



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Pacific Islands Fisheries Science Center
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PROJECT REPORT

VESSEL: NOAA Ship *Oscar Elton Sette* SE-19-05

PROJECT PERIOD: The NOAA Ship *Oscar Sette* was engaged as support for a NOAA Pacific Islands Fisheries Science Center (PIFSC), National Marine Fisheries Service (NMFS) project from 13 Aug 2019 to 3 Sept 2019, with 22 days at sea in Papahānaumokuākea Marine National Monument (PMNM) and the main Hawaiian Islands (MHI).

AREA OF OPERATION: The operating area included transit from Ford Island, Pearl Harbor, to the northwest along the main Hawaiian Islands and through PMNM. Protected Species Division (PSD) operations (including field camp recovery and transport of Hawaiian monk seals) took place at French Frigate Shoals (FFS), Laysan Island, Lisianski Island, Pearl and Hermes Reef (PHR), Midway Atoll, and Kure Atoll.

TYPE OF OPERATION:

1. Recover Hawaiian Monk Seal Camps and Marine Turtle Camps at French Frigate Shoals, Laysan Island, Lisianski Island, Pearl and Hermes Reef and Kure Atoll.
2. Conduct monk seal surveys at Ni'ihau, Nihoa, and Mokumanamana, and Midway Atoll.
3. Pick up seals in need of rehabilitation from Pearl and Hermes Reef and Lisianski Island and transport them to Pearl Harbor for transfer to Ke Kai Ola.
4. Recover and deploy HARP near Pearl and Hermes Reef.
5. Opportunistically perform CTD casts.



ITINERARY:

- 13 Aug **Pearl Harbor:** Morning departure to Nihoa Island.
Embarked 4: Robinson, Field, Johanos, Staman.
- 14 Aug **Nihoa:** Morning arrival at Nihoa Island.
Boat operations: Launched *SE-2* to deploy 3 personnel to conduct monk seal survey on main beach and west ledge. Afternoon (approx. 1400) recovered shore party, secured operations, departed to Mokumanamana Island.
- 15 Aug **Mokumanamana:** Morning arrival at Mokumanamana Island.
Boat operations: Launched *SE-2* to deploy 3 personnel to conduct monk seal surveys. Afternoon (approx. 1400), recovered shore party, secured operations, departed to French Frigate Shoals. CTD cast in transit.
- 16 Aug **French Frigate Shoals:** Morning arrival at French Frigate Shoals.
Boat operations: Launched *Malolo* to take shore party to Tern Island. Assisted with seal survey / science operations. Minor camp gear picked up – approximately 100 buckets, 100 empty water jugs, 20 empty propane tanks. Afternoon (approximately 1600) recovered shore party, secured operations, departed to Laysan.
- 17 Aug **Transited** from FFS to Laysan. Three CTD casts in transit.
- 18 Aug **Laysan:** Morning arrival at Laysan Island. Boat operations: Launched *SE-2* to deploy shore party. Assisted with seal survey / science operations. Minor camp gear picked up – approximately 50 buckets, 50 empty water jugs, 1 mini fridge. Afternoon (approximately 1600) recovered shore party, secured operations, departed to Lisianski Island.
- 19 Aug **Lisianski:** Morning arrival at Lisianski Island. Boat operations: Launched *SE-2* to deploy shore party. Assisted with seal survey / science operations. Minor camp gear picked up – 50 buckets, 50 empty water jugs, 1 mini fridge. Afternoon (approximately 1600) recovered shore party, secured operations, departed to Kure.
Disembarked 1: Johanos
Embarked 1: Kaufman
- 20 Aug **Transit** from Lisianski to Kure Atoll. Recovered existing HARP and deployed new HARP in its place.
- 21 Aug **Kure:** Morning arrival at Kure Atoll. Boat operations: Launched *Malolo* and *SE-4* to deploy shore party to assist camp breakdown. Recovered seal camp from Green Island: 2 people, along with equipment and supplies including 2 pallet tubs, buckets, pelicans, 1 tank of propane, and seventy 5-gal water jugs (empty). Picked up and refilled water jugs from DLNR camp and fill onboard, approximately fifty 5-gallon jugs. Afternoon

(approximately 1600) recovered shore party, secured operations, departed to Midway Atoll. CTD cast in transit.

Embark 2: Gibson, Anderson.

22 Aug

Midway: Morning arrival at Midway Boat operations: Launched *Malolo* to drop survey party at Sand Island, then took a second survey party to conduct seal survey on Eastern and Spit Islands. Afternoon (approximately 1600) recovered shore party, secured operations, departed to PHR. CTD cast in transit.

Disembark 2: Gibson, Anderson (to fly home from Midway).

23 Aug

PHR: Morning arrival at PHR. Boat operations: Launched *Malolo* from Sette to deploy shore party to assist camp breakdown. PHR team boat, *Manawai*, was also used in camp breakdown and gear transfer activities. Recovered seal camp from Southeast Island: 4 people, equipment and supplies including pelicans, buckets of supplies, 4 pallet tubs, two 19-ft Zodiac Inflatables, up to TBD 55-gal drums of gasoline, propane and 120 empty 5-gal water jugs. Evaluated 2 rehab candidate seals identified by camp team, both were brought aboard the NOAA Ship *Oscar Elton Sette* at the end of the day. Afternoon (approximately 1730) recovered shore party, secured operations, departed to Lisianski. Once boats were onboard, we conducted thorough cleaning with 5% bleach as per PMNM prescribed protocol to prevent algae fowling.

Embarked 4: Ronco, Chauvin, Mino, Gonzalez.

24 Aug

Lisi - rehabs Morning arrival at Lisianski. Boat operations: Launched *Malolo* from the NOAA Ship *Oscar Elton Sette* to evaluate and pick up one rehab seal (already penned and waiting for evaluation). A second team surveyed the island looking for additional rehab candidates. Afternoon (approximately 1600) recovered shore party, secured island operations. CTD cast after island operations. Remained at Lisianski overnight.

25 Aug

Lisianski: Already at Lisianski for morning operations. Boat operations: Launched *Malolo* and *SE-2* to deploy shore party to assist camp breakdown. Recovered seal camp from Lisianski Island: 2 people, equipment and supplies including 4 pallet tubs, buckets, pelicans, propane, and empty 70 5-gal water jugs. Evaluated and picked up one additional rehab seal. Remained at Lisianski overnight.

Embarked 2: Johanos and Michael.

26 Aug

Lisianski: Already at Lisianski for morning operations. Boat operations: Launched *SE-2* to deploy shore party to search for additional rehab candidate seals. None were found. Afternoon (approximately 1600) recovered shore party, secured operations, departed to Laysan Island.

- 27 Aug **Laysan:** Morning arrival at Laysan Island. Boat operations: Launched *Malolo* and *SE-2* to deploy shore party to assist camp breakdown. Recovered seal camp from Laysan Island: 3 people, equipment and supplies including 4 pallet tubs, buckets, propane, pelicans, and 100 empty 5-gal water jugs. Afternoon (approximately 1600) recovered shore party, secured operations, departed to French Frigate Shoals. Embarked 3: Morrison, Cox, Kaleel.
- 28 Aug **Transited** from Laysan to FFS.
- 29 Aug **FFS:** Morning arrival at FFS. Boat operations: Launched *Malolo* and *SE-2* to deploy shore party to assist camp breakdown. Recovered seal camp and turtle camp from Tern Island: 7 people, equipment and supplies including pelicans, buckets of supplies, 4 pallet tubs, one 19-ft Zodiac inflatable, one 17-ft Boston Whaler, up to TBD 55-gal drums of gasoline, propane and 200 empty 5-gal water jugs. Afternoon (approximately 1730) recovered shore party, secured operations, departed to Mokumanamana. Embarked 7: Farry, McAtee, Schneiderman, Yahn, Staman, Kerschner, Copenrath.
- 30 Aug **Mokumanamana:** Morning arrival at Mokumanamana Island. Boat operations: Launched *SE-2* to deploy a 5-person team to conduct monk seal surveys. While 2 people surveyed the lower landing, 3 people made the overland hike to Boulder Ledge (at the base of Hill 4). During their hike, the team evaluated the safety of alternate landing locations to facilitate fully surveying this difficult site. In addition to the primary landing, and (intermittently possible) Boulder Ledge landing, the team identified a cove between Hill 1 and Hill 2 that could be used for a safe swimming approach to the island. Afternoon (approx. 1400), recovered shore party, secured operations. Remained at Mokumanamana overnight.
- 31 Aug **Mokumanamana:** Already at Mokumanamana for morning operations. Boat operations: Launched *SE-2* to deploy 3 personnel to conduct monk seal surveys. The shore party surveyed the landing ledge and traversed the island to Boulder Ledge. Afternoon (approx. 1400), recovered shore party, secured operations, departed to Nihoa Island.
- 1 Sep **Nihoa:** Morning arrival at Nihoa Island. Boat operations: Launched *SE-2* to deploy 4 personnel to conduct monk seal survey on main beach and west ledge. Afternoon (approx. 1500) recovered shore party, secured operations, departed to Niihau. CTD cast in transit.

- 2 Sep **Niihau:** Morning arrival at Niihau beach at 0745. Boat operations: Made an early launch of *SE-2* to transport 7 survey staff to Niihau for full-day survey. The NOAA Ship *Oscar Elton Sette* then moved closer to Lehua Rock and launched *SE-2* with 3 survey staff to survey Lehua Rock, until approximately 1400. Afternoon (approx. 1600) recovered Niihau shore party, secured operations, departed to Kona.
- 3 Sep **Pearl Harbor:** While in transit, approximately 0600, the NOAA Ship *Oscar Elton Sette* lost power due to generator failure. Once engineers got the power repaired, it was determined that it was safer to make an early return to Pearl Harbor (only ~ 30 nm way) rather than continue to Kona. Preparations for docking and alternate transport for rehab seals began as we redirected to Pearl Harbor. We docked at Pearl Harbor approximately 1530. Rehab seals were transferred to trucks, driven to USCG Air Station Barbers Point, and finally transported to Kona by Coast Guard C-130 airplane. Disembarked 20: Robinson, Field, Johanos, Staman, Kaufman, Ronco, Chauvin, Mino, Gonzalez, Michael, Morrison, Cox, Kaleel, Farry, McAtee, Schneiderman, Yahn, Staman, Kerschner, Coppenrath.
- Project End.**

MISSIONS AND RESULTS:

The main objectives for SE 19-05 were the following:

1. Recover Hawaiian Monk Seal Camps and Marine Turtle Camps at French Frigate Shoals, Laysan Island, Lisianski Island, Pearl and Hermes Reef and Kure Atoll.
2. Conduct monk seal surveys at Ni'ihau, Nihoa, and Mokumanamana, Midway Atoll, and Kure Atoll.
3. Deploy scientific instruments on seals.
4. Pick up seals in need of rehabilitation for transport from any site where seals are found to Ke Kai Ola (KKO) monk seal hospital in Kona, Hawaii.
5. Recover and deploy HARP near Pearl and Hermes Reef.
6. Opportunistic CTD casts.

Results are as follows.

- 1. Recover Hawaiian Monk Seal Camps and Marine Turtle Camps at French Frigate Shoals, Laysan Island, Lisianski Island, Pearl and Hermes Reef and Kure Atoll.**
Field staff and their gear were successfully picked up from Kure Atoll (2 staff), Pearl and Hermes Reef (4 staff), Lisianski Island (2 staff), Laysan Island (3 staff), French Frigate Shoals (7 staff).

At Pearl and Hermes Reef (PHR) we took special precautions to minimize exposure to a newly discovered invasive algae. We brought an extra small boat so that one small boat could be quarantined after use at PHR. We used *SE4* and one of the PHR camp boats to accomplish the pack-up. After use at PHR, these boats were treated with a 10% bleach solution and then stowed

for the remainder of the cruise. The small boats *Malolo* and *SE2* were used for the remainder of operations on SE-19-05.

2. Conduct monk seal surveys at Ni’ihau, Nihoa, and Mokumanamana, Midway Atoll, and Kure Atoll.

Monk seal surveys were conducted at Nihoa (once each on the way up and down), Mokumanamana (once on the way up and twice on the way down), Midway Atoll (once on the way down), and Ni’ihau (once on the way down). We did not conduct seal surveys at Kure Atoll because Sand Island (the island intended for survey) was awash at the time of this cruise. Sand Island had been ephemeral throughout the season, at times appearing as a small sand bar and other times completely awash.

Table 1. Preliminary results of seal surveys conducted during SE-19-05.

Site	Survey Date	Seal Count	Seals Tagged
Nihoa	8 Aug 2019	22	
	1 Sept 2019	26	4
Mokumanamana	15 Aug 2019	24	
	30 Aug 2019	23	
	31 Aug 2019	20	
Midway Atoll	22 Aug 2019	20	
Niihau	2 Sept 2019	98	3

3. Deploy scientific instruments on seals.

We did not deploy any instruments on seals during this cruise.

4. Pick up seals in need of rehabilitation for transport from any site where seals are found to Ke Kai Ola (KKO) monk seal hospital in Kona, Hawaii.

We picked up 4 weaned pups in need of rehabilitation (2 from Pearl and Hermes Reef, 2 from Lisianski Island). These seal pups were cared for 24 hours/day while on the NOAA Ship *Oscar Elton Sette*, and received tube feedings of herring 3 times daily.

Because the NOAA Ship *Oscar Elton Sette* returned to port early after experiencing generator troubles, the final stop at KKO in Kona was cut from the itinerary. The seals were disembarked at IRC in Pearl Harbor, transported by truck to USCG Air Station Barbers Point, and finally transported to Kona by Coast Guard C-130 airplane.

Table 2. Seals transported from NWHI to Ke Kai Ola (KKO).

	<u>Seal ID</u>	<u>Size</u>	<u>Sex</u>	<u>Source Site</u>	<u>Date Embarked</u>	<u>Disembarked Site</u>	<u>Date Disembarked</u>
1	DL32	W	F	PHR	23 Sept 2019	Pearl Harbor	3 Sept 2019
2	DL36	W	F	PHR	23 Sept 2019	Pearl Harbor	3 Sept 2019
3	LL34	W	F	Lisianski	24 Sept 2019	Pearl Harbor	3 Sept 2019
4	LL00	W	F	Lisianski	25 Sept 2019	Pearl Harbor	3 Sept 2019

(W = weaned pup)

5. Recover and deploy HARP near Pearl and Hermes Reef.

The HARP was successfully recovered at Pearl and Hermes on 20 Aug 2019. The new HARP was successfully deployed immediately after. The coordinates of the new deployment are: 27 43.541N, 175 33.283W.

6. Opportunistic CTD casts.

Shipboard CTD casts were conducted successfully at 8 out of 10 historical sites during transits between islands (2 were curtailed due to tight transit times between other objectives). CTDs were conducted to a depth of 500 m.

Table 3. CTD status.

<u>Status</u>	<u>Site</u>	<u>Location</u>
cast	Nihoa CTD	22° 32.000'N 162° 00.000'W
cast	Necker CTD	23° 11.099'N 164° 42.562'W
skipped	FFS CTD	23° 34.000'N 166° 18.000'W
cast	Gardner Pinnacles CTD	24° 08.000'N 167° 40.000'W
cast	Maro Reef CTD	25° 00.000'N 170° 00.000'W
cast	Laysan CTD	25° 34.000'N 171° 32.000'W
cast	Lisianski CTD	25° 50.000'N 173° 40.000'W
skipped	PHR CTD	27° 40.000'N 175° 49.700'W
cast	Midway CTD	28° 06.001'N 177° 21.300'W
cast	Kure CTD	28° 12.000'N 178° 20.001'W

SCIENTIFIC PERSONNEL:

Name (Last, First)	Title	Affiliation	Nationality
Robinson, Stacie	Research Ecologist (Chief Scientist)	NOAA	USA
Field, Cara	Veterinarian	TMMC	USA
Johanos, Thea	Scientist	NOAA	USA
Staman, Jan Willem	Scientist	JIMAR	USA
Gibson, Alix	Scientist	JIMAR	USA
Anderson, Katie	Scientist	JIMAR	USA
Ronco, Hope	Scientist / Ops Lead	JIMAR	USA
Chauvin, Matthew	Scientist	JIMAR	USA
Gonzalez, Alexa	Scientist	JIMAR	USA
Mino, Paige	Scientist	JIMAR	USA
Kaufman, Angie	Scientist	JIMAR	USA
Michael, Eli	Scientist	JIMAR	USA
Morrison, Margaret	Scientist	JIMAR	USA
Cox, Marjorie	Scientist	JIMAR	USA
Kaleel, Kristi	Scientist	JIMAR	USA
Farry, Shawn	Scientist	JIMAR	USA
Schneiderman, Jon	Scientist	JIMAR	USA
McAtee, Carrie	Scientist	JIMAR	USA
Yahn, Shelby	Scientist	JIMAR	USA
Staman, Marylou	Scientist	JIMAR	USA
Copenrath, Christina	Scientist	JIMAR	USA
Kerschner, Leah	Scientist	JIMAR	USA

PROJECT MEDIA:

Media associated with SE-19-05 can be found at the following locations:

- Feature story: <https://www.fisheries.noaa.gov/science-blog/noaa-ship-sets-out-collect-field-biologists-northwestern-hawaiian-islands>
- Cruise blog: <https://www.fisheries.noaa.gov/science-blog/field-notes-noaa-ship-sets-out-collect-field-biologists-northwestern-hawaiian-islands>
- Story map: <https://noaa.maps.arcgis.com/apps/MapTour/index.html?appid=35ae700d0c8549a5b9fcd78de056572c>

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Attachments