



**U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE/NOAA FISHERIES**

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CRUISE REPORT¹

VESSEL: NOAA Ship *Oscar Elton Sette*, Cruise SE-14-05

CRUISE PERIOD: July 25 – August 8, 2014

AREA OF OPERATION: In-shore, deepwater, and offshore banks surrounding Guam.

TYPE OF OPERATION: Fisheries Research

ITINERARY:

25 July Embarked O'Malley, Barlow, Mooney, Giuseffi, Asher, Cruz, Tibbats, Biggs, Staman, Mesa, Miller, Cayanan, and Wells and proceeded to nearshore waters immediately south of Apra Harbor. Launched and retrieved SE-6 for BRUVs operations. Completed bottomfishing operations from OES. Transited to 11 Mile Reef and deployed traps, conducted Isaac Kid Trawl (100-m and 30-m depths) and nightlight dipnet operations.

26 July Launched and retrieved SE-6 for BRUVS operations, SE-4 to pick up Reyes at Agat Harbor, and SE-2 for University of Guam voucher specimen collections. Embarked Reyes aboard OES. Launched and retrieved SE-4 for bottomfishing operations. Conducted bottomfishing from OES. Transited to 11 Mile Reef and retrieved traps. Transited to NE corner of Guam.

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- 27 July Launched and retrieved SE-6 for BRUVS operations, SE-4 for bottomfishing operations, and SE-2 for University of Guam voucher specimen collections. Conducted bottomfishing from OES and deployed traps. Night operations consisted of Isaac Kid Trawl (100-m and 30-m depths) and nightlight dipnet operations.
- 28 July Launched and retrieved SE-6 for BRUVS operations, SE-4 for bottomfishing operations, and SE-2 for University of Guam voucher specimen collections. Retrieved traps set on 27 July and redeployed. Conducted trolling and troll camera operations. Night operations consisted of Isaac Kid Trawl (100-m and 30-m depths) and nightlight dip-net operations.
- 29 July Launched and retrieved SE-6 for BRUVS operations, SE-4 for bottomfishing operations, and SE-2 for University of Guam voucher specimen collections. Retrieved traps set on 27 July and redeployed. Conducted bottomfishing from OES. Transited via SE-4 to disembark Biggs and Miller, embarked Martinez. Isaac Kid Trawl (100 m) was initiated but was stopped early due to deteriorating weather.
- 30 July No operations. Transited 100 miles south to avoid Tropical Storm Halong.
- 31 July Transited back to Guam. Launched and retrieved SE-6 for BRUVS operations and SE-4 for bottomfishing operations. Retrieved traps set on 29 July. Conducted bottomfishing from OES. Night operations consisted of Isaac Kid Trawl (15 m) and nightlight dipnet operations.
- 01 August Launched and retrieved SE-6 for BRUVS operations, SE-4 for bottomfishing operations, and SE-2 for University of Guam voucher specimen collections and Guam Division of Aquatic Resources coral bleaching survey. Conducted bottomfishing from OES. Night operations consisted of Isaac Kid Trawl (5 m) and nightlight dip-net operations.
- 02 August Launched and retrieved SE-6 for BRUVS operations, SE4 for bottomfishing operations, and SE-2 for University of Guam voucher specimen collections and Guam Division of Aquatic Resources coral bleaching survey. Conducted bottomfishing from OES. Conducted trolling and troll camera operations. Night operations consisted of Isaac Kid Trawl (5 m) and nightlight dip-net operations.
- 03 August Launched and retrieved SE-6 for BRUVS operations, SE-4 for bottomfishing operations, and SE-2 for University of Guam voucher specimen collections and Guam Division of Aquatic Resources coral

- bleaching survey. Conducted bottomfishing from OES. SE-4 transited to Merizo Pier to disembark Cayanan and embark Barkley, Kense, and Duanes. Conducted trolling and troll camera operations. Night operations consisted of Isaac Kid Trawl (30 m and 100 m) and nightlight dip-net operations.
- 04 August Launched SE-6 for BRUVS operations and SE-2 for University of Guam voucher specimen collections and Guam Division of Aquatic Resources coral bleaching survey. Transited to 11 Mile Reef. Launched and retrieved SE4 for bottomfishing operations. Conducted bottomfishing from OES. OES conducted trolling operations while transiting back to Guam nearshore waters to retrieve SE-6 and SE-2. Transited to north side of Guam. Conducted Isaac Kid Trawl (5 m).
- 05 August Launched SE-6 for BRUVS operations and SE-2 for University of Guam voucher specimen collections and Guam Division of Aquatic Resources coral bleaching survey. Transited to Rota Bank. Launched and retrieved SE-4 for bottomfishing operations. Conducted bottomfishing from OES. OES transit back to Guam nearshore waters and retrieved SE-6 and SE-2. Conduct Isaac Kid Trawl (200 m). Conducted nighttime bottomfishing operations from OES.
- 06 August Conducted early morning bottomfishing operations from OES at Rota Banks. Transited back to Guam nearshore waters and launch SE-6 for BRUVS operations and SE-2 for University of Guam voucher specimen collections and Guam Division of Aquatic Resources coral bleaching survey. Transited to Rota Bank. Launched and retrieved SE-4 for bottomfishing operations. Conducted bottomfishing from OES. OES transited back to Guam nearshore waters while conducting testing of new cetacean acoustic survey gear. Retrieved SE-6 and SE-2. Conducted Isaac Kid Trawl (200 m).
- 07 August Launched and retrieved SE-6 for BRUVS operations, SE-4 for bottomfishing operations, and SE-2 for University of Guam voucher specimen collections and Guam Division of Aquatic Resources coral bleaching survey. Conducted bottomfishing from OES. Deployed traps. Night operations consisted of Isaac Kid Trawl (300 m).
- 08 August Launched and retrieved SE-6 for BRUVS operations. Retrieved traps set on 07 August. Proceeded to Apra Harbor, Guam. End of project.

MISSIONS AND RESULTS:

- A. Conduct deepwater coral reef fish surveys using 4 BRUVS from the PIFSC SE-6 SafeBoat.

A total of 160 BRUVS deployments were conducted in the nearshore (< 100 m) waters surrounding Guam. The entirety of the island was sampled including marine protected areas and the typically difficult (due to its notoriously rough waters) east and north sides of the island. Of note was the discovery of flourishing mesophotic reefs that were abundant in soft coral species. The BRUVS cameras also indicated that many species that were previously thought to be restricted to shallow waters actually have much greater depth ranges.

- B. Conduct deep-slope bottomfish handline bio-sampling operations from the OMAO SE-4 Northwind and the OES to obtain scientific specimens of eteline snappers, epinepheline groupers, and other bottomfish species for life history studies. Efforts to document any depredation or other interactions with sharks during these operations will be conducted using GoPro cameras mounted to poles and fishing lines.
1. The OES fished with 2 hydraulic gurneys reels spooled with 1000+ lb. spectra line. Terminal gear consisted of a 3-m long dropper with 6-7 branch lines of 50-lb monofilament test attached to 2-5 lb. lead weight. Four to six circle hooks ranging in sizes from 14 to 22 were baited with bonita/aku/skipjack tuna (*Katsuwonus pelamis*) and squid. The SE-4 fished with 2 Electromate® electric reels spooled with 200-lb test Dacron backing and 180-lb test Power-pro® mainline.
 2. Bottomfishing operations were conducted from the SE-4 and OES for 12 days each. A total of 87 locations were fished (SE-4 - 46, OES - 41) with each location containing variable numbers of drifts (Table 1). Depths ranged from 180 to 962 feet but primarily occurred between 600 and 800 feet.
 3. A total of 144 bottomfish were captured (Table 2) during fishing operations. Fork and total lengths were taken, gonads were removed and immediately stored in 10% histological grade Formalin, and otoliths were removed from all species except for puffers and scorpionfish.
 4. Only 2 shark interactions with fishing gear occurred during the project. One occurred while fishing shallow (180 ft) water on 11 Mile Reef but the interaction wasn't recorded. The other interaction was partially captured on video while fishing at Rota Banks. Three bottomfish were captured on one drop and brought to the surface however, rather than landing them they were dropped back to the seafloor. During the second retrieval an oceanic whitetip shark (*Carcharhinus longimanus*) was videotaped swimming around the gear (Fig. 1) and only 1.5 fish were landed. However, during the second drop the

fish became tangled with the line above the camera and therefore the completed depredation event wasn't captured on video. No sharks were seen at the surface during any bottomfishing operations.

- C. Conduct fish, invertebrate and algae sampling for the University of Guam Barcode of Life project and other research programs from OMAO SE-2.
1. Using spearfishing, trapping, IK trawls and bottomfishing, 77 species were collected for the Barcode of Life project (Table 3). Within these, 22 species had the necessary 5 individuals collected for the project. It is important to note that some of the species collected are notoriously difficult to sample due to inherent dangers (sharks), depths (bottomfish) and access to their habitats (Ritidian Point and the east side of Guam).
 2. An unspecified number of algae and invertebrates collected by hand, in traps, and the IK trawl were collected for other University of Guam projects.
 3. A University of Guam student conducted an echinoderm snorkel survey on the shallow reef flat at Nomña Beach, Guam. The reef is notably remote, not only because it is an immensely disturbed windward facing reef, it is also difficult to access from shore due to extreme terrain. The OES project provided a unique opportunity to access it for the first time. Eight species of holothuroids and 2 species of ophiuroids were recorded from this site: *Actinopyga echinites*, *Chiridota rigida*, *Holothuria (Thymiosycia) impatiens*, *Labidodemas pertinax*, *Holothuria (Semperothuria) cinerascens*, *Holothuria atra*, *Holothuria (mertensiothuria) leucospilota*, *Actinopyga mauritiana*, *Macrophiothrix spp.*, *Ophiuroid spp.* Three of the holothuroids (*Holothuria (Thymiosycia) impatiens*, *Labidodemas pertinax*, and *Holothuria (Semperothuria) cinerascens*), 2 ophiuroids (*Macrophiothrix spp.* and *Ophiuroid spp.*), and 1 scale worm (Polynoidae) were collected and subsampled for molecular analyses. Subsamples from 2 of the holothuroids will hopefully help resolve ongoing species complex questions. The scale worm, which will be sent to a specialist at Scripps Institution of Oceanography, may be a new record, if not a new species.
 4. Another University of Guam student collected 25 samples of *Porites rus* (12 from Cocos Lagoon and 13 from Agana Bay) during the project. The endolithic algal communities living within these samples will be sequenced to assess the genetic diversity of these understudied yet important communities and to compare the sequencing abilities of a new technology (Oxford Nanopore's MinION) to older platforms like Illumina.
- D. Towed tetrahedral hydrophone array
1. The Protected Species Division-Cetacean Research Program conducted sea trial tests of the new tetrahedral hydrophone array. The odd size and shape of the new array initially posed a small challenge for the deployment and

retrieval process. After careful consideration, both scientists and crew devised a method to safely deploy and retrieve the array without any problems.

2. Passive acoustic data collection methods in the lab were previously hindered by overwhelming electrical noise. Due to the new clean electrical power system, most electrical noise was eliminated and recordings were of higher quality.
3. Four hydrophone trials took place. Results of the sea trial tests provided valuable information necessary to make modifications to the array and the lab set-up that will be used during line-transect cetacean surveys in the Pacific Island Region. This was a worthwhile effort that will assist in improving the passive acoustics methods for future surveys.

E. Conduct trolling operations to document shark depredation from the OES.

1. Trolling operations, including deployment of the troll cam took place from the OES on 5 days. No fish were captured despite conducting operations around large schools of bonito. Although schools of bonito were seen behind the camera it was determined that the *Sette* scattered the baitfish causing the bonito to flee the immediate area and resurface behind the trolling lines.

F. Conduct fish and invertebrate trapping for specimen collection.

1. Nine strings, containing 5 - 8 Fathoms Plus traps each, were set on 5 days (Table 4). Soak time ranged from 12 to 36 hours. Trapping was generally unproductive with only a few Portunidae and Calappidae crabs and whitetip reef shark (*Triaenodon obesus*) captured. The poor results are generally attributed to lack of knowledge of bottom habitat hence many strings were set in sand and flat pavement which contains relatively few species.

G. Conduct one midwater 6-ft IK tow per night adjacent to Guam and the offshore banks.

1. IK trawl tows were conducted on 12 nights. Depth and time at depth of tow was typically 30 m for 30 minutes and 100 m for 30 minutes. However, surface tows and deeper water (200 m and 300 m) tows were conducted. Fish (leptocephalus, juvenile soldier fish) and crustacean larvae were the dominate catch in the shallower tows while the deeper water tows also yielded Myctophidae, Sternoptychinae, and Stomiidae.

H. Conduct a nightly drifting nightlight/dipnet and light tackle fishing operations

1. Nightlight/dip-net operations took place on 6 nights (Table 5). These were disappointingly unproductive with only a few squid, juvenile and adult flying fish, and juvenile soldier fish (*Myripristis* sp.) being captured.

**SCIENTIFIC
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Attachments:
Tables
Figure

Table 1. Location of bottomfishing operations during SE-14-05.

Date	Vessel	Location		Starting Depth (feet)
		Latitude	Longitude	
7/25/2014	Sette	13°25.027N	144°38.114E	287.43
7/26/2014	SE4	13°24.102N	144°34.24E	201.17
7/26/2014	SE-4	13°22.939N	144°38.364E	201.17
7/26/2014	Sette	13°25.655N	144°37.883E	256.03
7/26/2014	Sette	13°24.319N	144°38.737E	192.02
7/26/2014	Sette	13°24.303N	144°38.744E	182.88
7/26/2014	Sette	13°21.783N	144°37.804E	243.84
7/27/2014	SE-4	13°39.014N	144°54.867E	236.52
7/27/2014	Sette	13°38.292N	144°54.589E	255.73
7/27/2014	Sette	13°38.37N	144°54.713E	274.32
7/27/2014	Sette	13°38.192N	144°54.657E	215.80
7/27/2014	Sette	13°38.139N	144°54.895E	240.79
7/27/2014	Sette	13°38.293N	144°54.694E	256.03
7/27/2014	Sette	13°38.202N	144°54.712E	210.31
7/28/2014	SE-4	13°35.321N	144°57.755E	277.98
7/28/2014	SE-4	13°34.613N	144°57.61E	188.98
7/28/2014	SE-4	13°39.01N	144°54.79E	277.98
7/29/2014	SE-4	13°18.8221N	144°47.7029E	229.51
7/29/2014	OES	13°18.8107N	144°47.9308E	232.26
7/31/2014	SE-4	13°10.524N	144°47.732E	286.51
7/31/2014	SE-4	13°18.5N	144°47.553E	249.63
7/31/2014	SE-4	13°19.072N	144°47.281E	223.11
7/31/2014	SE-4	13°22.383N	144°47.477E	206.96
7/31/2014	SE-4	13°24.039N	144°47.719E	201.17
7/31/2014	SE-4	13°22.276N	144°47.467E	240.79
7/31/2014	SE-4	13°22.066N	144°47.342E	161.54
7/31/2014	SE-4	13°21.751N	144°47.387E	216.71
7/31/2014	Sette	13°23.367N	144°47.558E	186.23
7/31/2014	Sette	13°23.317N	144°47.653E	243.84
7/31/2014	Sette	13°23.32N	144°47.633E	246.89
7/31/2014	Sette	13°22.215N	144°47.552E	268.53
7/31/2014	Sette	13°22.065N	144°47.633E	293.22
8/1/2014	SE-4	13°26.683N	144°50.619E	244.14
8/1/2014	SE-4	13°26.753N	144°50.322E	158.80
8/1/2014	SE-4	13°27.71N	144°51.846E	165.81
8/1/2014	SE-4	13°27.562N	144°51.863E	250.55
8/1/2014	SE-4	13°25.891N	144°49.471E	243.54

Table 1 (cont'd)

Date	Vessel	Location		Starting Depth (feet)
		Latitude	Longitude	
8/1/2014	Sette	13°28.669N	144°52.908E	274.32
8/1/2014	Sette	13°30.076N	144°54.323E	242.32
8/1/2014	Sette	13°30.089N	144°54.295E	222.50
8/2/2014	SE-4	13°32.664N	144°56.795E	154.84
8/2/2014	SE-4	13°30.912N	144°55.92E	185.93
8/2/2014	SE-4	13°31.526N	144°56.346E	163.68
8/2/2014	SE-4	13°30.069N	144°54.305E	239.88
8/2/2014	SE-4	13°30.444N	144°56.031E	157.28
8/2/2014	Sette	13°30.989N	144°56.052E	170.08
8/2/2014	Sette	13°30.606N	144°55.602E	185.93
8/2/2014	Sette	13°30.616N	144°55.642E	200.25
8/2/2014	Sette	13°30N	144°54.127E	134.11
8/3/2014	SE-4	13°14.364N	144°43.741E	208.48
8/3/2014	SE-4	13°14.138N	144°41.984E	207.87
8/3/2014	SE-4	13°13.585N	144°38.22E	129.24
8/3/2014	SE-4	13°15.068N	144°38.288E	235.61
8/3/2014	SE-4	13°13.629N	144°38.024E	204.22
8/3/2014	Sette	13°13.95N	144°40.782E	174.96
8/3/2014	Sette	13°13.923N	144°40.883E	231.65
8/3/2014	Sette	13°13.69N	144°38.891E	184.40
8/3/2014	Sette	13°13.68N	144°38.891E	181.97
8/4/2014	SE-4	13°13.572N	144°27.277E	185.32
8/4/2014	SE-4	13°13.599N	144°27.17E	54.86
8/4/2014	SE-4	13°13.988N	144°27.149E	206.96
8/4/2014	Sette	13°13.396N	144°27.077E	115.82
8/4/2014	Sette	13°13.396N	144°27.085E	158.50
8/4/2014	Sette	13°13.401N	144°27.151E	201.78
8/5/2014	SE-4	13°47.88N	144°56.531E	204.22
8/5/2014	SE-4	13°48.002N	144°57.526E	206.96
8/5/2014	SE-4	13°48.811N	144°57.143E	165.20
8/5/2014	Sette	13°48.434N	144°56.781E	212.14
8/5/2014	Sette	13°48.443N	144°59.399E	252.98
8/5/2014	Sette	13°48.276N	144°56.32E	208.79
8/5/2014	Sette	13°38.977N	144°54.701E	291.69
8/6/2014	SE-4	13°47.61N	144°56.764E	170.69
8/6/2014	SE-4	13°48.475N	144°56.681E	235.00
8/6/2014	SE-4	13°48.584N	144°56.8E	246.58
8/6/2014	Sette	13°48.277N	144°56.28E	222.50

Table 1 (cont'd)

Date	Vessel	Location		Starting Depth (feet)
		Latitude	Longitude	
8/6/2014	Sette	13°47.79N	144°55.83E	286.51
8/6/2014	Sette	13°47.548N	144°56.381E	249.33
8/6/2014	Sette	13°48.255N	144°56.433E	176.78
8/7/2014	SE-4	13°34.273N	144°48.816E	231.65
8/7/2014	SE-4	13°34.939N	144°49.047E	286.82
8/7/2014	SE-4	13°36.224N	144°49.542E	198.12
8/7/2014	SE-4	13°36.681N	144°49.573E	216.10
8/7/2014	SE-4	13°36.885N	144°49.628E	181.97
8/7/2014	SE-4	13°38.407N	144°50.178E	189.59
8/7/2014	SE-4	13°39.166N	144°50.385E	218.85
8/7/2014	SE-4	13°35.601N	144°49.323E	277.98
8/7/2014	Sette	13°35.439N	144°48.974E	256.03
8/7/2014	Sette	13°35.374N	144°49.118E	276.45
8/7/2014	Sette	13°35.459N	144°48.957E	243.84

Table 2. Fish species captured during handline bottomfishing operations from the OES and SE-4 during SE-14-05.

Species Name	N
<i>Aphareus rutilans</i>	6
<i>Caranx lugubris</i>	3
<i>Cephalopholis igarashiensis</i>	1
<i>Cephalopholis sonnerati</i>	3
<i>Cephalopholis spiloparaea</i>	1
<i>Cephalopholis urodeta</i>	1
<i>Cheilinus trilobatus</i>	4
<i>Etelis carbunculus</i>	13
<i>Etelis coruscans</i>	9
<i>Lethrinus obsoletus</i>	1
<i>Lethrinus olivaceus</i>	5
<i>Lethrinus rubrioperculatus</i>	1
<i>Lutjanus kasmira</i>	2
<i>Pontinus macrocephalus</i>	2
<i>Pristipomoides argyrogrammicus</i>	14
<i>Pristipomoides auricilla</i>	22
<i>Pristipomoides filamentosus</i>	5
<i>Pristipomoides flavipinnis</i>	20
<i>Pristipomoides sieboldti</i>	8
<i>Pristipomoides zonatus</i>	18
<i>Trianodon obesus</i>	4
<i>Variola louti</i>	1

Table 3. Specimens sampled by the University of Guam Barcode of Life project during SE-14-05.

Species Name	Total sampled
<i>Acanthurus guttatus</i>	7
<i>Acanthurus lineatus</i>	4
<i>Acanthurus nigricans</i>	1
<i>Anampses caeruleopunctatus</i>	1
<i>Aphareus rutilans</i>	6
<i>Arothron meleagris</i>	3
<i>Arothron nigropunctatus</i>	3
<i>Cantherhines dumerilii</i>	6
<i>Caranx lugubris</i>	3
<i>Caranx melampygus</i>	2
<i>Carangoides orthogrammus</i>	1
<i>Cephalopholis igarashiensis</i>	1
<i>Cephalopholis sonnerati</i>	3
<i>Cephalopholis spiloparaea</i>	1
<i>Cephalopholis urodeta</i>	1
<i>Chaetodon auriga</i>	6
<i>Chaetodon bennetti</i>	1
<i>Chaetodon citrinellus</i>	5
<i>Chaetodon ephippium</i>	7
<i>Chaetodon lunula</i>	9
<i>Chaetodon lunulatus</i>	6
<i>Chlorurus microrhinus</i>	1
<i>Chaetodon ornatissimus</i>	7
<i>Chaetodon quadrimaculatus</i>	6
<i>Chaetodon reticulatus</i>	2
<i>Chaetodon trifascialis</i>	1
<i>Cheilinus trilobatus</i>	4
<i>Chaetodon ulietensis</i>	6
<i>Chaetodon unimaculatus</i>	5
<i>Cheilinus unifasciatus</i>	1
<i>Epibulus insidiator</i>	3
<i>Epinephelus merra</i>	1
<i>Etelis carbunculus</i>	13
<i>Etelis coruscans</i>	9
<i>Forcipiger flavissimus</i>	5
<i>Gnathodentex aurolineatus</i>	6
<i>Hemigymnus fasciatus</i>	1

Table 3 (cont'd)

<i>Species Name</i>	Total sampled
<i>Lethrinus harak</i>	1
<i>Lethrinus obsoletus</i>	1
<i>Lethrinus olivaceus</i>	5
<i>Lethrinus rubrioperculatus</i>	1
<i>Lutjanus kasmira</i>	2
<i>Macolor macularis</i>	2
<i>Melichthys niger</i>	5
<i>Melichthys vidua</i>	6
<i>Mulloidichthys vanicolensis</i>	2
<i>Naso lituratus</i>	3
<i>Neoniphon aurolineatus</i>	1
<i>Ostracion meleagris</i>	2
<i>Paracirrhites forsteri</i>	6
<i>Paracirrhites hemistictus</i>	2
<i>Parapeneus insularis</i>	1
<i>Parapeneus multifasciatus</i>	2
<i>Pempheris oualensis</i>	1
<i>Pomacanthus imperator</i>	7
<i>Pontinus macrocephalus</i>	1
<i>Pristipomoides argyrogrammicus</i>	14
<i>Pristipomoides auricilla</i>	22
<i>Pristipomoides filamentosus</i>	5
<i>Pristipomoides flavipinnis</i>	20
<i>Pristipomoides sieboldti</i>	8
<i>Pristipomoides zonatus</i>	18
<i>Pygoplites diacanthus</i>	4
<i>Rhinecanthus aculeatus</i>	3
<i>Rhinecanthus rectangulus</i>	5
<i>Sargocentron spiniferum</i>	1
<i>Scolopsis lineata</i>	6
<i>Sufflamen bursa</i>	5
<i>Sufflamen chrysopterus</i>	1
<i>Triodon macropterus</i>	5
<i>Trianodon obesus</i>	4
<i>Variola louti</i>	1
<i>Xanthichthys caeruleolineatus</i>	1
<i>Zanclus cornutus</i>	6
<i>Zebrasoma flavescens</i>	1
<i>Zebrasoma veliferum</i>	1

Table 4. Date and time of deployment and retrieval and location and depth of traps.

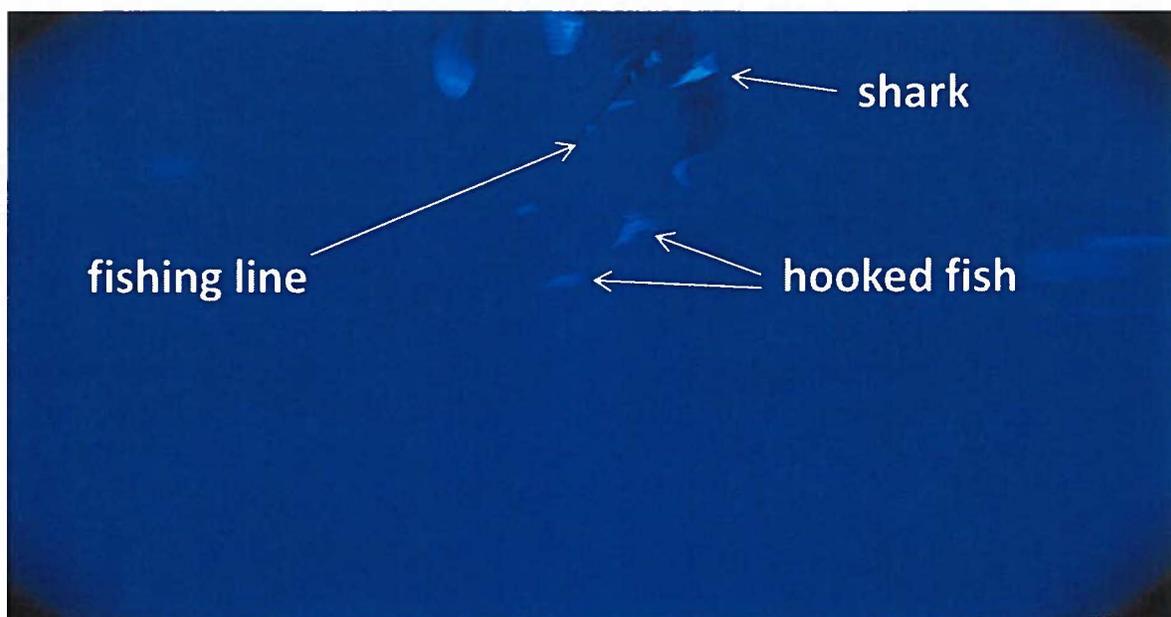
Date deployed	Time deployed	Date retrieved	Time retrieved	Location		Depth (meters)
				Latitude	Longitude	
7/25/2014	18:30:25	7/26/2014	18:45:56	13°13.8979N	144°26.8978E	39.72
7/27/2014	18:47:32	7/28/2014	10:26:18	13°27.3936N	144°50.9594E	58.35
7/28/2014	19:59:04	7/29/2014	9:29:25	13°18.2110N	144°46.6998E	55.92
7/29/2014	18:42:46	7/31/2014	9:21:21	13°22.3643N	144°47.1770E	96.84
8/7/2014	18:50:20	8/8/2014	9:11:40	13°29.0859N	144°40.8243E	66.97

Table 5. Start time, end time, location and depth of nightlight dip-net operations.

Date	Start Time	End Time	Location		Depth
			Latitude	Longitude	
7/25/2014	21:22:01	22:12:22	13°13.4184N	144°27.3278E	297.15
7/27/2014	21:58:57	22:59:40	13°25.5034N	144°50.3145E	505.78
7/31/2014	21:33:20	22:41:14	13°28.0489N	144°54.4985E	744.72
8/1/2014	21:45:32	22:27:28	13°23.2702N	144°50.9557E	744.85
8/2/2014	22:02:14	22:38:33	13°14.6666N	144°45.2199E	640.57
8/3/2014	22:31:23	23:06:36	13°13.7518N	144°40.7430E	357

Figures

A



B



Figure 1. A) Oceanic whitetip shark (*Carcharhinus longimanus*) interacting with captured fish during retrieval. B) The same shark leaving after depredation event.

