



NOAA Fleet Update

September 2019

The following update provides the status of NOAA's fleet of ships and aircraft, which play a critical role in the collection of oceanographic, atmospheric, hydrographic, and fisheries data. NOAA's current fleet of 16 ships – the largest civilian research and survey fleet in the world – and nine aircraft, are operated, managed, and maintained by NOAA's Office of Marine and Aviation Operations ([OMAO](#)). OMAO includes civilians, mariners, and officers of the United States NOAA Commissioned Officer Corps ([NOAA Corps](#)), one of the nation's seven Uniformed Services.



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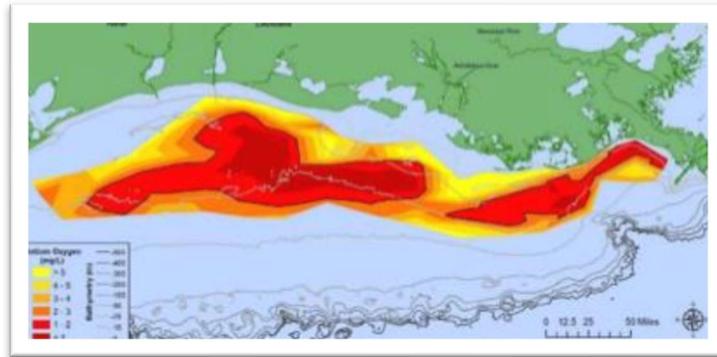
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OMAO in the News



['Dead zone' along Louisiana coastline smaller than initially feared. The reason? Hurricane Barry](#) August 1, 2019; NOLA.com. A groundfish survey aboard NOAA Ship *Oregon II* in the northern Gulf of Mexico provided observations of hypoxic conditions, which were reported in early August.



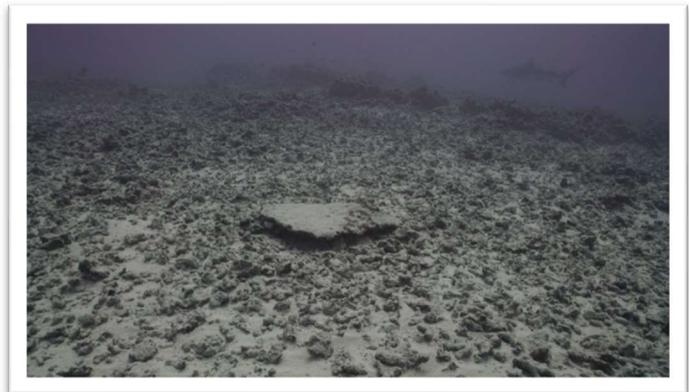
Map of the low-oxygen “dead zone” along the Louisiana and Texas coast.

[Photo Credit: NOAA]

[UAFS professor to set sail aboard NOAA Ship](#) August 4, 2019; Fort Smith Times Record. University of Arkansas Fort Smith professor Ragupathy Kannan, with 25 years of teaching experience at UAFS, looks forward to setting sail with an ecosystem monitoring research project aboard NOAA Ship *Gordon Gunter*.

[Scientists aboard NOAA Ship RAINIER return to NW Hawaiian Islands](#) August 15, 2019; Honolulu Star Advertiser.

[NOAA Scientists Find Decimated Reefs and Invasive Algae](#) August 15, 2019; Hawaii News Now. Scientists aboard NOAA Ship *Rainier* recently observed the damage inflicted upon some of the atolls within the Papahānaumokuākea Marine National Monument by Hurricane Walaka in October 2018.



French Frigate Shoals before and after Hurricane Walaka.

[Photo Credit: Greg McFall, NOAA]

[Gulfstream Announces Order from NOAA](#) August 26, 2019; Aviation Pros. Gulfstream Aerospace Corp. announced that NOAA has established a contract for a new Gulfstream G-550 to support weather forecasting and research programs.



NOAA's Gulfstream G-IV, similar to the G-550 currently under contract.

[Photo Credit: NOAA]

[Hilton Head native and Navy veteran now flying into hurricanes for NOAA](#) August 29, 2019; Hilton Head Island Packet. Lieutenant Commander Sam Urato, NOAA, remembers evacuating for Hurricane Hugo when he was 5 years old. Now he's responsible for getting NOAA's P-3 Orion into the eye of Hurricane Dorian.

[First all-female Hurricane Hunter cockpit crew flies over Hurricane Dorian](#) August 30, 2019; WUSA News. For the first time in Hurricane Hunter history, a trio of female pilots flew NOAA's G-IV above Hurricane Dorian.



The all-female cockpit crew aboard NOAA's G-IV for Hurricane Dorian surveillance.

[Photo Credit: NOAA]



NOAA Commissioned Officer Corps



OMAO and the NOAA Corps are an integral part of NOAA and our officers operate OMAO's research and survey fleet of 16 ships and nine aircraft. Mission areas can range from launching a weather balloon at the South Pole, conducting hydrographic or fishery surveys in Alaska, maintaining buoys in the tropical Pacific, flying snow surveys over the Midwest, or flying our "Hurricane Hunter" aircraft into, or above, hurricanes.

Selection Boards and Application Process

The NOAA Corps is currently accepting applications for BOTC 136, which will begin in July 2020. The application deadline is January 17, 2020, to receive an interview. A selection board will convene in mid-March 2020. Additional information may be found on the [NOAA Corps website](#) and BOTC 136 applicants may start the process, utilizing the online NOAA Corps E-Recruit System. ([NOAA Corps E-Recruit](#)).

Recruiting Events

The recruiting team is preparing for a heavy fall recruiting season to recruit the next generation of NOAA Corps Officers. Some upcoming events are below.

September 24 - Manhattan College, Riverdale, New York

September 25 - Merchant Marine Academy, Kings Point, New York

September 25 - University of North Carolina, Greensboro, North Carolina

September 26 - Ohio State, Columbus, Ohio



BOTC 133

[Photo Credit: NOAA]



Basic Officer Training Class 134



BOTC 134 is now approximately six weeks into their 17 weeks of training at the U.S. Coast Guard Academy. They have completed courses in basic seamanship, compass & ATONS (aids to navigation), chart plotting, and the Coast Guard's Leadership and Management school; all of which satisfy STCW requirements (Standards of Training, Certification and Watchkeeping for Seafarers) as well as prepare them to be diligent officers aboard NOAA vessels. The students have completed their first public speaking assignments as part of the Leadership in Writing curriculum and have commenced Basic Safety Training as they prepare to embark aboard Coast Guard Barque *EAGLE* on September 20. This training will include First Aid & CPR, basic and advanced firefighting, and water survival techniques.



Members of BOTC 134 listen intently to Dr. Susan Roberts reviewing requirements for the Leadership in Writing curriculum as LT Larry Thomas looks on.

[Photo Credit: NOAA]

Additionally, the students are looking forward to Billet Night on October 10, when they will receive their initial assignments. Graduation is scheduled for November 19.

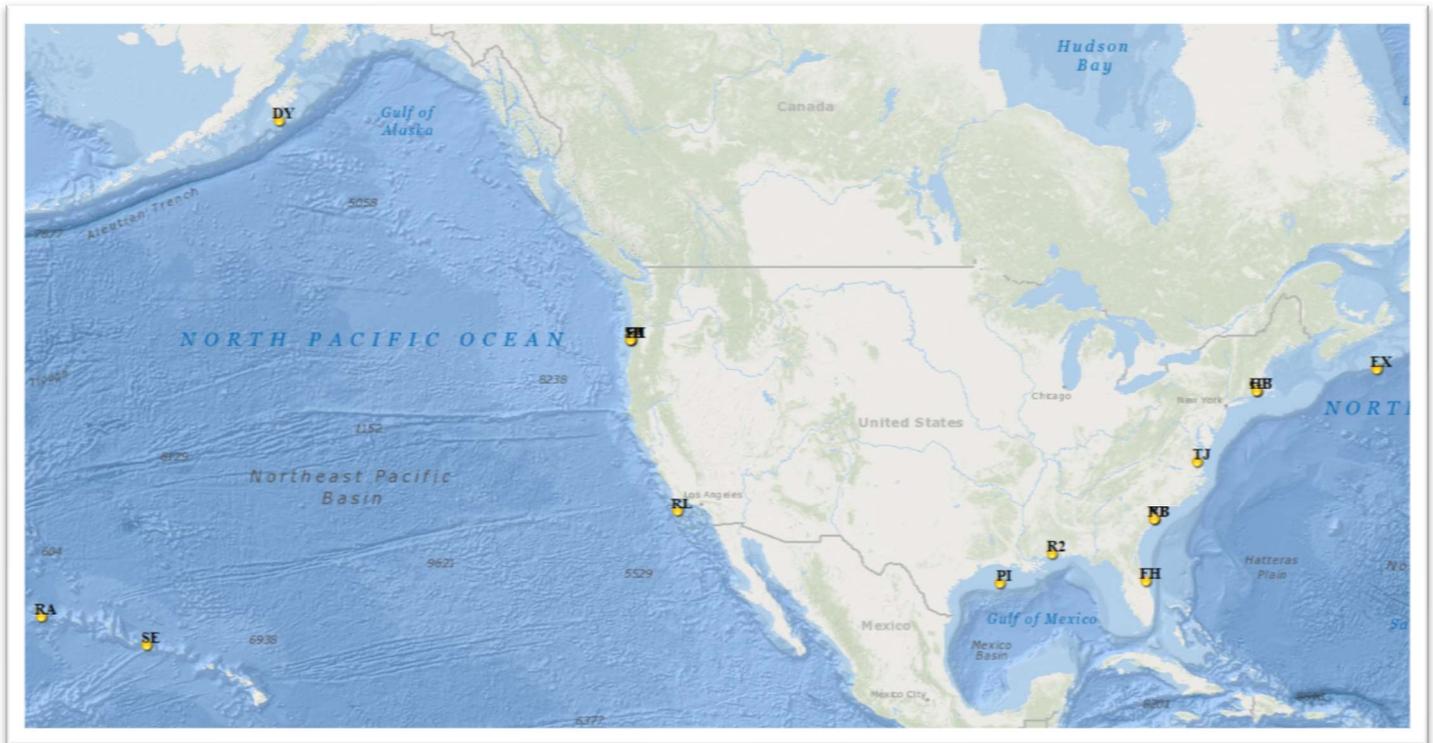


OMAO's Ships and Centers



OMAO's [Ship Tracker](#) shows information about the present location of our fleet of research and survey ships. Please note: To access Ship Tracker you must have an account with a .gov or .mil email address. All other access is restricted.

OMAO's ships and related Marine Centers are listed below based on the geographical location of the vessels' homeports starting in the Northeast and ending in the Pacific.



NOAA Ship locations at the start of September, 2019.

[Photo Credit: NOAA]

National

OMAO'S MARINE OPERATIONS

Director of Marine Operations: Mr. Troy Frost

OMAO's Marine Operations oversees the operations of OMAO's ships and the three regional Centers, including the Marine Operations Center-Pacific, Marine Operations Center-Atlantic, and Marine Operations Center-Pacific Islands. Employees of Marine Operations are stationed nationwide to provide strategic, administrative, engineering, maintenance, electronic, budgetary, and personnel support to the OMAO fleet. Each year these ships conduct dozens of missions to assess fish and marine mammal stocks, conduct coral reef research, collect seafloor data to update nautical charts, and explore the ocean.

New Castle, New Hampshire

NOAA Ship *Ferdinand R. Hassler*

Commanding Officer: Commander Mark Blankenship

Primary Mission Category: Hydrographic Surveys

Depart: Port Canaveral, Florida

Arrive: Galveston, Texas

Ship Status: In Port Canaveral, Florida for unscheduled engine repairs. Ship secured alongside for Hurricane Dorian. Necessary repairs will resume as soon as possible. Once completed, the ship will get underway for Key West, Florida followed by survey operations at the approaches to Houston, Texas.

Newport, Rhode Island

NOAA Ship *Henry B. Bigelow*

Commanding Officer: Captain William Mowitt

Primary Mission Category: Fisheries Research

Depart: Newport, Rhode Island

Arrive: Newport, Rhode Island

Ship Status: Planned departure in early September for Northeast Fisheries Science Center (NEFSC) Autumn Bottom Trawl Survey, to determine autumn distribution and relative abundance of fish and invertebrate species on the continental shelf and upper slope.



A sampling of sea life recovered by NOAA Ship *Henry B. Bigelow* and the “Deep See” towed array during a recent Mesopelagic Exploration project. Clockwise from upper left: Hatchet fish, Fangtooth fish, young Atlantic Moonfish, Viperfish, Paper Nautilus.

[Photo Credit: Lieutenant Cherisa Friedlander, NOAA]

North Kingstown (Davisville), Rhode Island

NOAA Ship *Okeanos Explorer*

Commanding Officer: Commander Nicole Manning

Primary Mission Category: Oceanographic Exploration and Research

Depart: Halifax, Nova Scotia, Canada

Arrive: North Kingstown, Rhode Island

Ship Status: Underway for Atlantic Seafloor Partnership for Integrated Research and Exploration (ASPIRE) New England and Canada Mapping and ROV, to explore deep waters (>250 m) in the U.S. exclusive economic zone (EEZ) off the Northeast U.S. Coast, and in adjacent waters in the EEZ of Canada.

Norfolk, Virginia

NOAA Ship *Thomas Jefferson*

Commanding Officer: Commander Briana Hillstrom

Primary Mission Category: Hydrographic Surveys

Depart: Brooklyn, New York

Arrive: Norfolk, Virginia

Ship Status: Alongside shipyard in Brooklyn, NY. Planned departure in early September. Upon departure from Brooklyn, the ship will relocate to Norfolk, where it will begin system integration efforts which have not been possible at the shipyard. Field production is scheduled to resume in early October.



NOAA Ship *Thomas Jefferson* during post-Hurricane Maria tasking in Puerto Rico in late 2018.

[Photo Credit: Lieutenant (junior grade) Matt Sharr, NOAA]

OMAO'S MARINE OPERATIONS CENTER – ATLANTIC (MOC-A)

Commanding Officer: Captain David Zezula

MOC-A serves as homeport for NOAA Ship *Thomas Jefferson*. Its personnel provide administrative and logistical support and manage the day-to-day operations for the research and survey ships in NOAA's Atlantic and Gulf of Mexico fleet of nine vessels. Each year, these ships conduct dozens of missions, to assess marine ecosystems including fish and marine mammal stocks, coral reef research, collect seafloor data to update nautical charts, and explore the ocean.



OMAO's Marine Operations Center – Atlantic in Norfolk, Virginia.

[Photo Credit: DEEP SEARCH 2017, NOAA-OER/BOEM/USGS]

Charleston, South Carolina

NOAA Ship *Nancy Foster*

Commanding Officer: Lieutenant Commander James Brinkley

Primary Mission Category: Oceanographic Research, Environmental Assessment

Depart: Charleston, South Carolina

Arrive: Morehead City, North Carolina

Ship Status: Underway for Mid Atlantic Benthic Habitat and Cultural Resource Mapping to characterize shipwrecks and rocky reef habitats to guide ecosystem management and ocean planning.



A curious Red Snapper in Gray's Reef National Marine Sanctuary during a recent NOAA Ship *Nancy Foster* cruise.

[Photo Credit: Alison Soss, NOAA]

[NOAA Ship Ronald H. Brown](#)

Commanding Officer: Captain Daniel Simon

Primary Mission Category: Oceanographic Research, Environmental Assessment

In port: Charleston, South Carolina

Ship Status: In drydock. Planned departure in November 2019.

[Pascagoula, Mississippi](#)

[NOAA Ship Pisces](#)

Commanding Officer: Commander Patrick Murphy

Primary Mission Category: Fisheries Research

Depart: Morehead City, North Carolina

Arrive: Morehead City, North Carolina

Ship Status: Underway for Southeast Area Monitoring and Assessment Program Fall Plankton Survey, to assess the occurrence, abundance, and distribution of the early life stages of fall spawning fishes, especially king and Spanish mackerel, red drum, and snappers, on the U.S. continental shelf in the Gulf of Mexico.



Scientists observe as the deck crew guides a chevron fish trap onto the side sampling station of NOAA Ship *Pisces* after deployment on the seafloor. Data collected is used to document the presence and abundance of reef fish species during the NOAA Fisheries Southeast Fishery Independent Survey (SEFIS).

[Photo Credit: Ensign Jane Saunders, NOAA]

[NOAA Ship Oregon II](#)

Commanding Officer: Master David Nelson

Primary Mission Category: Fisheries Research

Depart: Galveston, Texas

Arrive: Pascagoula, Mississippi

Ship Status: Underway for Southeast Fisheries Science Center Shark and Red Snapper Bottom Longline Survey, along U.S. Atlantic from North Carolina to Florida and northern Gulf of Mexico, to aid in shark and red snapper stock assessments.



Crew members on NOAA Ship *Oregon II* hold down a shark to take measurements and tag it before releasing it alive.

[Photo Credit: Ensign Andrew Fullerton, NOAA]

[NOAA Ship *Gordon Gunter*](#)

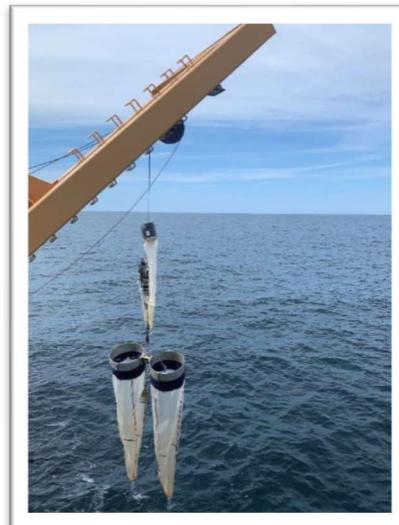
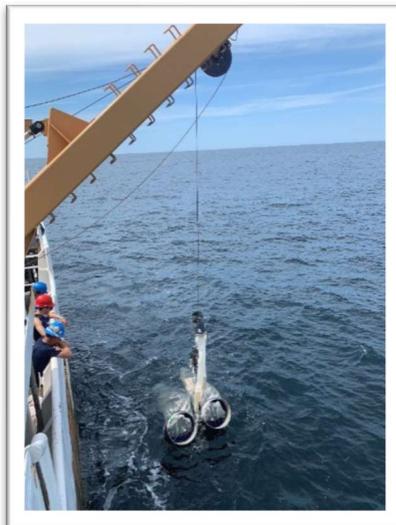
Commanding Officer: Lieutenant Commander Christopher Skapin

Primary Mission Category: Fisheries Research

Depart: Norfolk, Virginia

Arrive: Norfolk, Virginia

Ship Status: Planned departure in early September for Visible Infrared Imaging Radiometer Suite (VIIRS) Ocean Color Calibration/Validation, to collect in situ optical data for validation of Joint Polar Satellite System (JPSS) VIIRS satellites ocean color radiometry and derived products.



A Bongo Net is successfully recovered aboard NOAA Ship *Gordon Gunter* after a deployment to 70 meters off the coast of Rhode Island. These instruments are used to assess plankton stocks in the North Atlantic.

[Photo Credit: LT Dustin Picard, NOAA]

San Diego, California

NOAA Ship *Reuben Lasker*

Commanding Officer: Commander Chad Cary

Primary Mission Category: Fisheries Research

Depart: San Diego, California

Arrive: San Diego, California

Ship Status: Underway conducting West Coast Pelagic Fish Survey. This project studies the distribution and abundance of coastal pelagic fish, their prey, and habitat along the California Current from Vancouver Island, Canada to San Diego, CA. The study primarily focuses on Pacific Sardine, Northern Anchovy, Pacific Mackerel and Pacific Herring. This project will end in early September, at which point the ship will enter a Mid-Season Repair Period.

Newport, Oregon

NOAA Ship *Rainier*

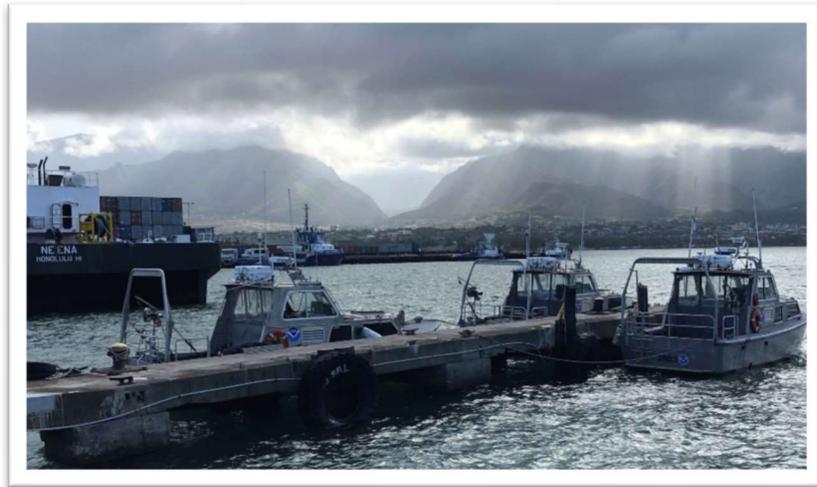
Commanding Officer: Captain Benjamin Evans

Primary Mission Category: Hydrographic Surveys

Depart: Honolulu, Hawaii

Arrive: Honolulu, Hawaii

Ship Status: Underway in support of Northwest Hawaiian Islands Coral Reef and Hawaiian Islands Archipelago Reef projects. These projects are necessary to survey and study the coral ecosystems of Northwest Hawaiian Islands. This also meets requirement for characterization, monitoring and research in accordance with National Marine Sanctuaries Act continuing a ten-year time series study detecting effects of large-scale global changes such as climate change, ocean acidification, invasive species etc. This project will allow early identification and mitigation of threats to Papahānaumokuākea Marine National Monument and surrounding environment. This project will be complete in early September. The ship will conduct dock-side repairs in early to mid-September. For the second half of the month, the ship will conduct Hydrographic Surveys in the Main Hawaiian Islands.



NOAA Ship *Rainier's* survey launches at Kahului Harbor, Maui. While *Rainier* was tasked with supporting dive operations in the National Monument, her survey launches remained behind in the main Hawaiian Islands to conduct hydrographic surveys of nearshore and high traffic areas at Maui, Molokai and Oahu.

[Photo Credit: NOAA]

[NOAA Ship *Bell M. Shimada*](#)

Commanding Officer: Captain Arthur Stark

Primary Mission Category: Fisheries Research

Depart: Newport, Oregon

Arrive: Newport, Oregon

Ship Status: Underway for Patterns in Deep Sea Coral and Sponge Communities of Olympic Coast from September 10th – September 16th. The objectives of this project are to explore and conduct transects of seafloor habitats within the Olympic Coast National Marine Sanctuary. Daytime operations will use ROV Beagle to photograph sea floor species and collect sponge and coral samples. In late September, the ship will be underway for Northern California Current (NCC) Ecosystem Forecasting Survey. The NCC project continues long-term studies of the Northern California Current pelagic ecosystem and includes study of broad-scale patterns of hydrography, phytoplankton and zooplankton and ocean acidification



*A humpback whale breaching near NOAA Ship *Bell M. Shimada* off the Oregon coast.*

[Photo: AB Leland Homes, NOAA]

[OMAO'S MARINE OPERATIONS CENTER – PACIFIC \(MOC-P\)](#)

Commanding Officer: Captain Michael Hopkins

MOC-P serves as a homeport for two NOAA ships. Its personnel provide administrative and logistical support, and manage the day-to-day operations, for the research and survey ships in NOAA's Pacific fleet. Each year, these ships conduct dozens of missions to assess fish and marine mammal stocks, conduct coral reef research, collect seafloor data to update nautical charts, and explore the ocean. MOC-P also serves as the home of OMAO's Marine Operations.



*USCGC *Active* and USCGC *Aspen* visit MOC-P for a mid-patrol break and logistics purposes.*

[Photo Credit: Lieutenant Commander Tim Sinquefield, NOAA]

[Ketchikan, Alaska](#)

[NOAA Ship *Fairweather*](#)

Commanding Officer: Captain Marc Moser

Primary Mission Category: Hydrographic Surveys

Depart: Newport, Oregon

Arrive: San Francisco, California

Ship Status: Underway conducting Expanding Pacific Research of Submerged Systems (EXPRESS) offshore California from Ft. Bragg to the Channel Islands. The purpose of this project is to collect data for surficial geology, benthic habitats, sub-bottom faults, geologic hazards and sedimentary processes. This data will support offshore energy projects, infrastructure, marine spatial planning, and ecosystem assessments.

[Kodiak, Alaska](#)

[NOAA Ship *Oscar Dyson*](#)

Commanding Officer: Commander Sarah Duncan

Primary Mission Category: Fisheries Research

Depart: Kodiak, Alaska

Arrive: Kodiak, Alaska

Ship Status: Underway for Environmental Monitoring and Assessment (EMA) and Fisheries-Oceanography Coordinated Investigations (FOCI) Groundfish and Salmon Recruitment survey. This research area focuses on improving and reducing uncertainty in stock assessment models of important commercial fish species in the Bering Sea through the collection of acoustics information, fish and zooplankton samples, and fisheries oceanographic indices. From September 18-30 the ship will begin Fisheries Oceanography Coordinated Investigations (EcoFOCI) fall mooring project. This research focuses on improving fish stock assessments and ecosystem assessments in the Bering Sea through the collection of fisheries acoustic information, zooplankton and physical oceanographic data.



Scientists clip a surface trap to a floating line during a proof of concept test. Four different trap designs were used to determine the best approach for live capture of sablefish juveniles along the continental slope near Kodiak, Alaska.

[Photo: Lieutenant Laura Dwyer, NOAA]

Honolulu, Hawaii

NOAA Ship *Oscar Elton Sette*

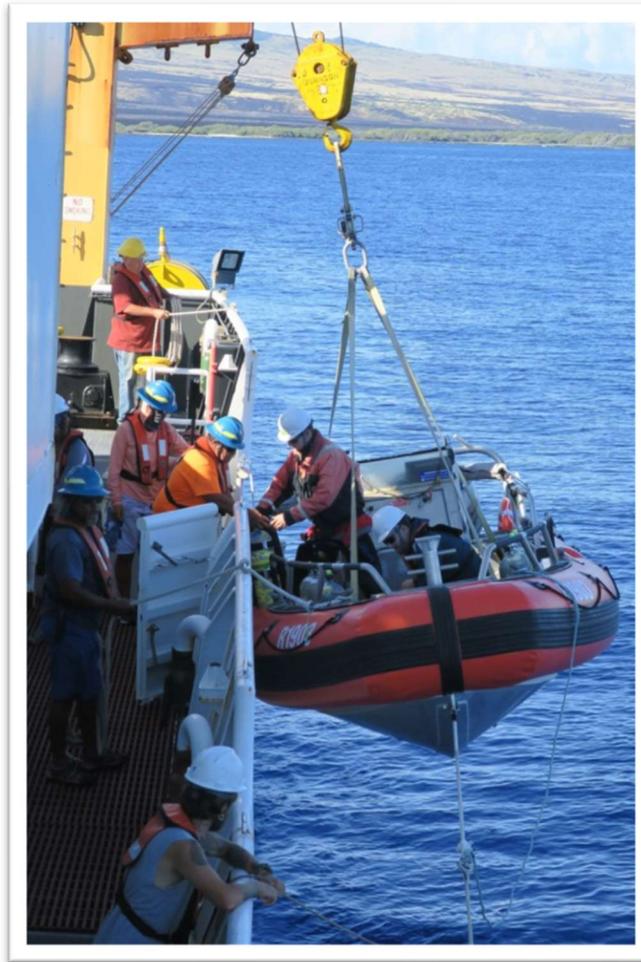
Commanding Officer: Commander Héctor Casanova

Primary Mission Category: Fisheries Research

Departure: Honolulu, Hawaii

Arrival: Honolulu, Hawaii

Ship Status: Underway for Hawaiian monk seal population assessment. During this project, scientists recover Hawaiian monk seal field camps in the Papahānaumokuākea Marine National Monument. The project also facilitates surveys at sites without camps, and transport seals-in-need to rehabilitation.



Gear is transferred aboard from one of NOAA Ship *Oscar Elton Sette's* small boats at the end of a day of operations.

[Photo Credit: NOAA]

OMAO'S MARINE OPERATIONS CENTER – PACIFIC ISLANDS (MOC-PI)

Commanding Officer: Captain Jeffrey Shoup

MOC-PI serves as a homeport for two NOAA ships. Its personnel provide administrative and logistical support, and manage the day-to-day operations for the ships in NOAA's Pacific Islands fleet and for ships operating in the western

Pacific. Each year, these ships conduct dozens of missions to assess fish and marine mammal stocks, conduct coral reef research, collect seafloor data to update nautical charts, and explore the ocean.



NOAA's MOC-PI (Ford Island; Honolulu, Hawaii) with NOAA ship *Oscar Elton Sette* alongside
[Photo Credit: Lieutenant (Junior Grade) Christopher Gallagher, NOAA]



OMAO's Aircraft



Lakeland, Florida

NOAA's fleet of nine manned aircraft is based at OMAO's Aircraft Operations Center ([AOC](#)). Located at Lakeland Linder Regional Airport in Lakeland, Florida, the officers, crew, and scientists from AOC provide capable, mission-ready aircraft and professional crews to the scientific community. AOC is committed to the safe, efficient and economical use of NOAA aircraft and has more than four decades of experience developing, coordinating and successfully and safely conducting airborne environmental data gathering missions. OMAO's aircraft fleet includes the following platforms and the web links provide additional photos, information on each aircraft, and the missions they serve:

[P-3 "Hurricane Hunter" \[Tail ID# N42RF\]](#)

The aircraft is hurricane ready and standing by for tasking.

[P-3 "Hurricane Hunter" \[Tail ID# N43RF\]](#)

The aircraft is hurricane ready and standing by for tasking.



NOAA P-3 Orion, "Kermit", joins the G-IV, "Gonzo", in St. Croix for Tropical Storm Dorian tasking. August 27, 2019.

[Photo Credit: Nick Underwood, NOAA]

G-IV "Hurricane Hunter" [Tail ID# N49RF]

The aircraft is hurricane ready and standing by for tasking.



NOAA G-IV, "Gonzo", above Tropical Storm Dorian on August 26, 2019.

[Photo Credit: Nick Underwood, NOAA]

King Air 350 [Tail ID# N68RF]

Who: Officers and crew of OMAO/NOAA Corps along with scientists from the [National Ocean Service \(NOS\), National Geodetic Survey \(NGS\) Coastal Mapping Program](#)

What: Coastal mapping

When: Present - September 30

Where: TBD based on weather and tide stages.

Why: These flights provide critical baseline data to help accurately map the U.S. shoreline. The data are important for national security, maritime shipping, and navigation.



NOAA King Air 350 CER

[Photo Credit: NOAA]

Jet Prop Commander [Tail ID# N45RF]

Who: Officers and crew of OMAO/NOAA Corps along with scientists from the [NOS, NGS Grav-D Program](#)

What: GRAV-D

When: Present - September 14

Where: Reno, Nevada and Grand Junction, Colorado.

Why: Grid pattern flight lines will be flown at 20,000 feet over the Southwest and Rocky Mountain regions of the United States while collecting GPS and inertial data to update the U.S. vertical datum. A vertical datum is a base measurement point (or set of points) from which all elevations are determined.

Who: Officers and crew of OMAO/NOAA Corps along with scientists from the [National Weather Service \(NWS\), National Operational Hydrologic Remote Sensing Center \(NOHRSC\)](#)

What: Water Resource Surveys (Soil Moisture)

When: September 15 - September 30

Where: Minnesota, North Dakota, South Dakota, and Montana

Why: The aircraft will conduct Low level (500 feet) surveys to collect Soil Moisture data for NWS River Forecast Centers. This data is used by NWS Weather Forecast Offices and NWS River Forecast Centers for determining baseline moisture levels prior to the winter snow fall. SWE (Snow Water Equivalent) data will be collected during the winter months and used for river and flood forecasts, water supply forecasts, and spring flood outlooks.



Jet Prop Commander

[Photo Credit: NOAA]

Twin Otter [Tail ID# N46RF]

Who: Officers and crew of OMAO/NOAA Corps along with scientists from the [NOS, NGS Coastal Mapping Program](#)

What: Coastal mapping

When: Present - September 30

Where: Finger Lakes Region, New York

Why: These flights provide critical baseline data to help accurately map the U.S. shoreline. The data are important for national security, maritime shipping, and navigation.

Twin Otter [Tail ID# N48RF]

Who: Officers and crew of OMAO/NOAA Corps along with scientists from the [Earth System Research Laboratory \(ESRL\), Chemical Sciences Division \(CSD\)](#)

What: Fire Winds (FIREX)

When: Present - September 12

Where: Boise, Idaho

Why: The research program proposed here outlines a comprehensive research effort to understand and predict the impact of North American fires on the atmosphere and ultimately support better land management.

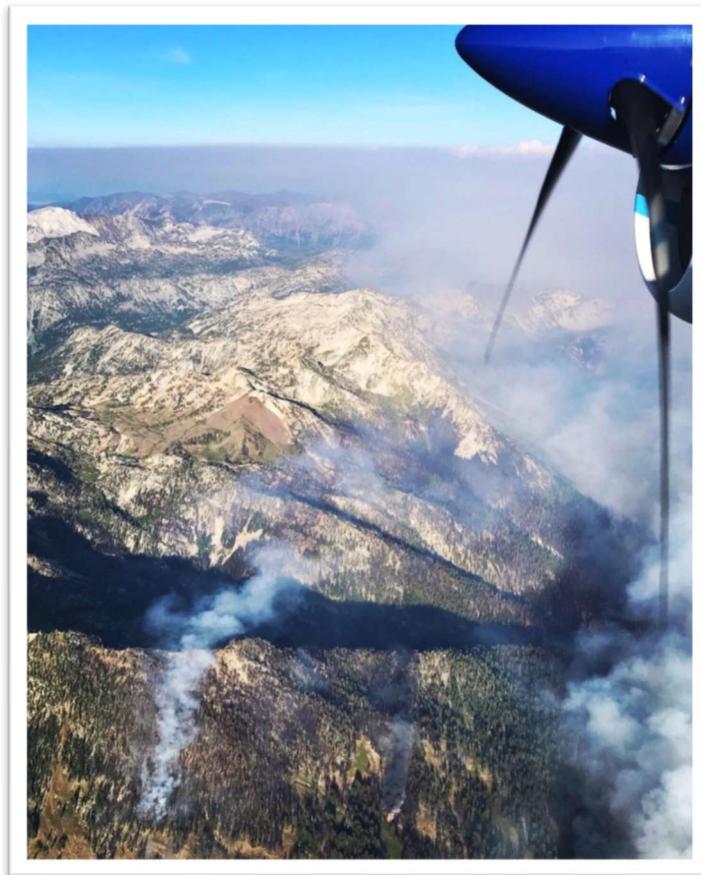
Who: Officers and crew of OMAO/NOAA Corps along with scientists from the [NWS, NOHRSC](#)

What: Water Resource Surveys (Soil Moisture)

When: September 16 - September 30

Where: Upper Midwest U.S., Northeast U.S., Canada

Why: The aircraft will conduct Low level (500 feet) surveys to collect Soil Moisture data for NWS River Forecast Centers. This data is used by NWS Weather Forecast Offices and NWS River Forecast Centers for determining baseline moisture levels prior to the winter snow fall. SWE (Snow Water Equivalent) data will be collected during the winter months and used for river and flood forecasts, water supply forecasts, and spring flood outlooks.



The view from N48RF above forest fires in the U.S. mountain west while supporting the ESRL/CSD FIREX mission.

[Photo Credit: LT Conor Maginn, NOAA]

Twin Otter [Tail ID# N56RF]

Who: Officers and crew of OMAO/NOAA Corps along with scientists from the [National Marine Fisheries Service \(NMFS\), Alaska Regional Office \(ARO\)](#)

What: Alaska Harbor Seals

When: Present - September 20

Where: Coastal Alaska and Lake Iliamna, Alaska

Why: As part of the Marine Mammal Protection Act, the purpose of this project is to monitor the western population stock and recovery efforts of Harbor Seals from Endangered Species status.

Who: Officers and crew of OMAO/NOAA Corps along with scientists from the [Office of Atmospheric Research \(OAR\)](#) and [Pacific Marine Environmental Laboratory \(PMEL\)](#)

What: Arctic Heat

When: September 21 - September 30

Where: Chukchi and Beaufort Seas, Alaska

Why: The purpose of this project is to perform near-surface data collection that will lead to improvements in weather and sea-ice forecasting in the Pacific Arctic.



The view over the Chukchi Sea from the Twin Otter's bubble window.

[Photo Credit: Nick Underwood, NOAA]

Twin Otter [Tail ID# N57RF]

Who: Officers and crew of OMAO/NOAA Corps along with scientists from the [NMFS, Northeast Fisheries Science Center \(NEFSC\)](#)

What: Northeast North Atlantic Right Whale Surveys

When: Present - September 12

Where: Moncton, New Brunswick, Canada

Why: The objectives of this project are to provide real time sighting information to commercial shipping interests in an effort to reduce ship collisions, to better understand the distribution and abundance, and to collect photographic images of the critically endangered North Atlantic Right Whales. With as few as 400 remaining, surveillance flights to track their migration patterns are important for conservation and recovery efforts.

Twin Otter [Tail ID# N57RF] (Continued)

Who: Officers and crew of OMAO/NOAA Corps

What: Pilot Training

When: September 13 – September 30

Where: Lakeland, Florida

Why: Pilot training is required periodically, and NOAA uses its own platforms to perform this crucial activity.

Unmanned Aerial System (UAS) Section

The UAS Section provides nationwide policy input, oversight, and guidance for all of NOAA’s UAS operations. The UAS Section of AOC is staffed by a team of aviation professionals who specialize in operational UAS implementation. The UAS Section tracks all small UAS (sUAS) operations for NOAA to include aircraft hours, types, pilot qualifications, and pilot training. The UAS Section also coordinates airspace approvals for operations within the United States National Airspace System, special use airspace, and foreign airspace. AOC conducts a thorough review of all projects by applying established risk management procedures to UAS missions, including an airworthiness review of all aircraft. This support is provided to NOAA Line Offices and partners to further develop and refine the use of sUAS for NOAA’s research and data collection.

OMAO’S AIRCRAFT OPERATIONS CENTER (AOC)

Commanding Officer: Captain Timothy Gallagher

The AOC, located at Lakeland Linder Regional Airport in Lakeland, Florida, serves as the main base for OMAO’s fleet of nine aircraft and provides capable, mission-ready aircraft and professional crews to the scientific community. Whether studying global climate change or acid rain, assessing marine mammal populations, surveying coastal erosion, investigating oil spills, flight checking aeronautical charts, or improving hurricane prediction models, the AOC flight crews continue to operate in some of the world's most demanding flight regimes.



AOC personnel and aircraft in the hangar at the NOAA Aircraft Operations Center in Lakeland, Florida
[Photo Credit: NOAA]



Unmanned Systems Support



Nationwide

APH-22 Hexacopter

Location: Muskeget Island, Massachusetts

Mission: NEFSC Muskeget Grey Seal Pupping Survey

The Northeast Fisheries Science Center has been approved to conduct survey flights over Grey Seal colonies throughout FY19. Images collected will be used to assess Grey Seal health and population.

Location: Oahu, Hawaii

Mission: PIFSC APH-22 Training

The Pacific Islands Fisheries Science Center (PIFSC) utilizes the location at the Kawainui Model Airplane Field to conduct training and proficiency flights. This allows APH-22 operators to maintain proficiency for future operations at a reduced cost. Training flights are also approved from NOAA small boats.

Location: San Miguel Island, California

Mission: Marine Mammals Laboratory (MML)/Alaska Fisheries Science Center (AFSC)/NOAA Fur Seals and CA Sea Lions
MML's California Current Ecosystem Program is conducting northern fur seal and California sea lion surveys to identify tagged/branded individuals and conduct population assessments.

Location: Sea Life Park and Dolphin Quest Oahu, Hawaii

Mission: PIFSC Cetacean Research Program

Images taken by the APH-22 are used to collect photogrammetric measurements of captive cetaceans. Photogrammetric measurements are compared with the known manual measurements to determine accuracy. Consistent trade winds can make image collection difficult. Practices found to improve image quality and accuracy can be used to improve operations over wild populations.



APH-22 Hexacopter



APH-28 Hexacopter

APH-22 Hexacopter/APH-28 Hexacopter

Location: NOAA Aircraft Operations Center

Mission: New Aircraft

The NOAA Aircraft Operations Center acquired 1 APH-22 and 1 APH-28 for training, testing and fleet support. Training flights will be conducted monthly.

Location: Western Regional Center, NOAA Campus, Seattle, Washington

Mission: AFSC Training Site

AFSC has been approved to conduct proficiency training, manufacturer training, and payload calibration flights at the Western Regional Center-Seattle, NOAA Campus. These flights will allow AFSC to remain proficient and prepare for upcoming projects.

Location: Cook inlet, Alaska

Mission: SWFSC Beluga Whale Survey

The Southwest Fisheries Science Center (SWFSC), in conjunction with the AFSC and the Alaska Department of Fish and Game, plans to conduct photogrammetry of Cook Inlet beluga whales using hexacopter UAS platforms. The primary research goal will be to collect aerial images to estimate the abundance and population length structure. Flights will be conducted from a 25' SAFE boat, or from land flying over the water, operating below a 150' AGL ceiling, as per successful field operations in 2017 and 2018.

Location: Bogoslof Island, Alaska

Mission: MML/AFSC, NOAA Fisheries Aleutian islands Steller sea lions

MML will be conducting northern fur seal surveys for collecting imagery to count fur seals at Bogoslof Island.

Location: Woods Hole, Massachusetts

Mission: NMFS NEFSC Training sites

NEFSC is approved to conduct proficiency and demonstration flights at Woods Hole Pier, Waquoit Bay National Estuarine Research Reserve, and nearshore waters in the Woods Hole area.

Location: Cape Cod National Sea shore, Massachusetts

Mission: NEFSC Seal Survey

Characterization and documentation of seal haul outs including analysis of entanglement rates, species composition, and general health assessment. Operations are approved until the end of November.

APH-22 Hexacopter/APH-28 Hexacopter/APO-42 Octocopter

Location: Jamul, California

Mission: Jamul Bureau of Land Management Area

Southwest Fisheries Science Center has been approved to conduct training and proficiency flights in Jamul, California. This training site is owned by US Fish and Wildlife. This will allow pilots to practice landing, following a target, and approaching to collect blow samples.

Location: Puget Sound, Washington

Mission: Southern Resident Killer Whale Condition

Southwest Fisheries Science Center will be conducting flights to collect images of Southern Resident Killer Whales to assess changes in body condition and growth of individual whales. Images and blow samples may also be collected from Humpback and Grey Whales. Flights will be conducted from a 31' catamaran.



APO-42 Octocopter



SenseFly eBee

SenseFly eBee RTK

Location: Muskeget Island, Massachusetts

Mission: NMFS/Remote Sensing Division (RSD) Grey Seal Habitat

Sensefly Ebee will be used to conduct Grey Seal habitat mapping and population assessment flights over Muskeget Island.

FireFLY6 PRO

Location: Kanehoe Bay, Hawaii

Mission: Pacific Islands Regional Office (PIRO) Coral Reef Mapping

Coral reef mapping operations are being conducted in Kanehoe Bay. A FAA waiver, 2018-P107-WSA-29955, was granted to allow operations.

Location: Oahu, Hawaii

Mission: PIFSC Proficiency Training

The Kawainui model airplane field will be used monthly to perform proficiency flights for PIFSC operators. The main objective will be to practice hand launches, recoveries and locating targets. These flights are essential in providing the necessary skills needed for successful operations.



FireFly 6 PRO



3DR Solo

3DR Solo

Location: MOC-P Bell M. Shimada

Mission: Public Outreach and ship inspection

The UAS will proceed to take aerial photographs from the MOC-P pier and the deck of *Bell M. Shimada*. An FAA Certificate of Authorization (COA) has been granted for operations in the Class E airspace around MOC-P. AOC has

received and installed updated software that will allow marine based UAS operations. An updated Solo has been shipped to *Bell M. Shimada*.

Location: Roanoke (Virginia) and Charleston (South Carolina) Weather Forecast Offices (WFO)

Mission: New mission

3DR Solos are expected to be deployed to these Weather Forecast Offices for the National Weather Service to integrate UAS into their mission. A project plan including training and scope is currently under development.

Location: Alafia River State Park (Tampa-area), Florida

Mission: AOC airworthiness

3DR Solo airworthiness flights at Alafia River state park

Blackswift S-2 / Meteodrone SSE

Location: Oak Ridge, Tennessee

Mission: Calibration and Proficiency

OAR's Atmospheric Turbulence and Diffusion Division (ATDD) is approved to use Knox County Radio Control Society (KCRC) and House Mountain Radio Control (HMRC) sites to conduct calibration and vertical profile flights up to 1200 feet AGL. These flights will allow ATDD to test and calibrate scientific instruments before use on their upcoming projects.

Location: Oak Ridge, Tennessee

Mission: Instrument Testing and Calibration

A combination of these will be used to conduct flights to in an experiment at Oliver Springs Airport up to 3500' in altitude. Operation will occur under an approved COA.



Blackswift S2



Meteomatics Meteodrone SSE



MD4-1000

Blackswift S-2 / Meteodrone SSE / MD4-1000

Location: Oak Ridge, Tennessee

Mission: Instrument Testing and Calibration

A combination of these will be used to conduct vertical profile flights to at Oliver Springs Airport up to 1200' in altitude. The NOAA Class G Blanket COA is utilized for these operations.

Meteodrone SSE / DJI S-1000

Location: Park Falls, Wisconsin

Mission: CHEESEHEAD Project

ATDD, with AOC support, deployed to Wisconsin in August for a series of experiments using this combination of UAS. An additional 1-week deployment is scheduled for late September. Flights will be operated under NOAA's Class G Blanket COA, 2107-AHQ-904-COA.

Matrice 210 / DJI Phantom 4

Location: Santa Barbara, California

Mission: Payload testing and training

This is a request to add the M210RTK and Phantom series to existing authorization to fly the M600 at UCSB. Various payloads on the M210RTK and Phantom occasionally require troubleshooting and validation prior to field deployments. NOAA NMFS partnership with UCSB provides access to University property and has representative coastal and terrestrial environment. Occasional short data collection flights are planned to maintain and test platforms, payloads and software.



Matrice 210



DJI Phantom 4



Latitude FVR-55

DJI Phantom 4

Location: Swann Island, Maryland and Mordecai, New Jersey

Mission: National Centers for Coastal Ocean Science (NCCOS) Swann Island/ NCCOS Mordecai Island

NCCOS is conducting Intertidal wetland and shallow near shore habitat mapping flights, for the purpose of tracking changes in vegetative cover and creating digital elevation models.

Location: Pivers Island, North Carolina

Mission: NCCOS Pivers Island

Method development flights will be conducted to determine the most efficient way of mapping intertidal wetlands and shallow nearshore habitats. For the purpose of tracking changes in vegetative cover and creating digital elevation models.

L3 Latitude FVR-55

Location: AOC, Lakeland, Florida

Mission: Atomic 2020/Initial Testing/Payload integration

The L3 Latitude FVR-55 UAS will support operations from the NOAA Ship *Ronald H. Brown* in FY20. Payloads have been designed for the vehicle to support NOAA OAR PMEL's project goals for the upcoming Atomic 2020 project. A charter vessel is expected to be utilized for additional aircraft testing in September followed by integration of NOAA's payloads in October.

P-3 Deployed UAS

Location: Aircraft Operations Center

Mission: P-3 Deployed UAS

AOC, HRD and the UASPO are currently exploring new vehicle options for a hurricane deployed UAS.



OMAO Partnerships



OMAO and the NOAA Commissioned Officer Corps provide key services and leadership to a number of federal agencies and external partners to help them meet their mission – and ours – and to better leverage federal resources.

United States House of Representatives - Natural Resource Committee

Location: Washington, District of Columbia

Detail: Lieutenant Commander Zachary Cress

Lieutenant Commander Cress is currently on detail with the staff to the Committee Chair, Representative Raúl M. Grijalva (D-AZ), where he is assisting on activities pertaining to the Committee's work on oversight and authorization of NOAA programs, as well as other matters within the Committee's jurisdiction.

National Science Foundation (NSF)

Location: South Pole, Antarctica

Embedded Liaison: Lieutenant (junior grade) Benjamin Kaiser

Members of the NOAA Commissioned Officer Corps carry out NOAA's mission in remote locations across the globe. Lieutenant (junior grade) Kaiser is assigned to Antarctica where he serves as the Station Chief for NOAA's Atmospheric Research Observatory (ARO) at the Amundsen-Scott South Pole Station. The ARO at the Amundsen-Scott South Pole Station is a National Science Foundation facility used in support of scientific research related to atmospheric phenomena.

Department of Defense – U.S. Pacific Command

Location: Honolulu, Hawaii

Embedded Liaison: Captain Barry Choy

The U.S. Pacific Command (USPACOM) area of responsibility encompasses approximately half the earth's surface and more than half of its population. The 36 nations that comprise the Asia-Pacific include: two of the three largest economies and nine of the ten smallest; the most populous nation; the largest democracy; the largest Muslim-majority nation; and the smallest republic in the world. The region is a vital driver of the global economy and includes the world's busiest international sea lanes and nine of the ten largest ports. By any meaningful measure, the Asia-Pacific is also the most militarized region in the world, with seven of the world's ten largest standing militaries and five of the world's declared nuclear nations. Under these circumstances, the strategic complexity facing the region is unique. CAPT Choy is linked closely with the activities within the region allowing for identification of opportunities and cooperation between USPACOM and NOAA, and better overall government function situational awareness in the region. CAPT Choy is retiring after 30 years of service. His replacement is CAPT Joe Bishop, who recently served as the Operations Director of NOS's National Geodetic Survey, in Silver Spring, Maryland.

Department of Defense – U.S. Northern Command

Location: Boulder, Colorado

Embedded Liaison: Captain Catherine Martin

The U.S. Northern Command (USNORTHCOM) area of responsibility includes air, land and sea approaches and encompasses the continental United States, Alaska, Canada, Mexico and the surrounding water out to approximately 500 nautical miles. It also includes the Gulf of Mexico, the Straits of Florida, and portions of the Caribbean region to include The Bahamas, Puerto Rico, and the U.S. Virgin Islands. The commander of USNORTHCOM is responsible for theater security cooperation with Canada, Mexico, and The Bahamas. The embedded NOAA liaison is linked closely with the activities within the region allowing for identification of opportunities and cooperation between USNORTHCOM and NOAA, and serves as a liaison between fostering greater situational awareness of NOAA response activities to natural disasters and Arctic activities.

Department of Defense – U.S. Navy

Location: Stennis Space Center, Mississippi

Embedded Liaison: Lieutenant (junior grade) Garrison Grant

Embedded in the Navy's Naval Oceanography Mine Warfare Center, Lieutenant (junior grade) Garrison Grant works side by side with Navy officers operating Unmanned Underwater Vehicles worldwide and is currently stationed at Stennis Space Center. This collaboration will provide knowledge and experience that will keep NOAA on the cutting edge of this emerging technology as well as strengthen the partnership between NOAA and the Navy.

Department of Homeland Security – U.S. Coast Guard

Location: Washington, District of Columbia

Embedded Liaison: Captain Kurt Zegowitz

As the NOAA liaison to the United States Coast Guard (USCG), Captain Zegowitz maintains a current and comprehensive knowledge of interagency activities and policies related to the USCG and NOAA. He identifies potential conflicts or benefits issues for analysis and evaluation, conducts appropriate assessments and studies, and serves as the interface between NOAA and the USCG. Captain Zegowitz initiates, designs, and implements strategies through federal agency liaison and coordination that results in cooperative arrangements for maritime security, oceanographic research, hazardous materials spill response, and many other activities.



Teacher at Sea Program



The mission of NOAA's [Teacher at Sea Program](#) (TAS) is to provide teachers hands-on, real-world research experience working at sea with world-renowned NOAA scientists, thereby giving them unique insight into oceanic and atmospheric research crucial to the nation. The program provides a unique opportunity for kindergarten through college-level teachers to sail aboard NOAA research ships and work under the tutelage of scientists and crew.

Since its inception in 1990, the program has enabled more than 800 teachers to gain first-hand experience of science and life at sea. By participating in this program, teachers enrich their classroom curricula with knowledge that can only be gained by living and working side-by-side, day and night, with those who contribute to the world's body of oceanic and atmospheric scientific knowledge. Former teacher at sea [blogs](#) can be accessed, which document their missions at sea and offer a wealth of information about the research being conducted as well as personal stories.

The 2019 TAS Field Season commenced in May. Three educators will be getting underway on NOAA ships in September:

08/29/2019 - 09/14/2019 - Phil Moorhouse (Armstrong High School, Richmond, VA) will sail on Fisheries-Oceanography Coordinated Investigations (FOCI) survey from Kodiak, AK, to Dutch Harbor, AK, on **NOAA Ship *Oscar Dyson***.

09/11/2019 - 09/26/2019 - Cara Nelson (Bartlett High School, Anchorage, AK) will sail on the Northern Gulf of Alaska Long-Term Ecological Research Survey (through a partnership with University of Alaska-Fairbanks) in and out of Seward, AK, on **USFWS R/V *Tiglax***.

09/16/2019 - 09/20/2019 - Kathy Schroeder (Palmetto Ridge High School, Naples, FL) will sail on a shark/red snapper bottom longline survey from Galveston, TX, to Pascagoula, MS, on **NOAA Ship *Oregon II***.



NOAA Teacher at Sea, David Madden, of Tallahassee, Florida, holding a flying fish that landed itself aboard NOAA Ship *Pisces* during the second leg of the Southeast Fisheries-Independent Survey (SEFIS) in late July.

(Photo Credit: NOAA)



OMAO - NOAA Diving Program



Seattle, Washington

NOAA Diving Center and Program

OMAO manages and implements [NOAA's Diving Program \(NDP\)](#), which trains and certifies scientists, engineers, and technicians from federal, state, tribal governments, and the private sector to perform the variety of tasks carried out underwater to support NOAA's mission. NDP also has cooperative diving agreements with over 100 government agencies and academic institutions. NOAA has approximately 350 divers who perform over 8,000 dives per year and leverages its cooperative agreements to accomplish twice that number of dives contributing to scientific research. The NDP is headquartered at the NOAA Diving Center (NDC), which is located at the NOAA Western Regional Center in Seattle, Washington.

August is the height of the field season for most NOAA Diving units and the NOAA Diving Program has been in the field supporting dive operations in various capacities.

NOAA Diving Center (NDC) Instructors Jessica Keller and Nick Jeremiah have been out at sea supporting dive-intensive projects in Hawaii aboard *Oscar Elton Sette* and *Rainier*, respectively. *Sette* has been on a dive project collecting data on corals, reef fishes, algae, invertebrates, microbes, and ocean chemistry near the main Hawaiian Islands while *Rainier* has been underway in Papahānaumokuākea Marine National Monument conducting technical and rebreather dives investigating deep-water reef communities. Both projects involve multiple dives per day and benefit from having NDC staff on hand to assist with all aspects of diving operations from planning to emergency preparedness and response.

Meanwhile, NDC staff Zach Hileman, Joe Mangiafico, Katie Mahaffey, LT Aras Zygas, and LTJG Sean Digre were called upon to support mooring recovery operations at the Olympic Coast National Marine Sanctuary. When a moored hydrophone deployed in the Sanctuary failed to release properly, National Ocean Service (NOS) scientists called upon the NDC divers to assist with recovery off of La Push, Washington. The mooring was successfully recovered, salvaging valuable data and equipment.

Upon his return from *Rainier*, NDC instructor Nick Jeremiah conducted a Field Trainer course in Alpena, Michigan the week of August 16th. After successful completion of the course, NOAA Field Trainers return to their unit with the ability to train and certify NOAA Divers. Being able to certify NOAA Divers in the field gives diving units the operational agility to maintain high-tempo, dive-intensive operations.

In Seattle, efforts to plan and prepare for the upcoming NOAA Diver and Divemaster courses are in full swing. The three-week training course will begin on September 9th.



Pre-dive briefing aboard NOAA Ship *Oscar Elton Sette* prior to the day's operations.
[Photo Credit: Ray Boland, NOAA]



NDC Divers and R/V *Tatoosh* crew pose with the acoustic mooring recovered off of La Push, Washington in the Olympic Coast National Marine Sanctuary.
[Photo Credit: Ensign Anna Hallinstad, NOAA]



NOAA Small Boat Program



Oversight of the NOAA Small Boat Fleet is a collaboration across OMAO, NMFS, NOS, OAR and NWS. The Small Boat Program (SBP) was established in 2004 to create policies and procedures to ensure safety in support of NOAA's field operations. Direction, technical and administrative support is provided by OMAO through the NOAA Small Boat Program Office. NOAA Line and Program Offices are responsible for acquisitions, operational funding and mission support. The NOAA Small Boat Safety Board is comprised of line offices, SBP, and SECO representatives and is charged with initiating policies and training, program metrics, and compliance.

In addition to its ships and aircraft, NOAA relies on hundreds of small boats located throughout the country to complete the organization's complex and varied scientific missions. The NOAA Small Boat Program is committed to supporting the safe operation of these small boats through the principles of risk management.

The NOAA Small Boat Program manages a fleet of about 400 small boats that perform various data collection missions for NOAA throughout the United States and its territories including hydrographic surveys, fishing, diving, scientific instrument deployment/recovery, water and air quality monitoring, law enforcement and marine mammal surveys. Vessels vary in size from a simple 10-ft. kayak to a complex 85 foot research vessel. The majority of small boats fall within the range of 16-26 feet in length and operate in near-shore environments, but extended missions in deep water environments are common among the larger vessels.

In August, the NOAA Small Boat Safety Board (SBSB) had an in person meeting hosted at the Fisheries Southeast Regional Office with the primary focus on preparation for the November Small Boat Summit. The board also reviewed program priorities and initiatives and followed up on the action items from the December in person meeting. During the meeting, the board held an all hands Vessel Operations Coordinator (VOC) teleconference to discussed boat safety, summit planning and new technology and tools for VOCs.



NOAA small boat R1903 supports dive operations from NOAA Ship *Oscar Elton Sette*.

[Photo Credit: NOAA]



Office of Marine & Aviation Operations



Providing Environmental Intelligence for a Dynamic World

The personnel, ships, and aircraft of NOAA play a critical role in gathering environmental data vital to the nation's economic security, the safety of its citizens, and the understanding, protection, and management of our natural resources. The NOAA fleet of ships and aircraft is managed and operated by the Office of Marine and Aviation Operations (OMAO), an office comprising civilians, mariners, and officers of the NOAA Commissioned Officer Corps, one of the seven uniformed services of the United States. NOAA's roots trace back to 1807 when President Thomas Jefferson ordered the first comprehensive coastal survey. Those early surveys ensured safe passage of ship-borne cargo for a young nation. As the needs of the nation have grown, so too have OMAO's responsibilities. Today, OMAO civilians and NOAA Corps officers operate, manage, and maintain NOAA's active fleet of 16 research and survey ships and nine specialized aircraft. Together, OMAO and the NOAA Corps support nearly all of NOAA's missions.



NOAA has the largest fleet of federal research and survey ships in the nation. The fleet ranges from large oceanographic ships capable of exploring and charting the world's deepest ocean, to smaller vessels responsible for surveying the shallow bays and inlets of the United States. The fleet supports a wide range of marine activities including fisheries surveys, nautical charting, and ocean and climate studies. Based throughout the continental United States, Alaska, and Hawaii, the ships operate in all regions of the nation and around the world.

NOAA's aircraft provide a wide range of airborne capabilities. Our highly specialized Lockheed WP-3D aircraft are equipped with an unprecedented variety of scientific instrumentation, radars, and recording systems for both in situ and remote sensing measurements of the atmosphere, the Earth, and its environment. Equipped with both C-band weather radar and X-band tail Doppler radar systems, the WP-3Ds have the unique ability to conduct tropical cyclone research in addition to storm reconnaissance. Together with NOAA's Gulfstream IV-SP jet, these 'hurricane hunter' aircraft greatly improve our physical understanding of hurricanes and enhance the accuracy of tropical cyclone forecasts. NOAA's light aircraft also play a vital role in monitoring our environment. Our King Air, Turbo Prop Commander, and Twin Otter aircraft support marine mammal population studies, shoreline change assessments, oil spill investigations, and water resource/snowpack surveys for spring flood forecasts.



The NOAA fleet provides immediate response capabilities for unpredictable events. For example, during the 2018 Hurricane season NOAA flight crews and scientists flew a combined 556.8 hours for hurricane surveillance, research, reconnaissance, and emergency response. NOAA's Lockheed WP-3D and Gulfstream IV-SP collected and provided vital data used by NOAA scientists for improved modeling, forecasting, and ensuring accurate forecasts provided to the public. NOAA's Beechcraft King Air 350 rapidly responded to demand from emergency managers, using state-of-the-art equipment to collect thousands of aerial images from Cape Henry, Virginia to Charleston, South Carolina of damaged communities following Hurricane Florence. This imagery provided a cost-effective way to better understand the damage sustained to both property and the environment. NOAA Ship *Ferdinand R. Hassler* surveyed eastern North Carolina for multiple days in order to ensure vessels could safely navigate the area. Late last year, NOAA Ship *Thomas Jefferson* conducted 66 days of post Hurricane Maria survey operations around Puerto Rico and the U.S Virgin Islands to support the area's recovery efforts following the destructive 2017 storm.

While manned aircraft and sea-going vessels have been, and will continue to be, a primary source of environmental data, new technology will have a significant role to play in the future NOAA fleet. OMAO, in coordination with other NOAA offices and federal agencies, is evaluating and deploying unmanned aerial and marine systems that could significantly contribute to environmental observations. To better serve the needs of the Nation, NOAA is examining the composition of the fleet through an exhaustive and critical review of at-sea science and observation requirements. Our objective is to develop a clear, cost-efficient path forward to ensure that the NOAA fleet can continue to conduct at-sea surveys and research vital to fisheries management, updating nautical charts, responding to natural and manmade disasters, and understanding coastal and marine systems more fully. Meeting these requirements is essential to the development of sustainable, science-based management and conservation plans that protect the health and resiliency of these resources over the long-term.

We continue our efforts to build a civilian and NOAA Corps officer workforce that is uniquely qualified to gather critical environmental intelligence and be adaptive and responsive to a changing world and work to expand our partnerships with other federal agencies. For example, NOAA Corps officers are currently assigned to work in the Department of Defense, National Science Foundation, and the U.S. House Representatives among others where they lend their leadership, expertise and service. We also continue to strengthen our partnership with the Department of Homeland Security through the U.S. Coast Guard. Our basic NOAA Corps officer training class is held at the U.S. Coast Guard Academy, where newly commissioned officers train alongside Coast Guard officer candidates, developing skills and professional relationships that will benefit both services, especially during challenging times. Active collaboration the Federal family is critical to ensuring the long-term capability and success of the federal ocean infrastructure. Our partners' success is our success.



NOAA Commissioned Officer Corps



– Honor, Respect, Commitment –

The NOAA Commissioned Officer Corps is one of the United States' seven Uniformed Services and commissioned officers serve with the 'special trust and confidence' of the President. NOAA Corps officers are an integral part of the National Oceanic and Atmospheric Administration, an agency of the U.S. Department of Commerce. With an authorized strength of 321 officers, the NOAA Corps serves throughout the agency's Line and Staff Offices to support nearly all of NOAA's programs and missions. The combination of commissioned service and scientific expertise makes these officers uniquely capable of leading some of NOAA's most important initiatives. The NOAA Corps is part of NOAA's Office of Marine and Aviation Operations and traces its roots back to the former U.S. Coast and Geodetic Survey, which dates back to 1807 and President Thomas Jefferson. The U.S. Coast and Geodetic Survey Corps was founded in 1917 to provide officers to command U.S. coastal survey ships and field survey parties locally and abroad. In 1970, NOAA was created to develop a coordinated approach to oceanographic and atmospheric research and subsequent legislation converted the commissioned officer corps to the NOAA Corps. The NOAA Corps today provides a cadre of professionals trained in engineering, earth sciences, oceanography, meteorology, fisheries science, and other related disciplines. Corps officers operate NOAA's ships, fly aircraft, manage research projects, conduct diving operations, and serve in staff positions throughout NOAA. The NOAA Corps celebrated its Centennial year in 2017.

Benefits of the NOAA Corps to the Nation

The combination of commissioned service with scientific and operational expertise, allows the NOAA Corps to provide a unique and indispensable service to the nation. Discipline and flexibility are inherent in the NOAA Corps personnel system. Officers are trained for positions of leadership and command in the operation of ships and aircraft; in the conduct of field projects on land, at and under the sea, and in the air; in the management of NOAA observational and support facilities; as members or leaders of research efforts; and in the management of various organizational elements throughout NOAA. NOAA Corps officers must be technically competent to assume positions of leadership and command in NOAA and Department of Commerce programs and in the Armed Forces during times of war or national emergency. NOAA Corps officers enable NOAA to fulfill mission requirements, meet changing environmental concerns, take advantage of emerging technologies, and serve as environmental first responders. For example:

- In 2018, NOAA aircraft flew over 556 hours in support of storm reconnaissance, surveillance, research and emergency response. NOAA assets were deployed to the Central Pacific for Hurricanes Hector, Lane and Norman and performed multiple operations in the Gulf of Mexico, North Atlantic and the Caribbean for Hurricanes Chris, Florence, Gordon, Isaac, and Michael. In response to Hurricane Florence, NOAA Ship Ferdinand R. Hassler surveyed eastern North Carolina for multiple days in order to ensure vessels could safely navigate the area. NOAA Ship Thomas Jefferson conducted 66 days of post-Hurricane Maria surveys in and around Puerto Rico to support the island's recovery efforts.
- In 2017, NOAA aircraft flew over 600 hours in support of storm reconnaissance, surveillance, research, and emergency response for Hurricanes Harvey, Irma, Jose, Maria, and Nate. NOAA Ship Thomas Jefferson conducted post-storm surveys of waterways of Puerto Rico following Hurricane Maria to help re-open the ports for maritime delivery of critical supplies to the island.
- The BP Deepwater Horizon oil spill was the worst oil disaster in U.S. history. The NOAA fleet and the NOAA Corps played a major role in the response to the Deepwater Horizon oil spill. NOAA's entire Atlantic fleet and over a quarter of the total strength of the NOAA Corps were deployed to the Gulf of Mexico following this devastating event.



OMAO/NOAA Corps Resources



OMAO Sites

- [OMAO](#)
- [NOAA Corps](#)

Two Pagers, Reports, and Informational Slide Decks

- **Monthly NOAA Fleet Update** - The latest version is provided to Committee staff and is also available through the Office of Legislative and Intergovernmental Affairs.
- [Hurricane Michael Flight and Mission Info Recap](#) - 2018
- [Tornado Formation, Intensity, and Path for the Southeast United States: Research Flight and Mission Info Recap](#) – 2018
- [Hurricane Lane Flight and Mission Info Recap](#) - 2018
- [OMAO two pager with Recent Mission Highlights](#) – 2018
- [OMAO Fleet Recapitalization Slide Deck – Building NOAA’s 21st Century Fleet](#)
- [OMAO Fleet Recapitalization Questions and Answers \(Q&As\)](#)
- [NOAA Fleet Independent Review Team Final Report](#)
- [The NOAA Fleet Plan: Building NOAA’s 21st Century Fleet](#)

Other Web Resources

- [OMAO Marine Operations](#)
- [OMAO Aircraft Operations](#)
- [OMAO on Facebook](#)
- [Hurricane Hunters on Facebook](#)
- [OMAO on Twitter](#)
- [Hurricane Hunters on Twitter](#)
- [OMAO Ship Tracker](#) - (restricted to only .gov or .mil users)