3.7 Sea Turtles

3.7 SEA TURTLES

3.7.1 AFFECTED ENVIRONMENT

For purposes of this Supplemental Environmental Impact Statement (EIS)/Overseas EIS (Supplemental EIS/OEIS), the Region of Influence (ROI) for sea turtles remains the same as that identified in the March 2011 Gulf of Alaska Navy Training Activities Final EIS/OEIS and includes the Temporary Maritime Activities Area (TMAA) (the Study Area).

3.7.1.1 Existing Conditions

The nearest shoreline (Kenai Peninsula) is located approximately 24 nautical miles (nm) north of the TMAA's northern boundary. The approximate middle of the TMAA is located 140 nm offshore. Given that the TMAA is more than 12 nm from the closest point of land, it is therefore outside of United States (U.S.) territorial seas.

As described in the 2011 GOA Final EIS/OEIS, the cold waters off Alaska are above the typical northern limits for sea turtles from the Cheloniidae family (green, olive ridley, and loggerhead sea turtles) and, thus, sea turtles are considered rare in the ROI. Although sightings of sea turtles from the Cheloniidae family have been documented in the Study Area, most of these involve individuals that were either cold stressed, likely to become cold stressed, or already deceased (Hodge and Wing 2000). Thus, the ROI is considered to be outside the normal range for sea turtle species of the Cheloniidae family, and these species are not considered further for analysis in this Supplemental EIS/OEIS.

3.7.1.1.1 Species Accounts and Life History

As presented in the 2011 GOA Final EIS/OEIS, the leatherback sea turtle is listed as a single population and is classified as endangered under the Endangered Species Act (ESA). In January 2012, the National Marine Fisheries Service designated critical habitat in the Pacific Ocean along California (from Point Arena to Point Arguello, east of the 3,000-meter [m] [9,842.5-foot {ft.}] depth contour) and Washington and Oregon (from Cape Flattery, Washington, to Cape Blanco, Oregon, east of the 2,000 m [6,561.7 ft.] depth contour) (77 Federal Register 4170). However, there is no critical habitat designated for the leatherback sea turtle in the Study Area.

Leatherback sea turtles are highly migratory and can be present in the open ocean waters of the Study Area. As described in the 2011 GOA Final EIS/OEIS, the habitat and geographic range of the leatherback turtle remains the most widely distributed of all sea turtles. Following a review of recent literature (JSTOR, Web of Science, Google Scholar, EBSCO Academic, and U.S. Fish and Wildlife Service websites), including Eckert et al. (2012), the habitat and geographic range of leatherback sea turtles, as listed in the 2011 GOA Final EIS/OEIS, has not changed. As such, the information and analysis presented in the 2011 GOA Final EIS/OEIS is still valid, and there is no new information or circumstances that would alter analysis of the 2011 GOA Final EIS/OEIS.

As presented in the 2011 GOA Final EIS/OEIS, the leatherback is the deepest diving sea turtle, with a recorded maximum depth of 4,200 ft. (1,280 m), although most dives are much shallower (usually less than 820 ft. [250 m]) (Doyle et al. 2008, Dodge et al. 2014, Houghton et al. 2008, Hays et al. 2004; Sale et al. 2006). Leatherbacks are also capable of diving for a longer time than any other sea turtles species. The longest recorded dive time is 86.5 minutes, during which the turtle dove to a depth of 3,891 ft. (1,186 m) (López-Mendilaharsu et al. 2009). Following a review of recent literature, the diving ability of the leatherback sea turtle as listed in the 2011 GOA Final EIS/OEIS has not appreciably changed (Eckert et al. 2012). As such, the information and analysis presented in the 2011 GOA Final EIS/OEIS remains

valid, and there is no new information or circumstances that would alter analysis of the 2011 GOA Final EIS/OEIS.

At the time the 2011 GOA Final EIS/OEIS was completed, the world's female leatherback turtle population was estimated at 35,860. Worldwide estimates of leatherback sea turtle populations have varied dramatically over the years as a result of both significant declines in the population and the discovery of new nesting colonies, particularly a colony in Gabon, Africa. Recent reviews of literature indicate that the largest nesting populations are located off Gabon in equatorial West Africa (5,865–20,499 females nesting per year [Witt et al. 2009]), in the western Atlantic in French Guiana (4,500–7,500 females nesting per year [Dutton et al. 2007]), Trinidad (estimated 6,000 turtles nesting annually [Eckert 2002]), and in the western Pacific in West Papua (formerly Irian Jaya), Indonesia (about 600–650 females nesting per year [Dutton et al. 2007]).

The western Pacific (west of the International Date Line) leatherback population was estimated in the 2011 GOA Final EIS/OEIS to contain 2,700–4,500 nesting females (Dutton et al. 2007). There are 28 known nesting sites for the western Pacific Ocean stock, from Australia and Melanesia (Papua New Guinea, Solomon Islands, Fiji, and Vanuatu) to Indonesia, Thailand, and China (Chaloupka et al. 2004; Chua 1988; Dutton 2006; Hirth et al. 1993; Suarez et al. 2000). Recent studies by Tapilatu et al. (2013) reported leatherback nesting trends at the largest nesting site in the western Pacific (Papua Barat, Indonesia) and have reported a continual and significant long-term nesting decline of 5.9 percent a year, which parallels the population declines of other nesting populations throughout the Pacific. The major nesting populations of the Eastern Pacific Ocean stock occur in Mexico, Costa Rica, Panama, Colombia, Ecuador, and Nicaragua (Chaloupka et al. 2004; Dutton et al. 1999; Eckert and Sarti-Martinez 1997; Márquez M. 1990; Sarti-Martinez et al. 1996; Spotila et al. 1996), with the largest ones in Mexico and Costa Rica.

As stated in the 2011 GOA Final EIS/OEIS, a subset of these females, and an unknown number of males, forage off the U.S. west coast each year from about May to November, when dense aggregations of jellyfish (leatherback prey) are present (Benson et al. 2007). It is possible that the leatherback sea turtle could travel farther north into Alaskan waters during these foraging expeditions. However, only 19 sightings of leatherback sea turtles in Alaska waters have been recorded between 1960 and 1998 (Hodge and Wing 2000), all within the Gulf of Alaska. Thus, the leatherback turtle is treated as rare in the ROI. There are no known nesting habitats for the leatherback sea turtle in the Study Area.

3.7.1.1.2 Natural and Induced Mortality

The general threats to sea turtles are described in the 2011 GOA Final EIS/OEIS. Following a review of recent literature, general threats to sea turtles have not changed since the publication of the Final EIS/OEIS. As such, the information and analysis presented in the 2011 GOA Final EIS/OEIS remains valid, and there is no new information or circumstances that would alter analysis of the 2011 GOA Final EIS/OEIS.

3.7.1.1.3 Sea Turtle Hearing

As presented in the 2011 GOA Final EIS/OEIS, sea turtle auditory sensitivity of the leatherback sea turtle is not well studied, though a few studies on other sea turtle species suggested that it is limited to low-frequency bandwidths (< 1,600 Hertz [Hz]), such as the sounds of waves breaking on a beach. Following a review of recent literature, work using auditory evoked potentials has shown that leatherback sea turtle hatchlings are able to detect sounds underwater and in air, responding to stimuli between 50 and 1,200 Hz in water and 50 and 1,600 Hz in air, with maximum sensitivity between

100 and 400 Hz in water and 50 and 400 Hz in air, with sharp decreases in sensitivity above 400 Hz in both media (Dow Piniak et al. 2013). This is similar to the analogous data for other sea turtles that had been used in the Draft EIS in the absence of leatherback auditory sensitivity information. With the exception of this additional information, the information regarding sea turtle hearing presented in the 2011 GOA Final EIS/OEIS, as well as the analysis based on this information, remains valid.

3.7.1.2 Current Requirements and Practices

As stated in the 2011 GOA Final EIS/OEIS, the comprehensive suite of protective measures and standard operating procedures implemented by the U.S. Department of the Navy (Navy) to reduce impacts to marine mammals also serves to mitigate potential impacts on sea turtles. In particular, personnel and watchstander training, establishment of marine mammal exclusion zones for at-sea explosions, and pre- and post-exercise surveys all serve to reduce or eliminate potential impacts of Navy activities on sea turtles that may be present in the vicinity. Mitigation is discussed in more detail in Chapter 5 (Standard Operating Procedures, Mitigation, and Monitoring) of this Supplemental EIS/OEIS.

3.7.2 Alternatives Analysis

All three alternatives (No Action Alternative, Alternative 1, and Alternative 2), as discussed in the 2011 GOA Final EIS/OEIS, remain the same for this Supplemental EIS/OEIS. The Navy conducted a review of existing federal and state regulations and standards relevant to sea turtles, as well as a review of new literature, to include laws, regulations, and publications pertaining to sea turtles. Although additional information relating to existing environmental conditions was found, the new information does not indicate an appreciable change to the existing environmental conditions as described in the 2011 GOA Final EIS/OEIS. Because the existing conditions have not changed appreciably, and no new Navy training activities are being proposed for use in the TMAA in this Supplemental EIS/OEIS, re-analysis of the alternatives with respect to sea turtles is not warranted. Subsequently, the conclusions made for the alternatives analyzed in the 2011 GOA Final EIS/OEIS remain unchanged in this Supplemental EIS/OEIS.

3.7.3 Conclusion

As described above, there is new information on existing environmental conditions, including updated information on sea turtle hearing. However, this new information does not change the affected environment, which forms the environmental baseline of the sea turtle analysis in the 2011 GOA Final EIS/OEIS, as the new information was similar to the data used for analysis in the Draft EIS. Additionally, no new Navy training activities are being proposed in this Supplemental EIS/OEIS that would affect sea turtles in the TMAA. Therefore, conclusions for sea turtle impacts made for the alternatives analyzed in the 2011 GOA Final EIS/OEIS remain unchanged in this Supplemental EIS/OEIS. For a summary of effects of the No Action Alternative, Alternative 1, and Alternative 2 on sea turtles under both the National Environmental Policy Act and Executive Order 12114, please refer to Table 3.7-2 (Summary of Effects by Alternative) in the 2011 GOA Final EIS/OEIS.

As part of this Supplemental EIS/OEIS, the Navy is consulting under Section 7 of the ESA with NMFS for the ESA-listed leatherback sea turtle, but will continue to rely on the prior analysis from the 2011 GOA Final EIS/OEIS and Biological Evaluation, as it remains valid. Specifically, there has not been an exceedance of incidental take for the leatherback sea turtle under the current Biological Opinion; there is no new information that reveals new effects to leatherback sea turtles or critical habitat associated with leatherback sea turtles that were not previously considered; Navy training activities in the TMAA are not being substantially modified in a manner that would cause effects to listed leatherback sea turtles or their critical habitat that was not previously considered; and there has not been a new species of sea turtle listed or critical habitat for other sea turtles created within the TMAA.

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