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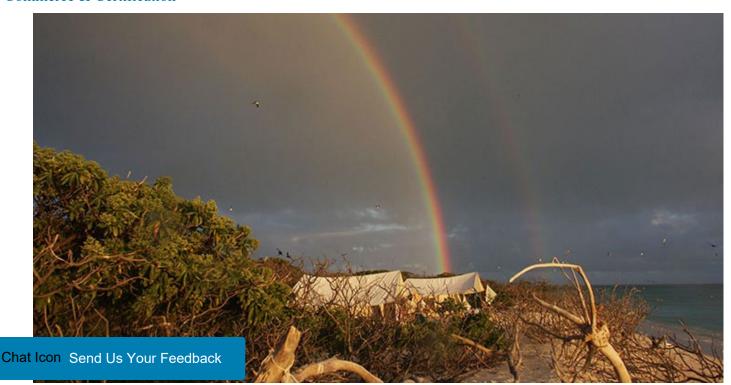
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NOAA field biologists returned to Honolulu after 3 months at remote camps in the Northwestern Hawaiian Islands. They researched and rescued some of the most iconic and endangered species in Hawai'i —Hawaiian monk seals and green sea turtles.

This year, our field biologists established protected species camps at five atolls:

- French Frigate Shoals.
- Laysan Island.
- Lisianski Island.
- Pearl and Hermes Reef.
- Kure Atoll.

Our field teams also conducted population assessment surveys at Nihoa, Mokumanamana (Necker), and Midway Atoll.

NOAA has operated monk seal research camps at all major breeding sites for 36 years. We have maintained French Frigate Shoals turtle nesting records, which stretch back 47 years. Several of the field researchers have been around for decades. They have some of the most consistent sets of eyes and ears in the Papahānaumokuākea Marine National Monument. They are able to observe changes in the ecosystem, improving our response to threats to these important species.



The view from inside a tent at French Frigate Shoals during the 2019 field season. Photo: NOAA Fisheries/Michelle Barbieri.

While deployed, field research teams conducted conservation activities in collaboration with the U.S. Fish and Wildlife Service and other partners. They removed marine debris and cleaned up after Hurricane Walaka. They also helped free wildlife trapped in aging structures at French Frigate Shoals and surveyed Laysan ducks at Laysan Island.

2019 Season Updates

At field research camps, scientists conduct daily surveys. They identify individual animals, monitor behavior and reproductive patterns, and tag animals to track their survival and monitor threats. While each of the sites in the Northwestern Hawaiian Islands has its own challenges, this year's field season brought some reasons for optimism.



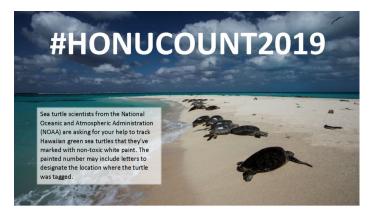
Researchers team up to tag a turtle at Pearl and Hermes Atoll.

Green Sea Turtles

The 3-person turtle research team added a number of innovations. For the first time in their 47-year history, the team had full survey coverage on Tern Island. They identified and numbered 251 female and 120 male green sea turtles. Including surveys at the other islets around French Frigate Shoals—East, Gin, Little Gin, and Shark Islands—they tagged 583 turtles. The researchers are still determining whether this number reflects a high or low year, or whether it was caused by the displacement of turtles from East and Trig islets, which had eroded away at the end of 2018.

As they complete their migration back to their foraging grounds in the main Hawaiian Islands, we're asking you to help track sightings of the numbered turtles.

In addition to the temporary numbers, the turtle research team also applied satellite telemetry tags to four turtles this season. On O'ahu, one tag was applied to track the full migration of a



How can you heln?

- Keep a respectful distance of 10 feet (3 meters).
- Take a photo (without disturbing the turtle).
 Record the date/time, white number, and location (the name of the beach or body of water dropped pin, or GPS coordinates).
- Email NOAA to report the turtle's information: RespectWildlife@noaa.gov
- After emailing, you can help spread the word by sharing your photos on social media using the hashtag #honucount2019

Any other observations that you can safely make about the turtle (for example approximate shell length, tail length, or behavior/condition) are also appreciated.



After hearing from you, NOAA will respond with any information they have on that turtle, such as its migration history and approximate age.

Do you believe a turtle or other marine animal may be in danger?

Please call our state-wide Marine Animal Emergency Response Hotline immediately: (888) 256-9840







female nicknamed "Motherload." The other three tags were applied to nesting females at French Frigate Shoals. The data from these tags will help researchers understand the turtles' foraging and nesting migrations. Three of the turtles have already returned to the main Hawaiian Islands. They are near Moloka'i, near the entrance of Pearl Harbor on O'ahu, and off of the North Shore of O'ahu.



Field researcher tags a Hawaiian monk seal at Pearl and Hermes Atoll.

Hawaiian Monk Seals

Field teams counted the number of pups born, number that survived to weaning, number marked, and number of older animals identified. They recorded inter-atoll movements, causes of mortality, and other demographic variables. They also vaccinated seals against morbillivirus at all field sites. This was a good pupping year for monk seals, with more than 140 pups born in the Northwestern Hawaiian Islands. This is around the average for the past few seasons, and it's encouraging to see stable pupping numbers over recent years.

Even after a great pupping season, the monk seal population is still only about a third of what it was historically. But some subtle signs are encouraging for the future of the species. This year, field teams felt that weaned pups were fatter and healthier on average, and many of the juveniles seemed to be in better body condition.



A Hawaiian monk seal and sea turtle at French Frigate Shoals. Photo: NOAA Fisheries/Jan Willem Staman.

While NOAA's scientists are in the Northwestern Hawaiian Islands they respond to life-threatening emergencies in many ways:

- Disentangling seals.
- Reuniting mom/pup pairs.
- Freeing seals and other wildlife from disintegrating infrastructure at Tern Island.
- Moving weaned pups away from areas with high shark predation or male aggression.

- Fishing for predatory sharks.
- Treating abscesses and administering antibiotics to seals with infections.
- Identifying and capturing animals in need of rehabilitation.

This year, field teams intervened to save more than 40 seals from life-threatening situations. The longer the field season, the more scientists can intervene to increase the survival of imperiled species. The payoff of these interventions extends farther than just that individual animal—their reproductive potential for the species is maintained, as well. NOAA's research has shown that nearly 30 percent of the Hawaiian monk seal population has benefitted from life-saving interventions or is the offspring of such individuals \square . Below, we highlight some of our life-saving interventions.

Rehabilitation

If monk seals don't get enough food, it leads to poor body condition and poor survival, this is especially a problem for juvenile monk seals. If an animal stops nursing too early, or has difficulty catching enough food, it may become too thin and weak to survive. It can be hard to address this problem. Through partnership with The Marine Mammal Center's Ke Kai Ola monk seal rehabilitation hospital \Box , we are able to bring thin young seals into care. We then return them to their home environment, robust and healthy. This year, we transported two rehabilitated seals to Laysan Island and released them back to the wild. We also captured two undersized pups from Pearl and Hermes Reef and two from Lisianski Island, and transported them to Ke Kai Ola for rehabilitation.



Hawaiian monk seal pup—possibly twins—nursing from mother, GV18.

Entanglement

Monk seals have one of the highest debris entanglement rates of any pinnipeds. The Northwestern Hawaiian Islands are located within the North Pacific Gyre. This is a major ocean current which circulates tremendous amounts of debris and increases the risk of entanglement. Weaned pups are especially curious, which can put them in harm's way. This year, we saw a surge of pup entanglements in hagfish eel cones. In one case, one of our staff pulled an eel cone off a pup's nose and found a ring was there as well. This same pup got entangled in another cone several days later. This highlights the need to pick up and safely dispose of any hagfish cones or other closed rings that we might encounter on the beach.



A Hawaiian monk seal entangled in a line on Laysan Island.

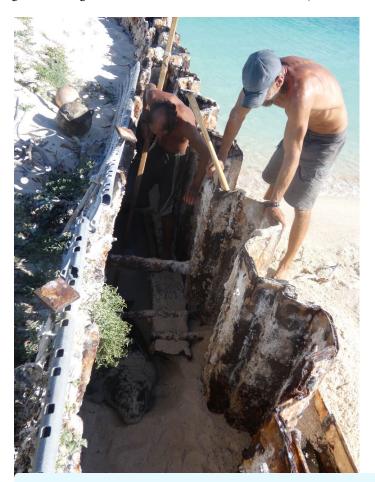
Translocations

The most significant survival enhancement activity we conduct at French Frigate Shoals is translocation. We move newly-weaned pups from islets with high Galapagos shark predation to islets with low shark predation. This predatory shark behavior was first documented about 20 years ago and is unique to French Frigate Shoals. It accounts for the loss of more than 20 percent of pups born each year at French Frigate Shoals. To address this threat, we move 80–90 percent of pups immediately after they wean. That means the majority of adult seals and, most importantly, reproductive females at French Frigate Shoals have benefited from translocation.

Entrapment

Aging, human-made structures are wildlife entrapment hazards at Tern Island in French Frigate Shoals. These hazards exist throughout the year, so it is all that more important for our camps to be there to help while they can. Our teams conducted daily entrapment surveys. They found and rescued about 2–3 turtles per week and more than 30 seabirds over the course of the season. Seal pups are very curious, so entrapment increased later in the season as more pups weaned and began exploring their environment.

In one harrowing event this year, a large pup



forced himself about 30 feet down a narrowing double seawall. An I-beam pinched in from above and a rising tide submerged the entry passage. When the pup was discovered, his head was just above the rising water. Sheet-pile walls were pinching his sides and the I-beam was pinching his dorsal. The only option was to work from the pup's head and dig under him. This created more room at the sandy bottom of the tunnel for the pup to move forward to a wider area. After an hour of digging and prodding, the team released the pup from the wall.

Hawaiian monk seal research and response is conducted under permits NMFS-16632-02 and PMNM 2019-012, and turtle research is conducted under permit USFWS-TE-72088A-2.

More Information

- Partnering to Protect and Study Monk Seals and Sea Turtles: Northwestern Hawaii...
- □ NOAA Ship Sets out to Collect Field

Biologists in the Northwestern Hawaiian Isl...

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