



# NOAA Fleet Update

## July 2017

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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# OMAO and the NOAA Corps – In the News

## [Check out our trip to Gray's Reef](#)

-WSAV\_TV

SAVANNAH, Ga. (WSAV) – Once a year NOAA Ship Nancy Foster sets up as a home base for scientists to explore Gray's Reef National Marine Sanctuary. This year we got to go along.

## [The Bridge: Learning about Savannah's underwater paradise, Gray's Reef](#)

-SavannahNow

Hey everybody! Last week I had the extreme pleasure of hopping on a 41-foot catamaran and heading out to learn more about Gray's Reef National Marine Sanctuary. Photographer Drew and I arrive at the Gray's Reef office on Ocean Circle just after 7:30 a.m. We load up and shortly after 8 a.m., pull out from the marina...We climb aboard and, after a fantastic lunch, get to meet the scientists and scuba divers who are part of the two-week research mission, including a second-year master's candidate from Georgia Southern named Brianne Vernerin...

## [Hurricane Hunters welcomed to their new Lakeland Home](#)

-Lakeland Ledger

LAKELAND — The arrival of the Hurricane Hunters will be a significant mark in the city's history, Mayor Howard Wiggs said as he and other officials welcomed the National Oceanic and Atmospheric Administration's Aircraft Operations Center to Lakeland Linder Regional Airport on Friday.



# 100<sup>th</sup> Anniversary of the NOAA Corps



Celebrating a Century of Service on May 22 (1917-2017)

Faced with tough national security and economic challenges and a natural world governed by powerful and mysterious forces that often threatened life, property, and commerce, President Thomas Jefferson signed a bill creating a new federal agency in 1807 that would support the nation's defense, promote the well-being of its citizens, and unlock nature's secrets. The new agency's mission was to chart the nation's coastal waters to ensure that ships could move civilians, troops, and materiel safely.

During the next 150 years, that agency, the Survey of the Coast (later the Coast & Geodetic Survey or C&GS), would prove itself in war as well as in peacetime. With America's entry into the World War I, a commissioned service of the C&GS was formed in 1917 to ensure the rapid assimilation of C&GS technical skills for defense purposes. During World War II, officers and civilians of the C&GS produced nautical and aeronautical charts, provided critical geospatial information to artillery units, and conducted reconnaissance surveys.

Today, the work of the C&GS—and more—is conducted by the National Oceanic and Atmospheric Administration (NOAA) and the NOAA Commissioned Officer Corps—one of the seven uniformed services of the United States. The direct descendants of the C&GS, NOAA and the NOAA Corps work every day to keep the nation secure and productive by providing products and services that support maritime domain awareness; help ensure safe passage of commercial and military traffic on our nation's waterways; warn mariners, aviators, and the public of severe weather; aid search and rescue efforts; and conserve and protect our natural resources.

Continuing in the tradition of their C&GS predecessors, NOAA Corps officers continue to play a vital role in the acquisition and analysis of environmental data that aid NOAA and other agencies in meeting the national security, economic, and environmental challenges of the 21st century. NOAA Corps officers command ships that scan the seafloor for potential hazards to shipping, monitor oceanographic and atmospheric conditions, and study ocean resources. They also operate highly specialized aircraft that collect environmental and geographic data necessary for weather and flood prediction, nautical and aeronautical charting, disaster response, and resource management.





# OMAO's New Aircraft Operations Center



Lakeland, Florida

On June 2, federal, state, and local officials cut the ribbon on the new facility for [OMAO's Aircraft Operations Center](#) at Lakeland Linder Regional Airport. The center is the main base for NOAA's nine specialized environmental data-gathering aircraft, including the agency's three "hurricane hunter" planes. "Our new state of the art home in Lakeland ensures NOAA's Aircraft Operations Center will continue to protect lives and property by collecting the high-quality data our hurricane forecasters need to keep Americans safe from severe weather," said Ben Friedman, acting NOAA administrator. "I offer my sincere thanks to all of our partners for their great work in getting us ready for operations in this new facility so quickly."

NOAA aircraft play a vital role in collecting environmental data essential to protecting lives and property, conserving and managing coastal as well as marine resources, and understanding weather and climate. NOAA's aircraft fleet is maintained and operated by a team of 110 civilians and officers of the [NOAA Corps](#), one of the nation's uniformed services, which can trace its roots back to 1807 and President Thomas Jefferson.

Designed by The Lunz Group and built by Register Construction, the new facility includes a 58,000-square-foot aircraft hangar, office space, and facilities for aircraft repairs and component storage. NOAA awarded a 10-year lease to the City of Lakeland in November following a competitive lease award process. NOAA sought to lease a facility after being notified by the U.S. Air Force in February 2016 that MacDill Air Force Base in Tampa, Florida, required the hangar and facilities AOC has occupied as a tenant since 1993. The lease competition was open to airport facilities within 50 road-miles of the MacDill Air Force Base main gate. NOAA took into account the need to retain AOC's highly skilled and specialized workforce when defining the lease competition area.



**NOAA's Gulfstream IV-SP and a NOAA DHC-6 Twin Otter on the ramp at the new NOAA Aircraft Operations Center facility in Lakeland, Florida.**

[Photo: David Hall/NOAA]



# FY 2018 Ship Fleet Budget Request



The President's Budget Request for NOAA includes \$75 million in FY 2018 as part of an ongoing multi-year NOAA ship fleet recapitalization initiative. Since 2007, the NOAA fleet has declined from 19 ships to the current fleet of 16 ships. Without recapitalization, the fleet will decrease to eight ships by 2028. In FY 2018, funding will support construction of a second NOAA vessel (N/V) Class A. This vessel will be a variant of the Navy's existing Auxiliary General Oceanographic Research vessel, serving a primary mission of oceanographic monitoring, research, and modeling. NOAA will also continue planning for additional ships. New ship construction consists of four acquisition phases: requirements analysis, concept design, preliminary design, and detailed design and construction. Efforts will be made throughout the process to leverage design aspects of previous ship classes and to create standardization across the fleet to meet multiple core mission requirements.

We thank Congress for the fleet recapitalization support received in FY 16 (\$80 million) and FY17 (\$75 million).

## **Fleet Recapitalization Resources**

[OMAO Fleet Recapitalization - Building NOAA's 21st Century Fleet](#) [March 2017 - PDF 2.1 MB]

[OMAO Fleet Recapitalization Questions and Answers \(Q&As\)](#) - [PDF]

[NOAA Fleet Independent Review Team Final Report](#)

[The NOAA Fleet Plan: Building NOAA's 21st Century Fleet](#) [PDF 7.5 MB]

## **NOAA Budget Request Resources**

[FY 2018 NOAA Congressional Justification](#)

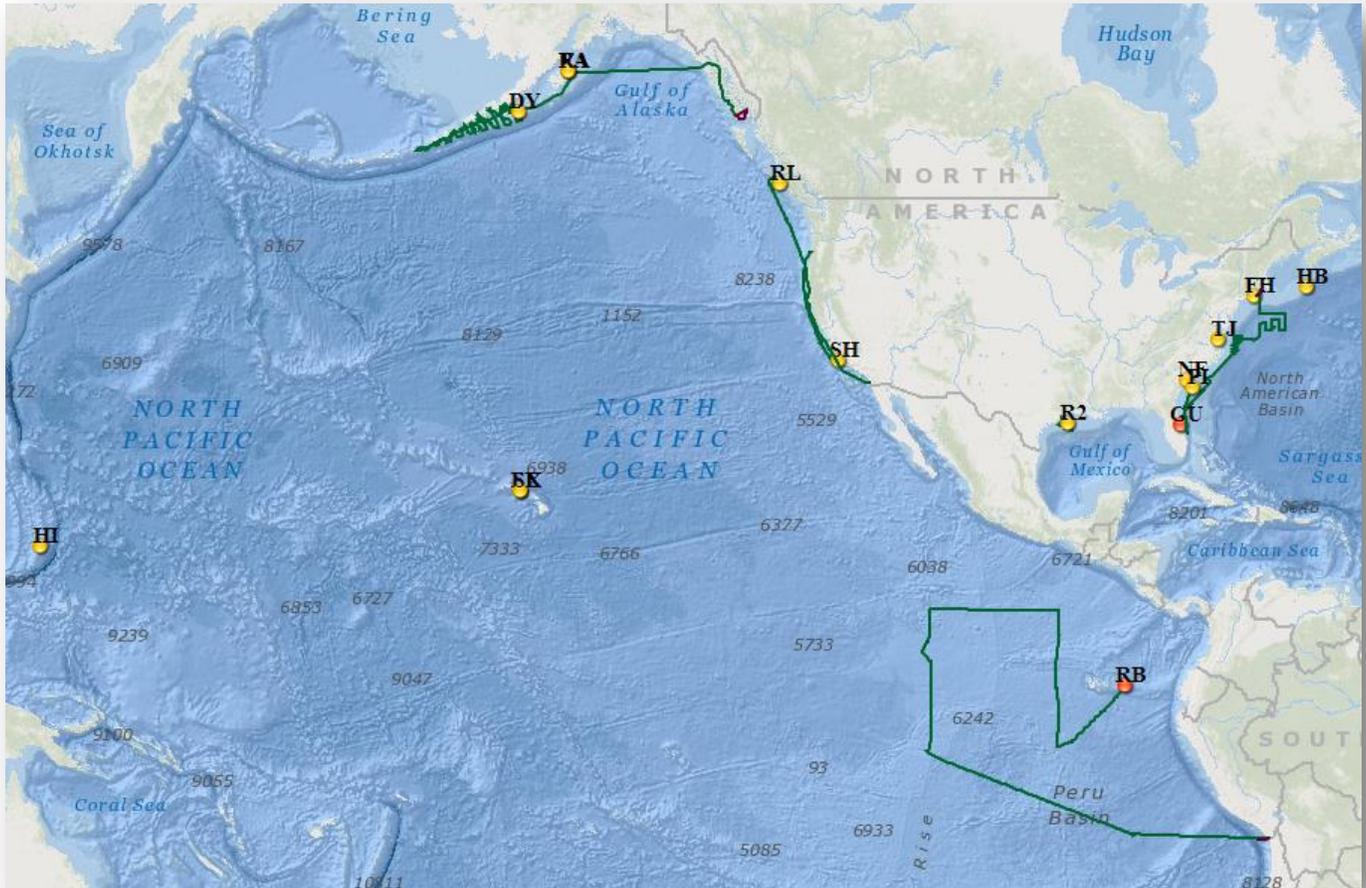
[FY 2018 Bluebook](#)



# OMAO's Ships and Centers



OMAO's [Ship Tracker](#) (screen shot below) shows information about the location - present and past - of our fleet of research and survey ships. Please note: To access Ship Tracker you must create 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.

## **New Castle, NH**

### **NOAA Ship *Ferdinand R. Hassler***

**Commanding Officer:** LCDR Matthew Jaskoski

**Primary Mission Category:** Hydrographic Surveys

**Ship status:** Vessel will be in the U.S. Coast Guard Yard in Baltimore, Maryland, for a maintenance period through July. Through a Memorandum of Understanding with the Coast Guard Yard, repair work will address safety and performance items, including HVAC system modifications, cofferdam extensions, fast rescue boat davit wire rope renewal, and work boat boarding platform renewal.

## **Newport, RI**

### **NOAA Ship *Henry B. Bigelow***

**Commanding Officer:** CDR Jeff Taylor  
**Primary Mission Category:** Fisheries Research  
**Depart:** Newport, Rhode Island **Arrive:** Newport, Rhode Island

**Project:** Cetacean and Turtle Biology

**Objectives:** To further understanding of sea turtle ecology, scientists will locate and capture loggerhead sea turtles to collect samples and apply passive integrated transponders and satellite linked data loggers to loggerhead turtles. Scientists will also locate and document occurrence of mesoplodon beaked whales and collect passive acoustic recordings, identification photographs, and biopsy samples. As possible, scientists will also opportunistically collect images for photo identification of North Atlantic right whales.

## **Davisville, RI**

### **NOAA Ship *Okeanos Explorer***

**Commanding Officer:** CDR Eric Johnson  
**Primary Mission Category:** Oceanographic Exploration and Research  
**Depart:** Honolulu, Hawaii **Arrive:** Honolulu, Hawaii

**Project:** CAPSTONE 2017 Johnston Atoll Mapping

**Objectives:** To better understand biogeographic patterns between and among the Pacific Monuments and Sanctuaries, this expedition will explore the diversity and distribution of benthic habitats, including commercially valuable bottom fish habitats and coral habitats, and characterize seamounts in and around the Prime Crust Zone (PCZ). The PCZ is the area of the Pacific with the highest concentration of commercially valuable deep-sea minerals. The ship will collect high resolution mapping data and conduct ROV water column transects to acquire data to aid the understanding of the geologic history of the Pacific seamounts.

## **Norfolk, VA**

### **NOAA Ship *Thomas Jefferson***

**Commanding Officer:** CDR Christiaan van Westendorp  
**Primary Mission Category:** Hydrographic Surveys  
**Depart:** Norfolk, Virginia **Arrive:** Savannah, Georgia

**Project:** Approaches to Savannah

**Objectives:** To support safe navigation through the acquisition and processing of hydrographic survey data for updating nautical charts and by the identification and dissemination of dangers to navigation as identified during the course of survey operations.

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

### **CAPT Scott Sirois, Commanding Officer MOC-A**

MOC-A serves as a homeport for one NOAA ship, and manages the day-to-day operations and provides administrative, engineering, maintenance, and logistical support for the research and survey ships in NOAA's Atlantic 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.

## **Charleston, SC**

### **NOAA Ship *Nancy Foster***

**Commanding Officer:** Master Donn Pratt  
**Primary Mission Category:** Oceanographic Research, Environmental Assessment  
**Depart:** Charleston, South Carolina **Arrive:** Charleston, South Carolina

**Depart:** Charleston, South Carolina **Arrive:** Key West, Florida

**Project 1:** Habitat Mapping – Southeast U.S. Outer Continental Shelf

**Objectives:** The National Centers for Coastal Ocean Sciences will collaborate with Monitor National Marine Sanctuary to collect multibeam and fishery echosounder data and diver visual observations to describe benthic biological communities associated with historically significant shipwrecks and adjacent rocky reefs in proposed sanctuary expansion areas in Onslow Bay and Raleigh Bay, North Carolina.

**Project 2:** Florida Keys National Marine Sanctuary (FKNMS) Coral Reef Mapping and Condition Assessment and Fisheries Acoustics Characterizations

**Objectives:** Building upon past research and monitoring the FKNMS, the ship will deploy scuba divers to recover, download, and redeploy acoustic receivers. Additionally, a ship-based ROV from the University of North Carolina will target fish aggregations and benthic habitat features up to 300 meters. Small boat-based drop cameras and diver visual surveys over bathymetry habitat features of interest will groundtruth habitat data.

### **NOAA Ship *Ronald H. Brown***

**Commanding Officer:** CAPT Kurt Zegowitz  
**Primary Mission Category:** Oceanographic Research, Environmental Assessment  
**Depart:** Key West, Florida **Arrive:** Fort Lauderdale, Florida  
**Project:** Gulf of Mexico Ecosystems and Carbon Cycle Cruise (GOMECC)

**Objectives:** The GOMECC project is the third comprehensive survey of inorganic carbon, nutrients, and other biogeochemical parameters along the coastal waters of the Gulf of Mexico. The effort is in support of the NOAA Office of Oceanic and Atmospheric Research's Ocean Acidification Program that has a major objective to monitor changes in inorganic carbon dynamics due to anthropogenic carbon input and natural changes in coastal regions.

### ***Pascagoula, MS***

#### **NOAA Ship *Pisces***

**Commanding Officer:** CDR Nicholas Chrobak  
**Primary Mission Category:** Fisheries Research  
**Depart:** Mayport, Florida **Arrive:** Morehead City, North Carolina  
**Depart:** Morehead City, North Carolina **Arrive:** Morehead City, North Carolina  
**Project:** Southeast Fisheries-Independent Survey

**Objectives:** The ship will conduct applied fishery-independent sampling focusing on assessment of spatial variability in distribution and abundance of species within the snapper-grouper complex; comparative analysis of fish traps, video cameras, and acoustics; and bathymetric and backscatter data collection for mapping of hardbottom habitats.

### **NOAA Ship *Oregon II***

**Commanding Officer:** Master Dave Nelson  
**Primary Mission Category:** Fisheries Research  
**Depart:** Pascagoula, Mississippi **Arrive:** Pascagoula, Mississippi  
**Depart:** Pascagoula, Mississippi **Arrive:** Cape Canaveral, Florida  
**Project 1:** SEAMAP Summer Groundfish

**Objectives:** Sample the northern Gulf of Mexico with SEAMAP standard trawl sampling gear to determine the abundance and distribution of benthic fauna, collect size measurements to determine population size structures, and transmit real-time shrimp biological data to the Gulf States Marine Fisheries Commission in Ocean Springs, MS.

**Project 2:** Shark/Red Snapper Longline survey

**Objectives:** The objectives of this project are to sample the U.S. Atlantic and northern Gulf of Mexico to characterize the distribution and abundance of shark and red snapper populations to aid in stock assessments. Scientists will collect morphological measurements and biological samples to facilitate life history studies.

### **NOAA Ship *Gordon Gunter***

**Commanding Officer:** LCDR Lindsay Kurelja  
**Primary Mission Category:** Fisheries Research  
**Depart:** Miami, Florida **Arrive:** Pascagoula, Mississippi  
**Depart:** Pascagoula, Mississippi **Arrive:** Pascagoula, Mississippi  
**Project:** Mammal and Seabird Assessment

**Objectives:** Scientists will conduct visual transect surveys and passive acoustic surveys to estimate the abundance and spatial distribution of cetacean stocks in the U.S. Gulf of Mexico waters. Scientists will also collect tissue samples of select cetaceans and collect data on the distribution and abundance of seabirds and other marine life.

### ***San Diego, CA***

#### **NOAA Ship *Reuben Lasker***

**Commanding Officer:** CDR Kurt Dreflak  
**Primary Mission Category:** Fisheries Research  
**Depart:** San Diego, California **Arrive:** San Francisco, California  
**Depart:** San Francisco, California **Arrive:** San Diego, California  
**Project:** West Coast Pelagic Fish Survey

**Objectives:** Survey the distributions and abundances of coastal pelagic fish species (CPS), their prey, and their biotic and abiotic environments in the California Current between San Diego, California and the northern extent of Vancouver Island, Canada.

### ***Newport, OR***

#### **NOAA Ship *Rainier***

**Commanding Officer:** CDR John Lomnický  
**Primary Mission Category:** Hydrographic Surveys  
**Depart:** Kodiak, Alaska **Arrive:** Kodiak, Alaska  
**Depart:** Kodiak, Alaska **Arrive:** Kodiak, Alaska  
**Project 1:** North Coast Kodiak Island Survey

**Objectives:** To support safe navigation through the acquisition and processing of hydrographic survey data for updating nautical charts and by the identification and dissemination of dangers to navigation as identified during the course of survey operations.

**Project 2:** Cold Bay and Deer Passage, Alaska Survey

**Objectives:** To support safe navigation through the acquisition and processing of hydrographic survey data for updating nautical charts and by the identification and dissemination of dangers to navigation as identified during the course of survey operations.



**NOAA Ship *Rainier* and U.S. Coast Guard MH-60T Jayhawk from Coast Guard Air Station Kodiak conduct helicopter evacuation drills.**

[Photo: LT Loy/NOAA]

**NOAA Ship *Bell M. Shimada***

**Commanding Officer:**

CDR Paul Kunicki

**Primary Mission Category:**

Fisheries Research

**Depart:** San Francisco, California

**Arrive:** Newport, Oregon

**Depart:** Newport, Oregon

**Arrive:** Newport, Oregon

**Project:** Joint U.S. and Canada Pacific Hake Acoustic-Trawl Survey

**Objectives:** The primary goal of the joint survey is to estimate the biomass, distribution, and biological composition of Pacific hake using data from an integrated acoustic and trawl survey off the west coasts of the U.S. and Canada from approximately Point Conception, California to Dixon Entrance, Alaska. The goal of the US team will to cover the survey area from Point Conception to the north end of Vancouver Island, Canada.

**OMAO'S MARINE OPERATIONS**

**CAPT Todd Bridgeman, Director of Marine Operations**

OMAO's Marine Operations oversees operations of the three regional Centers, including the Marine Operations Center-Pacific, Marine Operations Center-Atlantic, and Marine Operations Center-Pacific Islands.

**OMAO'S MARINE OPERATIONS CENTER – PACIFIC (MOC-P)**

**CAPT Keith Roberts, Commanding Officer MOC-P**

MOC-P serves as a homeport for two NOAA ships, and manages the day-to-day operations and provides administrative, engineering, maintenance, and logistical support 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.

### **Ketchikan, AK**

#### **NOAA Ship *Fairweather***

**Commanding Officer:** CDR Mark Van Waes

**Primary Mission Category:** Hydrographic Surveys

**Depart:** Kodiak, Alaska **Arrive:** Nome, Alaska

**Project:** Western Alaska – Arctic Survey

**Objective:** To support safe navigation through the acquisition and processing of hydrographic survey data for updating nautical charts and by the identification and dissemination of dangers to navigation as identified during the course of survey operations.



**NOAA Ship *Fairweather* deploys her survey launches in Tlevak Strait, West Prince of Wales Island, Alaska.**

[Photo: ENS Siegenthaler/NOAA]

### **Kodiak, AK**

#### **NOAA Ship *Oscar Dyson***

**Commanding Officer:** CDR Michael Levine

**Primary Mission Category:** Fisheries Research

**Depart:** Kodiak, Alaska **Arrive:** Kodiak, Alaska

**Project:** Walleye Pollock Gulf of Alaska Summer Survey

**Objectives:** Collect acoustic-trawl data necessary to determine the distribution, biomass, and biological composition of walleye pollock and other midwater fishes and collect physical oceanographic data at selected sites.

## Honolulu, HI

### NOAA Ship *Hi'ialakai*

**Commanding Officer:** CAPT Elizabeth Kretovic

**Primary Mission Category:** Oceanographic Research, Environmental Assessment

**Ship Status:** Vessel will be undergoing a scheduled midseason repair period for most of the month of July.

**Depart:** Honolulu, Hawaii **Arrive:** Honolulu, Hawaii

**Project:** Woods Hole Oceanographic Institution Hawaii Ocean Timeseries Station (WHOTS)

**Objectives:** Scientists from the Woods Hole Oceanographic Institution, University of Hawaii, and NOAA Earth System Research Laboratory will deploy the WHOTS-14 buoy to log meteorological and air-sea flux data and collect oceanographic and hydrographic data near the station.

### NOAA Ship *Oscar Elton Sette*

**Commanding Officer:** CDR Donald Beaucage

**Primary Mission Category:** Fisheries Research

**Depart:** Honolulu, Hawaii **Arrive:** Honolulu, Hawaii

**Project:** Hawaiian Islands Cetaceans

**Objectives:** The ship will conduct scientific operations in the waters surrounding the Hawaiian Island Chain, conducting visual surveys of cetacean distribution and composition, collect skin biopsies and satellite tagging for investigations of stock structure, and collect photographs for individual identification to document geographic variation in dolphin morphology and health. Scientists will also recover and deploy a High-Frequency Acoustic Recording Package at three offshore locations near Kona, Kauai, and Pearl and Hermes Atoll.

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

**CDR Matthew Wingate, Commanding Officer MOC-PI**

MOC-PI serves as a homeport for two NOAA ships, and manages the day-to-day operations and provides administrative, engineering, maintenance, and logistical support for the ships in NOAA's Pacific Islands fleet.



# OMAO's Aircraft



## Lakeland, FL

### WP-3D (N42RF) – “Hurricane Hunter”

**Current Mission:** Hurricane Season

As we enter the second month of the 2017 Hurricane Season, the NOAA Hurricane Hunter aircraft are ready to respond. Radar reconnaissance missions on the NOAA WP-3D aircraft will be conducted to support tropical cyclone forecasting and the Hurricane Forecast Improvement Project. These flights will use the WP-3D's tail Doppler radar system to obtain high-density, three-dimensional measurements of the inner core wind structure of each tropical cyclone, potentially throughout its full life cycle. The hurricane research missions will also use the WP-3D to support the calibration/validation of satellite measurements and instrumentation development for the tropical cyclone environment and sampling of other aspects of the tropical cyclone inner core. These measurements will be used to enhance the accuracy of track and intensity guidance generated by NOAA's numerical weather prediction models. They will also be used directly by NOAA's National Weather Service hurricane specialists with the ultimate outcome being improved accuracy of intensity and track forecasts, extended forecast/warning lead-times and improved confidence levels by decision makers.

### WP-3D (N43RF) – “Hurricane Hunter”

**Temporary Base:** Jacksonville, Florida

**Current Mission:** Scheduled Maintenance

The aircraft was inducted into re-winging in March. No additional projects are planned on this airframe until re-wing is complete in fall 2018.

### Gulfstream IV (N49RF) – “Hurricane Hunter”

**Current Mission:** Hurricane Season

NOAA's Gulfstream IV aircraft stands ready to support operational tropical cyclone forecasting and the Hurricane Forecast Improvement Project, based out of its new home in Lakeland, Florida. The G-IV is the primary aircraft for surveillance missions. The radar reconnaissance missions will use the G-IV's Tail Doppler Radar (TDR) system to obtain high-density, three-dimensional measurements of the inner core wind structure of tropical cyclones, potentially throughout its full life cycle. NOAA's National Weather Service is seeking to gather data on the performance of the TDR observation system and will work with the Hurricane Research Division to develop observing strategies for maximizing the utility of the TDR with the goal of improving hurricane track and intensity forecasts.

### Jet Prop Commander (N45RF)

**Temporary Base:** Various Locations

**Current Mission:** Snow Survey

This aircraft is supporting the snow survey mission, using specialized detection equipment to make accurate, real-time measurements of snow water content across the country. This information is critical to various sectors of the Nation's economy, and allows managers and others to make optimal decisions supporting river, flood, and water supply forecasting, agriculture and forest management, recreation and winter tourism.

### **Twin Otter (N46RF)**

**Temporary Base:** Various Locations  
**Current Missions:** Northeast Atlantic Marine Assessment Program for Protected Species (AMAPPS)  
Soil Moisture/Snow Survey

The aircraft will be supporting the NMFS AMAPPS project on the east coast of the U.S. This survey helps to develop models and tools to provide seasonal density estimates incorporating habitat characteristics of marine mammals, turtles, and seabirds in the western North Atlantic Ocean. The project will provide data essential to supporting conservation initiatives mandated under the National Environmental Policy Act, Marine Mammal Protection Act (MMPA), Migratory Bird Treaty Act (MBTA), and Endangered Species Act (ESA).

Following the AMAPPS project, N46RF will use specialized detection equipment to make accurate, real-time measurements of soil moisture content across the country. This information is critical for managers and others to make optimal decisions supporting river, flood, and water supply forecasting, agriculture and forest management, recreation and winter tourism, and the commerce, industry, and transportation sectors of the Nation's economy. The benefits of accurate soil moisture measurements are immense and NOAA aircraft are uniquely capable to provide this information.

### **Twin Otter (N48RF)**

**Temporary Base:** Cape Cod, Massachusetts  
**Current Mission:** Northeast Right Whales

North Atlantic right whales are critically endangered and listed under the MMPA. Aerial surveys serve multiple objectives with regard to conservation including providing locations and distribution of right whales to mariners to avoid collisions with ships, photo identification records on right whales, information on distribution and abundance of marine mammals and turtles, and provide sightings of dead whales for monitoring mortality.

### **Twin Otter (N56RF)**

**Temporary Base:** Alaska  
**Current Missions:** Alaska Harbor Seals and Steller Sea Lions  
Retreating Sea Ice

The National Marine Fisheries Service is charged with will monitoring the abundance of harbor seals and Steller sea lion pups, juveniles, and adults in the North Pacific Ocean. Steller sea lion surveys are conducted using a sophisticated motion-compensating camera system, imagery and data collected will be used to update multi-decadal population trends of the species. This year, the mission is to survey all terrestrial rookeries and haul out locations in the Aleutian Islands during the height of the summer breeding season. For harbor seals, prioritized survey areas are surveyed with GPS-linked high resolution digital cameras. Both surveys support the mandate of the Marine Mammal Protection Act (MMPA) to monitor the recovery of pinniped (seal) populations and define their role in the ecosystem. These surveys enable NMFS to publish Stock Assessment Reports critical for monitoring and managing these protected species.

The Retreating Sea Ice project is to investigate key processes in Arctic waters, including interactions between melting sea ice, surface radiation, and primary productivity (phytoplankton and algae growth). These processes are not captured by satellite observations or climate models, but are important for understanding risks and vulnerabilities of climate change in this region. Data collected will be used to improve both global and regional climate models.

### **Twin Otter (N57RF)**

**Temporary Base:** Various locations in Gulf of Mexico  
**Current Mission:** Gulf of Mexico Marine Assessment Program for Protected Species (GOMAPPS)

The aircraft will be supporting the NMFS GOMAPPS project in the gulf coast of the US. This survey helps to develop models and tools to provide seasonal density estimates incorporating habitat characteristics of marine mammals, turtles, and seabirds in the Gulf of Mexico. The project will provide data essential to supporting conservation initiatives mandated under the National Environmental Policy Act (NEPA), MMPA, MBTA, and ESA.

### **King Air (N68RF)**

**Temporary Base:** Various locations

**Current Mission:** Continuous Coastal Mapping

Coastal mapping is an on-going mission of NOAA's National Geodetic Survey to survey approximately 95,000 miles of U.S. coastline, and to provide the Nation with an accurate, up-to-date and seamless database of the national shoreline. This data is used as the baseline for defining America's marine territorial limits, including its Exclusive Economic Zone, and for the geographic reference needed to manage coastal resources and support marine navigation. Stereo photogrammetry and LiDAR are used to produce a digital database. In addition, the Coastal Mapping Program supports NOAA's homeland security and emergency response requirements by rapidly acquiring and disseminating a variety of datasets to federal, state, and local government agencies as well as the general public.

### **OMAO'S AIRCRAFT OPERATIONS CENTER (AOC)**

**CAPT Michael Silah, Commanding Officer AOC**

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.



**NOAA Lockheed WP-3D Orion N42RF, also known as "Kermit," in its new paint scheme following a major 19-month overhaul.**

[Photo: Mike Mascaro / NOAA]



# Unmanned Systems Support



## *NASA Global Hawk*

**Location:** Edwards Airforce Base  
**Mission:** Scheduled Inspection and Maintenance

Integration of new equipment in the Global Hawk aircraft and Ground Control Stations has been accomplished to allow the project to communicate with the I4 INMARSAT satellite constellation since the decommissioning of the I3 INMARSAT satellite constellation in December 2016. INMARSAT serves as a command and control link for Global Hawk flight operations. Testing of this recently implemented system is in progress. NASA's 872 Global Hawk is being prepared to support science missions this summer as part of a NASA project to train new engineers through preparing and executing flights against cyclonic storms in the Pacific, Gulf, Caribbean, and Atlantic regions. The instrument upload includes NOAA's SO2, O3, and NCAR's AVAPS instruments. Six 24 hour mission flights have been planned this August with NOAA as a key science and flight operations participant.

NASA 874 is currently in refurbishment. System tests have progressed well and the aircraft is being prepared for engine run tests next. A Functional Check Flight is planned for the beginning of 2018. Through the summer months, NASA 874 will serve as a ground test vehicle for the integration and test of a DoD system planned to be flown on NASA 872 this fall. Mission plans and FAA COA's are in process to support the Fall 2017 missions as well as groundwork for potential flights to the Arctic for a joint NOAA/NASA project (Arctic Domain) proposed for 2018. Global ARCHER planning is being conducted on a weekly basis as a result of the NOAA Arctic Domain meetings that occurred in early February. A Transport Canada SFOC application is in work to support a NASA mission being planned for January to operate from NASA Armstrong and overfly the Arctic region north of Western Canada & Alaska to assess a new instrument's performance for measuring snow on sea ice. The FAA recently approved a COA allowing Global Hawk to operate out of Air Force Plant 42 in Palmdale, CA.

## *APH-22 Hexacopter*

**Location:** Bellows Air Force Station, Hawaii  
**Mission:** APH-22 Training

PIFSC utilizes the airfield at Bellows Air Force Station on the island of Oahu to conduct training and proficiency flights. This allows APH-22 operators to maintain proficiency for future operations at a reduced cost.

**Location:** Atlantic Northeast  
**Mission:** Emergency Response, Turtles and Seals

The North East Fisheries Science Center seeks to use the APH-22 hexacopter to respond to entanglements and other unplanned situations involving marine mammals. Photographs will be collected for the purpose of aiding emergency stranding response, event documentation, and photo ID. Unmanned Aerial System (UAS) technologies will also be used to conduct surveys for marine turtles. The intent is to assess the feasibility of using small unmanned rotorcraft to search for turtles in their marine environment both at surface and subsurface. Turtles that are discovered either by the APH-22 or by on-vessel observers will be photographed by the APH-22 and then tagged and or sampled as part of an ongoing study. Turtles may be photographed post-release with the APH-22 to document post-release behavior. NEFSC will also use the APH-22 to conduct surveys of seal haul out sites. Photographs will be collected for the purpose of obtaining local population numbers, documenting seals with evidence of fishery interactions, and collecting photo ID data of seals with brands, wounds, and other distinguishing marks.

**Location:** Seattle, Washington  
**Mission:** Sand Point APH-22 Training

The Marine Mammal Laboratory (MML) intends to begin training flights in the Sand Point area in Seattle, WA. MML has several objectives for the use of the APH-22 hexacopter UAS throughout Alaska. These trips tend to occur in the summer

and sometimes fall seasons. In between surveys in the field, it is important that pilots maintain. The Sand Point location will significantly reduce the travel time required and provide more opportunities to meet training requirements.

**Location:** Strait of Juan de Fuca, Washington

**Mission:** Orca Whale Photogrammetry

SWFSC plans to survey orca whales from a small boat in the marine waters of Washington State. Aerial photographs will be used to assess the body condition and nutritional status of southern resident killer whales. Specifically, measurements of length will inform long-term growth trends and widths will be used to infer current nutritional status; both will be related to trends in returning Chinook salmon (their principal prey) in past decades. These metrics will be compared to those existing and planned for the northern resident killer whale population that aggregates in adjacent Canadian waters off northern Vancouver Island to provide a comparative assessment of nutritional status to guide management of these two protected populations.

**Location:** Aleutian Islands, AK

**Mission:** Aleutian Stellar Sea Lion Photogrammetry

The National Marine Mammal Laboratory (NMML) plans to utilize the APH-22 Hexacopter to survey Steller sea lions throughout the Aleutian Island chain. The primary objective is to capture images to obtain counts of sea lions (pup and non-pups) to be used in modeling abundance trends. The second objective is to sight for permanently marked animals from images for a long term life history study. The third objective is to capture images of known length animals for an ongoing photogrammetry study to assess demographics and body condition. Due to the extreme challenges of Aleutian weather in manned aircraft, unmanned systems such as the APH-22 have proven extremely productive in the western Steller sea lion sites that previously have had limited coverage.

### ***APO-32 Octocopter***

**Location:** Descanso Ranch, California

**Mission:** APO-32 Test Flights and Training

SWFSC will be conducting test flights and training flights for the APO-32 Octocopter. Initial flight testing will be conducted under Part 107 and will consist of flight maneuvers, operating in all the control modes, emergency procedures, takeoffs, landings and photogrammetry. The APO-32 is a variant of the APH-22 hexacopter, and this testing and training will build upon proven technology to produce a platform that is highly reliable, capable, and safe.

### ***MD4-1000/DJI -S1000***

**Location:** Corryton, Tennessee

**Mission:** Training and Operational Development

NOAA's Air Resources Laboratory, Atmospheric Turbulence and Diffusion Division (ATDD) seeks to utilize the NOAA National Marine Fisheries Center for Cooperative Unmanned Technologies (CCUT) MD4-1000 and DJI S-1000 airframes to perform instrument testing to verify its performance prior to the upcoming VORTEX-SE 2017 field study. Two iMet-XQ temperature/pressure/relative humidity sensors will be flown on the MD4-1000 for inter-comparison with the existing DJI S1000 platform.

### ***MD4-1000/ SenseFly eBee RTK***

**Location:** Camarillo, California – California State University Channel Islands

**Mission:** Training and Operational Development

California State University Channel Islands and NOAA's CCUT have signed a Memorandum of Agreement to partner on the use of UAS for research and monitoring of the Channel Islands, and have agreed to provide access to a training field and support facilities.



# OMAO Partnerships



## ***United States Senate Committee on Commerce, Science, and Transportation***

**Location:** Washington, District of Columbia

**Detail:** LCDR Wendy Lewis, NOAA Commissioned Officer Corps

LCDR Lewis is currently on detail to the Committee with the staff of the Chair, Senator John Thune (R-SD), where she is assisting on activities pertaining to oceans, atmosphere, and fisheries policy, as well as other matters within the Committee's jurisdiction.

## ***National Science Foundation***

**Location:** South Pole, Antarctica

**Mission:** LTJG Gavin Chensue, NOAA Commissioned Officer Corps

Members of the NOAA Commissioned Officer Corps carry out NOAA's mission in remote locations across the globe. LTJG Chensue 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:** CAPT Barry Choy, NOAA Commissioned Officer Corps

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.

## ***Department of Defense - U.S. Navy***

**Location:** Washington, DC

**Embedded Liaison:** LCDR Jason Mansour, NOAA Commissioned Officer Corps

LCDR Jason Mansour serves as NOAA liaison to the Oceanographer of the Navy and is an important interface between the U.S. Navy and other U.S. federal agencies, including NOAA. As NOAA Liaison, LCDR Jason Mansour serves as the Head of the Interagency Policy Branch of the International and Interagency Policy Division, Office of the Oceanographer of the Navy, located at the U.S. Naval Observatory. The mission of this Division is to coordinate and execute the Oceanographer of the Navy functions related to policy and programs involving international and/or interagency oceanography. Oceanography includes meteorology, oceanography, mapping, charting and geodesy, astronomy, and precise time, and time interval.

**Location:** Stennis Space Center, Mississippi

**Embedded Liaison:** LTJG Laura Dwyer, NOAA Commissioned Officer Corps

Embedded in the Navy's Naval Oceanography Mine Warfare Center, LTJG Laura Dwyer 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, DC

**Embedded Liaison:** CDR G. Mark Miller, NOAA Commissioned Officer Corps

As the NOAA liaison to the United States Coast Guard (USCG), CDR Miller 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. CDR Miller 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 the [Teacher at Sea](#) (TAS) program is to give teachers a clearer insight into our ocean planet, a greater understanding of maritime work and studies, and to increase their level of environmental literacy by fostering an interdisciplinary research experience. The program provides a unique environment for learning and teaching by sending kindergarten through college-level teachers to sea aboard NOAA research and survey ships to work under the tutelage of scientists and crew. Then, armed with new understanding and experience, teachers bring this knowledge back to their classrooms. 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. Please access former teacher at sea [blogs](#) which document their missions at sea and offer a wealth of information about the research being conducted as well as personal stories.

- Sian Proctor (South Mountain Community College, Phoenix, AZ) will sail on the Gulf of Alaska Pollock survey in and out of Kodiak, AK, on NOAA Ship *Oscar Dyson*.
- Staci DeSchryver (Cherokee Trail High School, Aurora, CO) will sail on the Hawaii Islands Cetacean and Ecosystem Assessment Survey (HICEAS) in and out of Honolulu on board NOAA Ship *Oscar Elton Sette*.
- Anna Levy (Prospect Ridge Academy High School, Lafayette, CO) will sail on the third leg of the SEAMAP Summer Groundfish survey in and out of Pascagoula, MS, on board NOAA Ship *Oregon II*.
- Kip Chambers (Pratt Community College, Pratt, KS) will sail on the West Coast Sardine Survey in and out of San Francisco, CA, on board NOAA Ship *Reuben Lasker*.
- Jennifer Hartigan (Lincoln Middle School, Alameda, CA) will sail on the Applied California Current Ecosystem Studies Survey (ACCESS) (Sanctuaries) in and out of Sausalito, CA on R/V *Fulmar*.
- Brad Rhew (Cook Literacy Model School, Winston-Salem, NC) will sail on the third leg of the Summer Hake Survey in and out of Newport, OR on NOAA Ship *Bell M. Shimada*.
- Samantha Adams (Pan American Int'l High School at Monroe, Bronx, NY) will sail on the WHOI Hawaii Ocean Timeseries Sites survey in and out of Ford Island, HI, on NOAA Ship *Hi'ialakai*.

The **2017 Field Season** is underway with 31 teachers currently scheduled to go to sea. To learn about the teachers, read their blogs, and more, please visit <http://teacheratsea.noaa.gov/#/2017/>.



**Teacher at Sea Helen Haskell aboard a survey launch from NOAA Ship *Fairweather* in Southeast Alaska.**

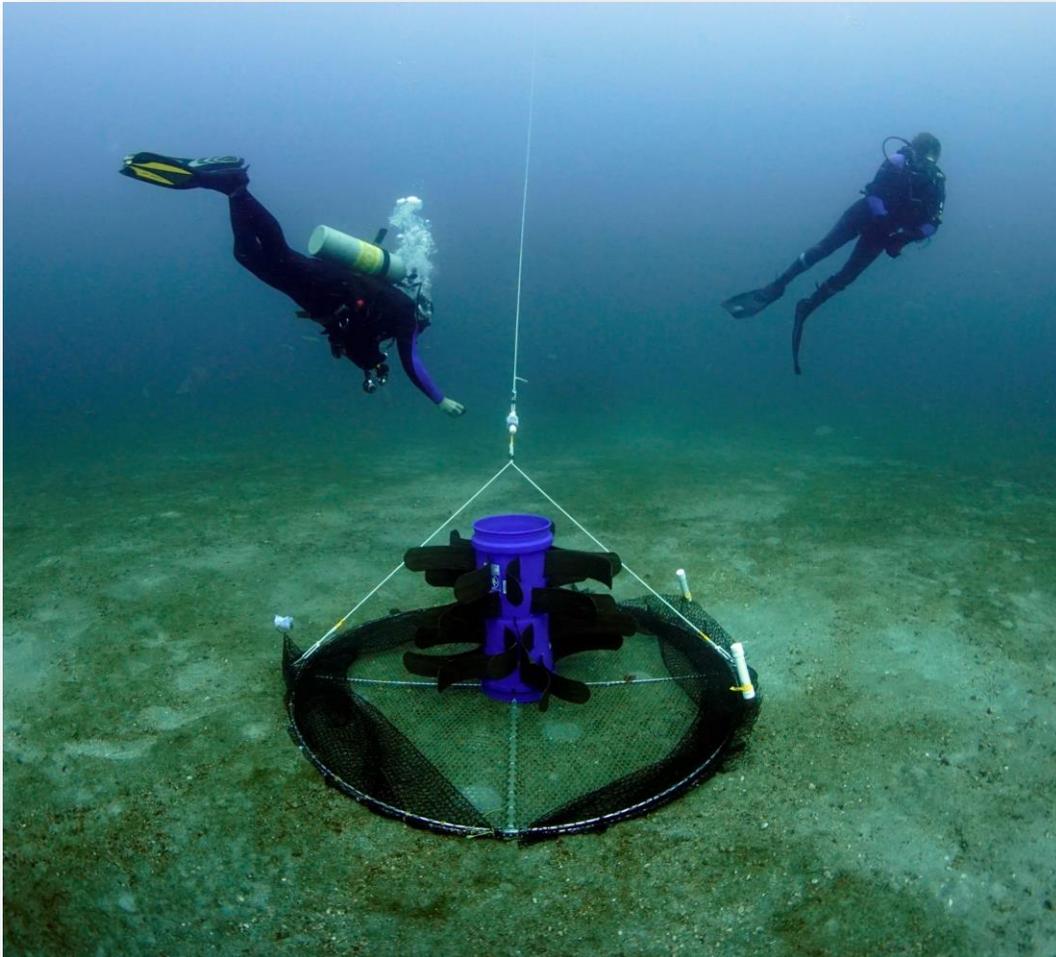
[Photo: NOAA]



# OMAO - NOAA Dive Program



OMAO manages and implements [NOAA's Dive 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 more than 400 divers who perform over 14,000 dives per year. The NDP is headquartered at the NOAA Diving Center at the NOAA Western Regional Center in Seattle, Washington.

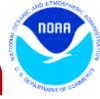


**NOAA divers test a prototype device designed to trap invasive lionfish without attracting other fish, eliminating a by-catch problem.**

[Photo: Mitchell Tart/NOAA]



# OMAO Small Boat Program



OMAO manages NOAA's [Small Boat Program](#) and sets policy and provides safety inspections for almost 400 small boats operated by the various Line and program offices throughout NOAA, which support fisheries laboratories, dive support, nautical charting, ocean and Great Lakes research, and more.



**NOAA small boats support many diverse operations across the country.**

[Photos: 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 surveys. 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, in October 2016, NOAA's WP-3D (N43RF) and G-IV (N49RF) conducted 21 operational missions in seven days into Hurricane Matthew gathering vital data used to improve hurricane track and intensity forecasts. Rapid response by NOAA Ship *Ferdinand R. Hassler* to survey for underwater debris and shoaling that could prove dangerous to deeper draft vessels expedited the opening of the Ports of Charleston and Savannah by the U.S. Coast Guard following the passage of Hurricane Matthew. After the storm, NOAA's King Air (N68RF) flew 14 missions to collect post-storm damage and flooding imagery from Florida to Virginia in coordination with FEMA.

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 remotely piloted underwater and aircraft systems that could significantly contribute to environmental observations. OMAO's ongoing challenge is to meet the growing demand for in situ scientific data while providing the highest level of service. 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 developing 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 work force 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. Senate among others where they lend their expertise and service. We also continue to strengthen our partnership with 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. The men and women of OMAO and the NOAA Corps provide environmental intelligence for a dynamic world as they serve our nation every day from the farthest seas to the highest skies.



# NOAA Commissioned Officer Corps



– Honor, Respect, Commitment –



The NOAA Commissioned Officer Corps (NOAA Corps) is one of the United States' seven Uniformed Services and as 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 (NOAA), 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 (OMAO) 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 celebrates 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 2016, NOAA aircraft conducted research and reconnaissance missions into Hurricane Matthew, and post-storm flooding reconnaissance missions from Florida to Virginia with FEMA. NOAA Ship *Ferdinand Hassler* conducted post-storm surveys within of the ports of Charleston and Savannah within 48 hours to re-open the ports to maritime commerce, worth more than \$5M per hour.
- In 2015, NOAA aircraft conducted research and surveillance missions into some of the planet's most extreme weather, ranging from Hurricane Patricia, the strongest on record in the Western hemisphere, to severe storms over the U.S. Great Plains region. In addition, NOAA aircraft responded to unprecedented flooding in South Carolina using advanced sensors and imaging technology to provide emergency response managers with critical real-time information needed to respond to this disaster.
- After Hurricane Sandy in 2012, NOAA Ships *Thomas Jefferson* and *Ferdinand R. Hassler* conducted emergency bathymetric surveys to locate possible submerged navigational hazards in the ports of New York and Virginia. These surveys enabled the ports to reopen quickly. Aerial images of storm-stricken regions, taken by NOAA aircraft, helped residents and emergency workers to quickly assess the condition of houses, bridges, and vital infrastructure.
- In 2010, the NOAA fleet and the NOAA Corps played a major role in the response to the BP *Deepwater Horizon* oil spill in the Gulf of Mexico. NOAA's entire Atlantic fleet and over a quarter of the total strength of the NOAA Corps were deployed to the Gulf following the spill, developing mission plans and assisting response efforts.





*Please find more information at the following links:*

OMAO – <http://www.omaο.noaa.gov>

NOAA Corps - <http://www.omaο.noaa.gov/learn/noaa-commissioned-officer-corps>

OMAO 101 - <http://www.legislative.noaa.gov/policybriefs/OMAO%20101%20052317.pdf>

NOAA Fleet Update – Find the latest at - <http://www.legislative.noaa.gov/policybriefs.html>

**Reports and Informational Slide Decks:**

[OMAO Fleet Recapitalization Slide Deck – Building NOAA's 21<sup>st</sup> Century Fleet](#)

[OMAO Fleet Recapitalization Questions and Answers \(Q&As\)](#)

[NOAA Fleet Independent Review Team Final Report](#)

[The NOAA Fleet Plan: Building NOAA's 21<sup>st</sup> Century Fleet](#)

**Other OMAO Sites:**

OMAO Marine Operations – <http://www.omaο.noaa.gov/learn/marine-operations>

OMAO Aircraft Operations – <http://www.noaacorps.noaa.gov/>

NOAA Diving Program – <http://www.noaacorps.noaa.gov/>

OMAO on Facebook - <https://www.facebook.com/NOAAOMAO>

OMAO on Twitter - [http://www.twitter.com/NOAA\\_OMAO](http://www.twitter.com/NOAA_OMAO)

NOAA Ship Tracker - <https://shiptracker.noaa.gov/> (restricted to only .gov or .mil users)