NOAA Fleet Update

February 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.

 Find us on Facebook for the latest news and activities. 

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Basic Officer Training Class131 Begins

On January 22, 2018, NOAA Corps Basic Officer Training Class (BOTC) 131 successfully began. Thirteen new NOAA Corps Officers were sworn in and began their 17-week training at the U.S. Coast Guard Academy in conjunction with the Officer Candidate School. The newest officers come from ten different states and have a background in a variety of sciences.

Nathaniel Young-Joon Park, **West Covina, CA**
BS- Environmental Science, UC Los Angeles

Samuel Harper Umfress, **Pasadena, CA**
BS- Aeronautical & Astronautical Engineering, Univ. of Washington

Samantha Lynn Flounders, **Oakland, CA**
BS- Marine Biology, Univ. of Hawaii at Manoa

John Andrew Freutel, **Downey, CA**
BS- Marine Science, CSU-Monterey Bay

Ryan Allen Musick, **Newark, DE**
BS- Meteorology, Univ. of the Incarnate World

Emily Grace Bell, **Duval County, FL**
BA- Marine Science, Univ. of California Berkeley

Cabot Alden Zucker, **Fort Lauderdale, FL**
BS- Sustainability and the Buit Environment, Univ. of Florida
BS- Wildlife Ecology and Conservation, Univ. of Florida

William Robert Theodore Abbott, **Marietta, GA**
BS- Environmental Science, Univ. of West Florida
MS- Chemical Oceanography, Univ. of South Florida

Tyler James Aldrich, **Falmouth, MA**
BS- Marine Safety Environmental Protection, Mass Maritime Academy

Alexander Field Lee, **Wilmington, NC**
BA- Environmental Science, Univ North Carolina Wilmington

Luke Martin Evancoe, **Manhasset, NY**
BS-Biology, Virginia Commonwealth Univ.
Master of Teaching - Biology Education, Virginia Commonwealth Univ.

Stefanie Lynn Coxe, **Luzerne, PA**
BS- Conservation and Wildlife Management, Delaware Valley Univ.

Kermit Ross Farrow, Jr., **Chesapeake, VA**
BS- - Natural Resouces, NC State Univ.

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
Depart: Norfolk, Virginia **Arrive:** Norfolk, Virginia
Ship Status: The ship is will depart from homeport early this month to conduct hydrographic survey work in support of the National Ocean Service's Approaches to Chesapeake Bay Project (Leg 4). The ship is scheduled to work in the Chesapeake Bay area through late March.

Newport, RI

NOAA Ship *Henry B. Bigelow*

Commanding Officer: CDR Jeff Taylor
Primary Mission Category: Fisheries Research
Depart: Norfolk, Virginia **Arrive:** Newport, Rhode Island
Ship Status: The ship will depart its temporary location at Colonnas Shipyard in Norfolk and conduct gear calibrations en route to Newport. It will depart again for a National Marine Fisheries Service project, the Spring Multispecies Bottom Trawl Survey in the Northeast Atlantic. Additional underway gear calibrations are scheduled for the end of the month.

Davisville, RI

NOAA Ship *Okeanos Explorer*

Commanding Officer: CDR Eric Johnson
Primary Mission Category: Oceanographic Exploration and Research
Status: The ship will be in an alongside in Pascagoula, Mississippi for planned repairs through March 2018.

Norfolk, VA

NOAA Ship *Thomas Jefferson*

Commanding Officer: CDR Christiaan van Westendorp
Primary Mission Category: Hydrographic Surveys
Ship Status: Ship will undergo annual fleet inspection and a scheduled dockside maintenance period in Norfolk, Virginia until March 2018.

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

CDR Stephanie Koes, Commanding Officer MOC-A
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, SC

NOAA Ship *Nancy Foster*

Commanding Officer: Master Donn Pratt
Primary Mission Category: Oceanographic Research, Environmental Assessment
Ship Status: Ship will be in a scheduled dry dock repair period in Charleston, South Carolina through March 2018.

NOAA Ship *Ronald H. Brown*

Commanding Officer: CAPT Kurt Zegowitz
Primary Mission Category: Oceanographic Research, Environmental Assessment
Depart: Charleston, South Carolina **Arrive:** Fort Lauderdale, Florida
Ship Status: The ship is scheduled to depart Charleston on the Ocean and Atmospheric Research project, Western Boundary Time Series, based out of the Atlantic Oceanographic and Meteorological Laboratory. This project continuously monitors two important components of the thermohaline circulation in the Subtropical North Atlantic with the ultimate goal of determining the state of the overturning circulation and providing a monitoring system for rapid climate change.

Pascagoula, MS

NOAA Ship *Pisces*

Commanding Officer: CDR Nicholas Chrobak
Primary Mission Category: Fisheries Research
Ship Status: Ship will be in a scheduled dockside maintenance period in Pascagoula, Mississippi until March 2018.

NOAA Ship *Oregon II*

Commanding Officer: Master Dave Nelson
Primary Mission Category: Fisheries Research
Ship Status: Ship will be in a scheduled dockside maintenance period in Pascagoula, Mississippi until March 2018.

NOAA Ship *Gordon Gunter*

Commanding Officer: CDR Lindsay Kurelja
Primary Mission Category: Fisheries Research
Depart: Pascagoula, Mississippi **Arrive:** Galveston, Texas
Status: The ship will depart Pascagoula for the Gulf of Mexico Marine Mammals Winter project (Leg 3). The objectives are to collect data for unbiased estimates of cetacean species' abundance and distribution, biopsy samples for cetacean stock structure research, collect seabird abundance and distribution, and collect oceanographic data on cetacean and seabird species' habitats, and photograph species. The data acquired will be used to update the US Atlantic and Gulf of Mexico Marine Mammal Stock Assessments which are mandated by the ESA/MMPA.

NOAA Ship *Thomas Jefferson* and NOAA Ship *Henry B. Bigelow* alongside Marine Operations Center - Atlantic.
[Photo: ENS Taylor Krabie]

San Diego, CA

NOAA Ship *Reuben Lasker*

Acting Commanding Officer: CAPT Mark Wetzler
Primary Mission Category: Fisheries Research
Ship Status: The ship will transit to Vallejo, California in early February for scheduled drydock lasting until mid-April.

Newport, OR

NOAA Ship *Rainier*

Commanding Officer: CDR Ben Evans
Primary Mission Category: Hydrographic Surveys
Temporary Location: Portland, Oregon
Ship Status: Ship is in a scheduled drydock maintenance period in Portland, Oregon and will return to Newport in mid-February.

NOAA Ships *Rainier* and *Oscar Elton Sette* together in Vigor Industrial drydock, Portland, Oregon for maintenance period.
[Photo: LT Scott Broo/NOAA January 2018]

NOAA Ship *Bell M. Shimada*
Commanding Officer: CDR Paul Kunicki
Primary Mission Category: Fisheries Research
Temporary Location: Vallejo, California
Ship Status: Ship winter California Cooperative Oceanic Fisheries Investigations (CalCOFI) in San Diego. Shimada will return to Newport in mid-February for Northern California Current Ecosystem Preconditioning project.

NOAA *Ship Bell M. Shimada arriving at Marine Operations Center – Pacific.*
[Photo: LCDR Carl Rhodes/NOAA]

OMAO'S MARINE OPERATIONS - NATIONAL SUPPORT

CAPT Todd Bridgeman, Director of Marine Operations

Mr. Troy Frost, Deputy Director of Marine Operations

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

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. 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.

Aerial view of Marine Operations Center Pacific, Newport, Oregon.
[Photo: NOAA, 2015]

Ketchikan, AK

NOAA Ship *Fairweather*

Commanding Officer: CDR Mark Van Waes
Primary Mission Category: Hydrographic Surveys
Temporary Location: Newport, Oregon
Ship Status: Ship is undergoing scheduled dockside maintenance period in Newport, Oregon until mid-February 2018.

Kodiak, AK

NOAA Ship *Oscar Dyson*

Commanding Officer: CDR Michael Levine
Primary Mission Category: Fisheries Research
Temporary Location: Newport, Oregon
Ship Status: The ship departed Newport in early January for gear trials. In February, the ship will complete a Walleye Pollock survey, annual fleet inspection, and begin another Walleye Pollock Survey.

NOAA Ship *Oscar Dyson* approaches the pier at MOC-P.
[Photo: LTJG Wang/NOAA]

Honolulu, HI

NOAA Ship *Hi'ialakai*

Commanding Officer: CDR Colin Little
Primary Mission Category: Oceanographic Research, Environmental Assessment
DEPART: Pearl Harbor, HI
Project: American Samoa - Reef Assessment and Monitoring Program (RAMP)
Objectives: Scientists will collect data to monitor nearshore physical and ecological factors associated with ocean acidification and general water quality, including data on water temperature, salinity, and other physical and biological characteristics of the coral reef environment using an assortment of oceanographic sampling and monitoring instruments, including systems deployed from the ship, underwater moored instruments, and sensors on the ship. Data collected during this mission are pivotal to long-term biological and oceanographic monitoring of coral reef ecosystems at American Samoa as well as the Pacific Remote Islands Marine National Monument. The 2018 expedition will add to information collected during previous monitoring and mapping surveys conducted.

NOAA Ship *Oscar Elton Sette*

Commanding Officer: CDR Héctor Casanova
Primary Mission Category: Fisheries Research
Temporary Location: Portland, Oregon
Ship Status: The ship will undergo annual fleet inspection and scheduled drydock maintenance period until March 2018.

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

CAPT Robert Kamphaus, Commanding Officer MOC-PI

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, FL

Unmanned Aircraft Systems

NOAA's Aircraft Operations Center (AOC) UAS Section provides policy input, oversight, and guidance for all of NOAA's UAS operations. The UAS Section of AOC is staffed by a team of aviation professionals who specialize in operational UAS implementation. The UAS Section tracks all small UAS (sUAS) operations for NOAA to include aircraft hours, types, pilot qualifications, and pilot training. The UAS Section also coordinates airspace approvals for operations within the 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.

WP-3D (Tail #N42RF) – "Hurricane Hunter"

Temporary Base: Shannon, Ireland
Current Mission: Ocean Winds
NOAA's WP-3D aircraft is currently supporting the Ocean Winds project through 25 February. It arrived in Shannon, Ireland on 26 January and will fly advanced microwave sensors that will improve the use of ocean surface wind data gathered by satellites. This will allow for improvements in active and passive wind measurements and reduce the design and development risk of future observing systems. NOAA will use the information gathered to provide better surface wind data over the global oceans. This mission will also provide advanced measurements to support and calibrate satellites from multiple international organizations.

WP-3D (Tail #N43RF) – "Hurricane Hunter"

Temporary Base: Jacksonville, Florida
Current Mission: Scheduled Maintenance
The aircraft was inducted into re-winging in March of 2017. No additional projects are planned on this airframe until re-wing is complete in fall 2018.

Gulfstream IV (Tail #N49RF) – "Hurricane Hunter"

Temporary Base: Everett, Washington
Current Mission: Atmospheric Rivers
The G-IV is currently supporting the Atmospheric Rivers project, obtaining high altitude data as it measures aerosol (solid or liquid particles suspended in air) plumes and their interaction with atmospheric rivers off, near, and on coastal and inland environments. Atmospheric rivers are a direct source of precipitation to the west coast of the United States. From 12-26 February, the aircraft will support NOAA's National Geodetic Survey (NGS) on a project to re-define the vertical datum of the US by 2022 out of Lakeland, Florida. Beginning in 2007, GRAV-D is one of the most ambitious projects undertaken by the NGS with the goal of modeling and monitoring Earth's gravity field to serve as a zero reference for all heights in the nation. Accurate heights are critical to many scientific endeavors, but particularly to understanding and protecting low-lying coastal ecosystems. At the completion of this project, NGS will be able to execute its mission with substantial improvements to both accuracy and efficiency. The benefits to the nation will be immense in avoidance cost from improved floodplain management alone.

Jet Prop Commander (Tail #N45RF)

Temporary Base: Various Locations
Current Mission: Soil Moisture/Snow Survey
NOAA's Jet Prop Commander aircraft will continue 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 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.

Twin Otter (Tail #N46RF)

Temporary Base: Various Locations
Current Missions: Soil Moisture/Snow Survey
Twin Otter N46RF will continue 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 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.

Twin Otter (Tail #N48RF)

Temporary Base: St. Simon's Island, Georgia
Current Mission: Southeast Right Whale Survey
North Atlantic right whales are critically endangered and are protected under the Marine Mammal Protection Act and Endangered Species Act. Twin Otter N48RF will continue with aerial surveys that serve multiple conservation objectives including providing location, distribution, and count of right whales and calves for population assessments, relay of right whale sightings to mariners to help prevent collisions with ships, photo identification records of right whales, and information on distribution and abundance of other marine mammals and turtles.

Twin Otter (Tail #N56RF)

Temporary Base: Various Locations
Current Missions: Gulf of Mexico Marine Assessment Program for Protected Species
Twin Otter N56RF is supporting the Gulf of Mexico Marine Assessment Program for Protected Species (GOMAPPS). The purpose of the GOMAPPS survey is to provide data for NOAA Fisheries, the Bureau of Ocean Energy Management, and the United States Navy so that each agency can meet its obligations under the Endangered Species Act, Marine Mammal Protection Act, and National Environmental Policy Act. Each agency is subject to litigation and possible delays or stoppage of fisheries, energy development, and military activities without current information. The objective of this project is to provide information on the distribution and abundance of marine mammals and turtles throughout the year. The survey will be flown from Florida to Texas.

Twin Otter (Tail #N57RF)

Temporary Base: Lakeland, Florida
Current Mission: Scheduled maintenance period
The aircraft is completing its scheduled maintenance and corrosion inspection at the paint shop located at the Lakeland Linder Regional Airport as it completed the inspections and repairs at Rocky Mountain Aircraft in Calgary, Alberta. Painting of Twin Otter N57RF should be completed by the beginning of March.

King Air (Tail #N68RF)

Temporary Base: Various Locations

Current Mission: Coastal Mapping

NOAA's King Air 350 aircraft will conduct Topographic Bathymetric Lidar (light detection and ranging) and photogrammetry surveys in the coastal zone used to produce the most up-to-date and accurate marine navigation charts, FEMA flood plain and inundation maps, and other Integrated Ocean and Coastal Mapping (IOCM) applications. Data gathered will help ensure safe and efficient marine transportation and benefit coastal communities with accurate resource management and aid emergency response efforts.

OMAO'S AIRCRAFT OPERATIONS CENTER (AOC)

CAPT Nancy Hann, 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's Gulfstream IV-SP (foreground) and Orion WP-3D (background) and two of NOAA's Twin Otter aircraft in the hangar at the AOC in Lakeland, Florida.

[Photo: David Hall/NOAA]

Unmanned Systems Support

NASA Global Hawk

Location: Edwards Airforce Base
Mission: Scheduled Inspection and Maintenance
During October/November, NASA Global Hawk 872 deployed to Kaneohe Bay MCAS in Hawaii to support a Department of Defense program titled Risk Reduction Pathfinder. This was a first time for Global Hawk to have operated from the Hawaiian Islands. NASA 874 Global Hawk 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 March.

APH-22 Hexacopter

Location: Bellows Air Force Station, Hawaii
Mission: APH-22 Training
The Pacific Islands Fisheries Science Center 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. Training flights are also approved from NOAA small boats.

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: Atlantic Northeast
Mission: Emergency Response, Turtles, and Seals
The North East Fisheries Science Center (NEFSC) 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 identification. 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 identification data of seals with brands, wounds, and other distinguishing marks.

Location: Seattle, Washington
Mission: Sand Point APH-22 Training
The Marine Mammal Laboratory (MML) will continue 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 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 recently introduced 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, VA facility in preparation for mapping missions expected throughout the year.

SenseFly eBee RTK and APH-22 Hexacopter

Location: Muskeget Island, MA
Mission: Gray Seal Survey
The Northeast Fisheries Science Center (NEFSC) and the Remote Sensing Division (RSD) will be conducting continuing research on grey seal populations in the north east. NEFSC and RSD seek to utilize both an eBee RTK and an APH-22 platform to conduct simultaneous surveys in the field. The eBee will survey the entire island at a higher altitude, while the APH-22 will be operating at lower altitudes over discreet aggregations. The utilization of both platforms concurrently will increase the efficiency in which data is collected.

FireFLY6 PRO

Location: Tampa, FL
Mission: Initial Training
The Pacific Islands Fisheries Science Center (PIFSC) will receive initial manufactures training on the FireFLY6 PRO produced by BirdsEyeView Aerobotics. The FireFLY6 PRO is a portable vertical takeoff and landing Unmanned Aircraft System coupled with a rear-mounted propeller enabling forward flight. Projected projects for this platform include: habitat and coast line mapping on Oahu, small boat operations in Hawaii, shipboard operations throughout the Pacific Islands Region and remote island surveys, along the Hawaiian Archipelago.

HQ-55 Hybrid VTOL/FWD Flight Quadrotor

Location: Tucson, AZ
Mission: Initial Training
Two members of the Aircraft Operations Center (AOC) Unmanned Aircraft Systems (UAS) Section will receive 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.

OMAO Partnerships

United States Senate Committee on Commerce, Science, and Transportation

Location: Washington, District of Columbia
Detail: LT Zachary Cress, NOAA Commissioned Officer Corps
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
Mission: LT Cherisa Friedlander, NOAA Commissioned Officer Corps
Members of the NOAA Commissioned Officer Corps carry out NOAA's mission in remote locations across the globe. LT 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 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.

Department of Defense - U.S. Navy

Location: Washington, DC
Embedded Liaison: CDR Jason Mansour, NOAA Commissioned Officer Corps
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, 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.

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.

Teacher's research interests cover all three areas: hydro, fisheries, & oceanographic
Teachers represent 26 different states across the U.S. in each region

2017 Year in Review:

- Teachers sent to sea: 29
- Research Hours: 4900+
- States represented: 20
- Science blog posts: 178
- Active Alumni: 300+
- Outreach events: 31
- Visits to our site and blog: 400,000+

2018 TAS Class of Finalists:

- 13 High School
- 13 Middle School
- 4 Elementary
- 2 Community College Science
- 1 University Science
- 1 Informal Educator - Science
- 12 Males
- 22 Females

Summary of 2018 TAS Selection Process:

- Number of complete applications received: 274
- Number of reviewers: 75 (TAS alumni - volunteers)
- TAS staff reviewed the top 10 percent of applicants and selected **34 finalists**, 1 alumni, and 4 alternates.

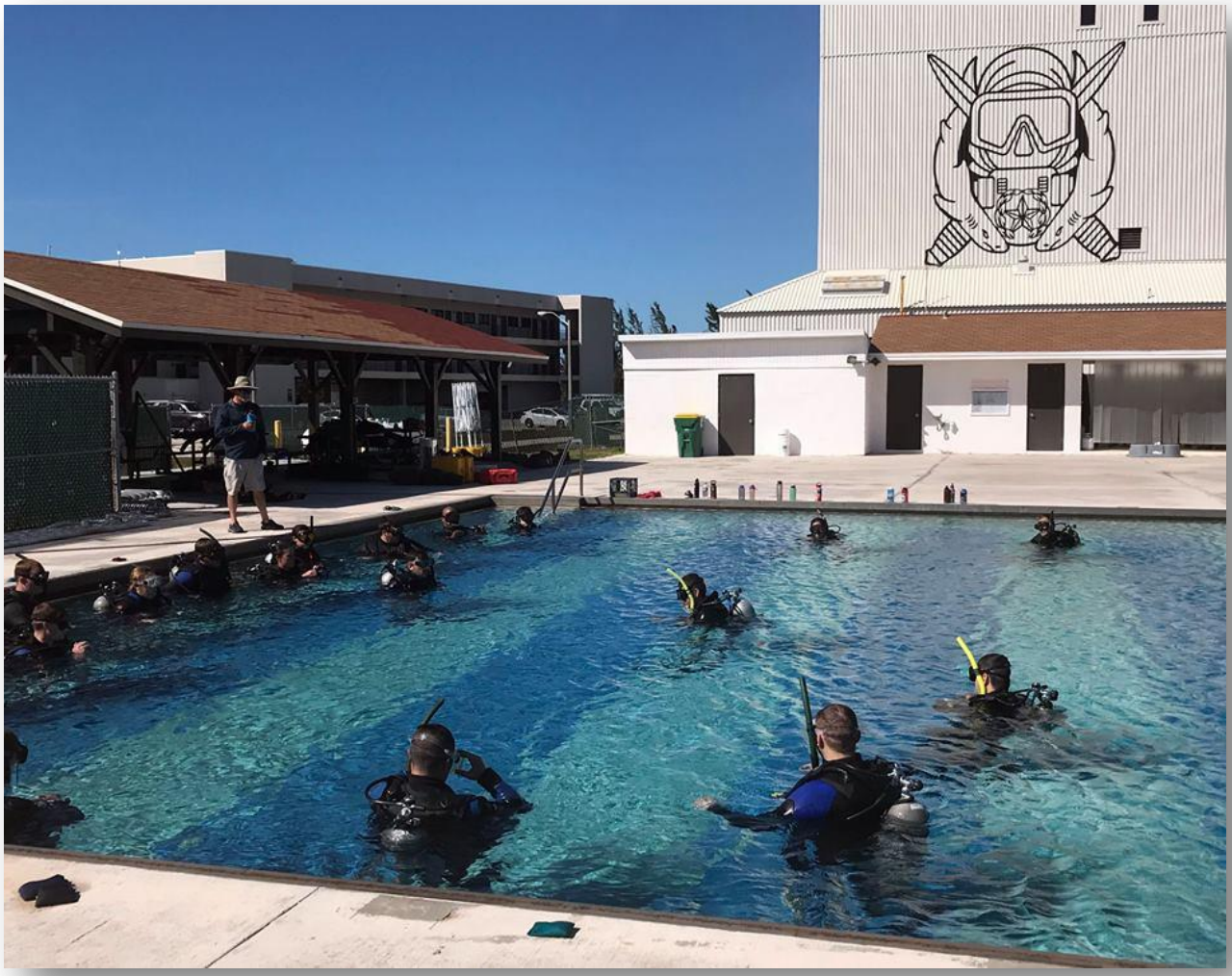
NOTE: Once finalists are cleared, they will be announced on the website.

OMAO - NOAA Diving 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 at the NOAA Western Regional Center in Seattle, Washington.

NOAA Diver Class Begins

The winter NOAA Diver class began in Key West, Florida. Yesterday was the first day of open circuit SCUBA instruction at the U.S. Army Special Forces Underwater Operations school facility.



NOAA Diving Program Manager, Greg McFall, on deck overseeing the dive class activities.
[Photo: David Kowalick/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, 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 bathometric 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.

Resources

Please find more information at the following links:

Office of Marine and Aviation Operations (OMAO)
NOAA Commissioned Officer Corps
OMAO 101
NOAA Fleet Update

Reports and Informational Slide Decks:
OMAO Fleet Recapitalization Slide Deck – Building NOAA's 21st Century Fleet
OMAO Fleet Recapitalization Questions and Answers (Q&As)
NOAA Fleet Independent Review Team Final Report
The NOAA Fleet Plan: Building NOAA's 21st Century Fleet

Other OMAO Sites:
OMAO Marine Operations
OMAO Aircraft Operations
NOAA Diving Program
OMAO on Facebook
OMAO on Twitter
NOAA Ship Tracker (restricted to only .gov or .mil users)