NOAA Fleet Update

FOR MAY 2014

The following update provides the status of the ships and aircraft in NOAA's fleet, including current location and planned mission(s). NOAA's ships and aircraft play a critical role in the collection of oceanographic, atmospheric, hydrographic, and fisheries data. NOAA's fleet of research aircraft and ships are operated, managed, and maintained by NOAA's Office of Marine and Aviation Operations (OMAO), which includes both civilians and the commissioned officers of the NOAA Commissioned Officer Corps (NOAA Corps), one of the seven Uniformed Services of the United States. Please click on the Table of Contents entry to be taken directly to a specific ship or aircraft. The fleet is listed based on the geographical location of their homeport/base starting in the Northeast and ending in the Pacific.

Find us on Facebook for the latest news and activities.

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The NOAA ship *Reuben Lasker*, our newest fisheries survey vessel, shown here with her crew alongside Midway Pier in San Diego, CA, for her commissioning ceremony on May 2, 2014.

Photo: David Hall, NOAA

NOAA's Under Secretary of Commerce for Oceans and Atmosphere and NOAA Administrator, Dr. Kathryn Sullivan, presented the keynote address during a joint graduation ceremony at the U.S. Coast Guard Academy in New London, CT, where NOAA Commissioned Officer Corps candidates graduated alongside U.S. Coast Guard officer candidates on May 7, 2014. Check out the link to learn about NOAA's newest officers! #noaa #uscg http://www.noaacorps.noaa.gov/botc/botc123/bios.html

Photos: Petty Officer 2nd Class Cory J. Mendenhall, USCG

OMAO's Ships

NOAA's Ship Tracker (screen shot below) shows information about the location, present and past, of NOAA's ships.
http://shiptracker.noaa.gov

Ferdinand R. Hassler

Homeport and Commanding Officer: New Castle, NH – LCDR Marc Moser
Primary Mission Category: Hydrographic Surveys
Ship Status: Underway May 20 – 30, 2014
DEPART: Norfolk, VA **ARRIVE:** Norfolk, VA

Project: Hydrographic Survey Operations in the Approaches to 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.

Henry B. Bigelow

Homeport and Commanding Officer: Woods Hole, MA (currently docked in Newport, RI) – CDR G. Mark Miller
Primary Mission Category: Fisheries Research
Ship Status: Underway May 17 – 23, 2014
DEPART: Newport, RI **ARRIVE:** Newport, RI

Project: Spring Multispecies Bottom Trawl Survey
Objectives: To determine the spring distribution and relative abundance of fish and invertebrate species found on the continental shelf, including variable amounts of additional biological information obtained

through intensive sampling effort to be determined by the field party chief with strategic guidance programmatically predetermined; test trawl gear, methods, or survey related equipment that may benefit the trawl survey in the future; collect oceanographic data including CTD casts and bongo tows at selected stations; and collect acoustic data along cruise tracks with the EK-60 and ME-70 acoustic systems.

Okeanos Explorer

Homeport and Commanding Officer: Davisville, RI – CDR Ricardo Ramos
Primary Mission Category: Oceanographic Exploration and Research
Ship Status: Underway May 7 – 22, 2014
DEPART: St. Petersburg, FL **ARRIVE:** North Kingstown, RI

Project: Exploration, East Coast Mapping
Objectives: Exploratory mapping with multibeam, single beam, and subbottom sonar. Data will be collected 24 hours a day and XBT casts will be conducted at an interval defined by prevailing oceanographic conditions, but not to exceed 3-4 hours. 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 National Geodetic Data Center (NGDC). Split-beam EK60 data will be archived at the National Oceanographic Data Center (NODC).

Thomas Jefferson

Homeport and Commanding Officer: Norfolk, VA – CDR James Crocker
Primary Mission Category: Hydrographic Surveys
Ship Status: Underway May 12 – 23, 2014, and May 27 – June 12, 2014
DEPART: New London, CT **ARRIVE:** Newport, RI
DEPART: Newport, RI **ARRIVE:** Norfolk, VA

Project One: Hydrographic Survey Operations in the vicinity of Buzzards Bay, MA and Narragansett Bay, RI
Objectives: To support safe navigation through the acquisition and processing of hydrographic survey data for updating nautical charts and by the identification and dissemination of dangers to navigation as identified during the course of survey operations.

Project Two: Hydrographic Survey Operations in the vicinity of Long Island Sound, NY and CT
Objectives: Collect seafloor mapping data in support of NCCOS and the Long Island Sound Seafloor Mapping Initiative, in New York and Connecticut. This is in addition to supporting 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.

Nancy Foster

Homeport and Commanding Officer: Charleston, SC – LCDR Jeffrey Shoup
Primary Mission Category: Oceanographic Research, Environmental Assessment
Ship Status: Underway May 3 – 16, 2014 and May 19 – 27, 2014
DEPART: Charleston, SC **ARRIVE:** Morehead City, NC
DEPART: Morehead City, NC **ARRIVE:** Charleston, SC

Project: Mapping Essential Fish Habitat in the Southeast U.S. to Support Offshore Energy Spatial Planning and Ecosystem Management

Objectives:

1. Scientists will complete high resolution multibeam and acoustic fisheries sonar surveys in shallow depths approximately 20- 55 meters to characterize seafloor habitats within fishing grounds and proposed outer continental shelf (OCS) energy development regions.
2. Scientists will conduct fishery acoustic surveys during night-time hours to map the distribution of fishes over hard bottom habitats.
3. Scientists will conduct diver visual surveys to assess fish abundance and community assemblages and benthic invertebrates and sedimentary characteristics of habitats over hard bottom seafloor types and shipwrecks or artificial reef identified from the sonar imagery. Divers will use no-decompression scientific dive methods.

Ronald H. Brown

Homeport and Commanding Officer: Charleston, SC – CAPT Joseph Pica
Primary Mission Category: Oceanographic Research, Environmental Assessment
Ship Status: Alongside in San Diego, CA, waiting for award of a contract for routine dry docking.

Oregon II

Homeport and Commanding Officer: Pascagoula, MS – Master Dave Nelson
Primary Mission Category: Fisheries Research
Ship Status: Underway May 1 – 15, 2014 and May 17 – 31, 2014
DEPART: Pascagoula, MS **ARRIVE:** Pascagoula, MS
DEPART: Pascagoula, MS **ARRIVE:** Pascagoula, MS

Project: Southeast Area Monitoring and Assessment Program (SEAMAP) Spring Ichthyoplankton
Objectives: Assess the occurrence, abundance and geographical distribution of the early life stages of spring spawning fishes, especially bluefin tuna (*Thunnus thynnus*), from mid-continental shelf to deep Gulf waters using a bongo frame fitted with 0.335 mm nets, a neuston frame fitted with a 0.950 mm net, and a “Spanish” neuston fitted with a 0.500 mm net at selected SEAMAP stations in support of annual stock assessments. Describe the pelagic habitat of fish larvae through measurements of various physical and biological parameters. Collect detailed observations of net-caught jellyfish and ctenophores.

Gordon Gunter

Homeport and Commanding Officer: Pascagoula, MS – CDR Nathan Hancock
Primary Mission Category: Fisheries Research
Ship Status: Underway May 5 – 22, 2014 and May 24 – 26, 2014
DEPART: Woods Hole, MA **ARRIVE:** Woods Hole, MA
DEPART: Woods Hole, MA **ARRIVE:** Norfolk, VA

Project One: Northern Right Whale Survey and Biology
Project Two: Northern Right Whale Survey Transit
Objectives:

1. Collect photo ID and biopsy samples of baleen whales. Primary target species is North Atlantic right whales.
2. Apply dermal tags to right and sei whales.
3. Conduct oceanographic sampling in proximity to tagged whales.
4. Conduct zooplankton sampling to examine prey sources.
5. Collect right whale fecal samples for hormone analysis.
6. Deploy 1 autonomous acoustic recording mooring for the Ocean Noise Reference Station Network (ONRSN).
7. Deploy 2 buoy moorings at Roseway Basin.

Pisces

Homeport and Commanding Officer: Pascagoula, MS – CDR Peter Fischel
Primary Mission Category: Fisheries Research
Ship Status: Underway May 12 – 25, 2014, and May 27 – June 11, 2014
DEPART: Pascagoula, MS **ARRIVE:** Tampa, FL
DEPART: Tampa, FL **ARRIVE:** Mayport, FL

Project: Southeast Area Monitoring and Assessment Program (SEAMAP) Reef Fish
Objectives: Conduct a survey of reef fish on the U.S. continental shelf of the Gulf of Mexico using a custom built stereo/video camera system and bandit reels. The ship's ME70 multibeam system and Simrad EK60 Echosounder will be used to map predetermined targeted areas on a nightly basis to improve or increase the reef fish sample universe.

Reuben Lasker

Homeport and Commanding Officer: San Diego, CA – CDR Keith Roberts
Primary Mission Category: Fisheries Research
Ship Status: Underway May 26 – 31, 2014
DEPART: San Diego, CA **ARRIVE:** San Diego, CA

Project: Juvenile Rockfish Shakedown and California Cooperative Ocean Fisheries Investigation (CalCOFI) Shakedown
Objectives: Test all operational equipment prior to the beginning of the field season.

It is rare that you can see three Rainiers in one photo. Left is USNS *Rainier*, right is the NOAA ship *Rainier*, and in the background is the iconic Mount Rainier!

Photo: Unknown

Rainier

Homeport and Commanding Officer: Newport, OR – CDR Rick Brennan
Primary Mission Category: Hydrographic Surveys
Ship Status: Underway May 5 – 16, 2014, and May 19 – 23, 2014
DEPART: Kodiak, AK **ARRIVE:** Kodiak, AK
DEPART: Kodiak, AK **ARRIVE:** Kodiak, AK

Project: Hydrographic Survey Operations in the North 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. This project will provide contemporary hydrographic data in order to update the nautical charting products and reduce survey backlog in the area.

Bell M. Shimada

Homeport and Commanding Officer: Newport, OR – CDR Scott Sirois / CDR Bryan Parker
Primary Mission Category: Fisheries Research
Ship Status: Underway May 15 – 24, 2014
DEPART: Newport, OR **ARRIVE:** Newport, OR

Project One: California Cooperative Oceanic Fisheries Investigations – Acoustic Trawl Method/Daily Egg Production Method Survey, Fisheries Resources Division
Objectives: Survey the distributions and abundances of pelagic fish stocks, their prey, and their biotic and abiotic environments in the area of the California Current between San Francisco and San Diego.

Project Two: Northern California Current Ecosystem Survey
Objectives: Conduct ecosystem survey, make hydrographic measurements with a CTD, collect water samples for chemical analyses with a rosette, and collect zooplankton samples with towed plankton nets along a number of transect lines perpendicular to the coast ranging from Newport, OR south to Bodega Bay. Additional zooplankton tows will be made to collect living zooplankton for experiments on effects of ocean acidification on zooplankton. While steaming, bird and mammal observations will be made by trained observers.

McArthur II

Homeport: Newport, OR
Ship Status: The ship is currently docked in Newport, OR. NOAA has received congressional approval for disposal of the vessel and is currently processing the ship for decommissioning and disposal – exact date TBD.

Fairweather

Homeport and Commanding Officer: Ketchikan, AK – CDR David Zezula
Primary Mission Category: Hydrographic Surveys
Ship Status: Underway May 12 – 23, 2014, May 27 – June 6, 2014
DEPART: Kodiak, AK **ARRIVE:** Homer, AK
DEPART: Homer, AK **ARRIVE:** Kodiak, AK

Project: Hydrographic Survey Operations in the Strait of Juan de Fuca
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.

Oscar Dyson

Homeport and Commanding Officer: Kodiak, AK – CDR Jesse Stark
Primary Mission Category: Fisheries Research
Ship Status: Underway May 6 – 17, 2014 and May 20 – June 8, 2014
DEPART: Dutch Harbor, AK **ARRIVE:** Dutch Harbor, AK
DEPART: Dutch Harbor, AK **ARRIVE:** Dutch Harbor, AK

Project One: Ecosystems and Fisheries-Oceanography Coordinated Investigations (EcoFOCI) Spring Moorings
Objectives: The primary objectives of this cruise will be to deploy moorings in several locations in the Bering Sea. Upon leaving Dutch Harbor, one mooring will be deployed in Unimak Pass. CTDs will be conducted after each mooring deployment. The cruise will then proceed towards the Bering Sea shelf, where the "Unimak Box" of CTDs will be conducted. The UBP-1A mooring will be deployed on the eastern line of the "Unimak Box".

Project Two: EcoFOCI/Ecosystem Monitoring and Assessment Program (EMA) Spring Ichthyoplankton and Larval Walleye Pollock Assessment Survey – Bering Sea
Objectives: Conduct an assessment of eggs and larvae of Walleye Pollock (*Gadus chalcogrammus*) over the eastern Bering Sea shelf. We will also examine the interactions among climate, weather, and ichthyoplankton distribution and abundance. This work is needed to describe larval fish assemblages and determine how physical and biological factors affect the transport and survival of fish larvae. The project is a collaboration between two AFSC Programs, Eco-FOCI and EMA.

Hi'ialakai

Homeport and Commanding Officer: Honolulu, HI – LCDR Daniel Simon
Primary Mission Category: Oceanographic Research, Environmental Assessment
Ship Status: Underway May 11 – 21, 2014, and May 21 – June 5, 2014
DEPART: Saipan **ARRIVE:** Saipan
DEPART: Saipan **ARRIVE:** Pearl Harbor, HI

Project: Mariana Reef Assessment and Monitoring Project (RAMP)
Objectives: The ship will support assessment and monitoring operations in the waters surrounding Wake Island, Guam, and the Commonwealth of the Northern Marianas (CNMI). The scientific objectives of this project are to:

1. Conduct ecosystem monitoring of the species composition, abundance, percent cover, size distribution, recruitment and general health of the fishes, corals, other invertebrates, and algae of the shallow water (< 35 m) coral reef ecosystems of Wake Island, Guam and CNMI.
2. Deploy, retrieve and/or service an array of Subsurface Temperature Recorders, Sea Surface Temperature Buoys, Autonomous Reef Monitoring Structures, Calcification Accretion Units , and Bioerosion Monitoring Units to allow remote long-term monitoring of oceanographic and environmental conditions affecting the coral reef ecosystems of Wake Island, Guam and the CNMI. This effort is in support of the Coral Reef Ecosystem Integrated Observing Systems.
3. Monitor nearshore physical and ecological factors associated with ocean acidification and general water quality.

Oscar Elton Sette

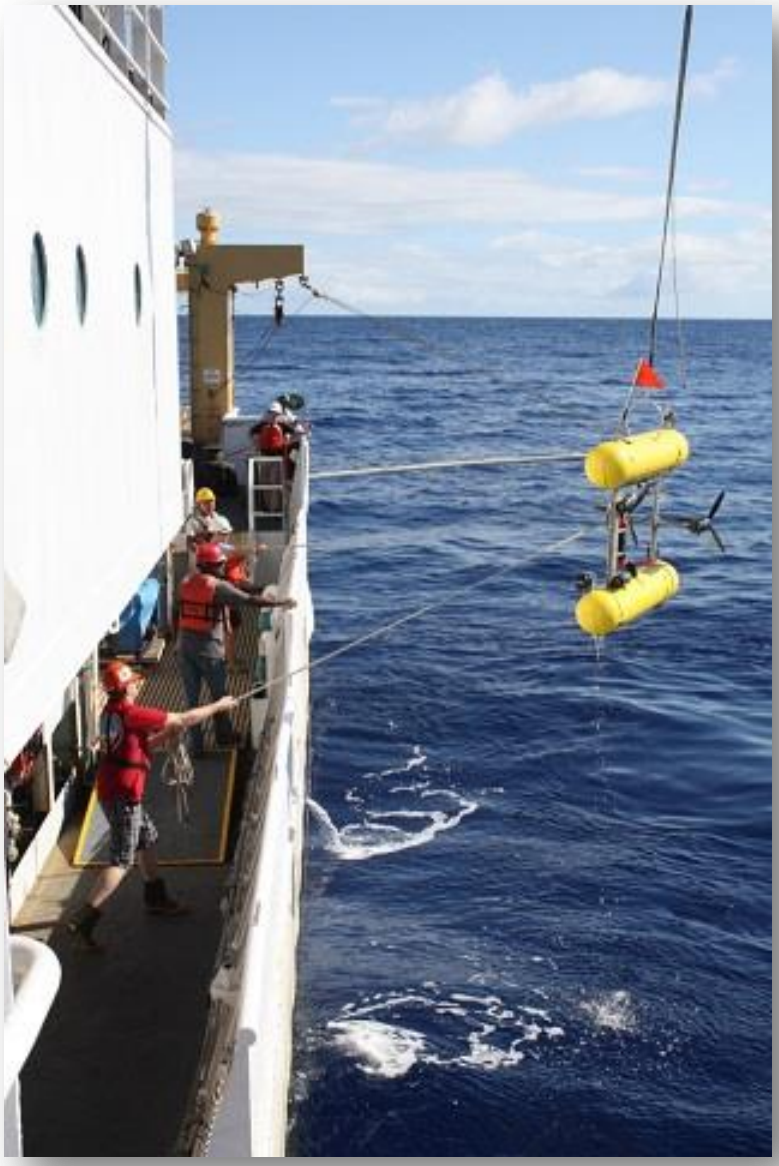
Homeport and Commanding Officr: Honolulu, HI – LCDR Stephanie Koes
Primary Mission Category: Fisheries Research
Ship Status: Underway May 16 – June 4, 2014
DEPART: Apra, Guam **ARRIVE:** Saipan

Project: Fisheries Oceanography – Commonwealth of the Northern Mariana Islands (CNMI) and Mariana Trench Marine National Monument (MTMNM)
Objectives:

1. Survey and sample cetacean species near each island area to understand connectivity of cetacean populations within the Mariana Archipelago. Visual survey will occur from small boat and sampling will consist of behavioral observations, photographs, biopsy sampling, and satellite tagging. Acoustic monitoring will be conducted from the ship and will consist of a variety of array transects and tests, including acoustic calibration of the towed array.
2. Survey and tagging of green sea turtles to understand foraging and movements of turtles among the Northern Islands. Turtle sampling will occur from a small boat and will include in-water turtle handling on snorkel. This work supports CNMI Division of Fish and Wildlife research needs. Some of this work may also be accomplished on Leg III on a space/time available basis.
   3. Archeological survey of Alamagan or Guguan for cultural and historical sites. The ship will drop off and retrieve the archeologists at the island during leg II.
   4. The ship will collect oceanographic data from routine conductivity-temperature-depth (CTD) and Expendable Bathythermograph (XBT) casts, and thermosalinograph (TSG) and echosounder (EK60) measurements throughout the project. CTD casts will be conducted once each night at an offshore location immediately adjacent to each island.

Ka'imimoana

Homeport: Honolulu, HI
Ship Status: The ship is currently docked in Newport, OR. NOAA has received congressional approval for disposal of the vessel and is currently processing the ship for decommissioning and disposal – exact date TBD.



Here's a great story about AUVs being used off of the NOAA ship *Oscar Elton Sette* in the tropical Pacific. http://bit.ly/1jAE20N

#auv #research #exploration #noaa #hawaii

Photo: NOAA

OMAO's Aircraft

Hurricane Hunter P-3s sit on the tarmac at OMAO's Aircraft Operations Center in Tampa, FL.

Photo: OMAO's Hurricane Hunters

WP-3D (N42RF) – "Hurricane Hunter"

Homeport and Aircraft Commander: MacDill Air Force Base, Tampa, FL – LCDR Scott Price
Current Mission: Engine testing
Dates of Operations: Until early May

The aircraft will be undergoing retrofitting and testing of a Rolls Royce upgrade to the aircraft's engines. This upgrade will likely have a considerable effect on improving the efficiency of the engines. Following the tests, the aircraft will start to be prepared for hurricane season.

WP-3D (N43RF) – "Hurricane Hunter"

Homeport and Aircraft Commander: MacDill Air Force Base, Tampa, FL – CDR Mark Sweeney
Current Mission: Hurricane Awareness Tour
Dates of Operation: May 18 – 23, 2014

Aircraft and crew will be conducting the 2014 Hurricane Awareness Tour along the Gulf of Mexico coast. This tour will highlight the importance of Hurricane preparations as well as informing the public about the mission of the Hurricane Hunter Aircraft. Tour stops will be; Corpus Christi, TX; Ellington AFB, TX; Lakefront, LA; Tallahassee, FL; and Tampa FL.

Twin Otter (N46RF)

Homeport and Aircraft Commander: MacDill Air Force Base, Tampa, FL – LCDR Doug MacIntyre and LT Ron Moyers
Temporary Base: Charleston, SC
Current Mission: South East Atlantic Marine Assessment Program for Protected Species (AMAPPS) project, then Snow Survey
Dates of Operation: May / June

Aircraft is conducting the AMAPPS. This multi-year survey will serve multiple objectives with respect to marine mammal conservation: provide distribution and abundance of all species of cetaceans, seals, and sea turtles for the spring which will be used to develop spatially and temporally-specific density maps that will be available to other agencies and the public; provide photo-identification records on Right whales; and provide sightings of dead whales. The AMAPPS survey is a cooperative effort between NMFS's Northeast and Southeast Fisheries Science Centers. Following this project the aircraft will be outfitted with Snow Survey equipment. It will then conduct calibration flights in tandem with N45RF and begin to establish new survey lines in preparation for the following snow season.

Twin Otter (N57RF)

Homeport and Aircraft Commander: MacDill Air Force Base, Tampa, FL – LTJG Sandor Silagi
Temporary Base: Hyannis, MA
Current Mission: Northeast Right Whale Survey. Atlantic waters off of ME and MA.
Dates of Operation: Until June 30, 2014

This survey will serve multiple objectives with respect to marine mammal conservation: 1) provide locations of Right whales to mariners, 2) provide description of right whale distribution to support the implementation of seasonal and dynamic area management, 3) provide annual photo-identification records on Right whales, as well as detailed vertical photogrammetry in selected periods, 4) provide information on the distribution and abundance of marine mammals and marine turtles in the winter, spring, summer and fall seasons, 5) provide sightings of dead whales, 6) provide information on the distribution of shipping and fishing gear, and 7) census seal populations along the New England coast.

Twin Otter (N56RF)

Homeport and Aircraft Commander: MacDill Air Force Base, Tampa, FL – CDR Jeff Hagan and LCDR Chris Kerns
Temporary Base: Groton, CT
Current Mission: Light Detecting and Ranging (LIDAR) Evaluation for Coastal Mapping
Dates of Operation: Until early June

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 (N48RF)

Homeport and Aircraft Commander: MacDill Air Force Base, Tampa, FL – LT Dave Gothan and LTJG John Rossi
Current Mission: Fugitive Emissions
Dates of Operation: Until mid-June

Aircraft will be conducting a survey over the major shale gas and oil fields in the western U.S to measure the resulting emissions of greenhouse gases emitted from the extraction activities. Coal and oil combustion produces more greenhouse gases per BTU than the combustion of natural gas. However, since methane is a very powerful greenhouse gas, if more than 4% of methane is lost to the atmosphere due to leakage between the well head and combustion, the advantage of using methane is lost. It is critical that these numbers are verified to inform U.S. climate and energy policy, specifically on shale gas development. The flight operations would be over the Denver-Julesburg Basin, CO; Uintah Basin, UT; Upper Green River Basin, WY; and the Bakken Field, ND. This project will be for the Global Monitoring Division of the Office of Oceanic and Atmospheric Research.

Jet Prop Commander (N45RF)

Homeport and Aircraft Commander: MacDill Air Force Base, Tampa, FL – LCDR Patrick Didier and LT Paul Hemmick
Current Mission: Snow Survey
Dates of Operation: TBD

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 NWS Weather Forecast Offices (WFO) and NWS River Forecast Centers (RFC) when issuing river and flood forecasts, water supply forecasts, and spring flood outlooks. Survey locations will be determined based on NOHRSC tasking. Operations in May will primarily be focused on establishing new survey lines for the forthcoming snow season.

Gulfstream IV (N49RF)

Homeport and Aircraft Commander: MacDill Air Force Base, Tampa, FL
Current Mission: Paint Work
Dates of Operation: Until end of May

Aircraft will be undergoing maintenance and paint work until the end of May. Aircraft will then be prepared for the Hurricane season.

King Air (N68RF)

Homeport and Aircraft Commander: MacDill Air Force Base, Tampa, FL – LT Rebecca Waddington and LCDR Scott Price

Current Mission: Various locations for coastal mapping

Dates of Operation: Continuous operations

The King Air is conducting Coastal Mapping mission flights in the New England area and will likely transit to the west coast to collect data along Puget Sound and the Oregon Coast. This on-going mission, run by the Remote Sensing Division of the National Geodetic Survey (NGS), works to provide 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.

NOAA Twin Otter N56RF as seen from the NOAA ship *Gordon Gunter.*

[Photo Ens. D. Wang, NOAA]

Unmanned Systems Support

OMAO is rapidly becoming a leader in utilizing Unmanned Aircraft Systems (UAS) for the collection of environmental intelligence. The OMAO UAS Program Manager and Aircraft Operations Center have deployed the RQ-20A Puma, the P-3 launched Coyote, and the APH-22 Hexacopter. OMAO supported UAS operations have increased substantially as UAS are used to support a variety of agency objectives including marine debris detection, marine mammal surveys, and seabird surveys.

Puma

Location: Stellwagen Bank National Marine Sanctuary
Dates: May 18 – 24, 2014
Mission: Capture imagery

The project is being conducted for vessel and visitor use surveys. A Puma will be flown from the NOAA research vessel Auk within the operating area and capture imagery of targeted vessels, fishing gear, and opportunistic living marine resources. Optical and infrared payload will provide real time data feed to researchers on the vessel.

Puma launched from a National Marine Sanctuary boat.

Photo: NOAA

OMAO Partnerships

NASA Global Hawk

Location: Dryden Flight Facility, CA
Dates: Ongoing
Mission: Integration and Testing of the Tropospheric Wind Lidar Technology Experiment (TWiLiTE)

NASA is in the process of integration and testing of the TWiLiTE airborne Doppler radar on N872NA (AV-6). The TWiLiTE package is an orbital category instrument designed for autonomous operation on a satellite. The TWiLiTE mission on Global Hawk will calibrate and validate the data collection prior sending the instrument into space. In addition to TWiLiTE, the Global Hawk will carry the Advanced Vertical Atmospheric Profiling System *(*AVAPS*),* which is the dropsonde system for the Global Hawk. A range flight is scheduled for May 13th followed by a 24hr mission over the North Pacific Ocean on May 20-21. NOAA Corps pilots will participate in the planning and operations of the Global Hawk.

National Science Foundation

Location: Antarctica
Dates: Ongoing
Mission: NOAA's Atmospheric Research Observatory

Members of the NOAA Commissioned Officer Corps carry out NOAA's mission in remote locations across the globe. One officer is even assigned to the South Pole station in Antarctica where he serves as the Station Chief for NOAA's Atmospheric Research Observatory (ARO) at the Amundsen-Scott South Pole Station.

Teacher At Sea Program

The mission of the National Oceanic and Atmospheric Administration's (NOAA) 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 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/

NOAA Ship *Henry B. Bigelow*
Name: Mr. Chris Henricksen
School: 5th grade teacher from Mark Twain Elementary in Westerville, OH
Cruise: Spring Bottom Trawl Survey – April 29 – May 10, 2014
Blog: http://teacheratsea.noaa.gov/2014/henricksen.html

NOAA Ship *Okeanos Explorer*
Name: Mr. David Murk
School: 5th grade teacher from CUSD #300 Elementary in Carpentersville, IL
Cruise: ACUMEN survey – May 7 – 22, 2014
Blog: http://teacheratsea.noaa.gov/2014/murk.html

NOAA Ship *Pisces*
Name: Mr. Spencer Cody
School: High school teacher from Hoven High School in Hove, SD
Cruise: SEAMAP Reef Fish Survey – May 28 – June 11, 2014
Blog: http://teacheratsea.noaa.gov/2014/cody.html

OMAO - NOAA Dive Program

OMAO manages and implements the 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, WA. More info: http://www.ndc.noaa.gov/gi_program.html

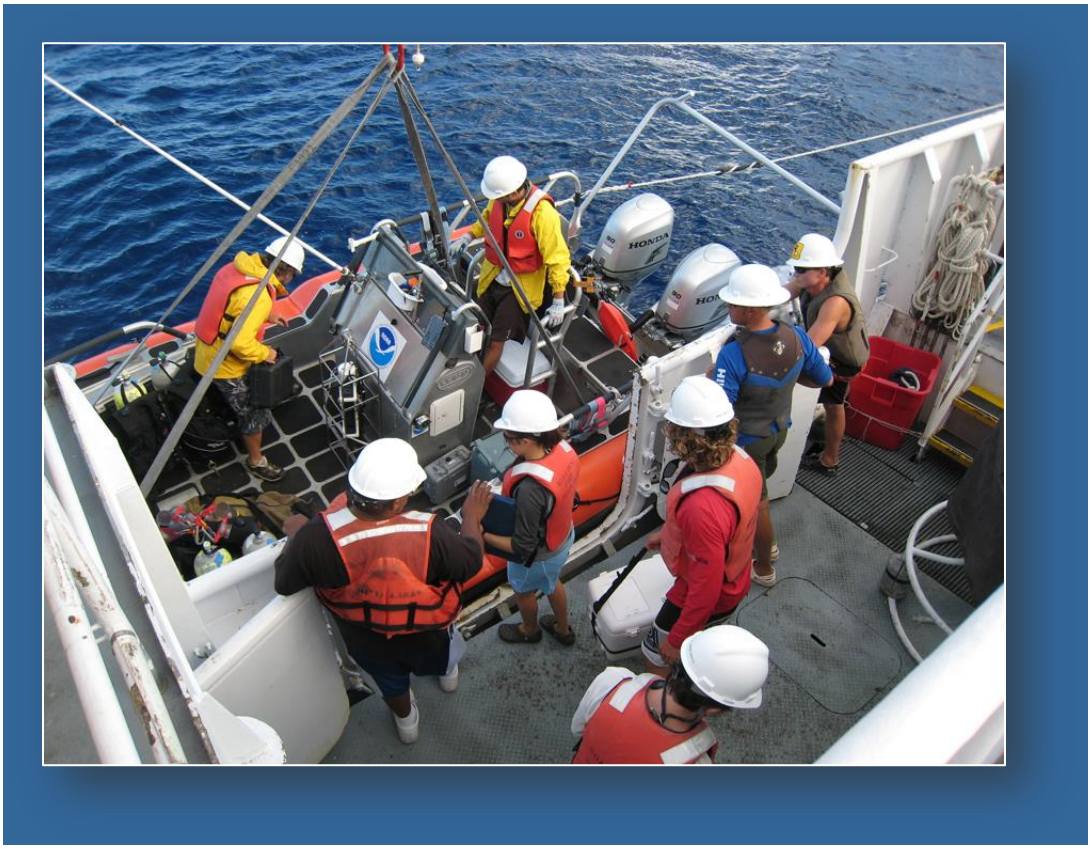
Recently, a diving physicians course was held that trained doctors from the United States Air Force, Duke University, Canada, Mexico, Jamaica, Ecuador, Philippines, and various states around the country. Skills and services at the NOAA dive center are well known throughout the world when it comes to education diving and hyperbarics.

Photo: NOAA Diving Center Instructor Zach Hileman (center) gives a recompression chamber orientation to physicians participating in the Undersea Hyperbaric Medical Society (UHMS) Hyperbaric Physicians Course conducted at the NOAA Diving Center, Seattle, WA.

[Photo: Greg McFall – NOAA Diving Program]

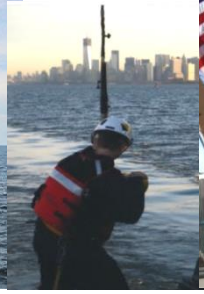
OMAO - NOAA Small Boat Program

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/



A small boat in the process of being deployed from the NOAA ship *Hi'ialakai*. Small boats are deployed daily to conduct fish, benthic, oceanographic surveys, and to deploy biological monitoring.

Photo: 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 federal 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. 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 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 bathometric surveys to locate possible submerged navigational hazards in the ports of New York and Virginia. These surveys enabled the ports to reopen quickly. Aerial images of storm-stricken regions, taken by NOAA aircraft, helped residents and emergency workers to quickly assess the condition of houses, bridges, and vital infrastructure.

In 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. We are working to address these challenges by increasing operating efficiencies while maintaining our commitment to safety. 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 seven uniformed services of the Unites States 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 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 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.

- 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.

- 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 Corps, its mission and history at http://www.noaacorps.noaa.gov/.

Presentation of USCG and NOAA Corps Joint Service Survey Benchmark with Rear Admiral Stosz (USCG) – far left- and Rear Admiral Score (NOAA Corps) – far right - on May 6, 2014.

Photo: Petty Officer 2nd Class Cory J. Mendenhall