

MMC Annual Meeting 2019
Session Summary - Humpback Whale Session

The humpback whale population in Hawaii is one of 14 Distinct Population Segments (DPS) identified by NMFS in its 2015 status review of the species under the Endangered Species Act (ESA). In 2016, NMFS delisted the Hawaii humpback DPS under the ESA. Humpback whales in Hawaii are part of the Central North Pacific (CNP) stock of humpback whales, one of three stocks of humpback whales in the Pacific Ocean listed as depleted under the Marine Mammal Protection Act (MMPA). NMFS is in the process of developing a stock designation policy under the MMPA to address the misalignment of stock structure designations under the ESA and MMPA. NMFS is in the process of preparing a proposed critical habitat designation for ESA-listed humpback whale stocks in Central America, Mexico, and Western North Pacific, which is due to be published by court order by 26 September 2019.

The most recent abundance estimate for the Hawaii DPS is 11,571 humpback whales, from SPLASH¹ studies conducted in 2004-2006. The Hawaii DPS spends the winter and early spring in Hawaiian waters (primarily off Maui) and migrates north to feed, primarily in northern British Columbia and Southeast Alaska. A sudden and dramatic decline in sightings of known individuals and mother-calf pairs were reported starting in 2013 in Southeast Alaska and Prince William Sound by the Glacier Bay National Park, SPLISH², and Gulf Watch Alaska, along with reports of abnormally thin whales and unusual skin conditions. Similar declines in whale numbers and mother-calf pairs were subsequently reported offshore Maui in 2015. A workshop of whale researchers was convened in November 2018 in Hawaii to discuss possible causes for the decline and identify research needs and a strategy for moving forward. Priorities included investigation of where whales are going to breed and feed; assessment of body condition; determination of whether reproductive rates, abundance, and survival have changed over time; identification of changes in food resources, possibly associated with ocean heat events (i.e., the Pacific Blob); and investigation of the role of anthropogenic and environmental factors in observed changes. Coordination with researchers focused on large-scale oceanographic patterns would be beneficial, as well as incorporating perspectives from Native communities and others. There may also be additional data mining from SPLASH that can elucidate long-term patterns. Preliminary data from 2019 indicate that encounter rates in Hawaii may have returned to pre-2015 levels. At the meeting, the Commission urged NMFS to move quickly to hire a monitoring plan research coordinator and to refine 'response triggers' identified in the monitoring plan for the nine humpback whale DPSs delisted in 2016.

The session reviewed new technologies being used to monitor humpback whale abundance, body condition, and movements around Hawaii and across the Pacific, including unmanned aircraft systems (UAS) and underwater wave gliders. Morphometric measurements coupled with simultaneous tissue sampling are being used to develop a bioenergetic model for humpback whales that can be used both on the Hawaiian breeding grounds and Alaskan feeding grounds. These types of studies of body condition can benefit from discussions with researchers conducting similar studies on other large baleen

¹ SPLASH - Structure of Populations and Levels of Abundance and Status of Humpbacks

² SPLISH - Survey of Population Level Indices for Southeast Alaskan Humpbacks

whales (e.g., gray and right whales), and may eventually be used to develop standardized health indices. UAS can also provide data on scarring to identify signs of entanglement or vessel strikes. An underwater wave glider launched from Hawaii in January 2018 toward Baja California detected humpback whale vocalizations on at least 30 of 100 days, as well as minke whales on all days and unidentified cetaceans on 88 of 100 days. The wave glider was launched again in December 2018 toward the Marianas Islands and also detected large numbers of humpback whale vocalizations and possibly Bryde's whales in areas that had never been previously studied with acoustic recorders.

Besides climate change, major threats to humpback whales include entanglement in fishing gear and interactions with vessels. The Marine Mammal Response Network, a joint effort of the Humpback Whale National Marine Sanctuary and the NMFS Pacific Islands National Marine Sanctuary, responds to strandings of all marine mammal (and sea turtle) species in Hawaii. Recent strandings of humpback whales include five in 2016 and one in 2017. The network also responds to large whales entangled in fishing gear, and has a 43% disentanglement success rate with fishing gear removed from 32 whales since 2002. The most common gear found on whales is crab pot/trap gear, primarily from Alaska and British Columbia but also from Hawaii. There has been a five-fold increase in small vessel traffic in humpback whale habitat off Maui since the 1980's Regulations to protect humpback whales from close approaches (within 300 m) of whale-watching and other vessels within 200 m of shore have been in place since 1987, and were recently revised in 2016 as an interim final rule to maintain many of the same restrictions, albeit now under authority of the MMPA. Most violations are reported through social media, as on-water law enforcement presence is limited even during whale season. Instead, the focus is on strong outreach and education, with an emphasis on educating news media against glamorizing close encounters with humpback whales. Research on behavioral response to vessels from 2016-2018 indicated that whales display avoidance to vessels by increasing swim speed, decreasing dive time, increasing respiration (blows per minute), and traveling away from vessels (although in some cases whales will actually approach vessels). These responses indicate an energetic cost to whales, albeit minimal. Additional guidelines may be needed to further minimize disturbance of whales and calves.