



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Pacific Islands Fisheries Science Center
1845 Wasp Blvd. Bldg. 176 • Honolulu, Hawaii 96818
(808) 725-5300

PROJECT REPORT

VESSEL: *Oscar Elton Sette*, Project SE-18-06

PROJECT PERIOD: 18-31 October 2018

AREA OF

OPERATION: Main Hawaiian Islands—Oahu to Big Island

TYPE OF

OPERATION: Insular Bottomfish Survey—MOUSS and DCIP

ITINERARY:

- 18 Oct **0800 Embarked full scientific complement.** Conducted *Welcome Aboard* Brief, safety drills, operational planning and equipment preparations throughout the day.
- 1000 HST Departed Pearl Harbor en route to Hawaii Island**
- 19 Oct **Conducted Site ‘11’ survey operations.** Arrived east Hawaii Island for a full day of scientific operations. (8 grids small boats, 2 grids *Sette*, 10 project total)
- 20 Oct **Conducted Site ‘10’ survey operations** north toward the Hamakua coast of Hawaii Island for a full day of scientific operations. (8 grids small boats, 2 grids *Sette*, 20 project total)
- 21 Oct **Conducted Site ‘9’ survey operations.** Continued full day of survey operations along the Hamakua coast of Hawaii Island. (9 grids small boats, 2 grids *Sette*, 31 project total)
- 22 Oct **Conducted Site ‘8’ survey operations** on the Kawaihae coast of Hawaii Island. (10 grids small boats, 3 grids *Sette*, 44 project total)
- 23 Oct **Conducted Site ‘4’ survey operations.** Based on weather forecast, transited to south Molokai for full day of survey operations on inner Penguin Bank. (9 grids small boats, 3 grids *Sette*, 56 project total)



- 24 Oct **Remained at Site '4'** to recover MOUSS unit that was deployed without surface floats. MOUSS was recovered at ~1500 HST. (0 grids small boats, 0 grids *Sette*, 56 project total)
- 25 Oct **Conducted Site '7' survey operations.** Based on weather forecast, transited to Maui Nui area for full day of survey operations. (13 grids small boats, 3 grids *Sette*, 72 project total)
- 26 Oct **Conducted Site '6' survey operations.** Continued full day of survey operations along the north Maui and Pailolo channel area. (10 grids small boats, 3 grids *Sette*, 85 project total)
- 27 Oct **Conducted Site '5' survey operations.** Continued partial day of survey operations along the north coast of Molokai. Weather conditions didn't allow for small boat deployments. Only DCIP operations were conducted. (0 grids small boats, 3 grids *Sette*, 88 project total)
2100 HST disembarked Taylor at the Hawaii Kai small boat harbor.
- 28 Oct **Conducted Site '1' survey operations.** Resumed full day of survey operations along the northwest coast of Oahu. (10 grids small boats, 3 grids *Sette*, 101 project total)
- 29 Oct **Conducted Site '3' survey operations.** Continued full day of survey operations on Penguin Banks. (10 grids small boats, 4 grids *Sette*, 115 project total)
- 30 Oct **Returned to complete Site '5' survey operations.** Completed MOUSS and DCIP sampling of the north Molokai survey grids. (4 grids small boats, 2 grids *Sette*, 121 project total)
- 31 Oct **0730 arrived PH buoy. 0830 arrived Ford Island F9 pier.** Disembarked all scientific staff and offloaded all scientific supplies and equipment. End of project.

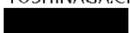
MISSIONS AND RESULTS:

- A. Deploy MOUSS from the *Oscar Elton Sette*-based PIFSC 19-ft SAFE Boats to collect stereoscopic video data to support fishery-independent estimates of species-specific, size-structured abundance for the Main Hawaiian Islands Deep-7 bottomfish stock focusing within and near the State of Hawaii Bottomfish Restricted Fishing Areas (BRFAs) from Oahu to Hawaii Island.
1. The *Oscar Elton Sette*-based PIFSC 19-ft SAFE Boats successfully deployed the MOUSS camera system within 93 Primary Sampling Units (PSU) comprising 186 individual MOUSS deployments both inside and outside of the State of Hawaii Bottomfish Restricted Fishing Areas (BRFAs) (Table 2). Sampling was conducted around the islands of Oahu, Molokai, and Hawaii Island, as well as Penguin Bank. With the exception of 8 PSU off of the Makapuu region of Oahu, all intended sampling was completed. Weather and cloud cover necessitated the substitution of alternate PSU in place of primary PSU, but the initial sampling allocation was maintained (Table 3). Two sets of lead anchors were not recovered due to

- user/equipment failure. The ESRI Collector electronic data sheet was successfully used to record all deployment metadata.
- B. Deploy surface-tethered/untethered DropCam Instrument Packages (DCIPs) from the NOAA Ship *Oscar Elton Sette* for data collection and to test additional camera sensors and equipment. Anticipated tempo is 4–8 deployments per day, not to interfere with Objective 1. (DCIPs have been previously deployed off the stern using the ship’s crane and recovered using the port J-frame.)
1. The NOAA Ship *Oscar Elton Sette* successfully deployed the DropCam Instrument Package (DCIP) within 30 PSU comprising 60 individual DCIP deployments both inside and outside of the State of Hawaii Bottomfish BRFA (Table 2). The Moana360 camera system was incorporated on all deployments. The ESRI Collector electronic datasheet was successfully used to record all deployment metadata. Another success of the DCIP deployments was not having to leave any ballast (concrete blocks) on the bottom. This is the first project where 100% of ballast was recovered.
- C. Supplementary (Piggyback) objective: Water samples may be collected via a Niskin bottle incorporated into the DCIP to be filtered for subsequent environmental DNA (eDNA) analysis in an effort to assess select bottomfish species abundance and compare with camera estimates. These operations are supplementary in nature and not to interfere with Primary Objectives 1 and 2.
1. Water samples were collected via Niskin bottles attached to DCIP and subsequently filtered for eDNA in the *Sette* Hydrochem Lab. Samples were collected on all but 2 DCIP deployments when the bottles failed to close; a total of 58 samples collected. Neutral controls of water samples were also filtered daily.
- D. Supplementary (Piggyback) objective: The PIFSC Life History Program will be conducting bottomfish sampling surveys in the 50–400 m depth zone around the main Hawaiian Islands, including: collection of deep-slope bottomfish samples (otoliths, gonads, tissue) and documentation of deep-slope bottomfish habitat and fish interactions with fishing gear.
1. Small boat launches occurred on the first 4 days of the project with samples collected at site 11, 10, 9, and 8. Life history samples retained for analysis at the IRC were 30 *Pristipomoides filamentosus* (opakapaka), 4 *Etelis carbunculus* (ehu), 1 *Aphareus rutilans* (lehi), and 1 *Lutjanus kasmira* (taape). Crane issues prevented launching of the bottom fishing small boat for the remainder of the project.
- E. Supplementary (Piggyback) objective: Recover and deploy a HARP off the Kona Coast of Hawaii Island. Recovery will be accomplished by acoustically releasing the HARP during day-time hours. Once the package is spotted at the surface, recovery will be conducted directly by the ship using the aft crane or by small boat (*SE-4*). HARP location is N19° 34.983', W156° 00.951'. Deployment can occur during day or night-time operations. This operation is supplementary in nature and not to interfere with Primary Objectives 1 and 2.
1. Supplementary objective was not accomplished. Ship was not in area for HARP operations. Transiting to HARP location would have impacted Primary Objectives A–C.

**SCIENTIFIC
PERSONNEL:**

Name (Last, First)	Title	Date Aboard	Date Disembark	Gender	Affiliation	Nationality
Abdul, Jesse	Data Manager	10/18/18	10/31/18	M	JIMAR/SOD	USA
Asher, Jacob	Coxswain / Gear Specialist	10/18/18	10/31/18	M	JIMAR/ESD	USA
Barlow, James	Coxswain/ Gear Specialist	10/18/18	10/31/18	M	NOAA/SOD	USA
Demarke, Christopher	Gear Specialist	10/18/18	10/31/18	M	JIMAR/SOD	USA
Swanson, Dione	Gear Specialist	10/18/18	10/31/18	F	JIMAR/EOD	USA
McVay, LT David	Gear Specialist / Coxswain	10/18/18	10/31/18	M	NOAA/SOD	USA
Miller, Dianna	Gear Specialist	10/18/18	10/31/18	F	JIMAR/SOD	USA
Nadon, Marc	Gear Specialist	10/18/18	10/31/18	M	JIMAR/FRMD	CAN
Driskell, Rory	Gear Specialist	10/18/18	10/31/18	M	NOAA/SOD	USA
O'Malley, Joseph	Life History Fisher/eDNA specialist	10/18/18	10/31/18	M	NOAA/FRMD	USA
Ossolinski, Justin	Field Operations Lead / Coxswain / Gear Specialist	10/18/18	10/31/18	M	JIMAR/SOD	USA
Reed, Erin	Gear Specialist/ Life History Fisher	10/18/18	10/31/18	F	JIMAR/FRMD	USA
Richards, Benjamin	Science Advisor	10/18/18	10/31/18	M	NOAA/FRMD	USA
Rock, LTJG Laura	Gear Specialist	10/18/18	10/31/18	F	NOAA/SOD	USA
White, Roger	Gear Specialist/Life History Fisher	10/18/18	10/31/18	M	NOAA/SOD	USA
Taylor, Jeremy	Tech Manager / Gear Specialist	10/18/18	10/27/18	M	JIMAR/SOD	USA
Yoshinaga, Chad	Chief Scientist	10/18/18	10/31/18	M	NOAA/SOD	USA

Submitted by:  Digitally signed by
YOSHINAGA, CHAD, HISAO 
Date: 2019.03.06 09:30:24 -10'00'
Chad Yoshinaga
Chief Scientist

Approved by: SEKI, MICHAEL, PAUL  Digitally signed by SEKI, MICHAEL, PAUL
YUKIO 
Date: 2019.12.23 10:31:42 -10'00'
Michael P. Seki, Ph.D.
Science Director
Pacific Islands Fisheries Science Center

Attachments

Tables

Table 1. Primary Sampling Units (PSU) surveyed by day by vessel. Coordinates and metadata for each PSU can be found the PIFSC BFISH Geodatabase.

Gear	Date	Sampling Day	Vessel	Captain	Observer	PSU	Strata
MOUSS	10/19/18	1	<i>Oscar Elton Sette</i>	—	Benjamin Richards	2417	HB_H_M
MOUSS	10/19/18	1	<i>Oscar Elton Sette</i>	—	Benjamin Richards	2486	HB_H_S
MOUSS	10/19/18	1	<i>Rubber Duck</i>	Jake Asher	David McVay	2164	HB_H_S
MOUSS	10/19/18	1	<i>Rubber Duck</i>	Jake Asher	David McVay	3390	HB_H_S
MOUSS	10/19/18	1	<i>Rubber Duck</i>	Jake Asher	David McVay	4042	HB_L_S
MOUSS	10/19/18	1	<i>Rubber Duck</i>	Jake Asher	David McVay	4747	SB_A_S
MOUSS	10/19/18	1	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	2071	HB_H_S
MOUSS	10/19/18	1	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	3279	HB_H_S
MOUSS	10/19/18	1	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	3828	SB_A_S
MOUSS	10/19/18	1	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	4528	HB_L_S
MOUSS	10/20/18	2	<i>Oscar Elton Sette</i>	—	Benjamin Richards	7144	SB_A_S
MOUSS	10/20/18	2	<i>Oscar Elton Sette</i>	—	Benjamin Richards	7140	SB_A_S
MOUSS	10/20/18	2	<i>Rubber Duck</i>	Jake Asher	David McVay	6379	SB_A_S
MOUSS	10/20/18	2	<i>Rubber Duck</i>	Jake Asher	David McVay	6842	SB_A_S
MOUSS	10/20/18	2	<i>Rubber Duck</i>	Jake Asher	David McVay	7875	SB_A_S
MOUSS	10/20/18	2	<i>Rubber Duck</i>	Jake Asher	David McVay	8580	HB_H_S
MOUSS	10/20/18	2	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	5674	SB_A_S
MOUSS	10/20/18	2	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	6750	SB_A_S
MOUSS	10/20/18	2	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	7806	SB_A_M
MOUSS	10/20/18	2	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	8090	SB_A_S
MOUSS	10/21/18	3	<i>Rubber Duck</i>	Jake Asher	David McVay	8835	HB_H_S
MOUSS	10/21/18	3	<i>Rubber Duck</i>	Jake Asher	David McVay	9089	HB_H_M
MOUSS	10/21/18	3	<i>Rubber Duck</i>	Jake Asher	David McVay	9522	HB_L_S
MOUSS	10/21/18	3	<i>Rubber Duck</i>	Jake Asher	David McVay	9036	HB_H_S
MOUSS	10/21/18	3	<i>Rubber Duck</i>	Jake Asher	David McVay	8961	HB_L_S

Gear	Date	Sampling Day	Vessel	Captain	Observer	PSU	Strata
MOUSS	10/21/18	3	<i>Oscar Elton Sette</i>	—	Benjamin Richards	9606	SB_A_S
MOUSS	10/21/18	3	<i>Oscar Elton Sette</i>	—	Benjamin Richards	9841	HB_L_M
MOUSS	10/21/18	3	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	8833	SB_A_S
MOUSS	10/21/18	3	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	9493	HB_L_M
MOUSS	10/21/18	3	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	9388	HB_L_M
MOUSS	10/21/18	3	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	9069	HB_L_M
MOUSS	10/22/18	4	<i>Oscar Elton Sette</i>	—	Benjamin Richards	6366	HB_H_M
MOUSS	10/22/18	4	<i>Oscar Elton Sette</i>	—	Benjamin Richards	5723	HB_H_M
MOUSS	10/22/18	4	<i>Oscar Elton Sette</i>	—	Benjamin Richards	5933	HB_H_M
MOUSS	10/22/18	4	<i>Rubber Duck</i>	Jake Asher	Laura Rock	7453	HB_H_S
MOUSS	10/22/18	4	<i>Rubber Duck</i>	Jake Asher	Laura Rock	7234	HB_H_S
MOUSS	10/22/18	4	<i>Rubber Duck</i>	Jake Asher	Laura Rock	6928	HB_H_S
MOUSS	10/22/18	4	<i>Rubber Duck</i>	Jake Asher	Laura Rock	6534	HB_H_S
MOUSS	10/22/18	4	<i>Rubber Duck</i>	Jake Asher	Laura Rock	5735	HB_H_S
MOUSS	10/22/18	4	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	7287	HB_H_S
MOUSS	10/22/18	4	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	7286	HB_H_M
MOUSS	10/22/18	4	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	6734	HB_H_S
MOUSS	10/22/18	4	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	5810	HB_H_S
MOUSS	10/22/18	4	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	6060	HB_L_M
MOUSS	10/23/18	5	<i>Rubber Duck</i>	Jake Asher	David McVay	25777	HB_L_S
MOUSS	10/23/18	5	<i>Rubber Duck</i>	Jake Asher	David McVay	27007	SB_A_M
MOUSS	10/23/18	5	<i>Rubber Duck</i>	Jake Asher	David McVay	27314	HB_L_M
MOUSS	10/23/18	5	<i>Rubber Duck</i>	Jake Asher	David McVay	26711	HB_L_M
MOUSS	10/23/18	5	<i>Rubber Duck</i>	Jake Asher	David McVay	26716	SB_A_M
MOUSS	10/23/18	5	<i>Oscar Elton Sette</i>	—	Benjamin Richards	26684	HB_L_S
MOUSS	10/23/18	5	<i>Oscar Elton Sette</i>	—	Benjamin Richards	25500	HB_H_M
MOUSS	10/23/18	5	<i>Oscar Elton Sette</i>	—	Benjamin Richards	26706	HB_L_M
MOUSS	10/23/18	5	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	25776	HB_H_S

Gear	Date	Sampling Day	Vessel	Captain	Observer	PSU	Strata
MOUSS	10/23/18	5	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	27014	HB_L_M
MOUSS	10/23/18	5	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	28193	SB_A_S
MOUSS	10/23/18	5	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	26717	HB_L_M
MOUSS	10/25/18	6	<i>Rubber Duck</i>	Jake Asher	David McVay	15717	HB_H_S
MOUSS	10/25/18	6	<i>Rubber Duck</i>	Jake Asher	David McVay	16095	HB_H_S
MOUSS	10/25/18	6	<i>Rubber Duck</i>	Jake Asher	David McVay	16310	HB_H_S
MOUSS	10/25/18	6	<i>Rubber Duck</i>	Jake Asher	David McVay	16720	HB_H_S
MOUSS	10/25/18	6	<i>Rubber Duck</i>	Jake Asher	David McVay	16914	HB_H_S
MOUSS	10/25/18	6	<i>Rubber Duck</i>	Jake Asher	David McVay	17290	HB_L_S
MOUSS	10/25/18	6	<i>Rubber Duck</i>	Jake Asher	David McVay	17117	HB_H_S
MOUSS	10/25/18	6	<i>Oscar Elton Sette</i>	—	Benjamin Richards	15329	HB_H_M
MOUSS	10/25/18	6	<i>Oscar Elton Sette</i>	—	Benjamin Richards	15984	HB_H_S
MOUSS	10/25/18	6	<i>Oscar Elton Sette</i>	—	Benjamin Richards	16832	HB_H_S
MOUSS	10/25/18	6	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	15844	HB_H_S
MOUSS	10/25/18	6	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	15974	HB_H_S
MOUSS	10/25/18	6	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	16202	HB_H_S
MOUSS	10/25/18	6	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	16516	HB_H_S
MOUSS	10/25/18	6	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	16709	HB_H_S
MOUSS	10/25/18	6	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	16904	HB_H_S
MOUSS	10/26/18	7	<i>Rubber Duck</i>	Jake Asher	David McVay	28010	HB_L_M
MOUSS	10/26/18	7	<i>Rubber Duck</i>	Jake Asher	David McVay	28796	HB_L_M
MOUSS	10/26/18	7	<i>Rubber Duck</i>	Jake Asher	David McVay	29508	HB_L_M
MOUSS	10/26/18	7	<i>Rubber Duck</i>	Jake Asher	David McVay	29507	HB_H_M
MOUSS	10/26/18	7	<i>Rubber Duck</i>	Jake Asher	David McVay	27693	HB_L_M
MOUSS	10/26/18	7	<i>Oscar Elton Sette</i>	—	Benjamin Richards	26523	HB_L_M
MOUSS	10/26/18	7	<i>Oscar Elton Sette</i>	—	Benjamin Richards	26220	HB_L_M
MOUSS	10/26/18	7	<i>Oscar Elton Sette</i>	—	Benjamin Richards	26224	HB_L_M
MOUSS	10/26/18	7	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	28545	HB_L_M

Gear	Date	Sampling Day	Vessel	Captain	Observer	PSU	Strata
MOUSS	10/26/18	7	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	28534	HB_L_M
MOUSS	10/26/18	7	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	28262	HB_L_M
MOUSS	10/26/18	7	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	28782	HB_H_M
MOUSS	10/26/18	7	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	29026	HB_L_M
MOUSS	10/27/18	8	<i>Oscar Elton Sette</i>	—	Benjamin Richards	31745	HB_L_M
MOUSS	10/27/18	8	<i>Oscar Elton Sette</i>	—	Benjamin Richards	32445	HB_H_M
MOUSS	10/27/18	8	<i>Oscar Elton Sette</i>	—	Benjamin Richards	32584	HB_H_M
MOUSS	10/28/18	9	<i>Rubber Duck</i>	Jake Asher	David McVay	39683	HB_L_M
MOUSS	10/28/18	9	<i>Rubber Duck</i>	Jake Asher	David McVay	39235	HB_L_M
MOUSS	10/28/18	9	<i>Rubber Duck</i>	Jake Asher	David McVay	38615	HB_H_M
MOUSS	10/28/18	9	<i>Rubber Duck</i>	Jake Asher	David McVay	38728	HB_L_D
MOUSS	10/28/18	9	<i>Rubber Duck</i>	Jake Asher	David McVay	37386	HB_H_M
MOUSS	10/28/18	9	<i>Oscar Elton Sette</i>	—	Benjamin Richards	38005	HB_H_M
MOUSS	10/28/18	9	<i>Oscar Elton Sette</i>	—	Benjamin Richards	37625	HB_H_M
MOUSS	10/28/18	9	<i>Oscar Elton Sette</i>	—	Benjamin Richards	37354	HB_H_S
MOUSS	10/28/18	9	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	39239	HB_H_S
MOUSS	10/28/18	9	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	38793	HB_L_M
MOUSS	10/28/18	9	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	38200	HB_H_S
MOUSS	10/28/18	9	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	38119	HB_H_S
MOUSS	10/28/18	9	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	37359	HB_H_M
MOUSS	10/29/18	10	<i>Rubber Duck</i>	Jake Asher	David McVay	24907	HB_H_M
MOUSS	10/29/18	10	<i>Rubber Duck</i>	Jake Asher	David McVay	24063	HB_H_M
MOUSS	10/29/18	10	<i>Rubber Duck</i>	Jake Asher	David McVay	23273	HB_H_S
MOUSS	10/29/18	10	<i>Rubber Duck</i>	Jake Asher	David McVay	21526	HB_H_M
MOUSS	10/29/18	10	<i>Rubber Duck</i>	Jake Asher	David McVay	20070	HB_H_S
MOUSS	10/29/18	10	<i>Oscar Elton Sette</i>	—	Benjamin Richards	23806	HB_H_M
MOUSS	10/29/18	10	<i>Oscar Elton Sette</i>	—	Benjamin Richards	22770	HB_H_M
MOUSS	10/29/18	10	<i>Oscar Elton Sette</i>	—	Benjamin Richards	22024	HB_H_M

Gear	Date	Sampling Day	Vessel	Captain	Observer	PSU	Strata
MOUSS	10/29/18	10	<i>Oscar Elton Sette</i>	—	Benjamin Richards	22520	HB_L_M
MOUSS	10/29/18	10	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	24083	HB_H_M
MOUSS	10/29/18	10	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	23275	HB_H_M
MOUSS	10/29/18	10	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	21773	HB_H_S
MOUSS	10/29/18	10	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	21528	HB_H_M
MOUSS	10/29/18	10	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	20261	HB_H_M
MOUSS	10/30/18	11	<i>Oscar Elton Sette</i>	—	Benjamin Richards	31981	HB_H_S
MOUSS	10/30/18	11	<i>Oscar Elton Sette</i>	—	Benjamin Richards	31961	HB_H_S
MOUSS	10/30/18	11	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	31832	HB_H_S
MOUSS	10/30/18	11	<i>Steel Toe</i>	Jamie Barlow	Marc Nadon	31958	HB_H_S
MOUSS	10/30/18	11	<i>Rubber Duck</i>	Jake Asher	David McVay	31836	HB_H_S
MOUSS	10/30/18	11	<i>Rubber Duck</i>	Jake Asher	David McVay	31694	HB_H_S
MOUSS	09/18/18	0	<i>Rubber Duck</i>	Jamie Barlow	Laura Rock	34124	HB_H_S
MOUSS	09/18/18	0	<i>Rubber Duck</i>	Jamie Barlow	Laura Rock	34273	HB_H_M

Table 2. Number of Primary Sampling Units (PSU) completed per vessel per day.

PSU Completed Date	Vessel			Grand Total
	Oscar Elton Sette	Rubber Duck	Steel Toe	
09/18/18	—	2	—	2
10/19/18	2	4	4	10
10/20/18	2	4	4	10
10/21/18	2	5	4	11
10/22/18	3	5	5	13
10/23/18	3	5	4	12
10/25/18	3	7	6	16
10/26/18	3	5	5	13
10/27/18	3	—	—	3
10/28/18	3	5	5	13
10/29/18	4	5	5	14
10/30/18	2	2	2	6
Grand Total	30	49	44	123

Table 3. Number of Primary Sampling Units (PSU) completed per strata with respect to planned sampling allocation.

Strata	Mouss			
	PSU Completed		Allocation	
	#	%	#	%
HB_H_M	28	23	35	28
HB_H_S	45	37	43	34
HB_L_M	26	21	26	21
HB_L_S	7	6	5	4
SB_A_M	3	2	3	2
SB_A_S	13	11	13	10

Figures

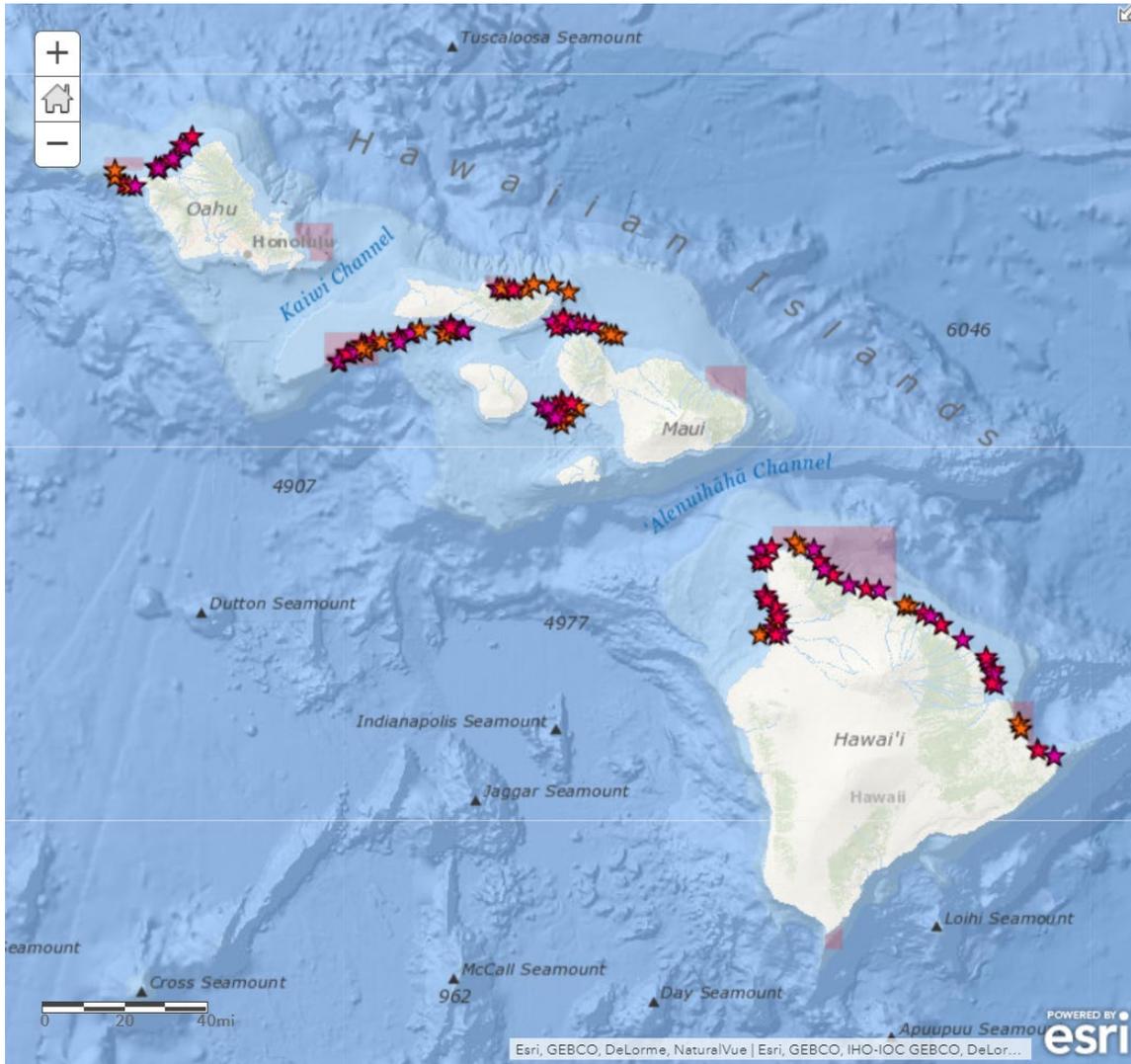


Figure 1. A map of the main Hawaiian Islands from Oahu in the northwest to the Big Island of Hawaii in the southwest, showing spatial distribution of MOUSS and DCIP sampling during SE-18-06.