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

**Hurricane Hunter G-4 jet makes rare debut at EAA AirVenture** - Fox 11 News, July 22, 2018
NOAA’s G-IV Hurricane Hunter attended EAA AirVenture in Oshkosh, Wisconsin. During this four day event the crew did education and outreach for the public in attendance.

![Photo Credit: David Hall, NOAA]

**NOAA Ship Ron Brown Media Event from Darwin, Australia** - 9 News Darwin, July 20, 2018
On July 20, the NOAA Ship *Ronald H. Brown* held an outreach event shortly after making its scheduled port-call in Darwin, Australia. The crew hosted representatives from the Australian Institute of Marine Science, Darwin Arafura Timor Research Facility, representatives from the U.S. Embassy and Consulates (including Rachel Cooke, Consul General of the U.S. Consulate in Perth), and members of the local media. The crew provided a tour of the vessel and an overview of the Research Array for Monsoon Analysis project, which deployed new moorings that are designed to help understand the role of the Indian Ocean in driving monsoons.

![Photo Credit: U.S. Consulate General Melbourne]
Make-A-Wish Central and Northern Florida was happy to welcome Cameron who is currently battling lymphoblastic lymphoma, to Lakeland, Florida, for his wish to visit the NOAA Aircraft Operations Center (AOC) and to meet the NOAA Hurricane Hunter pilots and learn how they track weather. On June 27, Make-A-Wish and AOC granted Cameron’s wish.
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.

Interviews Have Commenced
The interview process is underway for Basic Officer Training Class (BOTC) 133. A selection board is expected to convene August 15, 2018. BOTC 133 is scheduled to begin January 6, 2019.

Applications Being Accepted
The NOAA Corps is currently accepting applications for BOTC 134, which will begin July 2019. The application deadline is January 18, 2019, to receive an interview. A selection board will convene in mid-January 2019. Additional information may be found on the NOAA Corps website and BOTC 134 applicants may start the process, utilizing the online NOAA Corps E-Recruit System.
Congratulations to the following women and men of BOTC 132 who reported to the United States Coast Guard Academy on July 25 to embark on their 19 week training program. Please join us in welcoming our new Ensigns!

Eben Smith – Sitka, Alaska  
Jaime Hendrix – Oceano, California  
Gabriella McGann - San Clemente, California  
Nicolas Osborn - San Marcos, California  
Alejandro Amezcua - Washow Valley, Nevada  
Andie Cuiffo - West Islip, New York  
John Stephens – Durham, North Carolina  
Marc Gramley - North Canton, Ohio  
Nicole Morgan – Galveston, Texas  
Julia Waldsmith – Houston, Texas  
Thomas Smith - Manassas Park, Virginia

The new Ensigns come from all over the country and have a wide range of backgrounds in fields such as Aeronautics, Oceanography, Marine Biology, Organizational Leadership, Geology, and Meteorology. They will be commencing the indoctrination phase of the program in the days to come, where they will focus on their professional development in areas such as officer bearing, attention to detail, time management, and proper wear of the uniform while simultaneously beginning their Basic Seamanship course. Congratulations BOTC 132!
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 utilize 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.

National

OMAO’S MARINE OPERATIONS

Director of Marine Operations: Mr. Troy Frost

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

NOAA Ship Ferdinand R. Hassler

Commanding Officer: Lieutenant Commander Matthew Jaskoski
Primary Mission Category: Hydrographic Surveys
Temporary Location: Baltimore, Maryland
Ship Status: The ship will be departing shipyard following completion of repair period. The ship will complete Hydrographic Survey Readiness Review and then begin work surveying the approaches to Jacksonville, Florida.

Newport, Rhode Island

NOAA Ship Henry B. Bigelow

Commanding Officer: Commander Jeffrey Taylor
Primary Mission Category: Fisheries Research
Depart: Newport, Rhode Island
Arrive: Newport, Rhode Island
Ship Status: Following completion of acoustic ranging in the Bahamas, the ship will get underway to conduct mesopelagic exploration and Deep-See testing. Scientists will use a brand new ROV named “Deep-See” to sample mesoand bathypelagic layers. The goals of the project will be to test, calibrate, and evaluate Deep-See systems’ performance, and collect scientific data with Deep-See, MOCNESS, midwater trawl, CTD, and rosette. Bigelow will also complete acoustic ranging and trawl gear testing.

Davisville, Rhode Island

NOAA Ship Okeanos Explorer

Commanding Officer: Commander Eric Johnson
Primary Mission Category: Oceanographic Exploration and Research
Depart: Norfolk, Virginia
Arrive: Davisville, Rhode Island
Ship Status: The ship will begin work supporting the Galway Statement on Atlantic Ocean Cooperation: US-Canada Boundary Remotely Operated Vehicle (ROV) & Mapping. This project is the third in 2018 to contribute toward the Atlantic Seafloor Partnership for Integrated Research and Exploration (ASPIRE). ASPIRE is a major multi-year, multinational collaborative ocean exploration field program focused on raising collective knowledge and understanding of the North Atlantic Ocean. Building on previous work in the North Atlantic, NOAA’s ASPIRE campaign will provide data to inform research planning and management decisions in the region, by broadening both the geographic focus to include more of the U.S. Atlantic and the high seas, and the scope of partnerships to include U.S. federal agencies, such as Bureau of Ocean Energy Management (BOEM) and U.S. Geological Survey (USGS), as well as international partners from the European Union and Canada. Aside from ASPIRE, this project will also contribute to the ongoing collaborations with several NOAA offices, such as the National Marine Fisheries Deep-sea Coral Research and Technology Program.
Norfolk, Virginia

**NOAA Ship Thomas Jefferson**
- **Commanding Officer**: Commander Christiaan van Westendorp
- **Primary Mission Category**: Hydrographic Surveys
- **Depart**: Galveston, Texas
- **Arrive**: San Juan, Puerto Rico
- **Ship Status**: The ship will conclude their survey on the approaches to Houston/Galveston, Texas this month. Work will begin to survey San Juan, Ponce, and vicinities, Puerto Rico. This project is conducted in support of NOAA’s Office of Coast Survey to provide contemporary hydrographic data in order to update the nautical charting products following a devastating hurricane season.

![NOAA Ship Thomas Jefferson pulling into the Gulf Marine Support Facility in Pascagoula, Mississippi.](Image)

[Photo Credit: NOAA Ship Oregon II]

**OMAO’S MARINE OPERATIONS CENTER – ATLANTIC (MOC-A)**
- **Commanding Officer**: Commander Stephanie Koes/ Captain David Zezula
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. On August 24, 2018 command of MOC-A will be transferred from Commander Stephanie Koes to Captain David Zezula at the MOC-A facility in Norfolk, Virginia.
Charleston, South Carolina

**NOAA Ship Nancy Foster**

**Acting Commanding Officer:** Commander G. Mark Miller  
**Primary Mission Category:** Oceanographic Research, Environmental Assessment  
**Depart:** Charleston, South Carolina  
**Arrive:** Charleston, South Carolina  
**Ship Status:** Underway on Gray’s Reef National Marine Sanctuary (GRNMS), South East Regional Ecosystem Assessment. Scientists will assess fish and invertebrate abundance, distribution, habitat, and human impacts. Objectives include determining habitat for large predators and sea turtles, quantifying coral larval supply, and conducting algae surveys of GRNMS. Scientists will also assess boron isotopic signatures in bush coral as a proxy for ocean acidification.

NOAA Ship Ronald H. Brown

**Commanding Officer:** Commander Dan Simon  
**Primary Mission Category:** Oceanographic Research, Environmental Assessment  
**Depart:** Darwin, Australia  
**Arrive:** Honolulu, Hawaii  
**Ship Status:** Underway for Tropical Atmosphere Ocean (TAO)-165°E and 180°. Maintenance of the TAO array along the 165°E and 180° meridians and the maintenance of Deep-ocean Assessment and Reporting of Tsunamis (DART) Station 52406. The TAO array provides in-situ data collection of high quality oceanographic and surface meteorological data for monitoring, forecasting, and understanding of climate swings associated with El Niño and La Nina. The DART station is one of 39 moored buoy stations that ensures early detection of tsunamis and acquires data critical to real-time forecasts.

Pascagoula, Mississippi

**NOAA Ship Pisces**

**Commanding Officer:** Commander Nicholas Chrobak  
**Primary Mission Category:** Fisheries Research  
**Depart:** Charleston, South Carolina  
**Arrive:** Pascagoula, Mississippi  
**Ship Status:** Underway on Gulf of Mexico Marine Assessment Program for Protected Species. The objective of this project is to conduct a dual-team visual and acoustic line transects survey of oceanic waters of the U.S. Gulf of Mexico. Secondary objectives will include plankton sampling on Leg 1 and active acoustic surveying during night hours, cetacean tissue biopsy sampling and the recovery and redeployment of a deep water autonomous acoustic recorder.
**NOAA Ship Oregon II**

**Commanding Officer:** Master Dave Nelson  
**Primary Mission Category:** Fisheries Research  
**Depart:** Pascagoula, Mississippi  
**Arrive:** Pascagoula, Mississippi  
**Ship Status:** Underway on Red Snapper and Shark bottom longline survey. The objective of this project is to sample the U.S. Atlantic and northern Gulf of Mexico for data concerning the distribution and abundance of shark and red snapper populations to aid in stock assessments. Secondary objectives include: collecting morphological measurements and biological samples to facilitate life history studies, and conducting Conductivity, Temperature, and Depth casts to profile water column temperature, salinity, transmissivity, dissolved oxygen concentrations and fluorometry.

**NOAA Ship Gordon Gunter**

**Acting Commanding Officer:** Commander Thomas Peltzer  
**Primary Mission Category:** Fisheries Research  
**Depart:** Newport, RI  
**Arrive:** Norfolk, Virginia  
**Ship Status:** Underway on Atlantic Marine Assessment Program for Protected Species cetacean survey. The main objective for this survey is to locate and document occurrence of beaked whales and other cetacean species using visual and passive acoustic techniques; collect passive acoustic readings, identification photographs, biopsy samples on target species whenever possible. Secondary objectives include suction-cup tagging of beaked whales, collecting water samples for eDNA testing, collecting oceanographic prey data, and photo-ID and catalog North Atlantic Right Whales.

**San Diego, California**

**NOAA Ship Reuben Lasker**

**Commanding Officer:** Commander Chad Cary  
**Primary Mission Category:** Fisheries Research  
**Depart:** San Francisco, California  
**Arrive:** San Diego, California  
**Ship Status:** Underway on West Coast Pelagic Fish Survey. This California current ecosystem survey is a joint project between the Fisheries Resources Division and the Marine Mammal and Turtle Division at NOAA’s Southwest Fisheries Science Center. The overarching goal is to survey populations of coastal pelagic fish species, marine mammals, their prey, and their environment along the West Coast of the United States and Vancouver Island, Canada.
Newport, Oregon

**NOAA Ship Rainier**

**Commanding Officer:** Commander Benjamin Evans  
**Primary Mission Category:** Hydrographic Surveys  
**Depart:** Newport, Oregon  
**Arrive:** San Francisco, California  
**Ship Status:** Underway for Cascadia Margin through August 23rd and then beginning operations for California Deepwater Investigations and Ground Truthing (CalDIG) on August 28th. Cascadia Margin is a project supporting USGS Coastal and Marine Geology Program’s (CMGP) mission to provide earthquake, tsunami, and landslide hazard assessments and situational awareness in conjunction with NOAA Office of Coast Survey’s mission to provide contemporary hydrographic data to update nautical charting products in the area. CalDIG is being funded and conducted by CMGP and BOEM Environmental Studies Program. The goal of this project is to conduct a geophysical survey in the outer continental shelf of California for the purpose of improving regional models of seafloor habitats, geologic hazards, and sedimentary processes to support offshore energy projects and infrastructure, marine spatial planning and ecosystem assessments.

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**NOAA Ship Bell M. Shimada**

**Commanding Officer:** Captain Jesse Stark  
**Primary Mission Category:** Fisheries Research  
**Depart:** San Francisco, California  
**Arrive:** Seattle, Washington  
**Ship Status:** Ship will conduct Deep Sea Corals and Sponges in Essential Fish Habitat survey through August 12th and then begin Joint Pacific Hake survey which lasts through the end of September. Deep Sea Corals is a project for Channel Islands National Marine Sanctuary which will use Shimada’s ME70 and EK60 sonars together with the Office of Coast Survey’s autonomous underwater vehicle (AUV), to provide fish population and seafloor habitat data needed to manage marine resources within the sanctuary. The Joint Pacific Hake survey is a combined U.S./Canada integrated acoustic and trawl survey of Pacific hake, Pacific sardine and coastal pelagic fishes. The survey will assess the biomasses, distributions, and biological compositions in U.S. and Canadian waters off the Pacific coast.

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

**Commanding Officer:** Captain 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.
Ketchikan, Alaska

**NOAA Ship Fairweather**

**Commanding Officer:** Commander Mark Van Waes/Commander Mark Moser  
**Primary Mission Category:** Hydrographic Surveys  
**Depart:** Kodiak, Alaska  
**Arrive:** Nome, Alaska  

**Ship Status:** Underway to survey Point Hope and areas in Chukchi Sea through late August. This project is being conducted in support of NOAA’s Office of Coast Survey’s mission to provide contemporary hydrographic data in order to update nautical charting products. The project area also includes a section of the Port Access Route Study in the Bering Sea. On August 3, 2018 command of *Fairweather* will be transferred from Commander Van Waes to Commander Moser while alongside in Nome, Alaska.
Kodiak, Alaska

**NOAA Ship Oscar Dyson**

**Commanding Officer:** Commander Michael Levine  
**Primary Mission Category:** Fisheries Research  
**Depart:** Unalaska, Alaska  
**Arrive:** Unalaska, Alaska  
**Ship Status:** Underway conducting the Summer Walleye Pollock survey in the Bering Sea. The data collected will help to provide an index of walleye Pollock abundance over the eastern Bering Sea shelf. The Bering Sea stock of Pollock is the focus of one of the world's largest fisheries, and these data are primarily used for annual Pollock stock assessments and to brief stakeholders on stock distribution and trends.

![NOAA Ship Oscar Dyson in the Bering Sea](Image)

[Photo Credit: Cynthia Christman, NOAA]

Honolulu, Hawaii

**NOAA Ship Hi’ialakai**

**Commanding Officer:** Commander Colin Little  
**Primary Mission Category:** Oceanographic Research, Environmental Assessment  
**Depart:** Pago Pago, American Samoa  
**Arrive:** Pearl Harbor, Hawaii  
**Ship Status:** The ship is underway on the American Samoa - Reef Assessment and Monitoring Program. The ship will arrive in Pearl Harbor, Hawaii on August 16 and depart for North Western Hawaiian Islands Reef Assessment and Monitoring Program on August 23.
**NOAA Ship Oscar Elton Sette**

**Commanding Officer:** Commander Héctor Casanova  
**Primary Mission Category:** Fisheries Research  
**Depart:** Saipan, Commonwealth of the Northern Mariana Islands  
**Arrive:** Pearl Harbor, Hawaii

**Ship Status:** The ship departs Saipan on August 2 to transit back to Pearl Harbor, Hawaii, having concluded the Marianas Cetacean project. The ship will arrive in Pearl Harbor, on August 16 and depart on August 22 to recover Monk Seal researchers from the North Western Hawaiian Islands.

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

**Commanding Officer:** Captain Robert Kamphaus/Commander Jeffrey Shoup

MOC-PI serves as a homeport for two NOAA ships. Its personnel provide administrative and logistical support, and manage the day-to-day operations, for the ships in NOAA’s Pacific Islands’ fleet and for ships operating in the Western Pacific. Each year, these ships conduct dozens of missions to assess fish and marine mammal stocks, conduct coral reef research, collect seafloor data to update nautical charts, and explore the ocean. On August 17th command of MOC-PI will be transferred from Captain Kamphaus to Commander Shoup at Inouye Regional Center in Pearl Harbor, Hawaii.
**OMAO’s Aircraft**

**Lakeland, Florida**
NOAA’s fleet of nine manned aircraft is based at OMAO’s Aircraft Operations Center (AOC). Located at Lakeland Linder Regional Airport in Lakeland, Florida, the officers, crew, and scientists from AOC provide capable, mission-ready aircraft and professional crews to the scientific community. AOC is committed to the safe, efficient and economical use of NOAA aircraft and has more than four decades of experience developing, coordinating and successfully and safely conducting airborne environmental data gathering missions.

**P3 “Hurricane Hunter” [Tail ID# N42RF]**
The aircraft is hurricane ready and standing by for tasking.

**P3 “Hurricane Hunter” [Tail ID# N43RF]**
Currently down for re-winging in Naval Air Station Jacksonville, Florida. The aircraft is due out of maintenance in October, 2018; instrumentation and outfitting at AOC will follow. The aircraft will be mission ready in May 2019.

**G-IV “Hurricane Hunter” [Tail ID# N49RF]**
The aircraft is hurricane ready and standing by for tasking.

**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
**When:** Present – September 30
**Where:** Based out of San Juan, Puerto Rico, the aircraft will fly over the coast of if the island.
**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.
Jet Prop Commander [Tail ID# N45RF]

Who: Officers and crew of OMAO/NOAA Corps along with scientists from NOAA’s National Ocean Service, National Geodetic Survey Grav-D Program.

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

When: Present - September 1


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

Twin Otter [Tail ID# N46RF]

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 Whales

When: August 16

Where: Based out of Moncton, New Brunswick, Canada. The survey area will cover coastal waters off the Maritime Provinces.

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

Aircraft will return to AOC for pilot training through the rest of the month.
**Twin Otter [Tail ID# N48RF]**
Aircraft is inducted into scheduled maintenance in Calgary, Alberta. Due out mid-October.

**Twin Otter [Tail ID# N56RF]**

**Project 1**
**Who:** Officers and crew of OMAO/NOAA Corps along with scientists from [NOAA’s Office of Atmospheric Research (OAR)](https://www.noaa.gov) and [Pacific Marine Environmental Laboratory (PMEL)](https://www.pmel.noaa.gov)

**What:** Arctic Heat

**When:** July 29 – August 4

**Where:** Based from Kotzebue and Barrow, Alaska. Flights will take place over the Chukchi Sea.

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

**Project 2**

**Who:** Officers and crew of OMAO/NOAA Corps along with scientists from [NOAA’s National Marine Fisheries Service (NFMS), Alaska Regional Office (ARO)](https://www.nmfs.noaa.gov)

**What:** Harbor Seals

**When:** August 15 – August 30

**Where:** Based out of Anchorage, Dutch Harbor, and Adak, Alaska with flights over the Alaskan coast.

**Why:** As part of the [Marine Mammal Protection Act](https://www.noaa.gov), the purpose of this project is to monitor the western population stock and recovery efforts of Harbor Seals from Endangered Species status.

**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](https://www.nos.noaa.gov)

**What:** Coastal Mapping

**When:** Present - Sept 30

**Where:** Gulf Coast of Florida and Intracoastal Waterway. Bases are TBD.

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

OMAO’S AIRCRAFT OPERATIONS CENTER (AOC)
Commanding Officer: Captain Timothy Gallagher
The AOC, located at Lakeland Linder Regional Airport in Lakeland, Florida, serves as the main base for OMAO’s fleet of nine aircraft and provides capable, mission-ready aircraft and professional crews to the scientific community. Whether studying global climate change or acid rain, assessing marine mammal populations, surveying coastal erosion, investigating oil spills, flight checking aeronautical charts, or improving hurricane prediction models, the AOC flight crews continue to operate in some of the world's most demanding flight regimes.
NOAA G-IV in the hangar at the NOAA Aircraft Operations Center in Lakeland, Florida.

[Photo Credit: NOAA]
Unmanned Systems Support

Nationwide

Globalhawk
Continued OPS planning for the Unmanned Aerial Vehicle Based Range Project (UAVBR) with a personnel trip to Hawaii for continued discussions with the FAA with regard to the installation of a National Security Temporary Flight Restriction and proposed routing changes. Globalhawk 872 is being maintained in a flight ready status with instrument upload taking place this summer. Globalhawk 874 has completed first flight and will conduct additional flights in August for shakedown and pilot proficiency. Globalhawk 876 has begun to undergo refurbishment.

APH-22 Hexacopter
Location: Catalina Island, California
Mission: South West Fisheries Science Center (SWFSC) Marine Mammal Photogrammetry
The SWFSC collected aerial images to estimate the size, body condition and nutritional status of marine mammals along the California coast. UAS photogrammetry will be conducted opportunistically on species, including whales, pinnipeds, or turtles.

Location: Atlantic Northeast
Mission: Northeast Fisheries Science Center (NEFSC) Training Areas
The NEFSC has been approved to conduct proficiency training and manufacturer training at the following locations; Woods Hole Pier, Massachusetts; Griswold Point, Connecticut; and Waquoit Bay, Massachusetts. These locations will allow the pilots within NEFSC to remain proficient with the APH-22 and to fine tune flight operations to increase their success for future operations.

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
Population assessment of Hawaiian monk seals at Nihoa and Mokumanamana - 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 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:** Seattle, Washington and Aleutians  
**Mission:** Marine Mammal Laboratory (MML) Sand Point APH-22 Training  
The MML will continue flights in the Aleutian Islands. The MML has several objectives for Pinniped photogrammetry and will use of the APH-22 hexacopter UAS throughout the Aleutian Islands.

**APH-28 Hexacopter**  
**Location:** Seattle, Washington and Alaska  
**Mission:** APH-28  
The MML added the APH-28, a new UAS, to conduct marine mammal surveys in remote areas of the Aleutian Islands. Training was conducted in July with operational deployments later this year. This new aircraft has increased flight time that will enable scientist to collect more data per flight.

**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 sUAS 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 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 Latitude**

**Location:** Lakeland, Florida  
**Mission:** Research  
The HQ-55 Latitude is a new vehicle currently in development for NOAA. This new vehicle is expected to come online later in 2018.

**Blackswift S-2**

**Location:** Oak Ridge, Tennessee  
**Mission:** Research  
The Blackswift S-2 is a new vehicle currently in development for NOAA. This new vehicle is expected to come online in August-September 2018.

**Coyote**

**Location:** Lakeland, Florida  
**Mission:** Hurricane Research  
The Coyote UAS is deployed from a NOAA P-3 aircraft once inside the eye of a hurricane. The vehicle collects low altitude research data in and around the hurricane eyewall. Operational check flights are scheduled for August followed by operational deployments for the 2018 Hurricane Season.
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: Lieutenant 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: Lieutenant 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 she serves as the Station Chief for NOAA’s Atmospheric Research Observatory (ARO) at the Amundsen-Scott South Pole Station. The ARO at the Amundsen-Scott South Pole Station is a National Science Foundation facility used in support of scientific research related to atmospheric phenomena.

Department of Defense – U.S. Pacific Command

Location: Honolulu, Hawaii
Embedded Liaison: Captain Barry Choy
The U.S. Pacific Command (USPACOM) area of responsibility encompasses approximately half the earth’s surface and more than half of its population. The 36 nations that comprise the Asia-Pacific include: two of the three largest economies and nine of the ten smallest; the most populous nation; the largest democracy; the largest Muslim-majority nation; and the smallest republic in the world. The region is a vital driver of the global economy and includes the world’s busiest international sea lanes and nine of the ten largest ports. By any meaningful measure, the Asia-Pacific is also the most militarized region in the world, with seven of the world’s ten largest standing militaries and five of the world’s declared nuclear nations. Under these circumstances, the strategic complexity facing the region is unique. CAPT Choy is linked closely with the activities within the region allowing for identification of opportunities and cooperation between USPACOM and NOAA, and better overall government function situational awareness in the region.
Department of Defense – U.S. Northern Command

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

Department of Homeland Security – U.S. Coast Guard

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

Department of Defense – U.S. Navy

**Location:** Washington, DC  
**Embedded Liaison:** Commander Jason Mansour  
Commander 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, Commander 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:** Lieutenant 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 August:

- **07/25/2018 - 08/15/2018** - Emily Cilli-Turner *(University of Washington-Tacoma, Tacoma, Washington)* will sail on a Pollock Survey in and out of Dutch Harbor, Alaska, on the NOAA Ship Oscar Dyson

- **07/26/2018 - 08/10/2018** - Stephen Kade *(O.L. Smith Middle School, Dearborn, Michigan)* will sail on a Shark/Red Snapper Longline Survey from Pascagoula, Mississippi, to Canaveral, Florida, on the NOAA Ship Oregon II

- **08/06/2018 - 08/23/2018** - Tom Savage *(Henderson County Early College High School, Flat Rock, North Carolina)* will sail on a Hydrographic Survey from Nome, Alaska, to Kodiak, Alaska, on the NOAA Ship Fairweather

- **08/12/2018 - 08/25/2018** - Anne Krauss *(Cobbles Elementary School, Penfield, New York)* will sail on a Shark/Red Snapper Longline Survey from Canaveral, Florida, to Pascagoula, Mississippi, on the NOAA Ship Oregon II

- **08/20/2018 - 09/17/2018** - Justin Garrett *(KIPP Ujima Academy, Baltimore, Maryland)* will sail on a Bering Sea Arctic Subarctic Integrated Survey in and out of Dutch Harbor, Alaska, on the NOAA Ship Oscar Dyson

- **08/31/2018 - 09/14/2018** - Ashley Cosme *(Crown Point High School, Crown Point, Indiana)* will sail on a Shark/Red Snapper Longline Survey from Pascagoula, Mississippi, to Galveston, Texas, on the NOAA Ship Oregon II

- **08/07/2018 - 08/25/2018** - Roy Moffitt *(Maple Street Elementary School, Contoocook, New Hampshire)* will sail on the Arctic Distributed Biological Observatory Survey in and out of Nome, Alaska, on the USCGC Healy.
Cetacean Survey Visual Team on lookout aboard NOAA Ship *Gordon Gunter*.

[Photo Credit: Michelle Greene, Teacher at Sea]
**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.

![Science Camp students about to conduct a mock dive with black-out masks.](Photo Credit: Aitana de la Jara, NOAA)

In July, NOAA Diving Center staff supported the NOAA Western Regional Center’s Science Camp. Students learned about diving physics, hyperbaric chambers, and specialized dive equipment.

NDC Chamber Operators continue to support the American Samoa Reef Assessment and Monitoring Project aboard the NOAA Ship *Hi’ialakai*. Staff are also participating in dive missions with Gray’s Reef National Marine Sanctuary, Olympic Coast National Marine Sanctuary and Flower Gardens Bank National Marine Sanctuary to provide dive, divemaster and working diver support for field missions. Upcoming missions include:

- NOAA Diver and Divemaster Class in September in Seattle, Washington
- NOAA Ship *Hi’ialakai* chamber operator and divemaster support
- NOAA UHMS Physicians Training in Diving Medicine in October in Seattle, Washington
OMAO manages NOAA’s SBP 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.

The SBP has hired a new Training Coordinator, Paul Moreno. Paul is coming to NOAA’s SBP from Texas A&M where he held the position of Maritime Lead Instructor for seven years. One of Mr. Moreno’s first tasks is to incorporate and utilize the Commerce Learning Center for improved management of all existing SBP training courses.

The SBP has updated the NOAA Component Course to reflect the changes made to the NOAA Small Boat Standard and Procedures Manual (4.1 Edition). The SBP is no in the process of recertifying the 40+ current in-house NOAA Small Boat Component Course instructors.

NOAA small boats support many diverse operations across the country. 
[Photos: NOAA]
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 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, an agency of the U.S. Department of Commerce. With an authorized strength of 321 officers, the NOAA Corps serves throughout the agency’s Line and Staff Offices to support nearly all of NOAA’s programs and missions. The combination of commissioned service and scientific expertise makes these officers uniquely capable of leading some of NOAA’s most important initiatives. The NOAA Corps is part of NOAA’s Office of Marine and Aviation Operations and traces its roots back to the former U.S. Coast and Geodetic Survey, which dates back to 1807 and President Thomas Jefferson. The U.S. Coast and Geodetic Survey Corps was founded in 1917 to provide officers to command U.S. coastal survey ships and field survey parties locally and abroad. In 1970, NOAA was created to develop a coordinated approach to oceanographic and atmospheric research and subsequent legislation converted the commissioned officer corps to the NOAA Corps. The NOAA Corps today provides a cadre of professionals trained in engineering, earth sciences, oceanography, meteorology, fisheries science, and other related disciplines. Corps officers operate NOAA’s ships, fly aircraft, manage research projects, conduct diving operations, and serve in staff positions throughout NOAA. The NOAA Corps 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.

• 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

OMAO Sites
- OMAO
- NOAA Corps

Two Pagers, Reports, and Informational Slide Decks
- Monthly NOAA Fleet Update - The latest version may always be found on the Office of Legislative and Intergovernmental Affairs website [http://www.legislative.noaa.gov/policybriefs.html].
- Monthly Aircraft Flights and Mission Info Summary - The latest version may always be found on the Office of Legislative and Intergovernmental Affairs website [http://www.legislative.noaa.gov/policybriefs.html].
- Tornado Formation, Intensity, and Path for the Southeast United States: Research Flight and Mission Info Recap - 2018
- Hurricane Irma Flight and Mission Info Recap - 2017
- Hurricane Maria Flight and Mission Info Recap - 2017
- OMAO two pager with Recent Mission Highlights – 2018
- OMAO Fleet Recapitalization Slide Deck – Building NOAA’s 21st Century Fleet
- OMAO Fleet Recapitalization Questions and Answers (Q&As)
- NOAA Fleet Independent Review Team Final Report
- The NOAA Fleet Plan: Building NOAA’s 21st Century Fleet

Other Web Resources
- OMAO Marine Operations
- OMAO Aircraft Operations
- OMAO on Facebook
- Hurricane Hunters on Facebook
- OMAO on Twitter
- Hurricane Hunters on Twitter
- OMAO Ship Tracker - (restricted to only .gov or .mil users)