

# A MONUMENTAL Experience at the Waikīkī Aquarium

Greg McFall, NOAA ONMS

It's taken six years since its inception, but the Waikīkī Aquarium is ready to open a major exhibit featuring the very special and rare marine life of the Northwestern Hawaiian Islands. On Thursday, August 18, O'ahu visitors will get their first glimpse of a living reef ecosystem similar to that found in the world's most isolated islands.

"This is a monumental experience for our visitors," says Dr. Andrew Rossiter, director of the Waikīkī Aquarium. "The Northwestern Hawaiian Islands serve as a home to over 7,000 marine species, a quarter of which are found nowhere else on Earth. The public will finally get to see live fish and coral specimens that until now have been privy only to scientists conducting research in the Northwestern Islands. The exhibit is an unprecedented opportunity to view abundant marine life from one of the most remote areas on the planet."

In 2010, the Papahānaumokuākea Marine National Monument was designated as a United Nations World Heritage site, one of only 28 mixed status UNESCO World Heritage sites in the world, recognized for outstanding natural and cultural values. It is the only mixed status site in the U.S.

"We are so appreciative of the support we have had and continue to receive from various organizations. In the last year or so, we have relied heavily on the dedicated work of Richard Klobuchar, our coral biologist, Randy Kosaki, Papahānaumokuākea Marine National Monument Deputy Superintendent of research and field operations and Richard Pyle, Bishop Museum scientist, to physically bring unique fish and coral from the remote islands," said Dr. Rossiter.

The process of acquiring the fishes is not an easy one. After obtaining the proper permissions and permits, the team boards an expedition ship that departs from Honolulu to Midway, stopping at other atolls along the way to conduct their dives. Because many of the fishes needed for this exhibit are found at depths of 200-220 feet, the collector for this trip, Pyle used technical (versus recreational) diving techniques, which encompasses the use of mixed gases including helium.



Richard Pyle places bandit angelfish in a clear bucket with a spring-loaded trap door that allows his hand to be inserted and taken out while keeping the fish within.

Once the fishes reach the surface, they are maintained in a special closed-circuit, refrigerated seawater system on the ship. These fishes, treated ever so carefully, were then flown from Midway to O'ahu arriving in just a matter of hours. Though an involved process, the Aquarium had a 100 percent survival rate, meaning that all specimens arrived alive.

"I used to work at the Aquarium and so to partner with them on this has been very special to me since I know they will ensure visitors and guests learn about this special ecosystem. And passing on that knowledge is what is important," said Dr. Pyle.

The Waikīkī Aquarium's newest exhibit features a living reef ecosystem representative of that found in the Northwestern Hawaiian Islands. The exhibit includes interactive touch screens to provide additional information on the significance of the marine ecosystem of the islands and their geological formation.



**Masked Angelfish**  
*Genicanthus personatus*



**Hawaiian Morwong**  
*Goniistius vittatus*



**Bandit Angelfish**  
*Apolemichthys arcuatus*



**Thompson's Anthias**  
*Pseudanthias thompsoni*



**Japanese Angelfish**  
*Centropyge interrupta*



**Finger Staghorn Coral**  
*Acropora gemmifera*



**Table Coral**  
*Acropora cytherea*



**Lace Coral**  
*Pocillopora cf. damicornis*



**Hawaiian Monk Seal**  
*Monachus schauinslandi*  
(in outdoors exhibit)



Louiz Rocha, HMB

**PAPAHĀNAUMOKUĀKEA**  
Marine National Monument

Papahānaumokuākea is cooperatively managed to ensure ecological integrity and achieve strong, long-term protection and perpetuation of Northwestern Hawaiian Island ecosystems, Native Hawaiian culture, and heritage resources for current and future generations. Three co-trustees – the Department of Commerce, Department of the Interior, and State of Hawai'i – joined by the Office of Hawaiian Affairs, protect this special place. For more information, please visit [www.papahanaumokuakea.gov](http://www.papahanaumokuakea.gov).

Endemic (found only in Hawai'i) fish species are abundant in Papahānaumokuākea.



The Waikīkī Aquarium is the nation's third oldest aquarium, yet it retains its respected status by remaining on the cutting-edge of conservation and education. In 1904, the Waikīkī Aquarium opened with 35 tanks and 400 marine organisms. One hundred and seven years later, with over 3,500 marine organisms on display, the Waikīkī Aquarium is considered a pioneer in its field especially in its coral propagation efforts.

Since becoming the first marine field station in Hawai'i in 1912, and a part of the University of Hawai'i in 1919, the Waikīkī Aquarium has fostered awareness and prompted stewardship of the aquatic life of Hawai'i and the tropical Pacific through research and conservation, especially in the area of coral propagation. Making up one of the most diverse and important habitats on the planet, coral reefs are currently under assault from an array of environmental stresses and human impacts. Research at the Waikīkī Aquarium is helping to uncover the secrets of coral biology; knowledge which will help conserve these threatened habitats. The Waikīkī Aquarium has maintained colonies of living corals since 1978 and now has the oldest and largest collection of living corals in the United States.

Administered by the University of Hawai'i at Mānoa, the Waikīkī Aquarium focuses on public exhibits, education programs and research on the unique aquatic life of Hawai'i and the tropical Pacific. The

Aquarium welcomes more than 320,000 visitors annually, and is open daily from 9 a.m. to 4:30 p.m. except Honolulu Marathon Sunday and Christmas Day. For more information about the Waikīkī Aquarium, including membership, call (808) 923-9741, visit [www.waquarium.org](http://www.waquarium.org) or find them on Facebook.



Visit us on Facebook

## The Makings of a Monumental Exhibit

- \$350,000
- 4,400 gallons of water
- 500 pounds of cement
- 1,139 pounds of acrylic for the viewing window
- 290 feet of piping to pump water into exhibit
- 225 fish
- 200 coral fragments to grow into a living reef



## August 18th, Public Opening Schedule:

**9:00 a.m.**

Waikīkī Aquarium doors open to the public. Unveiling of a new Northwestern Hawaiian Islands branded Pepsi hybrid truck.

**9:00 a.m. – 2:00 p.m.**

Beverage sampling sponsored by Pepsi (until 11am only)

Family fun keiki crafts:

- Fun fish-making out of palm fronds
- Color your own canvas tote bag
- Make your own Masked Angel Fish hat or mask
- Enjoying drawings from cartoonist Allen Tsukamoto
- Educational fun by the Waikīkī Aquarium Education Department

Educational Booths and Activities by:

- NOAA Marine Debris
- Hawai'i Institute of Marine Biology
- Papahānaumokuākea Marine National Monument

Northwestern Hawaiian Islands designed shirts by Crazy Shirts on sale

Admission is \$6 for local residents, active duty military with ID, students with ID and seniors; \$4 for youth ages 13-17 and persons with disabilities; \$2 for juniors ages 5-12 and free for children 4 and under and Friends of Waikīkī Aquarium (FOWA) members. General admission is \$9. For more information about the Waikīkī Aquarium or membership, call (808) 923-9741 or visit [www.waquarium.org](http://www.waquarium.org).

**Mahalo** to the following organizations who dedicated their time and resources to make this exhibit possible: The Friends of Waikīkī Aquarium, National Oceanic Atmospheric Administration - Office of National Marine Sanctuaries, Papahānaumokuākea Marine National Monument, and the National Marine Sanctuary Foundation.





### Marine Debris

Every year over 50 tons of marine debris drift into Monument waters. On otherwise pristine and unpopulated beaches, television tubes, bottles, shoes, and every kind of plastic material can be found from countries surrounding the North Pacific.



### Meaning of Papahānaumokuākea

The name Papahānaumokuākea (pronounced Pa-pa-hah-nou-mo-koo-ah-keh-ah) comes from an ancient Hawaiian tradition concerning the ancestry and formation of the Hawaiian Islands. Papahānaumoku is a mother figure personified by the earth, and Wakea is a father figure personified by the expansive sky; the two are revered as the ancestors of Native Hawaiian people.

### Monk Seals Foraging in Darkness

Hawaiian monk seals descend into the dark twilight, more than a thousand feet beneath the surface, to forage among huge branching formations of gold and bamboo precious corals. Monument waters and unpopulated beaches provide a last haven for these critically endangered marine mammals.



**HIRYU**  
United States and Japanese ships sunk during the Battle of Midway, June 4-7, 1942

**SORYU**  
**AKAGI**  
**KAGA**

**USS YORKTOWN**



### Unique life in Twilight

Below recreational scuba depths of 90 feet lies one of the least explored marine habitats on the planet, the mesophotic zone. In this area of fading light many undocumented species are thought to exist. Recent explorations in the Monument have shown that the vast majority of the fish in these habitats are unique to the region.

### Green Turtle Sanctuary

More than 90% of Hawai'i's Green Turtles breed and nest in the Monument's protected waters. Monitoring of this species for the last 30 years, since its protection under the Endangered Species Act in 1978, has shown a steady recovery.



### Short-Tailed Albatross Nesting

Three species of albatross breed and nest in the Monument. The rarest of these is the Short-tailed albatross, whose world population is estimated to be only 2200 birds. In 2011 the first documented chick born outside of Japan was banded on Eastern Island, Midway Atoll National Wildlife Refuge. Since discovery of this rare bird hatchling, it has survived two intense storms, and the tsunami produced by the Great East Japan Earthquake. In August of 2011 the chick successfully fledged.

### Acropora Table Corals

Fifty seven species of stony corals have been documented within the Monument. Many can be seen on main Hawaiian Island reefs. Table corals (acropora) (shown at right) are abundant on reefs surrounding French Frigate Shoals but are nearly absent on main Hawaiian Island reefs.



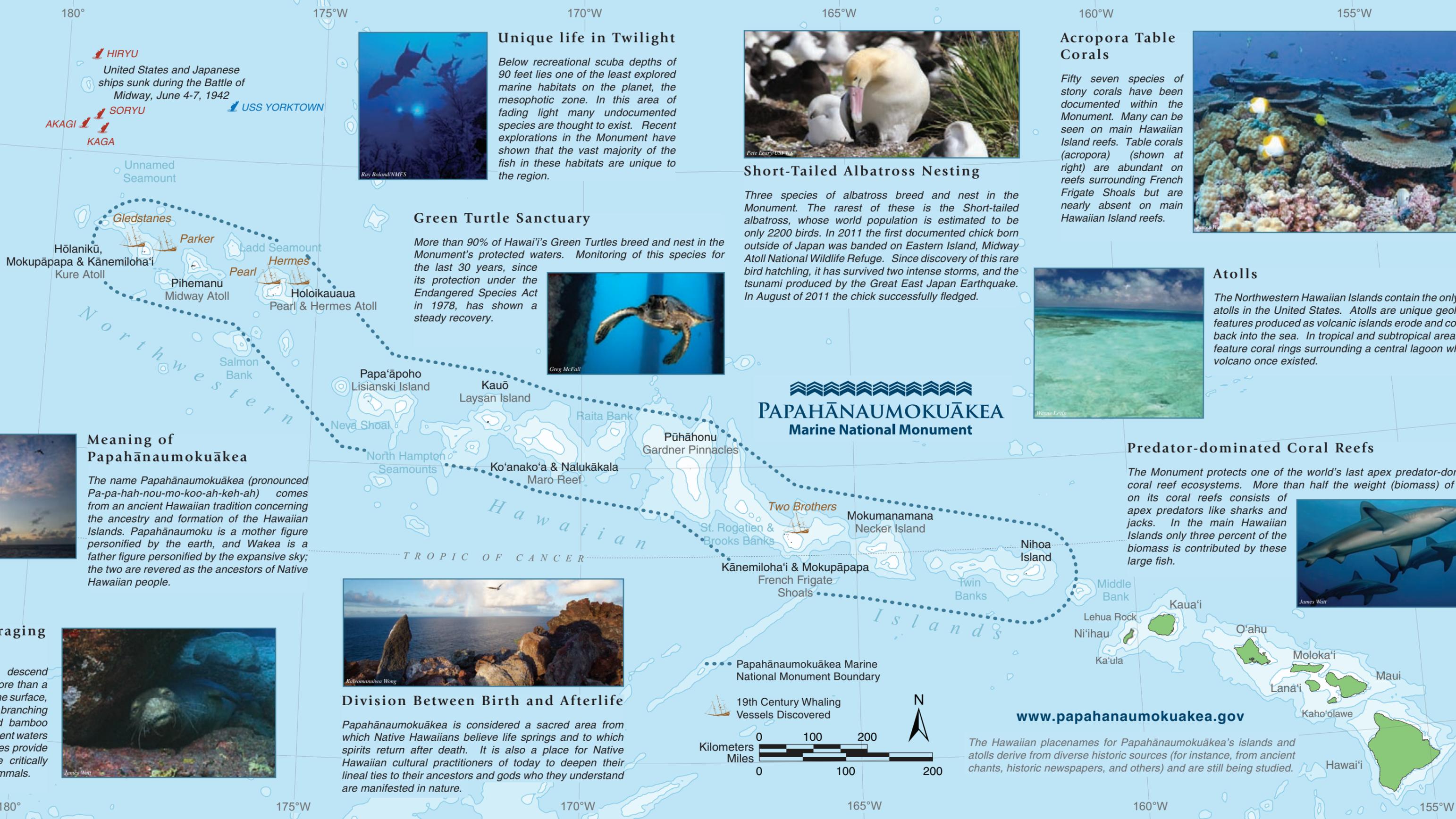
### Atolls

The Northwestern Hawaiian Islands contain the only coral atolls in the United States. Atolls are unique geological features produced as volcanic islands erode and collapse back into the sea. In tropical and subtropical areas they feature coral rings surrounding a central lagoon where a volcano once existed.



### Predator-dominated Coral Reefs

The Monument protects one of the world's last apex predator-dominated coral reef ecosystems. More than half the weight (biomass) of all fish on its coral reefs consists of apex predators like sharks and jacks. In the main Hawaiian Islands only three percent of the biomass is contributed by these large fish.



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The Hawaiian placenames for Papahānaumokuākea's islands and atolls derive from diverse historic sources (for instance, from ancient chants, historic newspapers, and others) and are still being studied.