

3.2 NORTHWESTERN HAWAIIAN ISLANDS

The Northwestern Hawaiian Islands are a chain of small islands, atolls, submerged banks, and reefs stretching for more than 1,000 miles (mi) northwest of the Main Hawaiian Islands. Depending on the trajectory, missiles launched from the Pacific Missile Range Facility (PMRF) have the potential to overfly portions of the Papahānaumokuākea Marine National Monument. Of particular concern is missile overflight of Nihoa and Necker, which are the islands closest to the Main Hawaiian Islands. Nihoa is located at the southeastern end of the Northwestern Hawaiian Islands and is 240 nautical miles (nm) northwest of Oahu.

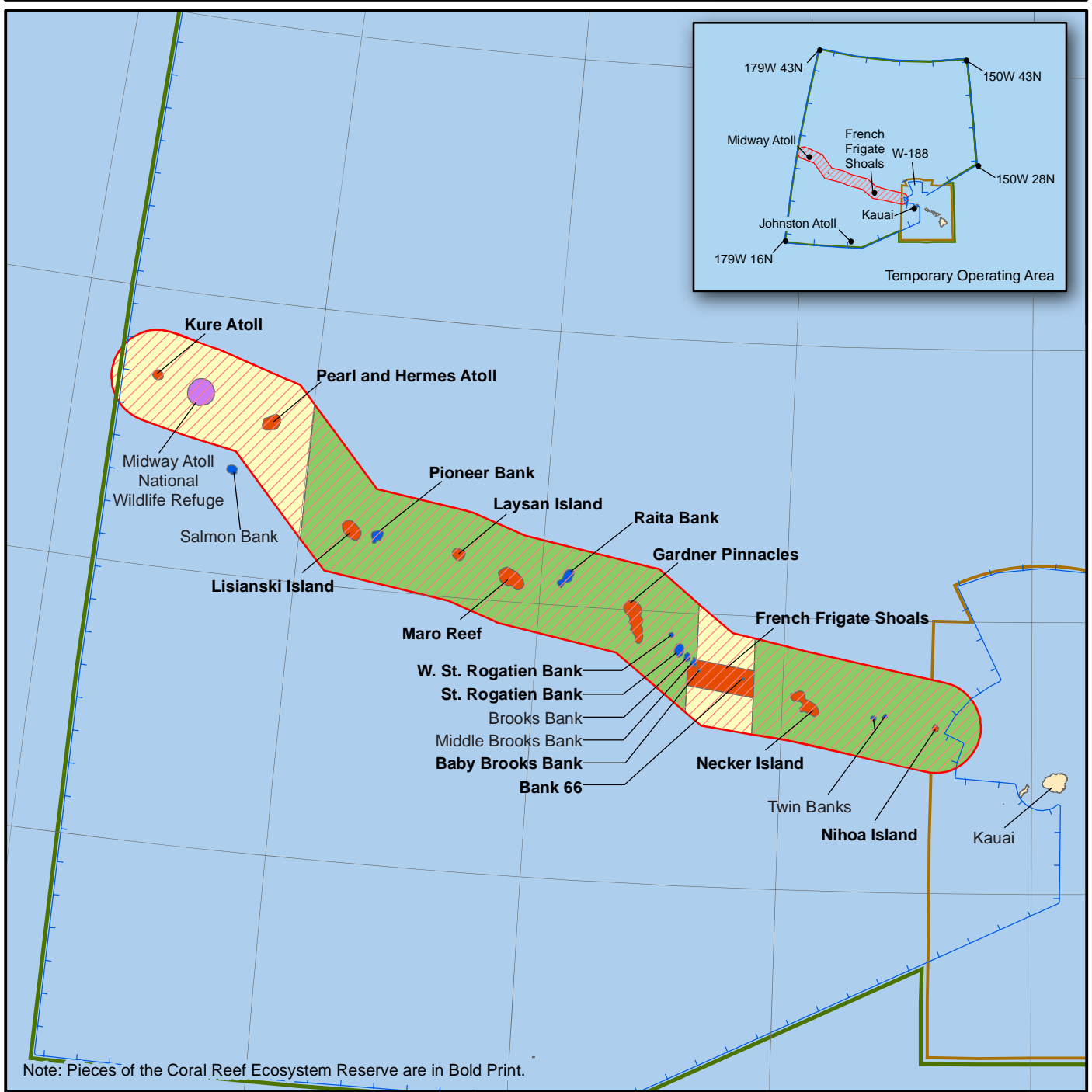
This section describes the environmental resources that would be affected by the No-action Alternative, Alternative 1, or Alternative 2 for the Northwestern Hawaiian Islands. Of the 13 environmental resources that would be affected by the No-action Alternative, Alternative 1, or Alternative 2 considered for analysis, air quality, airspace, geology and soils, hazardous materials and waste, health and safety, land use, noise, socioeconomics, transportation, utilities, and water resources are not addressed.

Papahānaumokuākea (Northwestern Hawaiian Islands) Marine National Monument

The Northwestern Hawaiian Islands Marine National Monument was established in June 2006 by Presidential Proclamation. The Monument is a nearly 140,000-square-mile (mi²) area, 100 mi wide, established to protect marine resources in the area including coral reefs, the endangered Hawaiian monk seal (*Monachus schauinslandi*), the threatened Hawaiian green turtle (*Chelonia mydas*), and the endangered leatherback and hawksbill turtles (*Dermochelys coriacea* and *Eretmochelys imbricata*). The Monument includes the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, the Hawaiian Islands National Wildlife Refuge, the Midway Atoll National Wildlife Refuge, and the Battle of Midway National Memorial (National Oceanic and Atmospheric Administration, 2006b). The Monument was given the name Papahānaumokuākea Marine National Monument in 2007. Only a fraction of the Monument is actually within the HRC on its western boundary near the northern border (Figure 3.2-1). The Temporary Operating Area encompasses the entire Monument.

The Monument is situated in the Pacific Ocean northwest of the Main Hawaiian Islands and is an approximately 1,200-nm stretch of coral islands, seamounts, banks, and shoals (Figure 3.2-1). The Monument has been established for the protection of natural resources, including one of the last intact marine ecosystems in the world, home to sharks, whales, extensive coral reefs, and the endangered Hawaiian monk seal. According to the Presidential Proclamation establishing the Monument:

1. The prohibitions required by this proclamation shall not apply to activities and exercises of the Armed Forces (including those carried out by the United States Coast Guard) that are consistent with applicable laws.



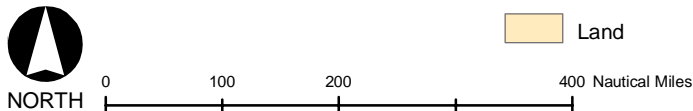
EXPLANATION

- Hawaii Range Complex (HRC)
- Hawaiian Islands National Wildlife Refuge
- Hawaiian Islands Operating Area (OPAREA)
- Midway Atoll National Wildlife Refuge
- Temporary Operating Area (TOA)
- Bank
- Papahānaumokuākea Marine National Monument
- Ecological Reserve
- Commercial Fishing Phase-Out Area
- Land

Papahānaumokuākea (Northwestern Hawaiian Islands) Marine National Monument

Hawaiian Islands

Figure 3.2-1



- 1 2. Nothing in this proclamation shall limit agency actions to respond to emergencies
2 posing an unacceptable threat to human health or safety or to the marine
3 environment and admitting of no other feasible solution.
- 4 3. All activities and exercises of the Armed Forces shall be carried out in a manner that
5 avoids, to the extent practicable and consistent with operational requirements,
6 adverse impacts on monument resources and qualities.
- 7 4. In the event of threatened or actual destruction of, loss of, or injury to a monument
8 resource or quality resulting from an incident, including but not limited to spills and
9 groundings, caused by a component of the Department of Defense or the USCG
10 [U.S. Coast Guard], the cognizant component shall promptly coordinate with the
11 Secretaries for the purpose of taking appropriate actions to respond to and mitigate
12 the harm and, if possible, restore or replace the monument resource or quality.”
13 (U.S. Government, The White House, 2006)

14 Nihoa lies 130 mi northwest of Niihau and is the closest of the Northwestern Hawaiian Islands to
15 the Main Hawaiian Islands. It is the largest volcanic island in the northwestern chain, with
16 approximately 170 acres of land. The submerged coral reef habitat associated with Nihoa is
17 approximately 142,000 acres.

18 The next closest island is Necker. This is a dry, volcanic island shaped like a fish hook that
19 includes about 45 acres of land. More than 380,000 acres of coral reef habitat are associated
20 with Necker (Hawaii Department of Land and Natural Resources, no date[b]). Because Nihoa
21 and Necker are more likely to be impacted by program activities, they are discussed in more
22 detail at the end of this section.

23 French Frigate Shoals is an 18-mi wide, crescent-shaped atoll. Its lagoon contains two exposed
24 volcanic rocks and 12 low, sandy islets. Ninety to 95 percent of green turtle nesting and
25 breeding occurs at French Frigate Shoals. Tern Island is a part of French Frigate Shoals.
26 Approximately 67 acres of land and 230,000 acres of coral reef habitat are associated with
27 French Frigate Shoals. Gardner Pinnacles consists of two peaks of volcanic rock that total 5
28 acres. Gardner Pinnacles is an important roosting site and breeding habitat for 12 species of
29 tropical seabirds and is surrounded by approximately 600,000 acres of coral reef habitat (Hawaii
30 Department of Land and Natural Resources, no date[b]).

31 Maro Reef is a largely submerged atoll, with only approximately 1 acre of emergent land but
32 about 475,000 acres of submerged coral reef habitat. Laysan is the largest island in the chain,
33 with about 1,000 acres of land. It is well vegetated and contains a hypersaline lake that is one
34 of only five natural lakes in the State of Hawaii. Approximately 145,000 acres of coral reef
35 habitat are associated with this island (Hawaii Department of Land and Natural Resources, no
36 date[b]). Approximately 2 million birds nest on the island (National Oceanic and Atmospheric
37 Administration, 2006c).

38 Lisianski Island is a low sand and coral island, with approximately 400 acres of land. It lies at
39 the northern end of a large reef bank, spans about 65 mi², and totals about 310,000 acres.
40 Pearl and Hermes Reef is a large atoll with several small islets forming about 80 acres of land
41 with approximately 200,000 acres of coral reef habitat. The islets are periodically washed over
42 during winter storms (Hawaii Department of Land and Natural Resources, no date[b]).

1 Midway Atoll measures 5 mi across and includes three small islands located at the southeastern
2 end of the lagoon totaling 1,550 acres. The protective reef around the lagoon is submerged in
3 some places and 4 to 5 feet (ft) above sea level in others. Approximately 55,000 acres of reef
4 habitat are associated with Midway Atoll (Hawaii Department of Land and Natural Resources,
5 no date[b]).

6 Twelve species of alien marine algae, invertebrates, and fish have been recorded in the
7 Northwestern Hawaiian Islands. *Hypnea musciformis*, an invasive algal species, is not yet
8 established in the Northwestern Hawaiian Islands. It is located in drift only at Maro Reef.
9 (National Oceanic and Atmospheric Administration, 2006c)

10 **Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve**

11 Executive Order (EO) 13178, *Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve*,
12 created the Reserve. EO 13196, *Final Northwestern Hawaiian Islands Coral Reef Ecosystem*
13 *Reserve*, amended EO 13178 by finalizing several of its provisions. The principal purpose of
14 the Reserve is the long-term conservation and protection of the coral reef ecosystem and
15 related marine resources and species of the Northwestern Hawaiian Islands in their natural
16 character.

17 The Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve lies to the northwest of the
18 main islands of the Hawaiian chain. The Reserve includes submerged lands and waters of the
19 Northwestern Hawaiian Islands, extending approximately 1,200 nm long and 100 nm wide. The
20 Reserve is adjacent to and seaward of the seaward boundaries of the State of Hawaii and the
21 Midway Atoll National Wildlife Refuge, and overlies the Hawaiian Islands National Wildlife
22 Refuge to the extent that it extends beyond the seaward boundaries of the State of Hawaii
23 (Federal Register, 2000a).

24 **Midway Atoll National Wildlife Refuge**

25 The Midway Atoll National Wildlife Refuge was created by EO 13022 in 1996. It is administered
26 by the Secretary of the Interior through the U.S. Fish and Wildlife Service (USFWS) in part to
27 maintain and restore natural biological diversity and to provide for the conservation and
28 management of fish and wildlife and their habitat. Fifteen species of seabirds nest on islands
29 within the refuge, including the world's largest colony of Laysan albatross (*Phoebastria*
30 *immutabilis*) and the largest colonies of red-tailed tropicbirds (*Phaethon rubricauda rothschildi*),
31 black noddies (*Anous minutus*), and white terns (*Gygis alba*) in the Hawaiian archipelago. (U.S.
32 Fish and Wildlife Service, 2006a)

33 Over 250 species of fish and a large diversity of marine invertebrates inhabit the lagoon and
34 surrounding waters. Approximately 50 to 65 Hawaiian monk seals are located within the area
35 offshore of the refuge. Midway's beaches provide critically important habitat where monk seals
36 raise their pups. Threatened green turtles are most common offshore of Sand Island's beaches,
37 but they are seen throughout the lagoon and surrounding offshore waters. A population of
38 about 300 spinner dolphins (*Stenella longirostris*) also inhabit Midway's lagoon during daylight
39 hours. (U.S. Fish and Wildlife Service, 2006a)

40 As part of the base closure process, the Navy was obligated to consider the effects of the
41 closure process on historic sites and structures. The Navy determined that 78 structures,
42 buildings, or objects were eligible for inclusion in the National Register of Historic Places,

1 including the structures associated with the Battle of Midway National Historic Landmark,
2 designated in 1986. (U.S. Fish and Wildlife Service, 2006a)

3 To guide the historic preservation process during the transition, the Navy entered into a
4 Programmatic Agreement with the USFWS, the Hawaii State Historic Preservation Office and
5 the Advisory Council on Historic Preservation. The Programmatic Agreement recommended
6 specific types of treatment for the 78 historic sites or structures. (U.S. Fish and Wildlife Service,
7 2006a)

8 **Hawaiian Islands National Wildlife Refuge**

9 The Hawaiian Islands National Wildlife Refuge was designated by President Theodore
10 Roosevelt in 1909. It consists of a chain of islands, atolls, and reefs extending approximately
11 800 mi northwest from the Main Hawaiian Islands. The refuge consists of Nihoa, Necker,
12 French Frigate Shoals, Gardner Pinnacles, Maro Reef, Laysan, Lisianski, and Pearl and
13 Hermes Reef. Millions of seabirds, such as the sooty tern (*Sterna fuscata*) and albatross, live
14 within the refuge, which also provides a rich habitat for marine life (U.S. Fish and Wildlife
15 Service, Pacific Islands, 2002).

16 **Kure Atoll State Wildlife Sanctuary**

17 Kure is the northernmost coral atoll in the world. The island has a 6-mi diameter that encloses
18 approximately 200 acres of emergent land. The outer reef almost completely encircles the
19 lagoon except for passages to the southwest. The only permanent land in the atoll is Green
20 Island, located near the fringing reef in the southeastern part of the lagoon. Almost 80,000
21 acres of coral reef habitat are associated with Kure Atoll. (Hawaii Department of Land and
22 Natural Resources, no date[b]) Kure Atoll is a State wildlife refuge/sanctuary under the
23 jurisdiction of the Hawaii Division of Forestry and Wildlife, Department of Land and Natural
24 Resources. Jurisdiction of the USFWS and National Marine Fisheries Service (NMFS) applies
25 to the enforcement of the Marine Mammal Protection Act and Endangered Species Act,
26 although Kure Atoll is not part of the Hawaiian Islands National Wildlife Refuge.

27

1 **3.2.1 NORTHWESTERN HAWAIIAN ISLANDS OFFSHORE**

2 **3.2.1.1 BIOLOGICAL RESOURCES—NORTHWESTERN** 3 **HAWAIIAN ISLANDS OFFSHORE**

4 Appendix C includes a definition of biological resources and the main regulations and laws that
5 govern their protection. The 12- to 50-nm portion of the Papahānaumokuākea Marine National
6 Monument is discussed in Section 3.2. As earlier noted, Nihoa and Necker islands are most
7 likely to be affected by program activities. Their biological resources are addressed in greater
8 detail below.

9 **3.2.1.1.1 Nihoa—Biological Resources—Northwestern Hawaiian** 10 **Islands Offshore**

11 **Region of Influence**

12 The region of influence for biological resources of Nihoa is the ocean surrounding the island
13 from the shoreline out to 12 nm.

14 **Affected Environment**

15 Pink coralline, red, brown, and green algae are present offshore of Nihoa. The amount of
16 shallow reef habitat immediately surrounding Nihoa is small due to the lack of suitable habitats,
17 and fewer fish and other species have colonized there and been able to survive (Coral Reef
18 Information System, 2007). Only submerged reefs are located around Nihoa. Most of the 20
19 species of coral present only survive at depths greater than 40 ft, and coral cover is not greater
20 than 25 percent. Seventeen species of stony coral have been identified offshore of Nihoa.
21 Small lobe coral (*Porites lobata*) and rose coral colonies (*Pocillopora meandrina*) are the most
22 common. The most common invertebrates are small encrusting species such as sponges,
23 bryozoans, and tunicates. (Coral Reef Information System, 2007; U.S. Fish and Wildlife Service
24 and Hawaii Department of Land and Natural Resources, Division of Aquatic Resources, 2002;
25 National Oceanic and Atmospheric Administration, 2006c)

26 Reef sharks (*Carcharhinus* spp.) and jacks are common to the waters offshore of the island.
27 The spotted knifejaw (*Oplegnathus punctatus*), which is uncommon in the Main Hawaiian
28 Islands, is often seen. (Coral Reef Information System, 2007)

29 Nihoa supports a small population of endangered Hawaiian monk seals (Table 3.2.1.1.1-1) with
30 limited reproduction, which is possibly maintained by immigration from other breeding colonies
31 (National Oceanic and Atmospheric Administration, 2006c). The NMFS Southwest Fisheries
32 Science Center (1999) estimated the population of monk seals to be approximately 35 to 77.
33 Green turtles and leatherback turtles are located in the waters surrounding the Northwestern
34 Hawaiian Islands, including Nihoa (Coral Reef Information System, 2007).

**Table 3.2.1.1.1-1. Listed Species Known or Expected to Occur
Offshore of Nihoa and Necker**

| Scientific Name | Common Name | Federal Status |
|-------------------------------|--------------------|----------------|
| Reptiles | | |
| <i>Chelonia mydas</i> | Green turtle | T |
| <i>Dermochelys coriacea</i> | Leatherback turtle | E |
| Mammals | | |
| <i>Monachus schauinslandi</i> | Hawaiian monk seal | E |

Source: U.S. Fish and Wildlife Service, 2003a; National Oceanic and Atmospheric Administration, 2006c

Key to Federal Status:

T = Threatened

E = Endangered

3.2.1.1.2 Necker—Biological Resources—Northwestern Hawaiian Islands Offshore

Region of Influence

The region of influence for biological resources of Necker is the ocean surrounding the island from the shoreline out to 12 nm.

Affected Environment

A broad reef shelf surrounds the island, but is not shallow enough to protect the island from wave action. However, the number of coral species is comparable to that of Nihoa, fewer than 20. Reef growth is minimal (National Oceanic and Atmospheric Administration, 2006c). Most coral is found in habitats that are somewhat protected from wave scour, such as caves, overhangs, and trenches. The most commonly observed stony corals are *Porites lobata* and *Pocillopora meandrina*. Corals found at Necker that are not reported from Nihoa are *Porites compressa*, *Pocillopora ligulata*, and *Pavona varians*. (Coral Reef Information System, 2007)

Grey reef sharks (*Carcharhinus amblyrhynchos*), giant Trevally jacks (*Caranx ignobilis*), and gray snappers (*Lutjanus griseus*) are common. Large manta rays (*Manta birostris*) have been observed along the island's rocky surf zone.

Necker supports a small population of Hawaiian monk seals (Table 3.2.1.1.1-1) with limited reproduction that is possibly maintained by immigration from other breeding colonies. Green turtles occasionally are observed off the coast (National Oceanic and Atmospheric Administration, 2006c). Leatherback turtles are located in the waters surrounding the Northwestern Hawaiian Islands, including Necker (Coral Reef Information System, 2007).

1 3.2.2 NORTHWESTERN HAWAIIAN ISLANDS ONSHORE

2 3.2.2.1 BIOLOGICAL RESOURCES—NORTHWESTERN 3 HAWAIIAN ISLANDS ONSHORE

4 Appendix C includes a definition of biological resources and the main regulations and laws that
5 govern their protection.

6 3.2.2.1.1 Nihoa—Biological Resources—Northwestern Hawaiian 7 Islands Onshore

8 Region of Influence

9 The region of Influence for biological resources of Nihoa is the entire island.

10 Affected Environment

11 Vegetation

12 Most of the ridges on Nihoa are covered by grass: Kawelu (*Eragrostis variabilis*) and torrid
13 panicgrass or kakonakona (*Panicum torridum*). The valleys are covered with dense shrubs,
14 mainly goosefoot shrub or `aheahea (*Chenopodium oahuense*) and popolo (*Solanum nelsoni*).
15 (U.S. Forest Service, undated; Resture, 2002)

16 Threatened and Endangered Plant Species

17 Nihoa is the only home for three endemic, endangered plants (Table 3.2.2.1.1-1) located in what
18 is reported to be an intact example of a Hawaiian coastal scrub community (U.S. Fish and
19 Wildlife Service and Hawaii Department of Land and Natural Resources, Division of Aquatic
20 Resources, 2002).

**Table 3.2.2.1.1-1. Listed Species Known or Expected to Occur
on Nihoa and Necker**

| Scientific Name | Common Name | Federal Status |
|--------------------------------------|------------------------|----------------|
| Plants | | |
| <i>Amaranthus brownii</i> | No common name | E |
| <i>Pritchardia remota</i> | Loulu (Nihoa fan palm) | E |
| <i>Schiedea verticillata</i> | No common name | E |
| <i>Sesbania tomentosa</i> | Ohai | E |
| Birds | | |
| <i>Acrocephalus familiaris kingi</i> | Nihoa Millerbird | E |
| <i>Telespyza ultima</i> | Nihoa finch | E |
| Mammals | | |
| <i>Monachus schauinslandi</i> | Hawaiian monk seal | E |

21 Source: U.S. Fish and Wildlife Service, 2003; National Oceanic and Atmospheric Administration, 2006c

22 Key to Federal Status:
23 T = Threatened
24 E = Endangered

1 The three endemic endangered plants on Nihoa are the loulu (Nihoa fan palm) (*Pritchardia*
2 *remota*), *Amaranthus brownii* (no common name, last observed in 1983), and *Schiedea*
3 *verticillata* (no common name). The endangered `ohai (*Sesbania tomentosa*) is also found on
4 Nihoa. The loulu relies on the isolation and protection from invasive species and disturbance
5 that the Hawaiian Islands provide (U.S. Fish and Wildlife Service and Hawaii Department of
6 Land and Natural Resources, Division of Aquatic Resources, 2002). The entire island other
7 than manmade features has been designated as critical habitat for these plants (U.S. Fish and
8 Wildlife Service, 2003a).

9 *Wildlife*

10 For many years the only regular inhabitants of Nihoa have been vast numbers of birds, including
11 black-footed albatross (*Phoebastria nigripes*), Tristram's storm-petrel (*Oceanodroma tristrami*),
12 Bulwer's petrel (*Bulweria bulwerii*), wedge-tailed shearwaters (*Puffinus pacificus*
13 *chlororhynchus*), blue-gray noddies (*Procelsterna cerulea*), red-tailed tropic birds, great frigate
14 birds or `iwa (*Fregata minor palmerstoni*), three kinds of boobies (*Sula* spp.), and terns such as
15 the gray-backed tern or pakalakala (*Sterna lunata*), white (fairy) tern or manu-o-ku, and sooty
16 tern or `ewa`ewa. Birds nest in a variety of places, from the ground to the crowns of the loulu
17 palms. (State of Hawaii, 2005a)

18 Several species of migratory birds covered by the Migratory Bird Treaty Act (MBTA) are present
19 during some portion of the year including, but not limited to boobies, wedge-tailed shearwaters,
20 and albatross.

21 Threatened and Endangered Wildlife Species

22 In addition to the seabirds mentioned above, there are two species of native land birds: the
23 Nihoa finch (*Telespyza ultima*) and the Nihoa Millerbird (*Acrocephalus familiaris kingi*), both
24 endangered, endemic species found only on Nihoa (Table 3.2.2.1.1-1), but related to species on
25 Laysan (Resture, 2002). Nihoa supports a small population of Hawaiian monk seals with limited
26 reproduction, which is possibly maintained by immigration from other breeding colonies
27 (National Oceanic and Atmospheric Administration, 2006c).

28 The current estimate of 300 to 700 Nihoa Millerbirds and 2,000 to 4,000 Nihoa finches rely on
29 the isolation and protection from invasive species and disturbance that the Hawaiian Islands
30 provide (State of Hawaii, 2005b; U.S. Fish and Wildlife Service and Hawaii Department of Land
31 and Natural Resources, Division of Aquatic Resources, 2002). While critical habitat has not
32 been designated for either species on Nihoa, the area nevertheless contains important habitat
33 for both birds, and protection afforded by the Endangered Species Act still applies.

34 **3.2.2.1.2 Necker—Biological Resources—Northwestern Hawaiian** 35 **Islands Onshore**

36 **Region of Influence**

37 The region of Influence for biological resources of Necker is the entire island.

1 **Affected Environment**

2 *Vegetation*

3 Although Necker appears from a distance to be devoid of vegetation, its rounded crest and
4 narrow terraces are actually sparsely covered with five species of plants: `aheahea, also
5 common throughout the main Hawaiian Islands; kakonakona; purslane or ihi (*Portulaca lutea*);
6 pickle weed or akulikuli kai (*Batis maritima*); and a few `ohai shrub. None of the plants reach
7 more than 2 ft high. (Resture, 2004; Coral Reef Information Center, 2007)

8 Threatened and Endangered Plant Species

9 The endangered `ohai shrub is present on the island (Table 3.2.2.1.1-1) (Coral Reef Information
10 System, 2007).

11 *Wildlife*

12 The only wildlife other than land snails, spiders, and several endemic insects, are seabirds.
13 Brown noddies (*Anous stolidus*) are year-round residents; egg laying has been documented
14 throughout the year (Megyesi, 1996). Great frigate birds or `iwa, blue-gray noddies, and
15 masked boobies (*Sula dactylatra*) are also present. These birds are covered under the MBTA.

16 Threatened and Endangered Wildlife Species

17 Green turtles (Table 3.2.2.1.1-1) occasionally bask along the coast (National Oceanic and
18 Atmospheric Administration, 2006). Necker also supports a small population of endangered
19 Hawaiian monk seals (Table 3.2.2.1.1-1) with limited reproduction that is possibly maintained by
20 immigration from other breeding colonies (Coral Reef Information System, 2007).

21 **3.2.2.2 CULTURAL RESOURCES—NORTHWESTERN HAWAIIAN**
22 **ISLANDS ONSHORE**

23 Appendix C includes a definition of cultural resources and the main regulations and laws that
24 govern their protection.

25 **Region of Influence**

26 The region of influence for cultural resources encompasses portions of the
27 Papahānaumokuākea Marine National Monument, particularly in the vicinity of Nihoa or Necker.

28 **Affected Environment**

29 *Archaeological Resources (Prehistoric and Historic)*

30 The Northwestern Hawaiian Islands were explored, colonized, and in some cases, semi-
31 permanently settled by Native Hawaiians in pre-contact times. Nihoa and Necker
32 (Mokumanamana), the islands that are closest to the main Hawaiian Islands (approximately 150
33 mi apart), are culturally and historically significant. They are listed on the National and Hawaii
34 State Registers of Historic Places and are protected by the USFWS.

35 Several archaeological surveys of Nihoa and Necker have been conducted beginning with a
36 survey by the Bishop Museum (the Tanager Expedition in 1923) (Emory, 1928). On Nihoa,

1 numerous features, including approximately 35 habitation sites, 15 religious sites (heiau), and
2 28 agricultural sites have been recorded across the island. Based on radiocarbon data, Nihoa
3 (as well as Necker) could have been inhabited from 1000 A.D. to 1700 A.D. (Cleghorn, 1987;
4 1988); new methods of dating the sites (i.e., dating of the coral features) will likely refine these
5 dates (TenBruggencate, 2005). There are no longer permanent inhabitants of Nihoa; however,
6 research scientists and other educational expeditions occasionally visit the various islands of
7 the island chain and camp for 1 to 12 weeks (Northwestern Hawaiian Islands Multi-Agency
8 Education Project, 2006).

9 *Historic Buildings and Structures*

10 There are no modern historic buildings or structures on Nihoa or Necker; however, there are a
11 number of pre-contact stone structures representing habitation, agricultural, and ceremonial
12 features (Emory, 1928).

13 *Traditional Resources (including Burials)*

14 Among the recorded sites on Nihoa and Necker are religious and ceremonial features (cairns,
15 terraces, stone platforms, upright stones) and at least three burial sites (two on Nihoa and one
16 on Necker). (Emory, 1928; TenBruggencate, 2005)

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