



# NOAA Fleet Update

**April 2018**

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 in the News



## 50<sup>th</sup> Anniversary - NOAA Ships *Rainier* and *Fairweather*

On March 22, OMAO Marine Operations and the city of Newport, Oregon, celebrated NOAA ships *Rainier* and *Fairweather* for 50 years of service to the nation. The event recognized the successful history of NOAA ships *Fairweather* and *Rainier*, as well as the unwavering pride and professionalism of the crew and offices in service to our nation.

On October 2, 1968, two ships were commissioned at Lake Union, Seattle, Washington, under the United States Coast and Geodetic Survey (USC & GS). USC & GS *Fairweather* and USC & GS *Rainier* were the last of three ships that were constructed at Jacksonville Shipyards in Jacksonville, Florida, under a sub-contract from Aerojet-General Corporation. The completion of *Rainier* brought a close to a series of the world's leading research ships at Jacksonville Shipyard. *Rainier* and *Fairweather* were christened on March 15, 1967, in Jacksonville, and their sister ship, USC & GS *Mt. Mitchell* was launched a year prior. Following hydrographic tradition, the ships were named for familiar features near their working grounds, with *Fairweather* being named for Alaska's Mt. Fairweather, and *Rainier* named for Mt. Rainier, Washington.



NOAA Ships *Rainier* and *Fairweather* alongside Marine Operations Center-Pacific, Newport, Oregon.  
[Photo: NOAA]

## [NOAA shows off high-tech ships tasked for mapping ocean floor](#) -KATU

The Fairweather and the Rainier are National Oceanic and Atmospheric Administration hydrographic survey ships that make detailed maps of the ocean floor. The two ships are docked at NOAA's Marine Operations Center, preparing for a surveying trip up and down the West Coast. Smaller boats will be loaded onto the ships to aid in the mission...



## Basic Officer Training Class 131



In March, Basic Officer Training Class (BOTC) 131 overlapped with the senior NOAA Corps officers participating in Refresher Training (REFTRA), which also took place at the US Coast Guard Academy (USGA). The two classes enjoyed a liberty evening together and BOTC 131 experienced their first dose of fleet camaraderie, as well as insight into NOAA operations. BOTC 131 was also fortunate to sit in during presentations from some of REFTRA's guest speakers, including an environmental brief, a hydrography presentation, and a discussion with NOAA Corps Rear Admiral Nancy L. Hann (one star). At the end of March, they prepared for the more underway-intensive training, two weeks aboard USCG *Barque Eagle* in the beginning of April. Upon their return to USCGA, they will begin training aboard several different platforms, including R/V Victor Lusanoff, T/V Kittiwake, and the academy's 65-foot training boats





# NOAA Commissioned Officer Corps



## April Recruiting Events

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

To continue to keep the Corps strong, during April NOAA Corps officers will be present at the following recruiting events:

### **Nova Southeastern University - NSU Career and Internship Expo**

*Tuesday, April 3, 4:30 PM - 7:30 PM, Rick Case Arena at Don Taft University Center, Fort Lauderdale, Florida*

### **Sacramento State University - All Majors Career Fair**

*Tuesday, April 3, 10:00 AM - 2:00 PM, University Union Ballroom, Sacramento, California*

### **Morgan State University - Spring Job Fair**

*Wednesday, April 11, 10:00 AM - 1:00 PM, University Student Center, Baltimore, Maryland*

### **University of California Davis - Spring Internship and Career Fair**

*Wednesday, April 18, 10:00 AM - 2:00 PM, ARC Pavilion - UC Davis, Davis, California*

### **Florida Atlantic University - Women in Engineering/Computer Science Internship/Career Fair**

*Thursday, April 19, 12:00 PM - 2:30 PM, The Cube - Engineering East, Boca Raton, Florida*

### **Southern Oregon University - SOU Career Fair**

*Wednesday, April 25, 11:00 AM - 2:00 PM, SU Rogue River Room, Ashland, Oregon*

### **California State Polytechnic University - Spring Career Fair**

*Thursday, April 26, 10:30 AM - 2:30 PM, University Quad, Pomona, California*

### **Applications Being Accepted**

The NOAA Corps is currently accepting applications for its Basic Officer Training Class (BOTC 133), which will begin January 2019. The application deadline is June 15, 2018, to receive an interview. Additional information may be found on the [NOAA Corps website](#) and BOTC 133 applicants may start the process utilizing the online NOAA Corps E-Recruit System.



## New Castle, New Hampshire

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

**Commanding Officer:** LCDR Matthew Jaskoski

**Primary Mission Category:** Hydrographic Surveys

**Temporary Location:** Baltimore, Maryland

**Ship Status:** The ship will be in shipyard for repairs through August.

## Newport, Rhode Island

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

**Commanding Officer:** CDR Jeff Taylor

**Primary Mission Category:** Fisheries Research

**Depart:** Newport, Rhode Island

**Arrive:** Newport, Rhode Island

**Ship Status:** The ship will be conducting a National Marine Fisheries Service project, the Spring Multispecies Bottom Trawl Survey in the Northeast Atlantic. This survey provides biodiversity, abundance and biomass indices, size and age compositions, maturity, fecundity, diet and genetic composition information for 50 formally assessed and several hundred non-assessed species of finfish and invertebrate species.

## Davisville, Rhode Island

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

**Commanding Officer:** CDR Eric Johnson

**Primary Mission Category:** Oceanographic Exploration and Research

**Depart:** Pascagoula, Mississippi

**Arrive:** Pascagoula, Mississippi

**Ship Status:** The ship will depart on the Gulf of Mexico remotely operated vehicle & mapping cruise, part of the Atlantic Seafloor Partnership for Integrated Research and Exploration (ASPIRE) project. ASPIRE is a multiyear campaign with multiple NOAA and interagency partners to improve understanding of the diversity and distribution of deep water habitats in the North Atlantic.

## Norfolk, Virginia

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

**Commanding Officer:** CDR Christiaan van Westendorp

**Primary Mission Category:** Hydrographic Surveys

**Depart:** Norfolk, Virginia

**Arrive:** Galveston, Texas

**Ship Status:** The ship will be underway to conduct the Hydrographic Systems Readiness Review early in the month and continue on to map Houston/Galveston shipping lanes.

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

**Commanding Officer:** CDR Stephanie Koes

MOC-A serves as a homeport for one NOAA ship. Its personnel provide administrative and logistical support, and manage the day-to-day operations, 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, South Carolina

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

**Acting Commanding Officer:** LCDR Megan Raymond/ CDR Jeffrey Shoup

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

**Depart:** Charleston, South Carolina

**Arrive:** Pensacola, Florida

**Ship Status:** The ship will be in an unscheduled repair period in Charleston, South Carolina, through mid-April. The ship will depart on April 28 to study climate Impacts on larval Atlantic Bluefin tuna ecology in the Gulf of Mexico.

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

**Commanding Officer:** CAPT Kurt Zegowitz

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

**Depart:** Fort Lauderdale, Florida

**Arrive:** Durban, South Africa

**Ship Status:** The ship is underway for South Africa to begin a cruise that is part of the decadal re-occupation of select NOAA hydrographic transects to determine natural and human-caused changes in chemical and physical properties in the Indian Ocean that will focus on the oceanic carbon cycle and penetration of anthropogenic CO<sub>2</sub> into the ocean. The work is in direct support of the United States Carbon Cycle Science Program and Climate Variability and Prediction Program.

## Pascagoula, Mississippi

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

**Commanding Officer:** CDR Nicholas Chrobak

**Primary Mission Category:** Fisheries Research

**Depart:** Pascagoula, Mississippi

**Arrive:** Tampa, Florida

**Ship Status:** The ship will be operating in the Gulf of Mexico on the Gulf Southeast Area Monitoring and Assessment Program (SEAMAP) Reef Fish Video cruise. The primary objective of the annual SEAMAP reef fish video survey is to provide an index of the relative abundances of fish species associated with topographic features (reefs, banks, and ledges) located on the continental shelf of the Gulf of Mexico from Brownsville, Texas to the Dry Tortugas, Florida.

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

**Commanding Officer:** Master Dave Nelson

**Primary Mission Category:** Fisheries Research

**Depart:** Pascagoula, Mississippi

**Arrive:** Pascagoula, Mississippi

**Ship Status:** The ship will be conducting a Multi Gear Ecosystem Survey cruise in the Northern Gulf of Mexico. The project will be an evaluation of a multi-gear approach to conducting ecosystem focused fishery-independent surveys.

**NOAA Ship *Gordon Gunter***

**Commanding Officer:** CDR Lindsay Kurelja

**Primary Mission Category:** Fisheries Research

**Ship Status:** The ship will be in homeport for scheduled repairs and annual fleet inspection.

**San Diego, California**

**NOAA Ship *Reuben Lasker***

**Acting Commanding Officer:** CAPT Mark Wetzler

**Primary Mission Category:** Fisheries Research

**Temporary Location:** Vallejo, California

**Ship Status:** The ship is at scheduled Dry Dock until mid-April and should return to San Diego on April 22.



NOAA Ship *Reuben Lasker* alongside in San Diego, California.  
[Photo: LTJG James Europe/NOAA]

**Newport, Oregon**

**NOAA Ship *Rainier***

**Commanding Officer:** CDR Ben Evans

**Primary Mission Category:** Hydrographic Surveys

**Ship Status:** Alongside Newport, Oregon, for scheduled dockside repair period through end of April.

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

**Commanding Officer:** CDR Paul Kunicki

**Primary Mission Category:** Fisheries Research

**Depart:** San Diego, California

**Arrive:** San Francisco, California

**Ship Status:** Ship departed Newport, Oregon, on for the Spring California Cooperative Oceanic Fisheries Investigations in San Diego with the project ending in San Francisco on April 27. *Shimada* will return to Newport in early May.

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

**Commanding Officer:** CAPT Keith Roberts

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.



NOAA Ship *Bell M. Shimada* arrives at MOC-P.

[Photo: LCDR Carl Rhodes/NOAA]

## Ketchikan, Alaska

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

**Commanding Officer:** CDR Mark Van Waes

**Primary Mission Category:** Hydrographic Surveys

**Temporary Location:** Newport, Oregon

**Ship Status:** Alongside Newport, Oregon, for unscheduled repairs. When repairs complete, the ship will commence hydrographic operations in southeast Alaska until late June.

## Kodiak, Alaska

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

**Commanding Officer:** CDR Michael Levine

**Primary Mission Category:** Fisheries Research

**Depart:** Kodiak, Alaska

**Arrive:** Unalaska, Alaska

**Ship Status:** The ship departed Kodiak, Alaska, for the Ice Seal Ecology survey in the Bering Sea and will return to port in Unalaska on April 24.

## Honolulu, HI

### **NOAA Ship *Hi'ialakai***

**Commanding Officer:** CDR Colin Little

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

**Ship Status:** The ship's scheduled departure on the American Samoa - Reef Assessment and Monitoring Program has been delayed due to unscheduled maintenance. Departure on project is now planned for early May.

### **NOAA Ship *Oscar Elton Sette***

**Commanding Officer:** CDR Héctor Casanova

**Primary Mission Category:** Fisheries Research

**Depart:** Honolulu, Hawaii

**Arrive:** Honolulu, Hawaii

**Ship Status:** The ship will transit to homeport from dry dock with an estimated arrival in Honolulu on April 9. The ship is then scheduled to depart on the Hawaiian Monk Seal Population Assessment and Recovery Activities - Deployment Cruise on April 15.

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

**Commanding Officer:** CAPT Robert Kamphaus

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



# OMAO's Aircraft



## Lakeland, Florida

NOAA's fleet of nine manned aircraft is based at OMAO's Aircraft Operations Center ([AOC](#)). Located at Lakeland Linder Regional Airport in Lakeland, Florida, the officers, crew, and scientists from AOC provide capable, mission-ready aircraft and professional crews to the scientific community – see photo below. 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:

- [Lockheed WP-3D Orion \(P3\) "Hurricane Hunter"](#) [Tail ID# N42RF]
- [Lockheed WP-3D Orion \(P3\) "Hurricane Hunter"](#) [Tail ID# N43RF]
- [Gulfstream IV-SP \(G-IV\) "Hurricane Hunter"](#) [Tail ID# N49RF]
- [Gulfstream Turbo \(Jet Prop\) Commander AC-695A \(Jet Prop Commander\)](#) [Tail ID# N45RF]
- [Beechcraft King Air 350CER \(King Air\)](#) – [Tail ID# N68RF]
- [De Havilland DHC-6-300 Twin Otter \(Twin Otter\)](#) [Tail ID# N46RF]
- [Twin Otter](#) [Tail ID# N48RF]
- [Twin Otter](#) [Tail ID# N56RF]
- [Twin Otter](#) [Tail ID# N57RF]

In addition to the fleet of nine, manned aircraft, AOC provides oversight and guidance for all of NOAA's Unmanned Aircraft System (UAS) operations. Please visit [AOC's UAS Section](#), or see below, for additional information.

### Mission Summary

The following Mission Summary provides an overview of the status or location(s) and mission(s) for each aircraft for the month. Please note all mission bases, projected flight locations, and mission parameters and requirements may shift based on changing needs and circumstances. For the latest news from the NOAA skies, please visit the Aircraft Operations Center on [Facebook](#) and [Twitter](#).

#### **[P3 "Hurricane Hunter" \[Tail ID# N42RF\]](#)**

**Who:** Officers and crew of OMAO/NOAA Corps along with scientists from [NOAA's Office of Atmospheric Research](#)

**What:** Research flights to better understand how environmental factors that are characteristic of the southeast United States affect the formation, intensity, and path of tornadoes for this region.

**When:** Present to April 15. Scientific instrumentation and phase maintenance to occur following the mission at Aircraft Operations Center (AOC), Lakeland, Florida.

**Where:** Flights will base from Huntsville, Alabama, and occur over Mississippi, Alabama, Tennessee, and Georgia.

**Why:** The ultimate goal is to improve tornado forecasts and warning performance in the southeast.

**P3 “Hurricane Hunter” [Tail ID# N43RF]**

Currently down for re-winging in Naval Air Station Jacksonville, Florida. The aircraft is due out of maintenance on or about September 17; instrumentation and outfitting at AOC will follow.



P3 “Hurricane Hunter” Re-Winging Progress  
[Photo: NOAA]

**G-IV “Hurricane Hunter” [Tail ID# N49RF]**

Aircraft is in a scheduled maintenance period in Savannah, Georgia, until April 15 followed by hurricane equipment installation at AOC. The aircraft will support the Caribbean Hurricane Awareness Tour from April 22-29 to include static display events in the following cities: La Paz, Mexico; Zihuatanejo, Mexico; Panama City, Panama; Montego Bay, Jamaica; and, San Juan, Puerto Rico.

**Jet Prop Commander [Tail ID# N45RF]**

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

**What:** Water Resource Surveys

**When:** Present - May 15

**Where:** Surveys will be conducted over Minnesota, North Dakota, South Dakota, Montana, and Alaska.

**Why:** The aircraft will conduct Low level (500 feet) surveys to collect Snow Water Equivalent data for NWS River Forecast Centers. This data is used by NWS Weather Forecast Offices and NWS River Forecast Centers when issuing river and flood forecasts, water supply forecasts, and spring flood outlooks.

### **King Air [Tail ID# N68RF]**

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

**What:** Coastal mapping, and pilot training

**When:** Present - April 30

**Where:** AOC (Lakeland, Florida)

**Why:** Coastal mapping flights provide critical baseline data to help accurately map the U.S. shoreline. The data is important for national security, maritime shipping, and navigation. Pilot training will occur throughout the month between mission blocks.

### **Twin Otter [Tail ID# N46RF]**

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

**What:** Water Resource Surveys

**When:** Present - April 23

**Where:** Aircraft will be conducting surveys over the mountainous regions in the Northeast: New York, Vermont, New Hampshire, Massachusetts, Connecticut, and Maine.

**Why:** The aircraft will conduct Low level (500 feet) surveys to collect Snow Water Equivalent data for NWS River Forecast Centers. This data is used by NWS Weather Forecast Offices and NWS River Forecast Centers when issuing river and flood forecasts, water supply forecasts, and spring flood outlooks.

### **Twin Otter [Tail ID# N48RF]**

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

**What:** North Atlantic Right Whale Survey

**When:** Present - July 31

**Where:** Based out of Falmouth, Massachusetts, and Halifax, Nova Scotia, Canada. The survey area will cover coastal waters off Massachusetts, New Hampshire, Maine, and Nova Scotia, Canada.

**Why:** The objectives of this project are to provide real time sighting information to commercial shipping interests in an effort to reduce collisions between ships and North Atlantic Right Whales, to better understand the distribution and abundance of the North Atlantic Right Whale, and to collect photographic images of individual right whales for mark-recapture analysis to monitor the population. 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 [NOAA's Office of Atmospheric Research \(OAR\)](#)

**What:** Capturing of the East Coast Outflow (ECO) of Greenhouse Gases

**When:** April 1 - May 15

**Where:** Based out of Stafford, Virginia. Secondary operations will occur from Bedford, Massachusetts.

**Why:** The objective of the ECO survey is to collect accurate measurements of total emissions of greenhouse gases and volatile organic compounds (VOCs). Measurements will be determined from transects between Virginia Beach, Virginia, and Portland, Maine, and from focused urban outflow areas such as Baltimore and Boston.

### **Twin Otter [Tail ID# N57RF]**

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

**What:** Coastal mapping flights

**When:** Present - Sept 30

**Where:** Based out of Newport News, Virginia, and will survey the Chesapeake Bay area (Virginia and Maryland).

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

### **UAS Section**

The UAS Section provides nationwide policy input, oversight, and guidance for all of NOAA's Unmanned Aerial System (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 U.S. 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.

[See below for a summary of current support efforts.](#)

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

**Commanding Officer:** CAPT Timothy Gallagher

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



NOAA Aircraft in the hangar at the NOAA Aircraft Operations Center in Lakeland, Florida.  
[Photo Credit: NOAA]



# Unmanned Systems Support



## Nationwide

### Globalhawk

**Location:** Edwards Air Force Base, California

**Mission:** Scheduled Inspection, Maintenance, and development of the UAV Based Range

During March the NASA Global Hawk project has been working to develop capabilities to support oceanic Range tests in addition to science operations. Global Hawk flight operations personnel have been busy executing studies to confirm that Kaneohe Bay MCAS in Hawaii (PHNG) is the most appropriate westerly forward deployment location to support Pacific Range test flight operations for both the Department of Defense and NASA. Associated with that effort the team has been investigating island based divert air fields to help in mitigating hazards that would otherwise incur a loss of aircraft. Global Hawk 872 (Block 2) is being maintained in a flight ready status in preparation for summer DoD flight test activities as the team focuses on Global Hawk 874 (newer Block 10) in preparation to perform a Functional Check Flight of this newly modified for science aircraft in April. Global Hawk 874 will most likely be the aircraft to support NOAA's Global ARCHER project.

### APH-22 Hexacopter

**Location:** Cape Shirreff, Antarctica

**Mission:** SWFSC Field Operations

The Southwest Fisheries Science Center (SWFSC) is using the APH-22 hexacopter to measure wildlife response to UAVs. These missions will consist of repeated flights at a set of controlled altitudes to quantify behavioral responses of overflights on wild animal populations during breeding and non-breeding periods. In addition, a study to define the relationship between mass, size and shape as determined from vertical aerial photographs for pinnipeds will be continued. Finally, colony-wide census flights will be conducted to monitor penguin chick production.

**Location:** Cape Cod Bay, Massachusetts

**Mission:** SWFSC North Atlantic Right Whale

In a repeat of successful missions in 2016 and 2017, the SWFSC plans to utilize an APH-22 hexacopter to collect photogrammetry images and blow samples from North Atlantic Right Whales in Cape Cod Bay. Missions will be flown from a 55' sailboat, as in 2016 and 2017, and previous Humpback Whale collaborative research in 2015.

**Location:** Oahu, Hawaii

**Mission:** Pacific Islands Fisheries Science Center (PIFSC) Hawaiian Monk Seal Research Program

Offshore Islets of Oahu are important haul out locations for Hawaiian Monk Seals. These are only accessible via small boat and often have hazardous boat landing conditions. Utilizing the APH-22 will increase our ability to survey and respond to seals on offshore islets.

**Location:** Hawaiian Archipelagos, Hawaii

**Mission:** PIFSC Hawaiian Monk Seal Research Program

If conditions allow, the APH-22 will be launched and controlled from a small boat and flown to the island to photograph and document Hawaiian Monk Seals on shore. The APH-22 has the potential to greatly increase our ability to assess the population of Monk Seals at these sites when swell conditions do not allow small boats to land people on shore. Photogrammetry and disturbance assessment of Hawaiian Monk Seals; The APH-22 will be operated from shore at French Frigate Shoals, Laysan Island, Lisianski Island, and Pearl and Hermes Reef to photograph seals in conjunction with instrumentation and health assessments to determine the ability to use the APH-22 as a tool to assess the size, health, and condition of Hawaiian Monk Seals and continue a previous study assessing the level of disturbance caused by the APH-22 to Monk Seals.

**Location:** Oahu, Hawaii

**Mission:** PIFSC APH-22 Training

The PIFSC Center utilizes the airfield at Bellows Air Force Station on the island of Oahu and recently coordinated at new training location at the Kawainui Model Airplane Field to conduct training and proficiency flights. This allows APH-22 operators to maintain proficiency for future operations at a reduced cost. Training flights are also approved from NOAA small boats.

**Location:** Oahu, Hawaii

**Mission:** PIFSC Cetacean Research Program

After a successful pilot study collecting photogrammetry measurements and group size estimates of cetaceans off leeward Oahu, we are revising our authorization that covered boat-based proficiency ops to include the potential for cetacean data collection. The cetacean UAS ops will take place from a 19' small boat (launched from either Ko Olina Marina or Waianae Boat Harbor). These surveys will take place approximately monthly.

**Location:** Seattle, Washington

**Mission:** Marine Mammal Laboratory (MML) Sand Point APH-22 Training

MML will continue training flights in the Sand Point area in Seattle, Washington. MML has several objectives for the use of the APH-22 hexacopter UAS throughout Alaska. These trips mostly occur in the summer and sometimes autumn seasons. In between surveys in the field, it is important that pilots maintain currency and proficiency. The Sand Point location will significantly reduce the travel time required and provide more opportunities to meet training requirements.

### **APH-17 Hexacopter / APH-22 Hexacopter / APO-42 Octocopter**

**Location:** Descanso Ranch, California

**Mission:** APO-42/APH-22/APH-17 Training

Southwest Fisheries Science Center will be conducting test flights and training flights for their various platforms. Flights will be conducted under Federal Aviation Administration Part 107 rules for Small Unmanned Aircraft Systems and will consist of flight maneuvers, operating in all the control modes, emergency procedures, takeoffs, landings and photogrammetry.

### **SenseFly eBee RTK**

**Location:** Various Locations

**Mission:** Training and Operations

East coast training is expected to continue at the National Geodetic Survey's Corban, Virginia, facility in preparation for mapping missions expected throughout the year.

### **FireFLY6 PRO**

**Location:** Oahu, Hawaii

**Mission:** PIFSC Proficiency Training

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

### HQ-55 Hybrid VTOL/FWD Flight Quadrotor

**Location:** Tucson, Arizona

**Mission:** Initial Training

Two members of the AOC UAS Section received initial manufactures training on the Latitude Engineering HQ-55. The HQ-55 is a long endurance vertical takeoff and landing UAS platform that can switch to forward flight. The goal is to build on last year's successful demonstration flights to produce an asset capable of taking off and recovering on the limited deck space of a NOAA ship.



HQ-55 Hybrid VTOL/FWD Flight Quadrotor  
[Photo: NOAA]



# 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 Senate Committee on Commerce, Science, and Transportation

**Location:** Washington, DC

**Detail:** LT Zachary Cress

LT Cress is currently on detail to the Committee with the staff of the Chair, Senator John Thune (R-SD), where he 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

**Embedded Liaison:** LT Cherisa Friedlander

Members of the NOAA Commissioned Officer Corps carry out NOAA's mission in remote locations across the globe. LT Friedlander 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. Northern Command

**Location:** Boulder, Colorado

**Embedded Liaison:** CAPT David Zezula

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, 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. CAPT Zezula 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 Homeland Security - U.S. Coast Guard

**Location:** Washington, DC

**Embedded Liaison:** CDR G. Mark Miller

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.

## Department of Defense - U.S. Navy

**Location:** Washington, DC

**Embedded Liaison:** CDR Jason Mansour

CDR 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, CDR 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:** LT Laura Dwyer

Embedded in the Navy's Naval Oceanography Mine Warfare Center, LT 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.



# 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.

Teachers sailing in April:

- April 5 - 18 - Dana Kostzer (St. Martin Middle School, Ocean Springs, Mississippi) will sail on a Reef Fish Survey from Pascagoula, Mississippi, to Tampa, Florida, on *NOAA Ship Pisces*.
- April 10 - 27 - Tom Jenkins (Greenon Jr/Sr High School, Springfield, Ohio) will sail on a Spring Bottom Trawl Survey in and out of Newport, Rhode Island, on *NOAA Ship Henry B. Bigelow*.
- April 16 - 27 - Victoria Cavanaugh (Edward Devotion School, Brookline, Massachusetts) will sail on a Hydrographic Survey from Ketchikan, Alaska, to Sitka, Alaska, on *NOAA Ship Fairweather*.
- April 28 - May 13 - Cynthia Byers (Rosholt Middle School, Rosholt, Wisconsin) will sail on a Hydrographic Survey from Sitka, Alaska, to Juneau, Alaska, on *NOAA Ship Fairweather*.



14 Teacher at Sea Alumni  
[Photo: NOAA]



# OMAO - NOAA Diving Program



## Seattle, Washington

### NOAA Diving Center and Program

OMAO manages and implements NOAA's Diving Program (NDP), which trains and certifies scientists, engineers, and technicians from federal, state, tribal governments, and the private sector to perform the variety of tasks carried out underwater to support NOAA's mission. NDP also has cooperative diving agreements with over 100 government agencies and academic institutions. NOAA has more than 400 divers who perform over 14,000 dives per year. The NDP is headquartered at the NOAA Diving Center (NDC), which is located at the NOAA Western Regional Center in Seattle, Washington.

### Field Trainer

NOAA Divemasters and Unit Diving Supervisors completed a one-week NOAA Diving Field Trainer course at the NDC. NDC provides various instructions to the field on request. This select group received instruction as NOAA Diving Field Trainers to learn how to provide training to currently certified divers who are not yet familiar with diving procedures at NOAA. Completion of training with a NOAA Diving Field Trainer allows candidates to become certified as a NOAA Diver.



NOAA Diving Field Trainers

[Photo Credit: Tabitha Jacobs, NDC Contractor]

### Upcoming Missions include:

- Hyperbaric chamber supervisor and divemaster support for the *NOAA Ship Hi'ialakai* American Samoa RAMP mission
- The NOAA Diving Control and Safety Board annual meeting in Key West (April 9-13)
- The NOAA Diver class in Seattle (May 7-25)



# 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 & 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, during the 2017 Hurricane season NOAA flight crews and scientists flew a combined 622.7 hours over the course of 120 sorties for hurricane surveillance, research, reconnaissance, and emergency response. NOAA's Lockheed WP-3D and Gulfstream IV-SP collected and provided vital data used by NOAA scientists for improved modeling, forecasting, and ensuring accurate forecasts provided to the public. NOAA's Beechcraft King Air 350 rapidly responded to demand from emergency managers, using state-of-the-art equipment to collect over 65,000 aerial images of damaged communities from Houston to the U.S. Virgin Islands and rapidly providing that imagery to first-responders and the public. On short notice, NOAA Ship Thomas Jefferson departed Florida for Puerto Rico and the U.S. Virgin Islands to conduct surveys in and around ports. The priority tasking searched for sunken storm debris posing a threat to shipping traffic and a hazard to navigation. These post-storm surveys provided critical information regarding navigational safety for multiple vital ports. 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 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.
- 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.
- 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.





# OMAO/NOAA Corps Resources



Please find more information at the following links:

## OMAO Sites

[OMAO](#)

[NOAA Corps](#)

[NOAA Fleet Update – March 2018](#)

(The latest version may always be found on the web at: <http://www.legislative.noaa.gov/policybriefs.html>.)

[Aircraft Flights and Mission Info Summary – April 2018](#)

(The latest version may always be found on the web at: <http://www.legislative.noaa.gov/policybriefs.html>.)

## Two Pagers, Reports, and Informational Slide Decks

[OMAO 101 - 2018](#)

[OMAO two pager with Recent Mission Highlights – 2018](#)

[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](#)

[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)