmon.

(iii) **Coastal-Puget Sound Bull Trout:** The construction of the Marine Mammal Alternative would result in minor effects on bull trout.

(iv) **Puget Sound Steelhead:** The construction of the Marine Mammal Alternative could occur at a time when out-migration of summer steelhead may be present, resulting in minor effects on steelhead.

Construction of the enclosures and floating dock would not alter existing nearshore habitats, therefore, nearshore prey resources utilized by juvenile salmonids would also not be affected because any effects on the benthic community, should they occur, would be minor and temporary.

(2) *Operation*: There would be no effect on marine vegetation or benthic communities utilized by ESA-listed juvenile salmonids for refuge and foraging, and no effect on the principal nearshore migration pathway of juvenile chum and Chinook salmon, steelhead, and bull trout. Older salmonids are expected to swim around enclosures during migration and experience limited or no effect on their migratory pathway.

The increase in the amount of vessel activity and associated noise would not substantially affect ESA-listed salmonid behavior, presence, or migration. There would be no effects on listed salmonids from dolphin echolocation.

Any potential predation of ESA-listed salmonids by Navy marine mammals at NBK-Bangor would be considered negligible in comparison to those fish consumed by naturally occurring populations of marine mammals present at the NBK-Bangor waterfront.

b. *Marine Wildlife*

(1) Construction: The ESA listed Steller sea lion and humpback whale are not expected to occur in the study area of Hood Canal. The duration of construction activities necessary to place the pre-fabricated facilities in water would be short, the facilities would be attached to an existing in-water structure, and anticipated noise levels of construction and operation would be below threshold levels for the primary prey. Therefore, negligible effects would occur on the prey resources of the ESA listed marine mammal species in the project area.

Marbled murrelets do not breed at the base or waterfront area, but do forage along the waterfront area where they can avoid noisy areas and vessel traffic. For this reason, construction of the waterfront facilities for the Marine Mammal Alternative would not be expected to displace marbled murrelets from the area because marbled murrelets already avoid the immediate vicinity of the existing pier since it is an active industrial waterfront.

The immediate site of the upland facility would be constructed on previously cleared land. The site does not have suitable nesting habitat for murrelets. The forested stand in the area is less than 100 years of age, which does not meet the critical habitat features needed for marbled murrelet nesting habitat. Therefore, construction of upland facilities would not affect marbled murrelet breeding habitat.

(2) Operation: The Steller sea lion and humpback whale are not expected to occur at the NBK-Bangor waterfront. The primary prey resources of these marine mammals would not be adversely affected by operation of the Marine Mammal Alternative because there would be negligible, if any, consumption of wild fish by Navy marine mammals. Anticipated project-related noise levels during operation would be lower or similar to existing noise activities at the pier.

The murrelets occurring at the NBK-Bangor waterfront would be expected to continue to remain in the area with the new boats associated with the Marine Mammal Alternative because these birds have already habituated to the existing small boat activity and other industrial waterfront activities. The birds would be expected to already avoid the pier when human activity occurs. The human activity at the pier would be similar to existing human activities at the pier, and would not be expected to be noticeably different to the murrelets.

Because remnant older trees, suitable for murrelet nesting, are at least 1 mile north of the waterfront facility and 4 miles north of the upland facility, project operations would not affect marbled murrelet nesting habitat.

The Navy has determined that the project would have no effect on marine mammal species protected under the ESA; it may affect, but is not likely to adversely affect, fish and bird species protected under the ESA. The Navy sought and received concurrence with this determination from the NMFS and USF&WS.

4. *Candidate Species and Species of Concern:* The proposed action would cause a negligible effect on Candidate Species and Species of Concern. There would be negligible cumulative effects on the pinto abalone, a species of concern, and negligible to minor cumulative effects on the seven fish candidate species and species of concern.

5. *Upland Environment:* Most components of the Marine Mammal Alternative are located offshore in Hood Canal and would not affect the upland environment. The upland components of the project would be limited to three office trailers and two portable above-ground pools situated within the developed boundaries of an existing facility.

a. Surface Water and Groundwater: The addition of the new structures would slightly change impermeable surface area but would have no effect on existing surface water flow or

drainage. There would be negligible effects on surface water and groundwater.

b. Geology and Soils: The topography at this site and modeling indicate that this area is not located near steep, unstable slopes, soils in the vicinity of the upland components of the project are favorable for construction of small commercial buildings and, local roads or streets and would not limit construction or operation of the SISS upland facility. There would be negligible effects on geology and soils.

c. Vegetation: The Marine Mammal Alternative would result in no changes to vegetation in the vicinity of the marine mammal enclosures and dock, negligible effects on vegetation at the upland facility and, no effect on wetlands or associated drainages at NBK-Bangor.

d. Wildlife: The Marine Mammal Alternative would have a negligible effect on the occurrence and abundance of upland environment terrestrial wildlife at NBK-Bangor.

Through review of the proposed action on migratory birds, the Navy has determined that there would be no effects on migratory birds and the proposed action would be in compliance with the Migratory Bird Treaty Act.

6. *Social and Anthropogenic Environment*

In compliance with Executive Order 12898 on Environmental Justice, no disproportionately high and adverse or environmental effects on minority populations and low-income populations would occur from construction and operation of the SISS.

a. Noise

(1) *Construction*: People in offices near the upland support facility would likely hear the temporary construction noises, these noises would not be enough of a distraction to prevent office employees from continuing their work either inside or outside the office. Construction noise would be below existing noise levels for the closest sensitive noise receptors, including residences located about 0.8 mile west of the upland site and a bald eagle nest located about 1 mile north of the waterfront. Construction noise would be in compliance with Washington State noise standards and overall effects would be minor.

(2) ***Operation:*** Operation associated with the Marine Mammal Alternative would not generate higher noise levels than existing conditions at the NBK-Bangor waterfront. Operational activity at the upland site, including increased traffic, would not be different from that which already occurs. Thus, noise levels associated with operation of the Marine Mammal Alternative would be within regulatory compliance and resulting impacts would be negligible.

b. Air Quality: The proposed action region would be located in an area that is in attainment of all National Ambient Air Quality Standards (NAAQS). Therefore, a conformity determination outlined in Section 176(c) of the 1990 Clean Air Act is not be required for the project. The Navy will comply with air quality regulations for regulated emissions during construction.

Emissions from the proposed action, such as carbon dioxide and nitrogen oxide, would be contributors to greenhouse gases. The annual emission of greenhouse gases that would be produced under the Marine Mammal Alternative is predicted to be 116 tons per year. Therefore, operation of the Marine Mammal Alternative would have a negligible effect on air quality, and these emissions would be within National Ambient Air Quality Standards and Puget Sound Clean Air Authority annual standards.

c. Cultural Resources: No historic properties have been identified within the area of direct project effects. Existing shell middens at the waterfront are not near the shoreline construction area. No submerged archaeological sites are expected because of historical activity associated with resource harvesting, including logging, that occurred primarily along the shoreline. Because the pier where the enclosures would be located is not a historic property and does not require special preservation measures, it would not be adversely affected by the additional floating dock.

If in the course of activities associated with the marine mammal alternative cultural resources were encountered, then the Navy would notify the NBK-Bangor cultural resources manager, ensure compliance with Navy regulations and Section 106 of the National Historic Preservation Act (NHPA), and consult with the State Historic Preservation Officer (SHPO) and other appropriate entities. If the discovery consists of human remains, or other objects addressed by Native American Graves Protection and Repatriation Act, then consultation with the appropriate Native American tribe would be conducted. Navy staff at NBK-Bangor

consulted with the Washington SHPO and appropriate tribes to ensure compliance with the NHPA.

d. Coastal and Shoreline Management Act (SMA): Under the Clean Water Act and Clean Air Act, the Marine Mammal Alternative would meet all regulatory standards. Under the SMA, there would be no significant degradation of the natural resources in Hood Canal. The Marine Mammal Alternative would be consistent, to the maximum extent practicable, with the SMA.

e. Land Use and Recreation: The construction of the dolphin and sea lion enclosures and associated upland support buildings would be consistent with land uses in the surrounding waterfront and office building areas on the base. The Marine Mammal Alternative would also be consistent with the Coastal Zone Management Act (CZMA) regarding land uses because the action would not affect land use of adjacent private and other publicly owned lands or marine waters outside of the U.S. Army Corps of Engineers (USACE) restricted area. No neighboring properties would be near or potentially affected by the project. There are no known future public or base land use plans that could be affected by the Marine Mammal Alternative.

Recreational access to the NBK-Bangor shoreline, including areas where the marine mammals would reside and operate, is restricted from the general public because of the presence of the USACE DoD restricted area. Because the upland site is within a Navy industrial park, the area is not used for recreational purposes. There are no known future public or base recreation plans that could be affected by the Marine Mammal Alternative. Since the beginning of the Navy MMP, no civilian has ever been injured by a Navy marine mammal. In conclusion, the project would have a negligible effect on land use or recreation at NBK-Bangor or the surrounding area.

f. Aesthetics: The marine mammal enclosures and support facilities would not alter the current viewscape of the surrounding area. The enclosures would occur in a waterfront area currently developed with similar pier-associated structures, and would be attached to an existing pier with a low profile, limiting their visibility from boats passing the base or from the western shore of Hood Canal or the Toandos Peninsula. The upland facility is located in an area that is already an industrial complex and does not support a natural vegetative community. Therefore, there would be negligible effects on visual resources as a result of construction or operation of the facilities associated with the Marine Mammal Alternative.

g. Socioeconomics and Environmental Justice: Construction activities under the marine mammal alternative would generate temporary jobs during the construction period and would contribute to local earnings and induced spending. Because the anticipated socioeconomic effects would occur only for the short duration of the construction period, no permanent or long-lasting socioeconomic effects are anticipated.

Safety precautions in areas surrounding the work sites would include adequate measures to restrict access, minimization of hazards associated with construction activities, and proper handling and disposal of hazardous materials, would preclude the potential for disproportionately high and adverse human health or environmental effects on minority and low-income populations. Noise associated with construction would be intermittent and short in duration, with negligible effect on the existing acoustic environment in the area. Therefore, the project would not have adverse effects related to environmental justice.

Under the Marine Mammal Alternative, NBK-Bangor would receive a maximum increase of less than one percent to the existing employment. This increase would yield a negligible effect on socioeconomic resources in the region.

h. Utilities and Energy: Electric power, telecommunications and data transfer, domestic water supply, and wastewater services would be provided through connection to existing utility lines at both the waterfront and upland sites. The facilities, including use of electricity for warming dolphin enclosures and use of a marine water treatment system prior to discharge to NBK-Bangor's sanitary sewer and ship wastewater system, would generate negligible demand for additional utilities and energy, and can be supplied from existing sources at NBK-Bangor. As a result, there would be negligible effects on utility, energy capacity, or delivery service under the Marine Mammal Alternative.

i. Transportation: Under the Marine Mammal Alternative, NBK-Bangor would receive additional personnel in support of the expanded mission, representing an increase of less than 1 percent to the existing employment of over 6,000 military personnel. An increase of this size would yield a negligible effect on transportation resources and traffic patterns on the base or in the region. Construction activities at the waterfront and the addition of six boats to the number already active at the NBK-Bangor waterfront for operations (over 50 boats and vessels) would not affect boating transportation at the waterfront. As a result, negligible effects would occur to

both land-based and marine transportation services occur under the Marine Mammal Alternative.

PROJECT EFFECTS ON MMP MARINE MAMMALS: An analysis to evaluate potential effects of temperature, noise, transport, water quality, toxins and the presence of other marine mammals in the NBK-Bangor environment on the Navy marine mammals was also conducted. The conclusion of this analysis demonstrated that the Navy bottlenose dolphins and sea lions are not expected to experience adverse environmentally-related effects from transfer to and residence at NBK-Bangor. Analysis of the effects of the project on the Navy marine mammals determined that ambient water and air temperatures in winter were above the temperature at which the metabolic rate of most adult dolphins would increase in order to keep body temperature constant (thermal neutral zone (TNZ)). The lowest ambient temperatures are also within the TNZ of sea lions. Although no impacts due to cold exposure are expected, the heated enclosures utilized for the preferred alternative will mitigate any unforeseen cold effects on dolphins when temperatures are below 52 degrees. In addition, the dolphins and sea lions food intake will be increased to compensate for increased energy requirements if operating at temperatures that would result in an increase in metabolism. The project is not expected to have disease or water quality effects on the Navy marine mammals. Measures will be taken to ensure that there would be no adverse noise or transport effects on the Navy marine mammals and to avoid interactions with wild marine mammals.

The Navy's MMP maintains a program of animal care that meets or exceeds the standards required by the Animal Welfare Act (AWA) (7 USC 2131 et seq.). Through the AWA, the Secretary of Agriculture promulgates standards and other requirements governing the human handling, care, treatment, and transportation of certain animals by dealers, research facilities, exhibitors, carriers, and intermediate handlers. The Navy will continue to meet these standards and requirements when implementing the MMP at NBK-Bangor.

CUMULATIVE IMPACTS: The impacts of the proposed action on all environmental resources would be either negligible or minor. The proposed action would result in a finite but limited contribution to cumulative impacts with other past, present, and reasonably foreseeable projects.

1. ***Marine Environment***

The proposed action would have negligible cumulative effects on hydrography, water quality, sediments, marine vegetation, plankton, benthic organisms and the safety of shellfish for human consumption.

While there are ongoing and future actions and plans intended to improve conditions for salmonids in Hood Canal, the impacts of the proposed action would contribute to past and ongoing cumulative impacts to these species. These impacts would be negligible to minor.

The proposed project would not contribute to cumulative effects on marine mammals and would have negligible to minor cumulative effects on marine birds and other wildlife.

2. ***Protected Species:*** The proposed action would cause a negligible effect on ESA threatened and endangered species.

3. ***Candidate Species and Species of Concern:*** There would be negligible cumulative effects on the pinto abalone, a species of concern, and negligible to minor cumulative effects on the seven fish candidate species and species of concern.

4. ***Upland Environment:*** There would be a negligible cumulative effects associated with activities from the proposed action on the upland and social environments.

5. ***Social and Anthropogenic Environment:*** There would be no cumulative effects on land use or recreation when added to other past, present, and future actions.

CHANGES BETWEEN THE 2008 DRAFT AND 2009 FINAL EIS: Public comments received on the DEIS included requests for additional information on measures of stress and immunosuppresion in dolphins resulting from cold water/air exposure. White blood cell (WBC) counts (an indicator of immunosuppression) were measured in a study by Yeates and Houser (2008)[1], but were not reported in the DEIS because no significant relationship between cold exposure and WBC counts were noted. In the Yeates and Houser study, there were no statistically significant changes in WBC counts observed in the two dolphins that remained in progressively colder water continuously for 10 days, nor for the animal that moved back and forth between the cold water and

[1] Yeates, L.C., and D.S. Houser, 2008. Thermal tolerance in bottlenose dolphins (Tursiops truncatusa). The Journal of Experimental Biology. 211: 3249-3257.

ambient water on a daily basis. All WBC counts were within what is considered normal for a bottlenose dolphin. These results indicate that the dolphins were not immunosuppressed as a result of repetitive or continual exposure to cold water and have been presented in the FEIS.

RESPONSES TO COMMENTS ON THE FINAL EIS: There were no comments received from government and non-governmental organizations regarding the FEIS. A total of 46 emails were received from the general public stating their opposition to the proposed project.

CONCLUSIONS: After careful consideration of the purpose and need for the proposed action, the analyses contained in the FEIS and the comments received on the draft and FEIS from federal, state and local agencies and individual members of the public, I have decided to implement the Marine Mammal Alternative for the SISS at NBK-Bangor, Silverdale, Kitsap County, Washington.

11/16/09
Date

Roger Natsuhara
Principal Deputy Assistant Secretary of the Navy (Installations & Environment)