

PALMYRA ATOLL AND KINGMAN REEF FACT SHEET

Natural resources

Physical Setting

- Depth range: Palmyra ranges from 3 m above sea level to 4,000 m below; Kingman ranges from 0-2 m above sea level to about 2000 m below sea level.
- Relative location: From Honolulu, HI, Kingman is 1,776 km south and Palmyra is 1,823 km south.

Geologic Structure

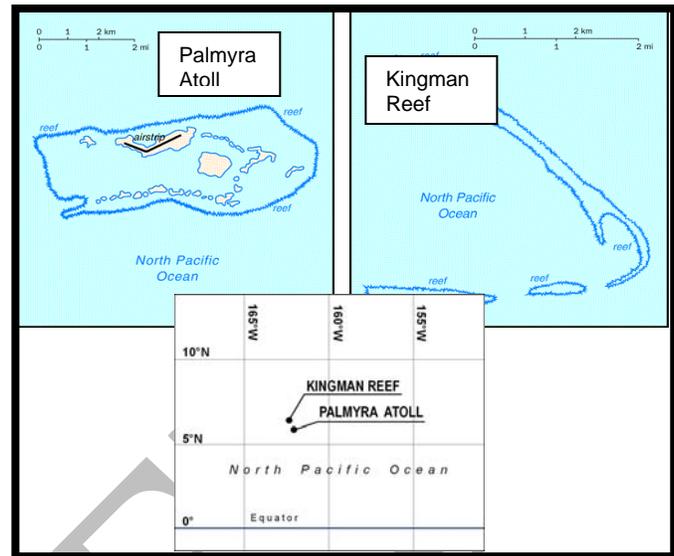
- Palmyra is a classic Darwinian Atoll that formed atop a sinking Cretaceous-era (~120-65mya) volcano. Kingman formed in the same manner, but is technically an atoll reef because it lacks permanent fast land areas or islands. Both are part of the Line Islands chain.

Ecosystem description

- Kingman Reef is known to be the most undisturbed coral reef in the U.S, with a fully structured inverted food web. Fish biomass and the proportion of apex predators at Kingman are greater than previously described from any coral reef ecosystem in the world.
- They are ideal "laboratories" for assessing effects of climate change without the difficulty of filtering anthropogenic impacts.

Biological characteristics

- Both atolls support higher levels of coral and other cnidarian species diversity (180-190 species) than any other atoll or reef island in the central Pacific, and twice as many as found in Hawaii or Florida.
- Palmyra atoll has one of the best remaining examples of *Pisonia grandis* forest found in the Pacific region. This forest type has been lost or severely degraded over much of its range due to increased human population and development.
- Fish species diversity at Palmyra (418 species) is higher, while that of Kingman (297 species) is comparable to that of the other remote Pacific refuges. Biomass of top predators at both areas is higher than in the Great Barrier Reef in Australia, Kenyan MPAs, or the NW Hawaiian Islands



- Many nationally and internationally threatened, endangered, and depleted species thrive there, including the green and hawksbill turtle, pearl oyster, giant clams (the highest concentration in the PRIAs), reef sharks, coconut crabs, groupers, humphead and napoleon wrasse, bumphead parrotfish, and dolphins.
- Significant numbers of threatened green turtles forage at both atolls, especially at Palmyra; the endangered hawksbill turtle forages at both atolls.
- Large schools of rare melon-headed whales reside off both atolls. A possibly new species of beaked whale was recently described from two specimens stranded at Palmyra and one at Christmas Island.
- Palmyra supports 11 nesting seabird species, including the 3rd-largest Red-footed Booby colony in the world. Large numbers of Bristle-thighed Curlews, a migratory shorebird of conservation significance, winter at Palmyra.

Historic

- Kingman Reef discovered in 1798; U.S. annexed reef in 1922; it was transferred to the Navy in 1934.
- Palmyra discovered in 1802. The atoll was annexed in 1898.

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- Kingman Reef's lagoon became an overnight stop on the Pan American Airways clipper route from the U.S. to American Samoa in 1937.
- During World War II, Palmyra hosted a 6,000-man Naval Air Station, an important link in the aerial supply route to Canton Atoll and Bora Bora in the South Pacific.

Cultural

- While early Polynesians and Micronesians likely found the island, there is no evidence of human habitation before the 1800s.

Human use & current management

Current human uses

- Kingman Reef is uninhabited.
- FWS and The Nature Conservancy manage a small research camp at Palmyra Atoll; TNC owns a portion of the atoll.
- NOAA conducts scientific cruises that host a variety of scientific research, including coral reef and habitat assessments.
- Kingman Reef NWR is closed to public access. Palmyra Atoll NWR is open to the public for wildlife observation and recreational catch and release bonefishing.
- Federal commercial fisheries include some trolling permits (mainly around Palmyra) and bottomfish fishing and shrimping Kingman Reef). Around all the PRIAs there is the potential for coral harvest under the Western Pacific Coral Reef Ecosystem Fishery Management Plan, but to date no permits have been issued.

Current management

- The Federal portion of Palmyra and all of Kingman Reef are National Wildlife Refuges.
- Marine fishery resources in the EEZ are managed by the Department of Commerce based on fishery management plans developed and recommended by the Western Pacific Fishery Management Council.

Key references

- Maragos et al. US Coral Reefs in the Line and Phoenix Islands: History, Geology,

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Oceanography, and Biology (chap. 15); Status, Threats and Significance (chap. 16) both in Riegl et al. Coral Reefs of the USA (2008)

- USGS Circular 1286
[<http://pubs.usgs.gov/circ/2005/1286/>]
- Haws, Maria, 2006. Natural resources management needs for coastal and littoral marine ecosystems of the U.S. affiliated Pacific Islands. [<http://www.uhh.hawaii.edu/hcsu/documents/TRHCSU-002Haws-NaturalRes.MgmtNeedsPacific.pdf>]
- Fishery Management Plan for Bottomfish and Seamount Groundfish, for Pelagic Fisheries and for Coral Reef Ecosystems of the Western Pacific Region and implementing regulations found at 50 CFR Part 665. Map of Essential Fish Habitat Areas, visit www.wpcouncil.org/maps.htm
- Grigg, R. W. 1981. *Acropora* in Hawaii. Part 2. Zoogeography. Pacific Science 35: 15-24.
- Miller et al. 2008. The state of coral reef ecosystems of the Pacific remote island areas, Pages. 353-386. In: J.E. Waddell and A.M. Clarke (eds.), The State of Coral Reef Ecosystems of the United States and Pacific Freely Associated States: 2008. NOAA Technical Memorandum NOS NCCOS 73. Silver Spring, MD. 569 pp.
<http://ccma.nos.noaa.gov/stateofthereefs>
- Sandin et al., Baselines and Degradation of Coral Reefs in the Northern Line Islands
http://www.pifsc.noaa.gov/library/pubs/Sandin_etal_PLoSONE_2008.pdf