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KEY INFORMATION

Areas of Concern

Throughout the Indo-Pacific including the Red Sea and East Africa to the Line Islands and Samoa; north to Taiwan and Yaeyama Islands (Japan), south to the Great Barrier Reef and New Caledonia; Palau, Caroline, Marshall, and Mariana Islands in Micronesia. In the U.S. it occurs in Guam, American Samoa, CNMI & Wake, Howland, and Jarvis Islands, and Palmyra Atoll, but not Hawaii or Johnston Atoll.

Year Identified as “Species of Concern”
2004

Factors for Decline

- Fishing
- Night spearfishing
- Habitat degradation

Conservation Designations

IUCN: Not Evaluated

Current Status:

Demographic and Genetic Diversity Concerns:

These fish have a very wide range, but population abundances have been declining throughout their range due to overexploitation. The species has nearly disappeared from Guam’s reefs. Bumphead parrotfish were only rarely encountered at a few islands of American Samoa during intensive diver surveys on research cruises by NMFS Pacific Islands Fisheries Science Center in 2002, 2004, and 2006 (Brainard, personal communication). This was also true in the U.S. Line and Phoenix Islands during these same years. Of the U.S. PRIAs, only at Wake Atoll were they observed to be relatively common, though large individuals were rare (Brainard, unpublished data). The species is still abundant in parts of the Marshall Islands, Australia, Papua New Guinea, Micronesia, the Solomon Islands, Red Sea, and New Caledonia, but are virtually absent in Fiji and East Africa (Donaldson and Dulvy 2004). During a global survey of over 300 reefs in 31 countries and territories, no bumphead parrotfish were recorded at 67% of sites in the Indo-Pacific (Hodgson 1999). They also have a vulnerable life-history with slow growth and delayed reproduction that makes them susceptible to stressors (Donaldson and Dulvy 2004).



Species of Concern

NOAA National Marine Fisheries Service

Existing Protections and Conservation Actions:

The bumphead parrotfish is listed as a Management Unit Species (MUS) in the Coral Reef Ecosystems Fishery Management Plan for the Western Pacific. Spearfishing while on SCUBA was banned in American Samoa in 2001, but enforcement is limited. The waters surrounding Wake Island, Johnston Atoll, and Palmyra Atoll from the shoreline out to 50 fathoms are protected as a low-use marine protected area, which means that any person of the United States fishing for, taking, or retaining coral reef ecosystem MUSs must have a special permit. Also, MUSs may not be taken by means of spearfishing with SCUBA gear from 6 p.m. to 6 a.m. in the U.S. Exclusive Economic Zone waters around Wake Island, Johnston Atoll, or Palmyra Atoll. Palau's population of the bumphead parrotfish is now protected by an export ban and a national minimum size restriction of 25 inches.

Factors for Decline:

The main threats are 1) overexploitation (especially the taking of sleeping adults at night with spears or nets); 2) destructive fishing techniques including sodium cyanide and dynamite; and 3) degradation and loss of coral reef habitats. The bumphead parrotfish is one of the most vulnerable species to fishing pressure (Donaldson and Dulvy 2004). Quantitative and anecdotal data show that catches have declined dramatically over the past few decades (Dulvy and Polunin 2004).

Brief Species Description:

Bumphead parrotfish is the largest parrotfish, growing to 4 feet (1.3 m) in length and 100 lbs (46 kg) in weight. Adults are a dull green, with the front of the head pale yellowish to pink; juveniles are greenish to brown with five vertical rows of small whitish spots (Randall 2005). Color change does not vary by sex. Adults develop a bulbous forehead and their teeth plates are only partly covered by lips. They are slow growing and long-lived (up to 40 years), with delayed reproduction and low rates of replenishment (Choat and Robertson 2002). Bumphead parrotfish recruit at low levels throughout the year and are not very selective about which settlement habitats. They live in coral reefs from 3 to 100 feet (1-30 m) depth in barrier and fringing reefs during the day, but rest in caves or shallow sandy lagoon flats at night (Donaldson and Dulvy 2004). Juveniles are found in seagrass beds inside lagoons while adults are commonly found in outer lagoons and seaward reefs. They usually occur in small aggregations, but group size can be over 75 on seaward and clear outer lagoon reefs. They sleep in large groups, rendering them highly vulnerable to exploitation by spearfishers and netters (Myers 1999). Bumphead parrotfish is primarily a corallivore, but they also eat benthic algae (each fish consumes over 5 tons of structural reef carbonates a year), contributing significantly to reef bioerosion (Bellwood et al. 2003). They spawn **pelagically** during a lunar cycle near the outer reef slope or near promontories, gutters, or channel mouths (Donaldson and Dulvy 2004).

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