



NOAA Fleet Update

AUGUST 2014

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's Ships



OMAO's Ship Tracker (screen shot below) shows information about the location - present and past - of our fleet of research and survey ships. <http://shiptracker.noaa.gov>



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 Marc Moser

Primary Mission Category: Hydrographic Surveys

Ship Status: Underway August 15 – 22, 2014

DEPART: New Castle, NH

ARRIVE: Norfolk, VA

Project: Hydrographic Survey Operations in the Rhode Island Sound/Gardiner's Bay and Chesapeake Bay, VA

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

Woods Hole, MA (currently docks in Newport, RI)

NOAA Ship *Henry B. Bigelow*

Commanding Officer: CDR G. Mark Miller

Primary Mission Category: Fisheries Research

Ship Status: Underway August 5 – 16, 2014

DEPART: Newport, RI

ARRIVE: Newport, RI

Project: Deep-Sea Corals: Ground-truthing and exploration in deepwater canyons off the Mid-Atlantic

Objectives: With the overall goal of surveying and ground-truthing known or suspected deep-sea coral habitats associated with deepwater canyons off the coast of the northeastern US, a team of biological oceanographers, taxonomists, modelers, and scientists will conduct a program having the following objectives:

1. Survey canyon area and intercanyon slope habitats using TowCam; with concurrent sampling of environmental factors (i.e. depth, hydrography) to characterize benthic habitats and identify areas of coral presence.
2. Ground-truth areas predicted to be coral hotspots based on data provided from a habitat suitability model.
3. Ground-truth newly collected multibeam data.
4. Ground-truth historical coral records.
5. Conduct multibeam mapping in areas where data are missing or incomplete.
6. Assemble a database of photographs, species identification, species abundances/distributions.
7. Assemble maps of geo-referenced coral locations and associated data.
8. Provide research opportunities for teachers and professional researchers.

Davisville, RI

NOAA Ship *Okeanos Explorer*

Commanding Officer: CDR Ricardo Ramos

Primary Mission Category: Oceanographic Exploration and Research

Ship Status: Underway August 9 – 30, 2014

Project: Ship Shakedown and mapping Northeast Seamounts

Objectives: Combination system shakedown and exploratory mapping expedition. Multibeam, single beam, and subbottom sonar data will be collected 24 hours a day and Expendable Bathythermograph casts will be conducted at an interval defined by prevailing oceanographic conditions, but not to exceed 3-4 hours. The final decision to operate and collect sub-bottom profiler data 24 hours a day will be at the discretion of the Commanding Officer. All multibeam data will be fully processed according to standard onboard procedures and will be archived with the National Geophysical Data Center (NGDC). Subbottom sonar data will be also be archived with NGDC. Split-beam EK60 data and the complete Scientific Computer System dataset will be archived at the National Oceanographic Data Center.



NOAA Ship *Okeanos Explorer* underway in the Gulf of Mexico.

[Photo Credit: NOAA]

Norfolk, VA

NOAA Ship *Thomas Jefferson*

Commanding Officer: CDR James Crocker

Primary Mission Category: Hydrographic Surveys

Ship Status: Underway August 4 – 16, 2014 and August 19 – 29, 2014

DEPART: Norfolk, VA

ARRIVE: New London, CT

DEPART: New London, CT

ARRIVE: Norfolk, VA

Project: Hydrographic Survey Operations of Eastern Long Island Sound, NY and CT

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

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

CAPT Anne Lynch, Commanding Officer MOC-A

MOC-A serves as a homeport for one NOAA ship, and manages the day-to-day operations and provides administrative, engineering, maintenance, and logistical support for the research and survey ships in NOAA's Atlantic fleet. Each year these ships conduct dozens of missions to assess fish and marine mammal stocks, conduct coral reef research, collect seafloor data to update nautical charts, and explore the ocean.

Charleston, SC

NOAA Ship *Nancy Foster*

Commanding Officer: LCDR Jeffrey Shoup

Primary Mission Category: Oceanographic Research, Environmental Assessment

Ship Status: Shipyard work at Detyens Shipyards, Inc. in Charleston, SC is complete. *Nancy Foster* returned to homeport on August 13. Next project begins September 1, a survey of ocean dredged material disposal sites near Port Everglades, FL, in support of the Environmental Protection Agency.

NOAA Ship *Ronald H. Brown*

Commanding Officer: CAPT Joseph Pica

Primary Mission Category: Oceanographic Research, Environmental Assessment

Ship Status: Underway August 10 – August 19, 2014 and August 25 – September 28, 2014

DEPART: Newport, OR

ARRIVE: Newport, OR

DEPART: Newport, OR

ARRIVE: Honolulu, HI

Project One: New Millennium Observatory project 2014

Objectives: Conduct time-series observations and sampling at Axial Seamount, a site of a long-term seafloor observatory, with a remotely operated vehicle (ROV) *Jason II*. *Jason II* will deploy a new microbial incubator developed at NOAA's Office of Oceanic and Atmospheric Research, Pacific Marine Environmental Laboratory, as well as a large-volume sampler for the study of viruses, which will be deployed multiple times as an elevator mooring. Sampling of hydrothermal fluids around the caldera of Axial Seamount will be conducted using the ROV, instruments deployed in 2013 will be recovered, hydrocasts (4-10) will be conducted with the ship's conductivity, temperature, depth rosette to sample hydrothermal plumes.

Project Two: Tropical Oceans Atmosphere (TAO) 125W/140W

Objectives: Conduct maintenance of the TAO Array along the 125°W, 140°W, conduct underway operations between stations, including mooring recoveries, deployments, and repairs.

Pascagoula, MS

NOAA Ship *Oregon II*

Commanding Officer: Master Dave Nelson

Primary Mission Category: Fisheries Research

Ship Status: Underway August 11 – 25, 2014 and August 30 – September 13, 2014

DEPART: Mayport, FL

ARRIVE: Pascagoula, MS

DEPART: Pascagoula, MS

ARRIVE: Pascagoula, MS

Project: Red Snapper/ Shark Bottom Long Line

Objectives:

1. 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.
2. Collect morphological measurements and biological samples to facilitate life history studies.
3. Profile water column temperature, salinity, transmissivity, dissolved oxygen concentrations, and fluorometry.



[NOAA Ship Oregon II](#) has been conducting a shark survey mission for NOAA's National Marine Fisheries Service. Pictured here: Lead Scientist, Kristin Hannan (NOAA), measuring the length of a sand bar shark. She is assisted by Joey Salisbury (NOAA) and Chief Boatswain Tim Martin.

[Photo credit: ENS Rachel Pryor]

NOAA Ship *Gordon Gunter*

Commanding Officer: Master Don Pratt

Primary Mission Category: Fisheries Research

Ship Status: Underway August 21 – September 8, 2014

DEPART: Pascagoula, MS

ARRIVE: Pascagoula, MS

Project: Southeast Area Monitoring and Assessment Program (SEAMAP) Fall Ichthyoplankton

Objectives:

1. Assess the occurrence, abundance, and geographical distribution of the early life stages of fall spawning fishes, especially king and Spanish mackerel, red drum, and snappers.
2. Describe the pelagic habitat of fish larvae through physical and biological measurements.
3. Map the distribution of fish eggs and invertebrate zooplankton.
4. Study extrusion of smaller fish larvae through the standard SEAMAP bongo nets by using a secondary standard bongo frame.
5. Examine the spatial resolution of red and vermilion snapper distribution.
6. Collect detailed observations of net-caught jellyfish and ctenophores.

NOAA Ship *Pisces*

Commanding Officer: CDR Peter Fischel

Primary Mission Category: Fisheries Research

Ship Status: Underway August 22 – September 11, 2014

DEPART: Pascagoula, MS

ARRIVE: Pascagoula, MS

Project: Natural Resources Damage Assessment (NRDA) of Deep Water Red Crabs

Objectives: NOAA's National Ocean Service, Office of Response and Restoration is monitoring the effects of the Deepwater Horizon oil spill of April 2010, and identifying potential impacts on deepwater benthic red crabs (*Chaceon quinque-dens*) communities.

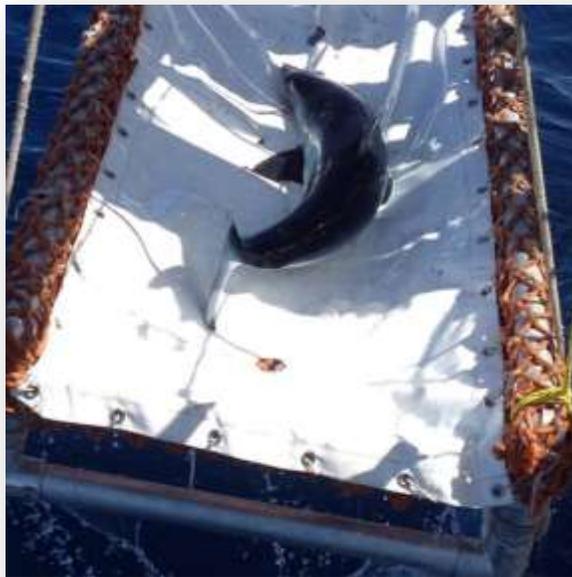
San Diego, CA

NOAA Ship *Reuben Lasker*

Commanding Officer: CDR Keith Roberts

Primary Mission Category: Fisheries Research

Ship Status: The ship is alongside in San Diego, CA, due to voltage and harmonic issues within the propulsion motors and will remain alongside as solutions are developed.



A shortfin mako shark is brought on board the NOAA Ship *Reuben Lasker* for tagging, measuring, and safe release. The research helps us to understand the life history and behavior of shark species around the world.

[Photo credit: Cherisa Friedlander — at [Santa Catalina Island](#)]

Newport, OR

NOAA Ship *Rainier*

Commanding Officer: CDR E.J. Van Den Ameele

Primary Mission Category: Hydrographic Surveys

Ship Status: Underway August 28 – September 4, 2014

DEPART: Kodiak, AK

ARRIVE: Kodiak, AK

Project: Hydrographic Survey Operations in the vicinity of the South Coast of Kodiak Island, AK

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

NOAA Ship *Bell M. Shimada*

Commanding Officer: CDR Brian Parker

Primary Mission Category: Fisheries Research

Ship Status: Underway August 3 – 24, 2014 and August 28 – September 14, 2014

DEPART: Newport, OR

ARRIVE: San Francisco, CA

DEPART: San Francisco, CA

ARRIVE: Newport, OR

Project One: 2014 California Current Ecosystem: Acoustic-Trawl Survey of Coastal Pelagic Fishes

Objectives: A NOAA National Marine Fisheries Service, South West Fisheries Science Center-led survey of coastal pelagic fishes, demersal fishes, zooplankton, and their oceanographic habitats within the California Current Ecosystem will be conducted. This acoustic-trawl method survey will assess biomasses, distributions, and biological compositions of multiple species and trophic levels within the adaptively sampled region spanning the northern subpopulation of Pacific sardine (*Sardinops sagax*).

Project Two: 2014 California Current Ecosystem: Investigations of hake survey methods, life history, and associated ecosystem

Objectives: A NOAA National Marine Fisheries Service, North West Fisheries Science Center-led investigations of Pacific hake (*Merluccius productus*) and joint survey methods, life history, and associated ecosystem components, trophic structure and oceanography, will be conducted.

OMAO'S MARINE OPERATIONS

CAPT Eric Berkowitz, Director of Marine Operations

OMAO's Marine Operations oversees operations of the three regional Centers, including the Marine Operations Center-Pacific (MOC-P), Marine Operations Center-Atlantic (MOC-A), and Marine Operations Center-Pacific Islands (MOC-PI).

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

CAPT Douglas Baird, Commanding Officer MOC-P

MOC-P serves as a homeport for two NOAA ships, and manages the day-to-day operations and provides administrative, engineering, maintenance, and logistical support for the research and survey ships in NOAA's Pacific fleet. Each year these ships conduct dozens of missions to assess fish and marine mammal stocks, conduct coral reef research, collect seafloor data to update nautical charts, and explore the ocean.

Ketchikan, AK (currently docks in Newport, OR)

NOAA Ship *Fairweather*

Commanding Officer: CDR David Zezula

Primary Mission Category: Hydrographic Surveys

Ship Status: Underway August 19 – 26, 2014

DEPART: Kodiak, AK

ARRIVE: Seattle, WA

Project: Hydrographic Survey Operations in the vicinity of the South Coast of Kodiak Island, AK

Objectives: To support safe navigation through the acquisition and processing of hydrographic survey data for updating nautical charts and by the identification and dissemination of dangers to navigation as identified during the course of survey operations. Service NOAA's Office of Oceanic and Atmospheric Research Chatham Strait surface moorings and the Chiniak mooring.

Kodiak, AK

NOAA Ship *Oscar Dyson*

Commanding Officer: CDR Jesse Stark

Primary Mission Category: Fisheries Research

Ship Status: Underway August 17 – 31, 2014

DEPART: Dutch Harbor, AK

ARRIVE: Dutch Harbor, AK

Project: Bering-Aleutian Salmon International Survey, Ecosystem Monitoring and Assessment /Fisheries-Oceanography Coordinated Investigations

Objectives: Fisheries (surface, midwater, and beam trawls) and oceanographic survey to:

1. Describe the community structure, biomass, energetic status, diets, and biological composition of epi-pelagic nekton including Pacific salmon, Pacific cod, age-0 pollock, jellyfish, herring, capelin, and sand lance.
2. Conduct acoustic-midwater trawl activities to convert the acoustic data to estimates of distribution and abundance for the dominant pelagic scatterers (e.g., Pacific cod, age-0 pollock, herring, capelin).
3. Compare and contrast pelagic and epi-pelagic fish communities and food web structure in the southeastern Bering Sea using surface and mid-water trawls.
4. Collect electronic oceanographic data including CTD (Conductivity, temperature, depth) vertical profiles of temperature, salinity, light transmission, chlorophyll a fluorescence, dissolved oxygen, possibly pH, photosynthetic available radiation (PAR).
5. Continuously (along-track) collect sea surface temperature, salinity, chlorophyll a fluorescence data.
6. Collect biological oceanographic samples (water and plankton) at trawl stations.
7. Conduct Jellyfish sampling and experimentation to determine the diets and feeding rates of the dominant large jellyfish, *Chrysaora melanaster*, on fish eggs and larvae and on important fish prey.
8. Collect and analyze phytoplankton samples for taxonomic information.
9. Conduct primary production experiments with stable (non-radioactive) isotopes using deck-board incubators cooled with surface seawater.



NOAA Ship *Oscar Dyson* pushing through first-year sea ice in the Bering Sea.

[Photo: Allen Smith, NOAA]

Honolulu, HI

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

CDR Robert Kamphaus, Commanding Officer MOC-PI

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

NOAA Ship *Hi'ialakai*

Commanding Officer: LCDR Daniel Simon

Primary Mission Category: Oceanographic Research, Environmental Assessment

Ship Status: Underway August 11 – 31, 2014

DEPART: Pearl Harbor, HI

ARRIVE: Pearl Harbor, HI

Project: 2014 Papahānaumokuākea Marine National Monument (PMNM) Reef Assessment Monitoring Program (RAMP) to improve understanding of the spatial and temporal processes influencing the health of coral reef ecosystems throughout the archipelago

Objectives:

1. Divers will conduct rapid ecological assessments using stratified sampling of reef fish, corals, other invertebrates, and algae.
2. A dive team will conduct coral disease surveys to determine disease presence within the NWHI.
3. A dive team will retrieve previously deployed small (5x5x2 cm) calcium carbonate blocks at 3-5 existing NOAA-CRED Calcification Acidification Unit sites and survey for trends in species diversity and species co-occurrence within the corals of the genus *Pocillopora*.
4. The team will conduct non-invasive wreck assessment surveys of selected maritime heritage sites and continued monitoring of known shipwreck and sunken aircraft sites for the purposes of understanding impacts and changes to maritime heritage resources. The maritime heritage efforts will be conducted with the use of SCUBA and tow-boarding on snorkel.

NOAA Ship *Oscar Elton Sette*

Commanding Officer: LCDR Stephanie Koes

Primary Mission Category: Fisheries Research

Ship Status: Underway August 11 – 24, 2014 (Transit from Guam to Hawaii) and August 30 – September 19, 2014

DEPART: Apra, Guam

ARRIVE: Pearl Harbor, HI

DEPART: Pearl Harbor, HI

ARRIVE: Pearl Harbor, HI

Project One: Hawaiian Monk Seal Population Assessment

Objectives:

1. Recover Hawaiian monk seal camps at French Frigate Shoals, Laysan Island, Lisianski Island, Pearl and Hermes Reef and Kure Atoll.
2. Conduct monk seal beach surveys at Ni'ihau, Nihoa, and Necker Islands.
3. Translocate Hawaiian monk seals from a rehabilitation facility in Kona on the island of Hawaii back to the NWHI.
4. Recover an American Bird Conservancy Nihoa Miller Bird camp on Laysan Island.
5. Conduct trials of Unmanned Aircraft Systems (UAS: Puma and multi-copter) at Pearl and Hermes Reef.
6. Deliver and recover supplies and personnel to Kure Atoll for the Department of Forestry and Wildlife, Department of Land and Natural Resources, State of Hawaii.



NOAA Ship *Oscar Elton Sette* scientists conducted bottom fishing operations using small boat operations (which included spear fishing, snorkel surveys, and hook and line operations), and fishing on board the *Sette*. They targeted a variety of fish between the inter-tidal zone and 1200 feet, and operations were supported by personnel from the science center, fish and wildlife staff, and local fisherman from Guam and Saipan who were a wealth of knowledge when it came to local habitats.



OMAO's Aircraft



Tampa, Florida

OMAO'S AIRCRAFT OPERATIONS CENTER (AOC)

CAPT Harris Halverson, Commanding Officer AOC

The AOC, located at MacDill Air Force Base, 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.

Gulfstream IV (N49RF)

Aircraft Commander:

TBD

Current Mission:

Hurricane Surveillance and Research. Western Atlantic and Gulf of Mexico

Dates of Operation:

August – November 30, 2014

Support operational tropical cyclone forecasting and the Hurricane Forecast Improvement Project. The G-IV will be the primary aircraft for surveillance missions with the Air Force's WC-130J and NOAA's WP-3D aircraft serving as backup platforms. The radar reconnaissance missions will use the G-IV's Tail Doppler Radar (TDR) system to obtain high-density, three-dimensional measurements of the inner core wind structure of tropical cyclones, potentially throughout its full life cycle.



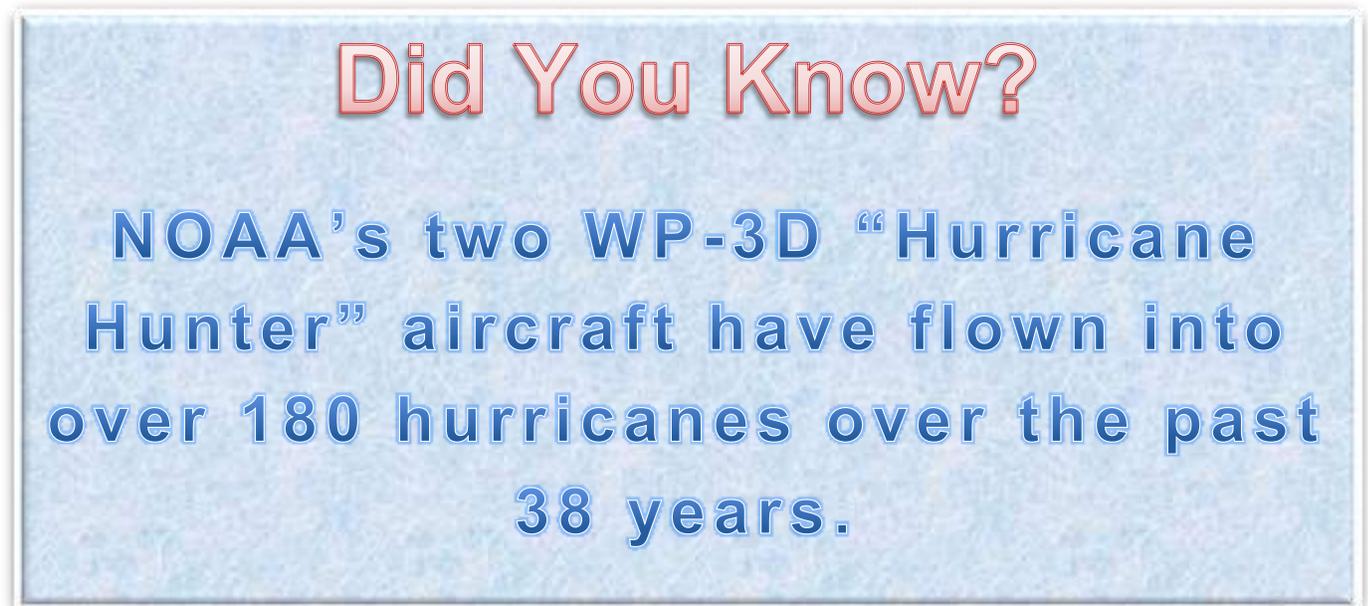
After flying Hurricane Iselle and Julio missions, the crew of NOAA's G-IV jet departed Hawaii.

[Photo provided by Mr. John Hill, NOAA/AOC]

WP-3D (N42RF) and WP-3D (N43RF) – “Hurricane Hunters”

Aircraft Commander: TBD
Current Mission: Hurricane Reconnaissance and Research. Western Atlantic and Gulf of Mexico
Dates of Operations: August – November 30, 2014

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



Twin Otter (N46RF)

Aircraft Commander: LT John Rossi and LT Matt Nardi
Current Mission: Snow Survey/ Soil Moisture Surveys in various locations
Dates of Operation: August – September 30, 2014

The aircraft is conducting Snow Survey operations for the National Operational Hydrologic Remote Sensing Center (NOHRSC), utilizing an Airborne Gamma Radiation detector to make airborne Snow Water Equivalent (SWE) and soil moisture measurements in the Midwest. Airborne SWE measurements are used by NOAA National Weather Service (NWS), Weather Forecast Offices and NWS River Forecast Centers when issuing river and flood forecasts, water supply forecasts, and spring flood outlooks.

Twin Otter (N48RF)

Aircraft Commander: LCDR Mansour and LT Francisco Fuenmayor
Temporary Base: Key West, FL
Current Mission: LiDAR Evaluation
Dates of Operation: August

The aircraft is conducting an evaluation of a topometric-bathymetric Light Detecting and Ranging (LIDAR) system for the Remote Sensing Division of the National Geodetic Survey. The system can scan coastlines and simultaneously measure ground heights above the surface as well as the depths below, near the shoreline. The data could potentially be used to update nautical charts.

Twin Otter (N56RF)

Aircraft Commander: LT Dave Gothan
Temporary Base: Various locations in Alaska
Current Mission: Harbor Seal Survey
Dates of Operation: August 1 – September 21, 2014

The aircraft is conducting a Harbor Seal survey along the southern maritime region of Alaska. The National Marine Fisheries Service, National Marine Mammal Laboratory conducts aerial surveys of Harbor Seals to estimate their abundance. The project will photograph haul out sites and analyze the photos to count the animals.



Twin Otter (N56RF) in front of NOAA's Aircraft Operations Center.
[Photo credit: Aircraft Owners & Pilots Association]

Twin Otter (N57RF)

Aircraft Commander: TBD
Current Mission: Training/Scheduled Maintenance
Dates of Operation: Until August 31, 2014

For the month of August, aircraft will be used for training and will undergo scheduled maintenance.

Jet Prop Commander (N45RF)

Aircraft Commander: LCDR Patrick Didier/LCDR Paul Hemmick/LTJG Kyle Salling
Current Mission: Various locations for Gravity for the Redefinition of the American Vertical Datum (GRAV-D) project
Dates of Operation: Timing TBD

The aircraft is currently conducting the GRAV-D project. The mission will acquire gravity data of littoral and interior areas of the U.S. and territories out to the continental shelf break (usually within 200 km offshore) to upgrade the national vertical datum. A host of economic sectors depend upon accurate positioning for effective operations. Current reference system (NAVD88) can result in up to 2 meter height errors and does not provide hydrographic information on the flow of water. This leads to inaccuracies for flood plain mapping and evacuation routing. This project has the aim of updating the geoid model which will help to narrow these inaccuracies. The project will also plan to partner with the USGS to collect magnetics data while collecting gravity data.

King Air (N68RF)

Aircraft Commander: LCDR Scott Price/LT Rebecca Waddington/LTJG Tanner Sims
Current Mission: Various locations for coastal mapping
Dates of Operation: Continuous operations

The King Air is conducting coastal mapping mission flights during an on-going mission, run by the Remote Sensing Division of NOAA's National Ocean Service, National Geodetic Survey, with the goal of providing a regularly-updated national shoreline for supporting marine navigation, defining territorial limits, and managing coastal resources. Stereo photogrammetry and LiDAR are used to produce a digital database for a national shoreline.



Unmanned Systems Support



RQ-20A Puma

Location: Channel Islands National Marine Sanctuary and Vandenberg, AFB, CA
Dates: August 3 – 10, 2014
Mission: Office of National Marine Sanctuaries UAS Operations

NOAA's National Ocean Service, Office of National Marine Sanctuaries (ONMS) will utilize a Puma All-Environment unmanned aircraft system (UAS) for a variety of sanctuary management and research requirements. Future missions will include visitor and vessel use surveys and environmental monitoring including operations over land. An objective of this project is to evaluate UAS effectiveness while working both onshore and at sea. Understanding of the UAS system capabilities and limitations for future ONMS missions will inform the development of standardized operational protocols and methodologies for broader NOAA programs.

Location: Beaufort Sea, AK
Dates: August 7 – 30, 2014
Mission: Arctic Shield aboard USCGC *Healy*

Arctic Shield 2014 will be the Research and Development Center's second trip with NOAA and the Puma All-Environment (AE) onboard the US Coast Guard Cutter *Healy*. Last year, a Puma AE flew as part of a joint technology demonstration in the Beaufort and Chukchi Sea. Due to its unmitigated success, the Puma AE will once again be utilized this year for a follow-on oil in ice exercise. Demonstration of a net-capture system may also occur during this project.

NASA Global Hawk

Location: NASA Wallops Flight Facility, VA
Dates: August and September
Mission: Hurricane Severe Storm Sentinel project (HS3)

The Global Hawk team is prepared for the Hurricane Severe Storm Sentinel project, better known as HS3. The HS3 project, which is in partnership with NOAA, is scheduled for August and September, and includes two Global Hawks configured for hurricane research that will base from the NASA Wallops Flight Facility in Virginia. Science instrumentation for the campaign has been ground tested and is installed on both aircraft. NOAA pilots and technicians are participating in the preparations and operations.

Coyote

Location: Avon Park, FL
Dates: August 25 – 28, 2014 and September 2 – 5, 2014
Mission: Clear Air Testing

Coyote is an unmanned aircraft system (UAS) developed for launch into a tropical cyclone to study the interaction between the sea surface and atmosphere and its influence on hurricane development. A preliminary test for this will occur late August or early September on a clear day over land to examine the airframe's readiness for launch into a true hurricane. A WP-3D Hurricane Hunter will launch the UAS over a specified area where it will be piloted from the plane. Observers both in the plane and on the ground will assess the data the UAS transmits and its readiness for use in a storm.

Hexacopter

Location: Canadian Pacific Coast
Dates: August 10 – 31, 2014
Mission: Aerial Imaging of Orcas

Canadian and NOAA scientists will use a hexacopter to image killer whales for individual identification. Animal condition and body markings will also be assessed.



Aerial shot taken from the hexacopter at 200 feet at Cape Wrangell, Alaska, on June 23, 2014.

[Photo credit: Kathryn Sweeney, NOAA]



OMAO Partnerships



United States Senate Committee on Commerce, Science, and Transportation – Office of Ranking Member, Senator John Thune (R-SD)

Location: Washington, DC

Detail: LT Wendy Lewis, NOAA Commissioned Officer Corps

Lt. Lewis is currently on detail to the Committee and the office of Ranking Member Thune where she will be assisting on activities pertaining to oceans, atmosphere, and fisheries policy, as well as other matters within the Committee's jurisdiction

National Science Foundation

Location: Antarctica

Mission: LT Joe Phillips, NOAA Commissioned Officer Corps

Members of the [NOAA Commissioned Officer Corps](#) carry out NOAA's mission in remote locations across the globe. LT Phillips 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 (USPACOM)

Location: Honolulu, HI

Embedded Liaison: CAPT Barry Choy, NOAA Commissioned Officer Corps

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

Department of Defense – U.S. Northern Command (USNORTHCOM)

Location: Boulder, CO

Embedded Liaison: CAPT Mark Moran, NOAA Commissioned Officer Corps

U.S. Northern Command (USNORTHCOM) partners to conduct homeland defense, civil support, and security cooperation to defend and secure the United States and its interests. NORTHCOM's 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 that include The Bahamas, Puerto Rico, and the U.S. Virgin Islands. CAPT Moran serves as the liaison for the NOAA Corps, helping to plan, organize, and execute homeland defense and civil support missions.

Department of Defense – U.S. Navy

Location: Washington, DC

Embedded Liaison: CDR Christiaan Van Westendorp, NOAA Commissioned Officer Corps
The NOAA liaison to the Oceanographer of the Navy 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. Starting in July, CDR Van Westendorp will serve as the interface for the Oceanographer of the Navy between Navy and U.S. Federal Agencies including NOAA.

Department of Defense and NOAA’s Office of Coast Survey

Location: Silver Spring, MD

Embedded Liaison: LCDR Matthew Wingate, NOAA Commissioned Officer Corps
NOAA’s National Ocean Service Office of Coast Survey (OCS) is the lead federal provider of nautical charts and hydrographic survey data of the U.S. Exclusive Economic Zone. Meeting this responsibility requires active cooperation and coordination with federal partners in the Departments of Defense and Homeland Security with which NOAA shares responsibility for U.S. navigational products and services. LCDR Wingate tracks, coordinates, and adds value to existing activities involving OCS subject matter experts and partners, seeks and develops additional opportunities for collaboration, and increases visibility and access to these activities and partnerships for OCS leadership.

Department of Homeland Security – U.S. Coast Guard

Location: Washington, DC

Embedded Liaison: CDR Jeremy Adams, NOAA Commissioned Officer Corps
As the NOAA liaison to the United States Coast Guard (USCG), CDR Adams maintains a current and comprehensive knowledge of interagency activities and policies related to the USCG and NOAA. He identifies potential conflict or benefit issues for analysis and evaluation, conducts appropriate assessments and studies, and serves as the interface between NOAA and the USCG. CDR Adams initiates, designs, and implements strategies through federal agency liaison and coordination that results in cooperative arrangements for maritime security, oceanographic research, hazardous materials spill response, and many other activities.



Teacher At Sea Program



The mission of the Teacher at Sea (TAS) program is to give teachers a clearer insight into our ocean planet, a greater understanding of maritime work and studies, and to increase their level of environmental literacy by fostering an interdisciplinary research experience. The program provides a unique environment for learning and teaching by sending kindergarten through college-level teachers to sea aboard NOAA research and survey ships to work under the tutelage of scientists and crew. Then, armed with new understanding and experience, teachers bring this knowledge back to their classrooms. Since its inception in 1990, the program has enabled more than 600 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. Below is a list of the NOAA Teachers at Sea for the current monthly update for the 2014 Field Season. Once they have embarked on their cruise, you can gain access to their blogs which document their missions at sea and offer a wealth of information about the research being conducted as well as personal stories. More info: <http://teacheratsea.noaa.gov>

2014 Current TAS Placements Blogs – <http://teacheratsea.noaa.gov/2014/index.html>

NOAA Ship *Oregon II*

Name: Mr. Stephen Tomasetti

School: Brooklyn Frontiers High School – Brooklyn, NY

Cruise: Shark/Red Snapper Bottom Longline Survey, August 11 - 25, 2014

Blog: <http://teacheratsea.noaa.gov/2014/tomasetti.html>

NOAA Ship *Rainier*

Name: Ms. Cassie Kautzer

School: Monitor Elementary School – Springdale, AR

Cruise: Hydrographic Survey in Kodiak, AK, August 18 – September 4, 2014

Blog: <http://teacheratsea.noaa.gov/2014/kautzer.html>



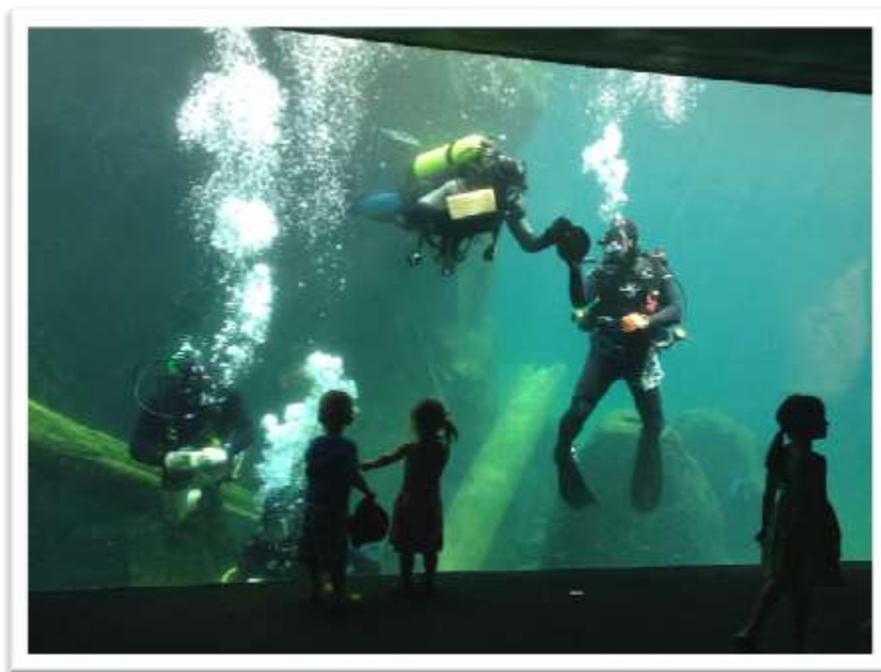
OMAO - NOAA Dive Program



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

NOAA DIVES DEEPER

For the first time in NOAA diving history, there are now six NOAA divers who are certified to dive to 330 feet using closed-circuit, mixed-gas rebreathers. The divers were trained at the Inouye Regional Center in Honolulu under the auspices of the NOAA Diving Program. The use of the closed-circuit rebreather technology allows human access to areas that in many cases have not been explored by divers. NOAA now has the largest closed-circuit rebreather diving team of all federal government agencies except for the Department of Defense.



NOAA divers help clean the National Aquarium tank in Baltimore, MD.

[Photo: Lindsay Slater]



OMAO - NOAA Small Boat Program



OMAO 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. More info: <http://www.sbp.noaa.gov/>



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 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 9 specialized aircraft. Together, OMAO and the NOAA Corps support nearly all of NOAA's missions.

NOAA has the largest fleet of civilian 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 turboprop "hurricane hunter" 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. Together with NOAA's Gulfstream IV-SP hurricane surveillance jet, these 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, Commander and Twin Otter aircraft support marine mammal population studies, shoreline change assessments, oil spill investigations, and snowpack surveys for spring flood forecasts.

The NOAA fleet provides immediate response capabilities for unpredictable events. For example, after Hurricane Sandy, NOAA ships *Thomas Jefferson* and the newly commissioned *Ferdinand R. Hassler* conducted emergency bathymetric surveys to locate possible submerged navigational hazards in the ports of New York and Virginia. These surveys enabled the ports to reopen quickly. Aerial images of storm-stricken regions, taken by NOAA aircraft, helped residents and emergency workers to quickly assess the condition of houses, bridges, and vital infrastructure.

In 2011, OMAO's Aero Commander and Jetprop Commander aircraft conducted snow surveys, which increased the accuracy of National Weather Service's flood forecasting during a record year of snow and floods. In 2010, the NOAA fleet and the NOAA Corps played a major role in the response to the BP Deepwater Horizon oil spill, conducting extensive studies in the Gulf of Mexico to monitor the health of the ecosystem. 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.

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. As NOAA's fleet continues to age, maintenance costs steadily increase. Operational costs have increased as well, driven largely by rising fuel costs. 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 are also continuing our effort 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. We transitioned our basic NOAA Corps officer training class to 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.

Finally, we continue to expand our partnerships with other federal agencies. We are proud of our longstanding and fruitful working relationships with the U.S. Air Force, U.S. Coast Guard, U.S. Navy, and U.S. Public Health Service and through the Interagency Working Group on Facilities and Infrastructure, continue facilitating cross-agency cooperation for the federal fleet of research and survey ships. Active collaboration among the Federal family is critical to ensuring the long-term capability and success of the federal ocean infrastructure. Our partners' success is our success.



NOAA Commissioned Officer Corps



– Supporting NOAA’s Science, Service, and Stewardship –

The NOAA Commissioned Officer Corps (NOAA Corps) is one of the nation’s seven uniformed services and 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 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. 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.

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. 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 2012 after Hurricane Sandy, seafloor sonar surveys completed by NOAA ships and small boats helped reopen Baltimore and Virginia ports, quickly restarting commerce and allowing Navy ships to return to port. New York and New Jersey ports were reopened, enabling emergency supplies to reach some of the hardest-hit areas. Maritime traffic resumed more quickly because NOAA embedded regional navigation managers within command centers.
- Hours after Sandy, NOAA planes and scientists conducted aerial surveys of the affected coastlines and immediately published the photos online, allowing emergency managers and residents to examine the damage even before ground inspections were permitted. These surveys are also vital to FEMA assessment teams and other on-the-ground responders and those managing oil spill clean-up and damage assessment. Over 3,000 miles of coastline have been surveyed, and over 10,000 images processed to document coastal damage and impacts to navigation.
- In 2011, OMAO’s Aero Commander and Jetprop Commander aircraft conducted snow surveys, which increased the accuracy of National Weather Service’s River Forecast Centers flood forecasting during a record year of snow and floods.

- After Hurricane Irene in 2011, the NOAA Ship *Ferdinand Hassler* and team completed 300 lineal nautical miles of survey work in less than 48 hours providing a Damage Assessment that enabled the U.S. Coast Guard to re-open ports and restore more than \$5M per hour in maritime commerce less than 3 days after the storm.
- More than 80 officers, or a quarter of the NOAA Corps' total strength, were re-assigned and/or deployed to support the Deepwater Horizon disaster response in the Gulf in 2010.
 - Eight NOAA-owned vessels, or the entire Atlantic fleet, were also deployed to the Gulf of Mexico for spill response, as well as several aircraft.
- NOAA Corps officers who run NOAA's Ships support fish stock and marine mammal assessments, marine ecosystem studies, ocean exploration, coral reef preservation and protection, and mapping and charting around the United States and the Arctic, and more.
- NOAA Corps officers who run NOAA's Aircraft collect environmental and geographic data essential to studying climate change, assess marine mammal populations, survey coastal erosion, investigate oil spills, and improve hurricane and winter storm forecasts as they pilot the WP-3D Orion hurricane hunters and other aircraft that fly through, and above the storms to obtain critical forecasting data.

Find out more about the NOAA Corps, its mission and history at <http://www.noaacorps.noaa.gov/>.

RECRUITING VIDEO



<https://www.youtube.com/watch?v=hE5EnT7xwrs>