



NOAA Fleet Update

December 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 15 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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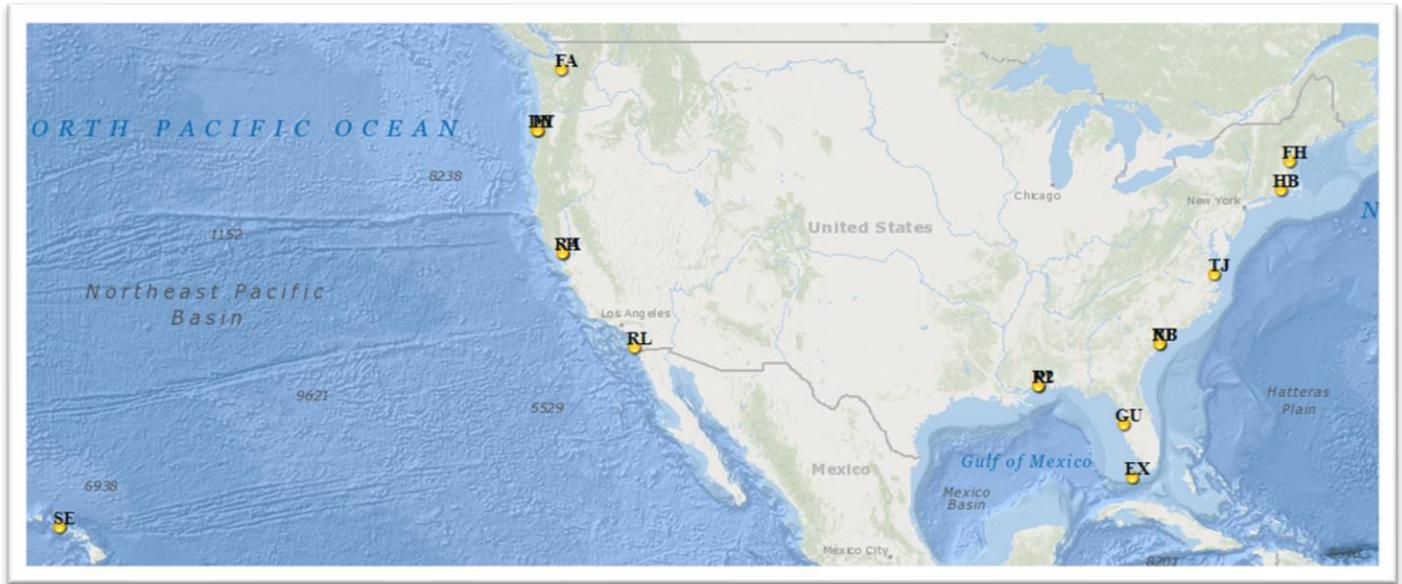


OMAO's Ships and Centers



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 December, 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

In Port: Brooklyn, New York

Ship Status: Dry docked for repairs in Brooklyn, New York. Planned departure TBD.

Newport, Rhode Island

NOAA Ship *Henry B. Bigelow*

Commanding Officer: Captain William Mowitt

Primary Mission Category: Fisheries Research

In Port: Newport, Rhode Island

Ship Status: Alongside for scheduled repairs in Newport, Rhode Island until late February, 2020.



The Conning Officer and the Dive Supervisor recover the Remotely Operated Vehicle, Deep Discoverer, from the aft conning station aboard NOAA Ship *Henry B. Bigelow* after an extended dive.

[Photo Credit: Lieutenant Rosemary Abbitt, NOAA]

North Kingstown (Davisville), Rhode Island

NOAA Ship *Okeanos Explorer*

Commanding Officer: Commander Nicole Manning

Primary Mission Category: Oceanographic Exploration and Research

In Port: Pascagoula, Mississippi

Ship Status: Alongside for scheduled repairs in Pascagoula, Mississippi until late February, 2020.

Norfolk, Virginia

NOAA Ship *Thomas Jefferson*

Commanding Officer: Commander Briana Hillstrom

Primary Mission Category: Hydrographic Surveys

In Port: Norfolk, Virginia

Ship Status: Alongside for scheduled repairs in Norfolk, Virginia until late February, 2020.

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.

Charleston, South Carolina

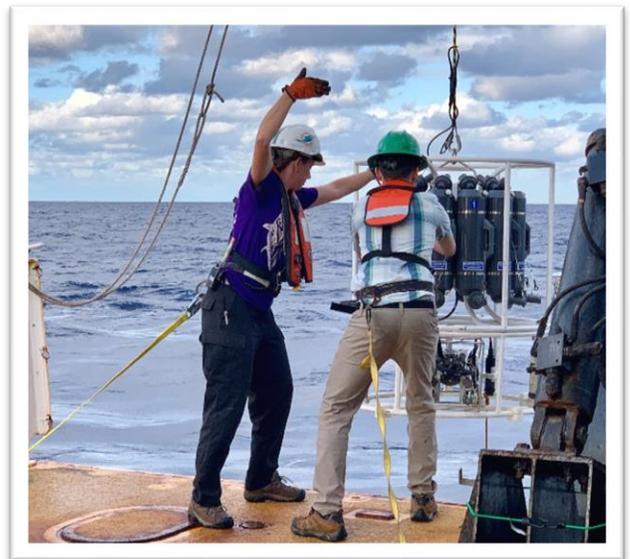
NOAA Ship *Nancy Foster*

Commanding Officer: Commander James Brinkley

Primary Mission Category: Oceanographic Research, Environmental Assessment

Inport: Charleston, South Carolina

Ship Status: Dry docked for scheduled repairs in Charleston, South Carolina until early February, 2020.



During the 2019 field season, the crew of NOAA Ship *Nancy Foster* deploy a Tucker Trawl (left) and a Conductivity, Temperature, Depth sensor (CTD) (right).

[Photo Credit: (left) Lieutenant Kristin Sojka, NOAA; (right) Ivan Hurzeler, Subcontractor to BOEM]

[NOAA Ship Ronald H. Brown](#)

Commanding Officer: Commander Jeffrey Shoup

Primary Mission Category: Oceanographic Research, Environmental Assessment

Depart: Charleston, South Carolina

Arrive: Bridgetown, Barbados

Ship Status: Departed in early December for Western Boundary Time Series / Meridional Overturning Variability Experiment (MOVE) project.

[Pascagoula, Mississippi](#)

[NOAA Ship Pisces](#)

Commanding Officer: Commander Patrick Murphy

Primary Mission Category: Fisheries Research

Inport: Pascagoula, Mississippi

Ship Status: Alongside for scheduled repairs in Pascagoula, Mississippi until February, 2020.

[NOAA Ship Oregon II](#)

Commanding Officer: Master David Nelson

Primary Mission Category: Fisheries Research

In Port: Pascagoula, Mississippi

Ship Status: Dry docked for scheduled repairs in Pascagoula, Mississippi until late March, 2020.

[NOAA Ship Gordon Gunter](#)

Commanding Officer: Lieutenant Commander Christopher Skapin

Primary Mission Category: Fisheries Research

In Port: Tampa, Florida

Ship Status: Dry docked for scheduled repairs in Tampa, Florida until early February, 2020.



NOAA Ship Gordon Gunter dry docked in Tampa, Florida, after a successful field season.

[Photo Credit: NOAA]

San Diego, California

NOAA Ship *Reuben Lasker*

Commanding Officer: Captain Chad Cary

Primary Mission Category: Fisheries Research

In Port: San Diego, California

Ship Status: Alongside for scheduled repairs in San Diego, California until early January, 2020.

Newport, Oregon

NOAA Ship *Rainier*

Commanding Officer: Commander Samuel Greenaway

Primary Mission Category: Hydrographic Surveys

In Port: Vallejo, California

Ship Status: Dry docked for scheduled repairs in Vallejo, California until February, 2020.



NOAA Ship *Rainier's* Change of Command at Mare Island Shipyard in Vallejo, California, in November 2019.

[Photo Credit: HSST Audrey Jerauld, NOAA]

NOAA Ship *Bell M. Shimada*

Commanding Officer: Captain Arthur “Jesse” Stark

Primary Mission Category: Fisheries Research

In Port: Vallejo, California

Ship Status: Dry docked for scheduled repairs in Vallejo, California until February, 2020.

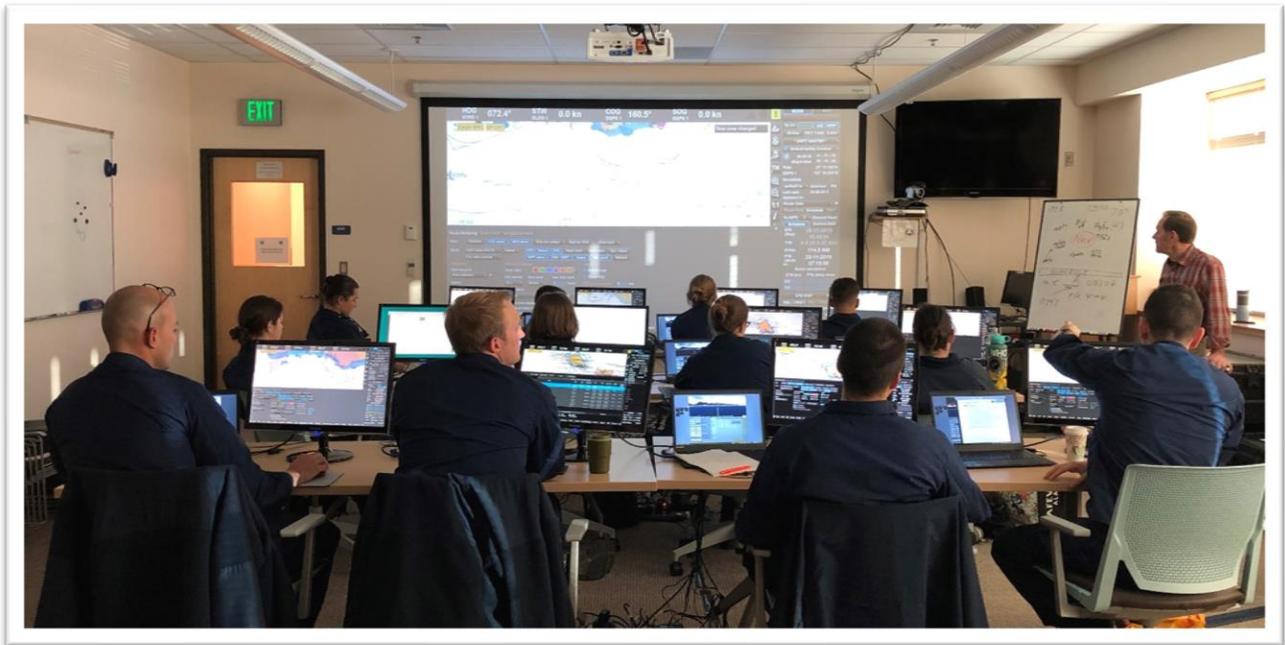


NOAA Ship *Bell M. Shimada* departs Newport, Oregon in November for a dry dock repair period in Vallejo, California.
[Photo Credit: NOAA]

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.



MOC-P has two USCG-approved classrooms for professional training. NOAA Corps officers take a USCG-approved ECDIS (Electronic Chart Display Information System) course in Newport, Oregon in November, 2019.

[Photo Credit: Lieutenant Commander Timothy Siquefield, NOAA]

Ketchikan, Alaska

[NOAA Ship *Fairweather*](#)

Commanding Officer: Captain Marc Moser

Primary Mission Category: Hydrographic Surveys

In Port: Seattle, Washington

Ship Status: Alongside for scheduled repairs in Seattle, Washington until February, 2020.

Kodiak, Alaska

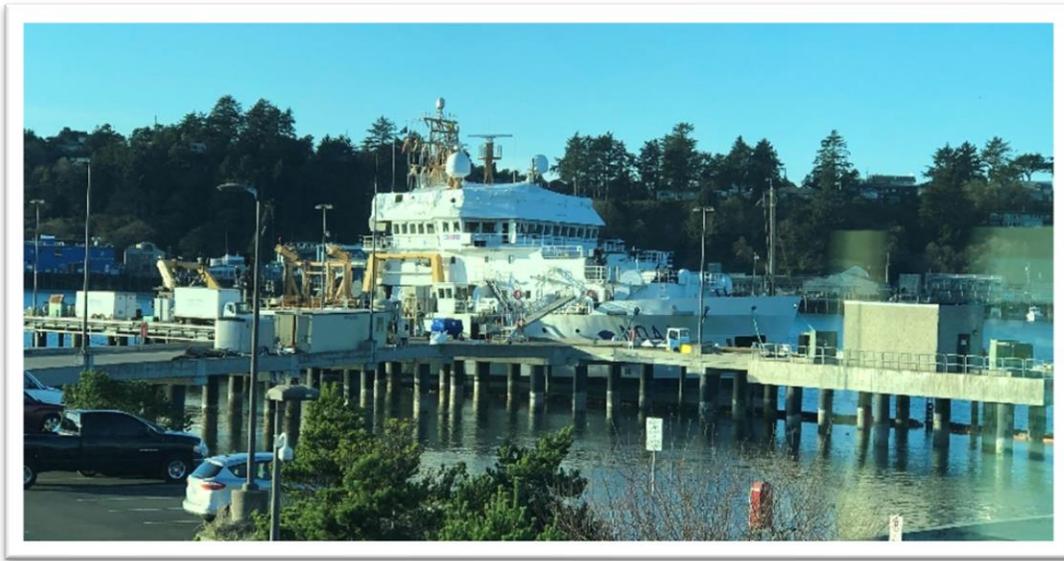
[NOAA Ship *Oscar Dyson*](#)

Commanding Officer: Commander Sarah Duncan

Primary Mission Category: Fisheries Research

In Port: Newport, Oregon

Ship Status: Alongside for scheduled repairs in Newport, Oregon until January, 2020.



The view of NOAA Ship *Oscar Dyson* from MOC-P, where she is undergoing major dockside repairs.

[Photo: Lieutenant Commander Timothy Sinquefield, NOAA]

Honolulu, Hawaii

[NOAA Ship *Oscar Elton Sette*](#)

Commanding Officer: Commander Tony Perry III

Primary Mission Category: Fisheries Research

Inport: Honolulu, Hawaii

Ship Status: Alongside for scheduled repairs in Honolulu, Hawaii until January, 2020. On December 17th, Commander Tony Perry III relieved Commander Héctor Casanova as Commanding Officer.

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

Commanding Officer: Captain Joe Bishop

MOC-PI serves as a homeport for one NOAA ship. Its personnel provide administrative and logistical support, and manage the day-to-day operations for NOAA Ship *Oscar Elton Sette* 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

OMAO'S AIRCRAFT OPERATIONS CENTER (AOC)

Commanding Officer: Commander Christian Sloan

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. On December 2nd, Commander Christian Sloan relieved Captain Timothy Gallagher as AOC Commanding Officer.



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

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" \[Tail ID# N42RF\]](#)

Training and science test flights scheduled.

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

The aircraft is in scheduled maintenance.



NOAA P-3 Orion, "Miss Piggy", prior to deployment to the Eastern Caribbean to fly reconnaissance missions into Hurricane Lorenzo, in September, 2019.

[Photo Credit: NOAA]

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

The aircraft is in scheduled maintenance.

King Air 350 [Tail ID# N68RF]

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

What: Gravity for the Redefinition of the American Vertical Datum (GRAV-D)

When: December 7 - December 22

Where: Midwest/Southeast U.S.

Why: Grid pattern flight lines will be flown at 20,000 feet 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.



Jet Prop Commander

[Photo Credit: NOAA]

[Jet Prop Commander \[Tail ID# N45RF\]](#)

Training flights scheduled.

[Twin Otter \[Tail ID# N46RF\]](#)

Training flights scheduled.



NOAA Twin Otter N46RF flying above North Dakota in November.

[Photo Credit: Lieutenant Conor Maginn, NOAA]

[Twin Otter \[Tail ID# N48RF\]](#)

Who: Officers and crew of OMAO/NOAA Corps along with scientists from the [National Marine Fisheries Service \(NMFS\)](#), [Southeast Fisheries Science Center \(SEFSC\)](#)

What: Southeast North Atlantic Right Whale Surveys

When: December 7 - March 31

Where: St. Simons Island, Georgia

Why: Provide real time sighting information to commercial shipping interests in an effort to reduce ship collisions, to better understand the distribution and abundance, and collect photographic images of 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 \[Tail ID# N56RF\]](#)

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

What: Northeast North Atlantic Right Whale Surveys

When: December 7 - December 22

Where: Cape Cod, Massachusetts

Why: Provide real time sighting information to commercial shipping interests in an effort to reduce ship collisions, to better understand the distribution and abundance, and collect photographic images of 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]

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

What: Southeast Atlantic Marine Assessment Program for Protected Species (AMAPPS)

When: December 7 - January 25

Where: Fort Lauderdale, Florida (additional cities TBD)

Why: Improved information is needed on living marine resource abundance, distribution, habitat use, and behavior in the Atlantic Ocean to properly mitigate and monitor for potential impacts of human activities, including those related to offshore energy development.

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.



Unmanned Systems Support



Nationwide

APH-22 Hexacopter

Location: Oahu, Hawaii

Mission: Pacific Islands Fisheries Science Center APH-22 Training

Pacific Islands Fisheries Science Center utilizes 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 Mammal Laboratory/Alaska Fisheries Science Center/NOAA Fur Seals and California Sea Lions

Marine Mammal Laboratory'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: Pacific Islands Fisheries Science Center 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



Image taken by an APH-28 Hexacopter

APH-28 Hexacopter

Location: Cape Shirreff, Livingston Island, Antarctica

Mission: Antarctic Ecosystem Research Division Cape Shirreff

The Antarctic Ecosystem Research Division will conduct flights to survey Penguin and Seal Colonies in Cape Shirreff, Livingston Island, Antarctica.

APH-22 Hexacopter / APH-28 Hexacopter

Location: Muskeget Island, Massachusetts

Mission: Northeast Fisheries Science Center Grey Seal Survey

Northeast Fisheries Science Center is conducting Grey Seal Pup surveys on Muskeget Island using the APH-22 and APH-28.

Location: Woods Hole, Massachusetts

Mission: NMFS Northeast Fisheries Science Center Training sites

Northeast Fisheries Science Center 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: NOAA Aircraft Operations Center, Lakeland, Florida

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: Alaska Fisheries Science Center Training Site

Alaska Fisheries Science Center 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 Alaska Fisheries Science Center to remain proficient and prepare for upcoming projects.

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, CA. 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.



APO-42 Octocopter



SenseFly eBee

SenseFly eBee RTK

Location: Muskeget Island, Massachusetts

Mission: NMFS/Remote Sensing Division 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 Island Regional Office 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: Pacific Islands Fisheries Science Center Proficiency/Training Flights

Kawainui Model Airplane Field will be used monthly to perform proficiency flights for Pacific Islands Fisheries Science Center 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.

Location: Jamul, California

Mission: Southwest Fisheries Science Center Proficiency Flights

Southwest Fisheries Science Center is utilizing the BLM Jamul California site to conduct proficiency flights.



FireFly 6 PRO



3DR Solo

3DR Solo

Location: MOC-P, Newport, Oregon

Mission: Public Outreach and ship inspection

The UAS will proceed to take aerial photographs from the MOC-P pier. 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.

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

Mission: New mission

3DR Solos have been deployed to these Weather Forecast Offices for the National Weather Service to integrate UAS into their mission. Original Equipment Manufacturer training or equivalent has been conducted in preparation for future operations.

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

Mission: AOC airworthiness

3DR Solo airworthiness flights at Alafia River State Park.

Meteodrone SSE / Blackswift S-2

Location: Oak Ridge, Tennessee

Mission: Instrument Testing and Calibration

A combination of these UAS 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

Meteodrone SSE / Blackswift S-2

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 1,200' in altitude. The NOAA Class G Blanket COA is utilized for these operations.

MD4-1000 / Meteodrone SSE / Blackswift S-2

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 1,200' in altitude. The NOAA Class G Blanket COA is utilized for these operations.



DJI S-1000



Matrice 210

Matrice 210 / DJI Phantom 4

Location: Santa Barbara, California

Mission: Payload testing and training

Payload and software testing flights are being conducted at University of California Santa Barbara.

Location: Newport, Oregon

Mission: Remote Sensing Division/Office of Coast Survey MOC-P testing and training

Remote Sensing Division and Office of Coast Survey are developing procedures and protocols for static launch and recovery of the Matrice 210 system. Launch and recovery training from a ship is being conducted.



DJI Phantom 4



Image taken from Phantom 4

DJI Phantom 4

Location: Pivers Island, North Carolina

Mission: National Centers for Coastal Ocean Science 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.

DJI Phantom 4 / DJI Mavic

Location: Norfolk, Virginia

Mission: NOAA Ship *Thomas Jefferson*, Proficiency Training

DJI Phantom 4 and Mavic Zoom proficiency flights are being conducted at Marine Operations Center Atlantic.

Location: Newport, Oregon

Mission: Remote Sensing Division/Office of Coast Survey MOC-P testing and training

Six personnel are being trained to operate the DJI Mavic and Phantom 4. Operations are being conducted at the MOC-P facility.

DJI M6000

Location: Santa Barbara, California

Mission: University of California Santa Barbara M600 Test Flights

National Marine Fisheries Science is planning flights at University of California Santa Barbara to test and validate a hyperspectral scanner payload.



DJI M600



Planck Shearwater



Latitude FVR-55

Planck Shearwater

Location: Nearshore Maui, Hawaii

Mission: Channel Islands National Marine Sanctuary Shearwater Training and Testing

Channel Islands National Marine Sanctuary will be conducting flights in and around the Hawaiian Islands Humpback Whale National Marine Sanctuary. Flights will be conducted to train personnel and assess the Planck Shearwaters ability to support whale disentanglement efforts.

L3 Latitude FVR-55

Location: 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 January and February FY20. Payloads have been designed for the vehicle to support NOAA Office of Atmospheric Research Pacific Marine Environmental Laboratory's project goals for the upcoming Atomic 2020 project. A charter vessel is expected to be utilized for additional aircraft testing.

L3 Latitude FVR-55

Location: Aircraft Operations Center, Lakeland, Florida

Mission: P-3 Deployed UAS

AOC, Hurricane Research Division and the Unmanned Aircraft Systems Program Office 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) Marisa Gedney

Members of the NOAA Commissioned Officer Corps carry out NOAA's mission in remote locations across the globe. Lieutenant (Junior Grade) Gedney is assigned to Antarctica where she 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 Joe Bishop

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. Captain Bishop 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.

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.



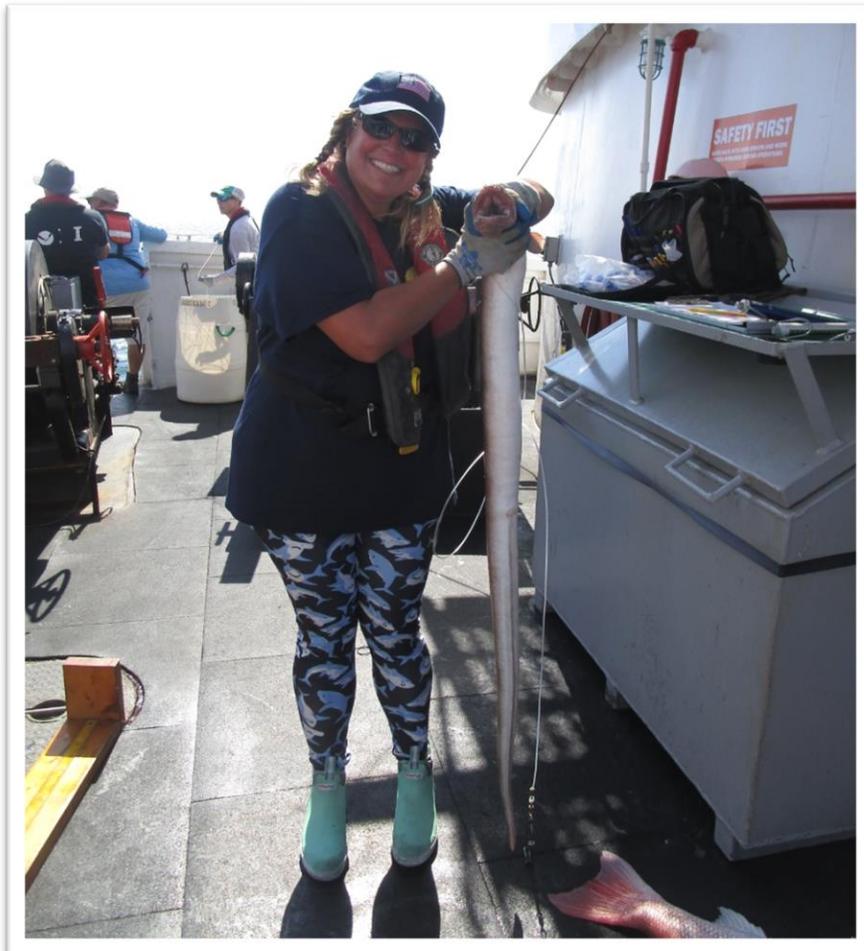
NOAA Teacher at Sea Program



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 ended in October. Applications for the 2020 Field Season were accepted ahead of a deadline on November 30, 2019.



NOAA Teacher at Sea Kathy Schroeder holds up a king snake eel captured during a longline survey in the Gulf of Mexico aboard NOAA Ship *Oregon II*, in October.

(Photo Credit: NOAA)



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.

With most diving units experiencing a slower operational tempo in the winter months, The NOAA Diving Center staff have shifted their efforts to making sure dive units are prepared for the upcoming field season. The major task at hand currently is preparing for the January NOAA Diver Training that will be taking place in Key West, Florida. Hosting the training off-site requires the coordination of logistics months in advance. NDC works with the Florida Keys National Marine Sanctuary and U.S. Army Special Forces training facility to make the training possible which requires classroom space, pool facilities as well as access to open water environments. Currently, NDC's 10-ft conex box is being packed with (literally) tons of gear and equipment to be sent to Key West. NDC is anticipating a full roster and hopes to have 18 new divers and 10 new divemasters ready to report to the field for diving duty by February.

The lull in the field season is also a great time to conduct internal training. One of the NOAA Dive Center's instructors recently spent three weeks in the frozen Cascade Mountains outside of Seattle attending Wilderness EMT training. Given the remote areas where NOAA Divers operate, higher levels of care are often hours away by airlift so having Wilderness EMT trained personnel increases the ability to respond to emergencies (dive-related or otherwise) in the field.

Aside from the NOAA Diver and Divemaster training taking place January 6-24 in Key West, NDC is also starting to plan the UDS (Unit Dive Supervisor) Workshop that will take place in March, 2020.



NOAA Small Boat Program



Direction, technical and administrative support is provided by OMAO through the NOAA Small Boat Program Office. 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. NOAA Line and Program Offices are responsible for acquisitions, operational funding and mission support. The NOAA Small Boat Safety Board is comprised of NOAA Line Offices, SBP, and Safety and Environmental Compliance Office (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.

The Small Boat Program Office and Safety Board held a NOAA Small Boat Summit in St. Petersburg, Florida in early November at the Florida Fish & Wildlife Research Institute. NOAA's Deputy Under Secretary for Operations, Benjamin Friedman, was the keynote speaker on the opening day. In attendance were 114 people from most of NOAA's Line Offices. The goal of the 2019 Small Boat Summit was a focus on safety, new technologies and resources for small boat operations. The summit provided resources, training, exchanges of best industry practices and networking opportunities for the NOAA small boat community who hold responsibilities for maintaining safety and assuring mission success.



Attendees at the NOAA Small Boat Summit in St. Petersburg, Florida in November.

[Photo Credit: NOAA]



Office of Marine and 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 15 research and survey ships and 9 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 2019 Hurricane season, NOAA flight crews and scientists flew a combined 468 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 improving modeling, forecasting, and ensuring accurate forecasts were 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 Miami, Florida to Norfolk, Virginia, and the northern Bahamas, of damaged and affected communities following Hurricane Dorian. This imagery provided a timely and cost-effective way to better understand the damage sustained to both property and the environment.

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 2019, NOAA aircraft flew over 468 hours in support of storm reconnaissance, surveillance, research and emergency response. NOAA assets performed multiple operations in the Gulf of Mexico, North Atlantic and the Caribbean for Hurricanes Barry, Dorian, Humberto, Jerry, Lorenzo and Tropical Storm Nestor. During the reconnaissance of Hurricane Lorenzo, NOAA's two Orion P-3s provided on-scene coordination during the Search and Rescue operation for the M/V *Bourbon Rhode*. In response to Hurricane Dorian, NOAA's King Air 350 flew post-storm, damage assessment imagery over areas of the northern Bahamas, and of the U.S. east coast from the north end of the Florida Keys to Virginia Beach, Virginia. Nearly 27,000 images were collected, covering over 11,000 square kilometers, including shorelines, ports, and impacted inland areas of several islands to aid in emergency response.
- In 2018, NOAA aircraft flew over 556 hours in support of storm reconnaissance, surveillance, research and emergency response for Hurricanes Hector, Lane, and Norman in the Central Pacific, and Hurricanes Chris, Florence, Gordon, Isaac, and Michael in the Gulf of Mexico, North Atlantic, and Caribbean Sea. 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)