



**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
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## **CRUISE REPORT<sup>1</sup>**

**VESSEL:** NOAA Ship *Oscar Elton Sette*, Cruise SE-12-04

**CRUISE PERIOD:** June 15–July 14, 2012

**AREA OF OPERATION:** The operating area included transit northwest along the main Hawaiian Islands and Papahānaumokuākea Marine National Monument from Ford Island, Pearl Harbor, to Kure with Protected Species Division (PSD) field camp deployments and Coral Reef Ecosystem Division (CRED) marine debris operations at Nihoa Island, Necker Island, French Frigate Shoals, Laysan Island, Lisianski Island, Pearl and Hermes Reef, Midway Atoll, and Kure Atoll.

**TYPE OF OPERATION:** The NOAA ship *Oscar Elton Sette* was engaged as support for a Protected Species Division (PSD) and Coral Reef Ecosystem Division (CRED), Pacific Island Fisheries Science Center (PIFSC), National Marine Fisheries Service (NMFS), NOAA, project. The ship transported personnel, equipment, and supplies to field camps at French Frigate Shoals, Laysan Island, Lisianski Island, Pearl and Hermes Reef, Midway Atoll, and Kure Atoll. The cruise also transferred personnel from the U.S. Fish and Wildlife Service (USFWS) camp at French Frigate Shoals to Midway, transported supplies to French Frigate Shoals and Laysan Island for the USFWS, and transported personnel and supplies to Kure Atoll for the State of Hawaii Department of Land and Natural Resources (DLNR), Department of Fish and Wildlife (DOFAW). Day surveys at Necker and Nihoa Islands were conducted to census the monk seal population.

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<sup>1</sup> PIFSC Cruise Report CR-12-007  
Issued 9 November 2012



The *Oscar Elton Sette* also supported in-water and shoreline marine debris surveys and removal operations at Kure, Midway, and Pearl and Hermes Atoll, Laysan, Lisianski Island, and French Frigate Shoals. The marine debris primarily made up of derelict fishing gear and plastics collected during the Midway and *Oscar Elton Sette* marine debris survey and removal operations was stored onboard until the vessel returned to Ford Island, Pearl Harbor.

The *Oscar Elton Sette* also conducted shipboard 500-m conductivity-temperature-depth (CTD) casts and water samples opportunistically at designated permanent stations along the Hawaiian Archipelago.

## ITINERARY:

- 15 June **Pearl Harbor:** Embarked J. Lopez, I. Nurzia-Humberg, S. Farry, M. Sullivan, J. Blum, N. Galase, S. Chinn, W. Taylor, C. McAtee, E. Picket, A. Fox, S. Guerin, J. Farrer, J. Brack, D. Roberts, J. Morioka, M. Sudnovsky, A. Reynaga, M. Manuel, and K. Krosky. Departed Ford Island, Pearl Harbor at 1030 en route to Nihoa Island.
- 16 June **Nihoa:** Arrived Nihoa Island at approximately 1230. Launched SE-2 and deployed seal team which successfully conducted seal census, tagging and bleaching of island. Launched SE-2 at approximately 1600 and recovered the shore team. Departed Nihoa around 1600 en route to Necker Island.
- 17 June **Necker:** Arrived Necker Island approximately 0800. Launched SE-2 and deployed seal team between 0900 and 1230. Seal team completed census and bleaching of island. Launched SE-2 and recovered seal team. The *Sette* also successfully completed the Necker CTD cast and departed Necker en route to French Frigate Shoals.
- 18 June **French Frigate Shoals:** Arrived at French Frigate Shoals and disembarked I. Nurzia-Humberg, S. Farry, M. Sullivan, J. Blum, and N. Galase. Completed off-load of equipment and supplies including two 17-ft Boston Whaler boats. Also off-loaded USFWS supplies and loaded up to 10 propane cylinders. The marine debris team was deployed to collect land debris from Tern Island and removed 1490 kg. Departed French Frigate Shoals en route to Laysan Island.
- 19 June **Transit:** Successfully completed Maro Reef and Gardner CTD casts.
- 20 June **Laysan:** Arrived Laysan Island and disembarked S. Chinn, W. Taylor, and C. McAtee. Completed the off-load of PSD and USFWS equipment and

supplies. The marine debris team was deployed to estimate the quantity and densities of marine debris on Laysan Island for shoreline survey and removals on the return trip on the cruise. Departed Laysan Island around 1600 en route to Lisianski Island.

- 21 June **Lisianski:** Arrived Lisianski Island and disembarked E. Pickett, A. Fox, D. Roberts. Most of the remaining scientists assisted with camp setup and off-load of equipment and supplies. The marine debris team was deployed to estimate the quantity and densities of marine debris on Lisianski Island for shoreline surveys and removals on the return trip on the cruise. Departed Lisianski Island around 1600 en route to the Pearl and Hermes Reef.
- 22 June **Pearl and Hermes:** Arrived at Pearl and Hermes Reef to a large south swell making camp deployments challenging. Disembarked S. Guerin, J. Farrer, J. Brack. and successfully off-loaded equipment and supplies including one (1) 5-meter inflatable boat, one (1) 5.5-meter rigid-hulled inflatable boat, and four (4) 55-gal drums of gasoline. Departed Pearl and Hermes en route to Midway to embark the rest of the marine debris team and Kure DLNR/DOFAW personnel.
- 23 June **Midway:** Arrived Midway and began loading marine debris from Midway's survey and removal operations. Also completed the loading of the marine debris team's equipment and three (3) fully assembled 17-ft Avon Inflatables, and small boat fuel. Embarked B. Cook, K. Koyanagi, R. Reardon, K. O'Brien, T. Acoba, K. Reardon, D. Levault, C. Kiel, K. Kelly, J. Milisen, B. Yannutz, K. Lopes, and A. Perves.
- 24 June **Midway:** Embarked C. Vanderlip and R. Pelton. At 0600, departed Midway Atoll en route to Kure Atoll.  
**Kure:** Arrived Kure Atoll to poor weather conditions which prevented any small boat operations.
- 25 June **Kure:** Weather conditions improved slightly and the *Sette* launched SE-2 and SE-4 to disembark J. Lopez, B. Cook, and J. Morioka, C. Vanderlip, and R. Pelton, and equipment including NMFS camp supplies and DLNR lumber. Marine debris teams launched all four (4) marine debris boat teams and began in-water and shoreline marine debris surveys and removal operations removing 1074 kg. The *Oscar Elton Sette*'s e-mail router went down so there was limited email communication. A new router was ordered and was scheduled to be picked up on Midway when the *Sette* disembarked J. Lopez.
- 26 June **Kure:** The *Sette* launched all marine debris boats around 0745, and marine debris teams conducted freedive towed-diver marine debris survey and removal operations along the eastern fringing reefs of Kure removing 249 kg of derelict fishing gear.

- 27 June **Kure:** The *Sette* launched all marine debris boats around 0745, and marine debris teams conducted freedive towed diver marine debris survey and removal operations along the northeastern and northwestern fringing reefs of Kure removing 960 kg of derelict fishing gear. Embarked J. Lopez and departed Kure around 1600 en route to Midway.
- 28 June **Midway:** Arrived at Midway and around 0745 the *Sette* launched two (2) marine debris boat teams that conducted swim survey and removal operations along Midway's Northeastern fringing reef removing 334 kg. Two (2) small boat teams remained onboard the *Sette* to conduct small boat maintenance and repairs. The *Sette* also launched SE-4 in the late afternoon to disembark J. Lopez and pick up the e-mail router from the Midway USFWS flight. Departed Midway en route to Pearl and Hermes Atoll.
- 30 June **Pearl and Hermes:** Arrived at Pearl and Hermes around 0730, and marine debris teams began to conduct in-water and shoreline marine debris survey and removal operations removing 2165 kg of derelict fishing gear.
- 1 July **Pearl and Hermes:** The *Sette* launched all marine debris boats around 0745, and marine debris teams conducted swim survey and removal operations in the southern part of Pearl and Hermes maze removing 2388 kg of derelict fishing gear.
- 2 July **Pearl and Hermes:** The *Sette* launched all marine debris boats around 0745, and marine debris teams conducted swim survey and removal operations in the central area of Pearl and Hermes maze removing 2266 kg of derelict fishing gear.
- 3 July **Pearl and Hermes:** The *Sette* launched all marine debris boats around 0745 to conduct swim survey and removal operations in the northeastern part of Pearl and Hermes maze and SE-4 to conduct shoreline surveys and removals on North Island removing 3676 kg of derelict fishing gear.
- 4 July **Pearl and Hermes:** The *Sette* launched two (2) marine debris boats around 0745 to conduct marine debris swim survey and removal operations in the northwestern part of maze and launched an additional two (2) marine debris boats to conduct freedive towed-diver marine debris survey and removal operations along the southwestern fringing reef of Pearl and Hermes near Seal Kittery. All four marine debris teams removed a combined total of 2270 kg of derelict fishing gear.
- 5 July **Pearl and Hermes:** The *Sette* launched two (2) marine debris boats around 0745 to conduct marine debris swim survey and removal operations in the northwestern part of maze and launched an additional two (2) marine debris boats to conduct freedive towed-diver marine debris survey and removal operations along the southwestern fringing reef of Pearl and Hermes near

Seal Kittery. In addition to the marine debris boats, the *Sette* launched SE-4 to conduct shoreline surveys and removals of Seal Kittery Island. All marine debris teams removed a combined total of 2450 kg of derelict fishing gear.

- 6 July **Pearl and Hermes:** The *Sette* launched two (2) marine debris boats around 0745 to conduct marine debris swim survey and removal operations in the northeastern part of maze and launched an additional two (2) marine debris boats to conduct freedive towed-diver marine debris survey and removal operations along the eastern sand margin. All four marine debris teams removed a combined total of 1096 kg of derelict fishing gear.
- 7 July **Pearl and Hermes:** The *Sette* launched three (3) debris boats around 0745 to conduct swim survey and removal operations in the northern part of Pearl and Hermes maze and one (1) marine debris boat team to conduct shoreline survey and removals at Southeast Island. All four marine debris teams removed a combined total of 1592 kg of derelict fishing gear.
- 8 July **Pearl and Hermes:** The *Sette* launched two (2) marine debris boats around 0745 to conduct marine debris swim survey and removal operations in the central part of maze and launched an additional two (2) marine debris boats to conduct freedive towed-diver marine debris survey and removal operations along the eastern sand margin. All four marine debris teams removed a combined total of 2050 kg of derelict fishing gear. Departed Pearl and Hermes Atoll around 1600 en route to Lisianski.
- 9 July **Lisianski:** Arrived Lisianski. Marine debris teams conducted shoreline marine debris surveys and removal operations and removed 2226 kg of derelict fishing gear. Delivered camera from Pearl and Hermes PSD seal camp to Lisianski PSD camp. Embarked D. Roberts and departed Lisianski en route to Laysan.
- 10 July **Laysan:** Arrived Laysan around 0830. Marine debris teams conducted shoreline marine debris surveys and removal operations and removed 1216 kg of derelict fishing gear. Departed Laysan en route to Nihoa
- 11 July **Transit:** Marine Debris Teams began to QC marine debris database, began creating GIS maps showing marine debris survey areas and waypoints of debris, and completed all photo downloads.
- 12 July **Transit:** Marine Debris Teams continued the QC for marine debris database and creating GIS maps.
- 13 July **Transit:** Due to the NOAA Ship *Oscar Elton Sette*'s average speed, the estimated time of arrival for Nihoa was not ideal so the decision was made to continue on course to Ford Island, Pearl Harbor. The scientific personnel onboard cleaned the ship's common areas and the marine debris team

completed the first round of QC for the marine debris database and prepared equipment and boats for off-load.

14 July **Pearl Harbor:** Arrived Ford Island, Pearl Harbor and disembarked K. Koyanagi, R. Reardon, K. O'Brien, T. Acoba, K. Reardon, D. Levault, C. Kiel, K. Kelly, J. Milisen, B. Yannutz, K. Lopes, A. Perves, M. Sudnovsky, A. Reynaga, M. Manuel, K. Krosky, and D. Roberts.

## MISSIONS AND RESULTS:

A. The NOAA Ship *Oscar Elton Sette* will transport Protected Species Division (PSD) personnel, equipment, and supplies to field camps at French Frigate Shoals, Laysan Island, Lisianski Island, Pearl and Hermes Reef, Midway Atoll, and Kure Atoll. The cruise will also transfer personnel from the USFWS camp at French Frigate Shoals to Midway, transport supplies to French Frigate Shoals and Laysan Island for the U.S. Fish and Wildlife Service (USFWS), and transport personnel and supplies to Kure Atoll for the State of Hawaii Department of Land and Natural Resources (DLNR), Department of Fish and Wildlife (DOFAW). Day surveys will be conducted to census the monk seal population on Necker Island and Nihoa Island.

1. PSD monk seal field camps were successfully established at French Frigate Shoals, Laysan Island, Lisianski Island, Pearl and Hermes Reef, Midway Atoll, and Kure Atoll.
2. Monk seal population surveys on Necker and Nihoa Islands were successfully completed.
3. USFWS supplies were successfully delivered to French Frigate Shoals and Laysan Island.
4. DLNR/DOFAW personnel and supplies were successfully transported and delivered to Kure Island.

B. The NOAA ship *Oscar Elton Sette* will support in-water and shoreline marine debris surveys and removal operations at Kure and Pearl and Hermes Atoll, Laysan, Lisianski, and French Frigate Shoals. The marine debris (derelict fishing gear) collected during the Midway and *Oscar Elton Sette* marine debris survey and removal operations will be stored onboard until the vessel returns to Ford Island, Pearl Harbor for disposal.

As part of an ongoing effort since 1996 to identify and remove marine debris from the Papahānaumokuākea Marine National Monument (PMNM) in the Northwestern Hawaiian Islands (NWHI), the Coral Reef

Ecosystem Division (CRED) successfully completed a 30-day cruise aboard the NOAA Ship *Oscar Elton Sette* conducting in-water and shoreline marine debris surveys and removals at Kure, Midway, and Pearl and Hermes Atoll, Laysan and Lisianski Island, and French Frigate Shoals. This effort resulted in the surveying of 6.79 km<sup>2</sup> of shallow coral reef and shorelines and the removal of over 27 metric tons of derelict fishing gear and plastics. The combined total of debris collected on SB-12-05 and SE-12-04 equaled to nearly 52 metric tons.



NOAA Ship *Oscar Elton Sette* – Tons of derelict fishing gear overflowing onto the deck.

C. Conduct shipboard 500 m conductivity-temperature-depth (CTD) casts and water samples opportunistically at designated permanent stations along the Hawaiian Archipelago.

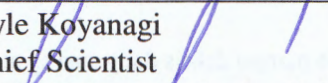
All shipboard 500 m conductivity-temperature-depth casts (CTD) and water samples were successfully conducted at permanent stations along the Hawaiian Archipelago.

**SCIENTIFIC  
PERSONNEL:**

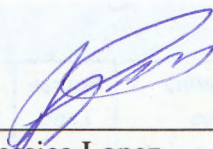
Kyle Koyanagi, CRED Marine Debris Operations Manager, Joint Institute for Marine and Atmospheric Research (JIMAR), University of Hawaii (UH)  
Kevin O'Brien, CRED Marine Ecosystem Specialist, JIMAR, UH  
Max Sudnovsky, CRED Marine Ecosystem Specialist, JIMAR, UH  
Russell Reardon, CRED Marine Ecosystem Specialist, JIMAR, UH  
Mark Manuel, CRED Marine Ecosystem Specialist, JIMAR, UH  
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Tomoko Acoba, GIS Specialist, JIMAR, UH  
Andrew Reynaga, CRED Marine Ecosystem Specialist, JIMAR, UH  
Derek Levault, CRED Marine Ecosystem Specialist, JIMAR, UH  
Jeffrey Milisen, CRED Marine Ecosystem Specialist, JIMAR, UH  
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Jessica Lopez, Field Research Supervisor, JIMAR, UH  
Irene Nurzia-Humberg, Turtle Technician, JIMAR, UH  
Mark Sullivan, Biological Research Technician, JIMAR, UH  
Shawn Farry, Biological Research Technician, JIMAR, UH  
Nicole Galase, Biological Research Technician, JIMAR, UH  
Jennifer Blum, Biological Research Technician, JIMAR, UH  
Sarah Chinn, Biological Research Technician, JIMAR, UH  
Carrie McAtee, Biological Research Technician, JIMAR, UH  
Whitney Taylor, Biological Research Technician, JIMAR, UH  
Erin Pickett, Biological Research Technician, JIMAR, UH  
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James Morioka, Cooperating Scientist, Department of Land and Natural Resources (DLNR), Department of Fish and Wildlife (DOFAW)  
Darren Roberts, Biological Research Technician, Ocean Associates  
Cynthia Vanderlip, Cooperating Scientist, DLNR, DOFAW  
Raymond Pelton, Cooperating Scientist, DLNR, DOFAW



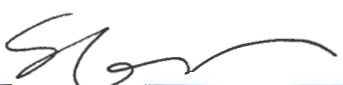
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Chief Scientist  
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Approved by: \_\_\_\_\_

  
Samuel G. Pooley  
Science Director  
Pacific Islands Fisheries Science Center

Attachments

Table 1  
Figures 1-3

Table 1.--NOAA Ship *Oscar Elton Sette* cruise SE-12-04 marine debris daily survey area and weights.

<b>Marine Debris Area Surveyed &amp; Weight Totals SE-12-04</b>						
<b>Location</b>	<b>Date</b>	<b>In-water Area Surveyed (km<sup>2</sup>)</b>	<b>Shoreline Area Surveyed (km<sup>2</sup>)</b>	<b>Source Land (kg)</b>	<b>Water (kg)</b>	<b>Daily Totals (kg)</b>
French Frigate Shoals	6/18/2012	0.0000	0.0000	1490	0	1490
Kure	6/25/2012	0.6243	0.0000	934	140	1074
Kure	6/26/2012	0.6649	0.0000	0	249	249
Kure	6/27/2012	0.6351	0.0000	0	960	960
Midway	6/28/2012	0.3786	0.0000	0	334	334
Pearl & Hermes	6/30/2012	0.4528	0.0000	0	2165	2165
Pearl & Hermes	7/1/2012	0.5334	0.0000	0	2388	2388
Pearl & Hermes	7/2/2012	0.4818	0.0000	0	2266	2266
Pearl & Hermes	7/3/2012	0.3923	0.1057	855	2821	3676
Pearl & Hermes	7/4/2012	0.4683	0.0000	0	2270	2270
Pearl & Hermes	7/5/2012	0.3195	0.1366	430	2020	2450
Pearl & Hermes	7/6/2012	0.6864	0.0000	0	1096	1096
Pearl & Hermes	7/7/2012	0.1878	0.0522	314	1272	1586
Pearl & Hermes	7/8/2012	0.4708	0.0000	0	2050	2050
Lisianski	7/9/2012	0.0000	0.1958	2226	0	2226
Laysan	7/10/2012	0.0000	0.1895	1216	0	1216
<b>SE-12-04 Totals</b>		<b>6.2959</b>	<b>0.6799</b>	<b>7465</b>	<b>20031</b>	<b>27496</b>
<b>Total Weight Removed (kg)</b>						<b>27496</b>

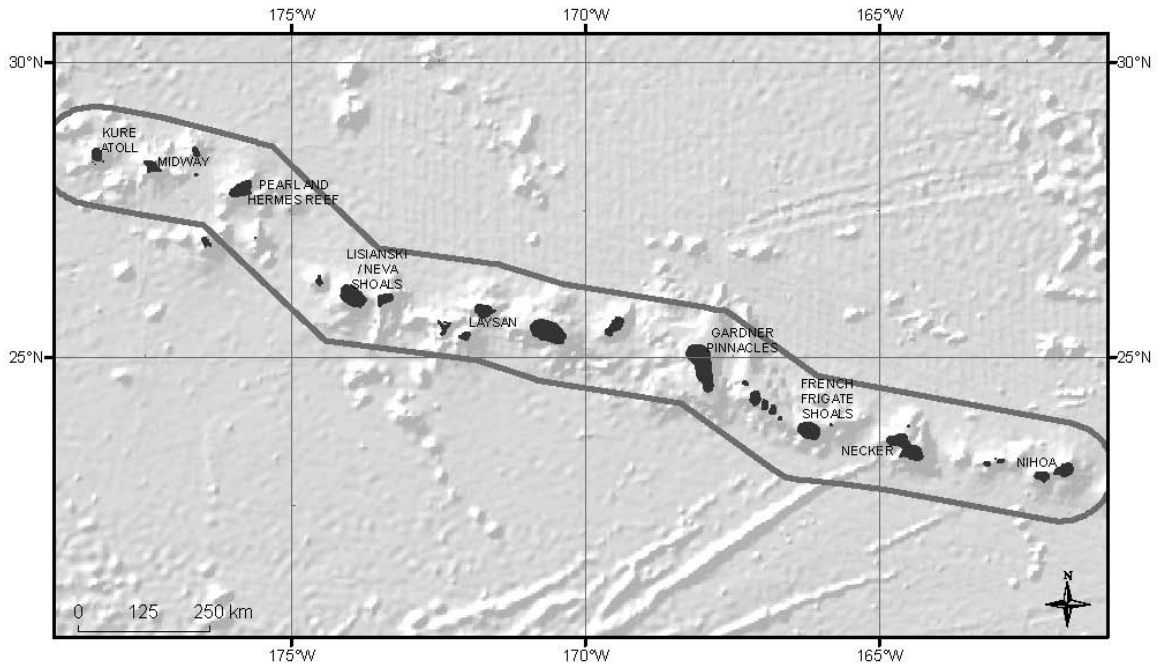


Figure 1.--Cruise operational area for the NOAA Ship *Oscar Elton Sette* cruise SE-12-04.

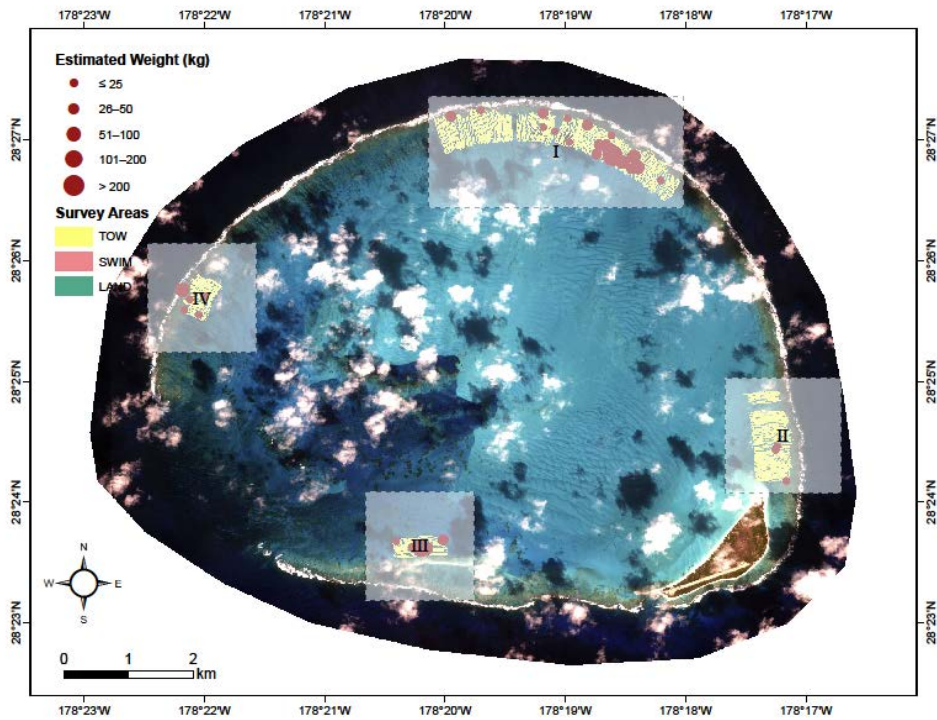


Figure 2.--Kure Atoll: Survey area for SE-12-04 and distribution of marine debris.

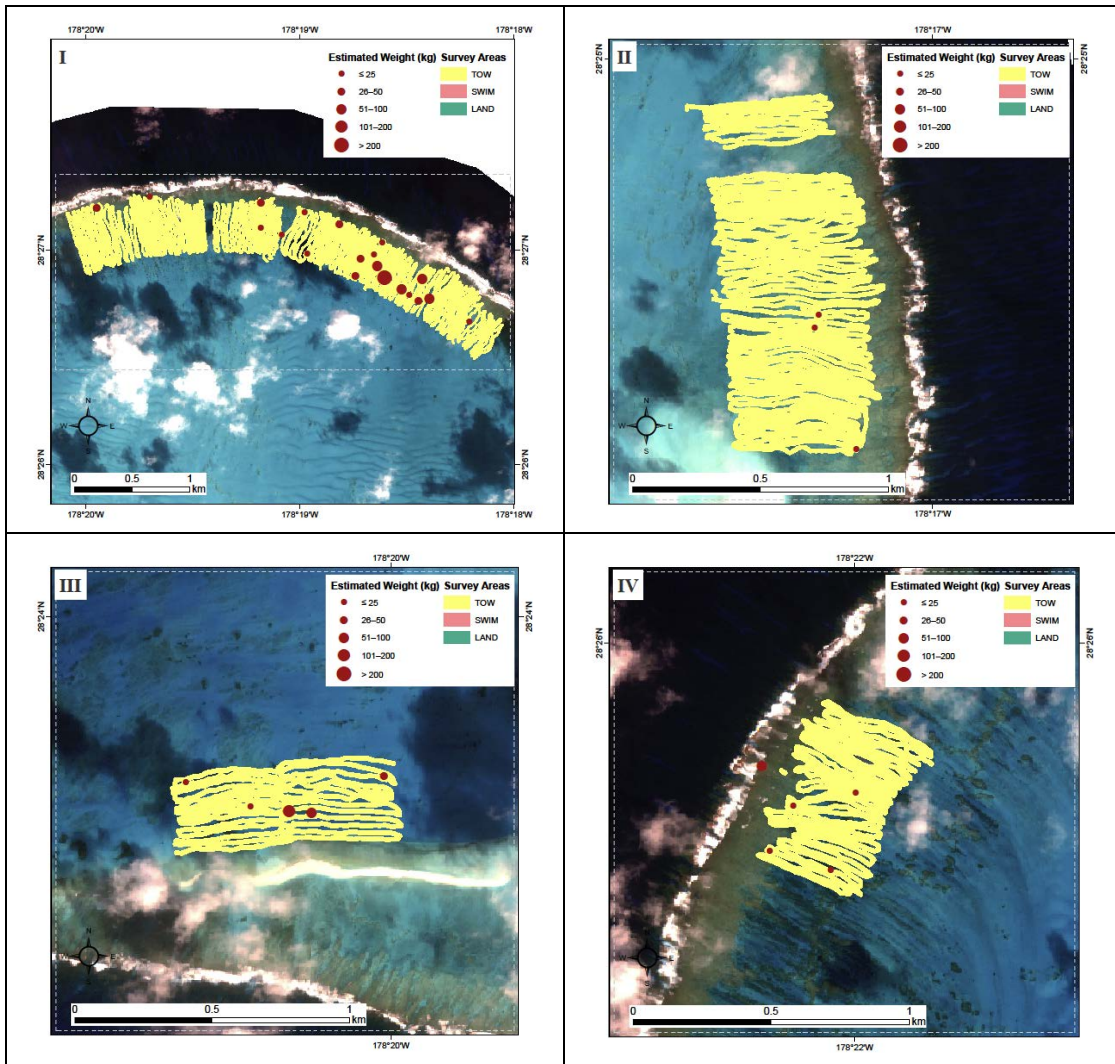


Figure 2a.--Kure: Magnified area of Sections I, II, III, and IV in Figure 2.

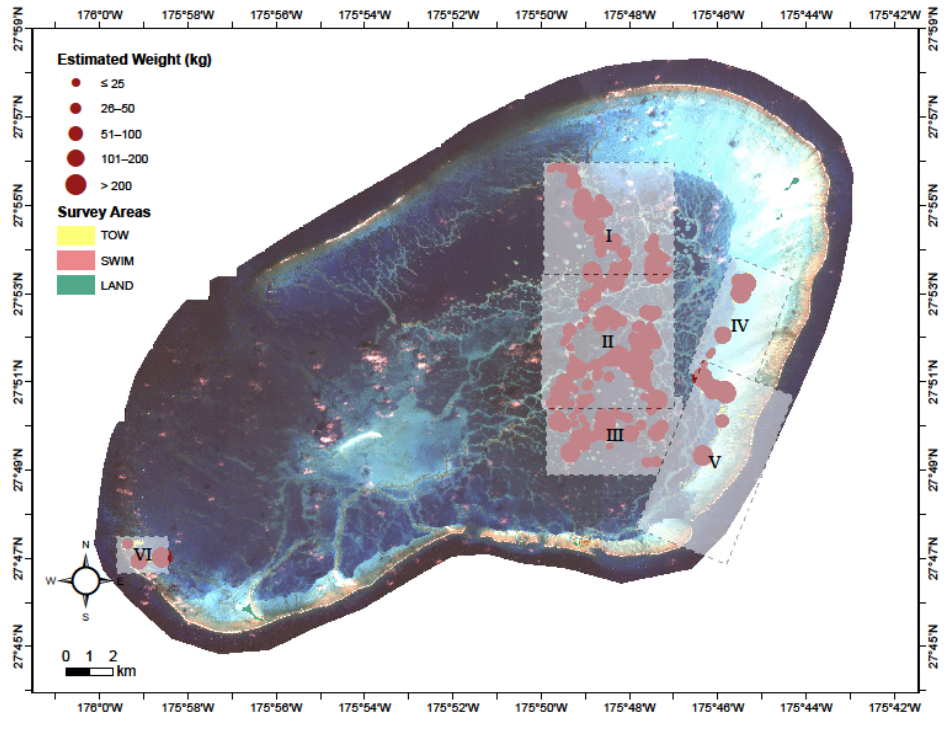


Figure 3.--Pearl and Hermes Atoll: Survey area for SE-12-04 and distribution of marine debris.



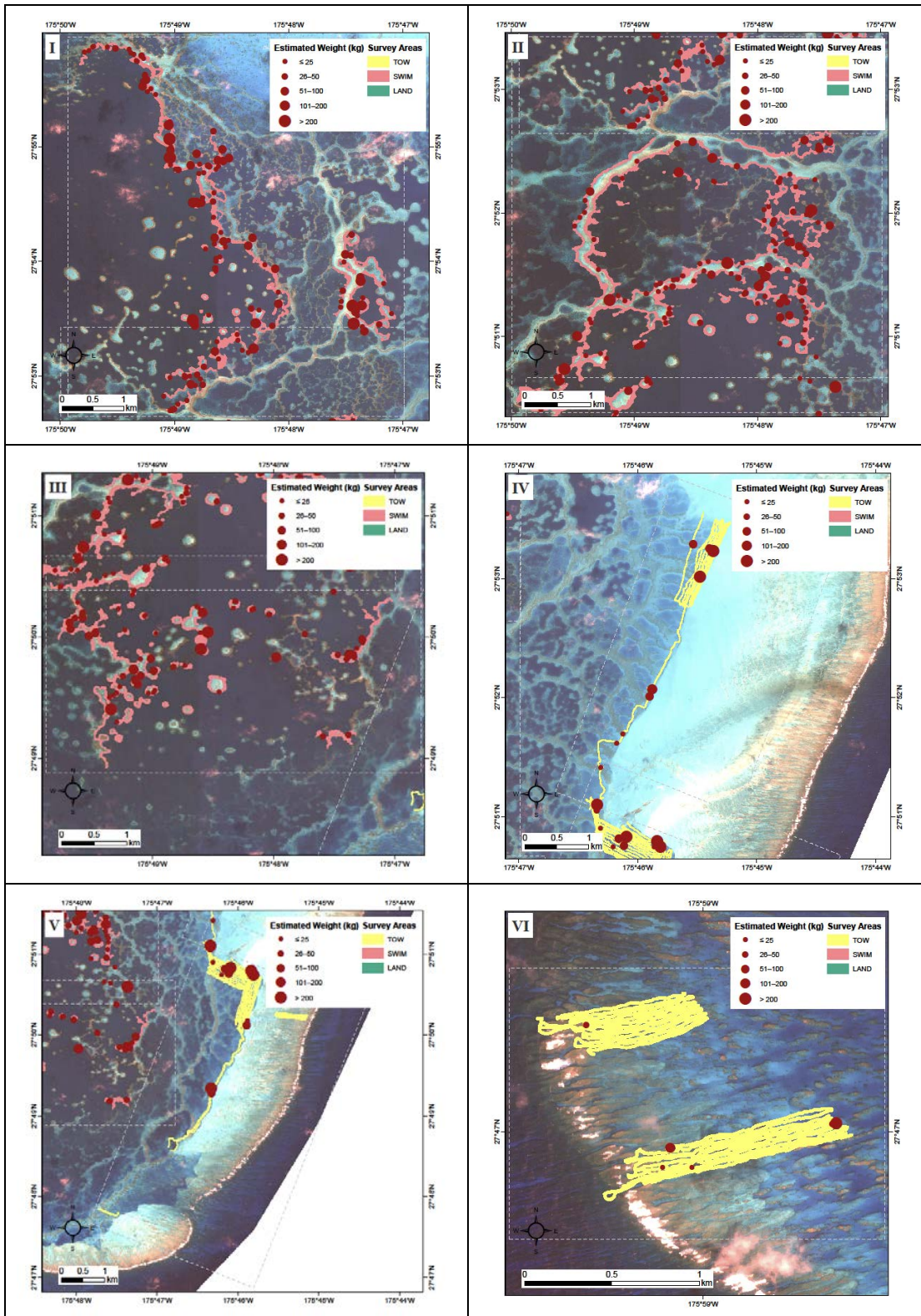


Figure 3a.--Pearl and Hermes Atoll: Magnified area of Sections I, II, III, IV, V, and VI in Figure 3.