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Marine Mammals

Nai'a or Spinner dolphin

Stenella longirostris

SPECIES STATUS:

IUCN Red List - Lower Risk/ Conservation Dependent

SPECIES INFORMATION: Nai'a or spinner dolphins (*Stenella longirostris*) congregate into large groups and swim offshore to depths of 200 to 300 meters (650 to 1,000 feet) to feed on mesopelagic prey that includes squid, fish and shrimp. Although in large groups, they also feed in cooperative pairs or groups of pairs offshore. This foraging begins in late afternoon and continues throughout the night as the "deep scattering layer" moves closer to the surface. Recent research shows that this food source is close to shore early in the night so the spinner dolphins follow them inshore for awhile. During the day, they expend less energy resting or socializing in nearshore, shallow waters such as bays and lagoons surrounded by reef. They also may stay in their nearshore habitat to avoid predators such as sharks and killer whales. The change in group size from daytime activities to nighttime feeding is unique to Hawaii's spinner dolphins. Although spinner dolphins are able to give birth at any time during the year, they typically show one or more seasonal peaks. Multiple males may mate with one female in short, consecutive intervals. Gestation lasts approximately ten and a half months and lactation occurs for one to two years. The calving interval is approximately three years. Additionally, the spinner dolphin is very notable for its ability to leap high out of the water while also spinning multiple times on its longitudinal axis.

DISTRIBUTION: Historically, spinner dolphins were located throughout Hawai'i. Today, spinner dolphins are still located throughout the entire Hawaiian Archipelago. These dolphins travel along the coast of each island. A large "resident" population occurs off the coast of Kona on the island of Hawai'i and a smaller group off Kahena on the east side. On O'ahu, dolphins are found off the west coast of Wai'anae, but they also travel between Wai'anae and the southern shores. On Lāna'i, the dolphins are primarily found on the South Shore, specifically spending time in Mānele Bay, and on Maui, groups can be found around Honolua and La Perouse bays.

ABUNDANCE: Abundance estimates vary. The 2002 NOAA Stock Assessment Report estimates the Kona population at approximately 2,300 and total population abundance in Hawai'i at approximately 3,200. The total population abundance estimate underestimates the total population size because it does not include the Northwestern Hawaiian Islands and only includes dolphins within 25 nautical miles offshore of the Main Hawaiian Islands. Barlow (2003) estimates spinner dolphin abundance throughout Hawaii's Exclusive Economic Zone at approximately 2,800. Ostman Lind et al. (2004) crudely estimate about 1,000 individuals in the

population off Kona. There is no known data on whether the population is increasing or decreasing.

LOCATION AND CONDITION OF KEY HABITAT: Hawai'i spinner dolphins are found in nearshore habitats such as bays and lagoons during the day and deeper, offshore waters for feeding at night. They feed in water depths of 200 to 300 meters (650 to 1000 feet) and along edges of banks. Conditions of nearshore habitat are location dependent, but generally stable; however, development, pollution run off, and other habitat altering conditions could negatively affect their daily activities. The condition of their feeding ground habitat is less well known. Studies have shown that dolphins use nearshore habitat opportunistically; thus, they can shift their locations based on disturbance to the area, making them relatively able to survive changes to habitat. However, the long-term implications of such changes on the life history of local populations are presently poorly understood.

THREATS:

- The tourism industry's swim-with-dolphin and dolphin-watching programs pose a significant threat to spinner dolphins in Hawai'i due to the close range interaction with the dolphins by humans and boats. These interactions have been shown to disrupt critical resting behaviors. This reduction in rest can result in decreased energy reserves that in turn affect abilities to forage efficiently and provide care for their young. Spinner dolphins may also abandon their habitats as a result of being repetitively disturbed by swim-with-dolphin and other tourism related interactions;
- Fishery bycatch of spinner dolphins in inshore monofilament gillnets (laynets) is another important threat. The extent of this threat is unknown and needs to be further investigated;
- Marine debris, such as tiny plastic particles that accumulate in the Hawaiian Archipelago, is a significant threat to spinner dolphins. Not only do these particles contain harmful chemicals such as PCBs and DDEs, but when ingested they also can cause a variety of effects such as internal injury and intestinal blocking. Marine debris such as derelict fishing gear entangles the dolphins leading to injury or death;
- Man-made noise is a threat that results from high vessel traffic and military vessels that use Hawaiian waters for operations involving sonar. This man-made noise can interfere with acoustic signals critical to dolphins' reproduction and feeding. Man-made noises also have been shown to cause disturbance responses, hearing loss, and physical harm;
- Vessel collisions are also a threat. High volumes of commercial traffic as well as recreational traffic throughout the Main Hawaiian Islands can lead to increased collisions with marine mammals. Additionally, a high speed ferry that will travel through the Main Hawaiian Islands may be approved in the near future;
- Habitat degradation from coastal development and run-off is also a threat particular to spinner dolphins as they primarily live in nearshore waters.

CONSERVATION ACTIONS: The goals of conservation actions are to not only protect current populations, but to also establish further populations to reduce the risk of extinction. In addition to common statewide and island conservation actions, specific actions include:

- Continue collaboration with NOAA on education and outreach activities, such as the "Ocean Etiquette" program, to promote dolphin-friendly ecotourism activities;

- Continue to collaborate with NOAA on enforcement of the Marine Mammal Protection Act as it relates to preventing dolphin harassment and disturbance;
- Continue collaboration with NOAA, agency partners and stakeholders in the process of considering new species or areas for inclusion in the HIIHWNMS;
- Continue working to decrease marine debris;
- Work to decrease pollutants and chemicals in the marine environment;
- Work with and assist local conservation organizations working on cetacean conservation, education, and marine debris clean-up;
- Support other public outreach and education efforts focusing on the effects of fisheries bycatch, marine debris, pollutants, and noise on spinner dolphins.

MONITORING:

- Continue surveys of population and distribution in known and potential habitats, along impacted coasts to determine the level of impact and project future trends;
- Monitor the number of spinner dolphins entangled or otherwise impacted by marine debris or taken as fishery bycatch to determine if education efforts are successful.

RESEARCH PRIORITIES:

- Improve understanding of impacts from tourism related activities on spinner dolphins in Hawai'i;
- Collaborate with NOAA to understand interactions with nearshore fisheries;
- Determine correlations between marine debris accumulations with shipping lanes and currents to better target efforts;
- Research impacts and toxicity of small plastic pellet debris on marine mammals;
- Study impacts of noise from ships on spinner dolphins.

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