



NOAA Science Update to the Science Advisory Board

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National Centers for Coastal Ocean
Science Director

November 1, 2018



NOAA

Reduce the impacts of extreme weather and water events

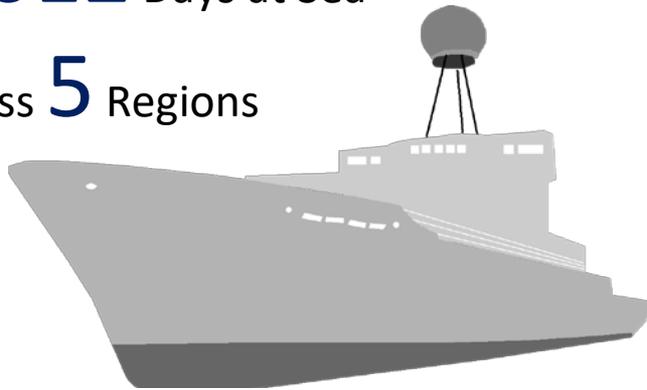


NOAA

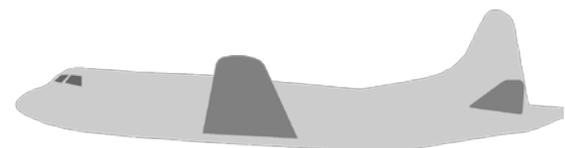
Increase the sustainable economic contributions of our fishery and ocean resources

NOAA Science by the Numbers (July 2018 – October 2018)

1,012 Days at Sea
across **5** Regions



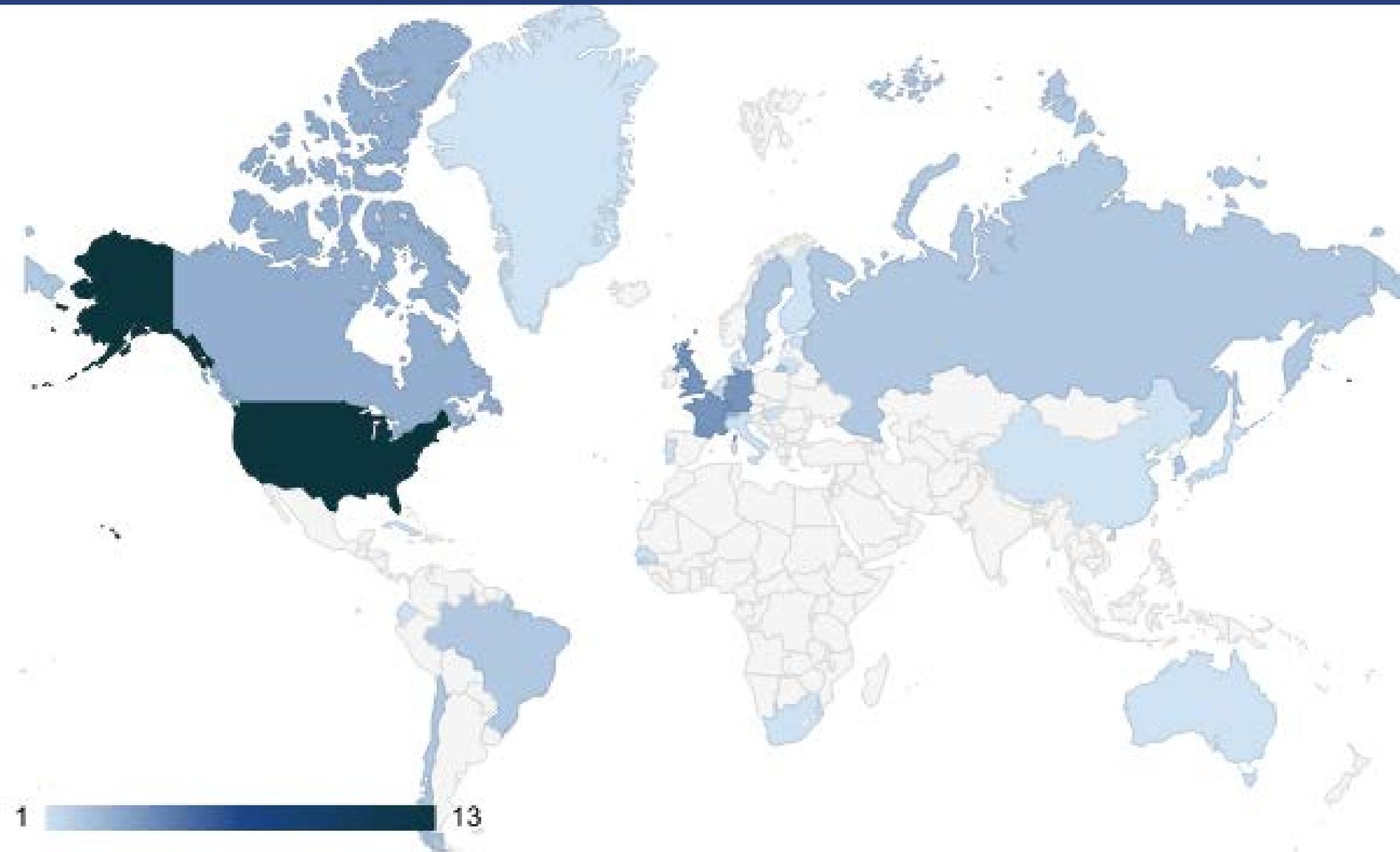
17 +
Congressional Reports



837 Flight Hours

70+
International Meetings

NOAA Participates in International Science Meetings



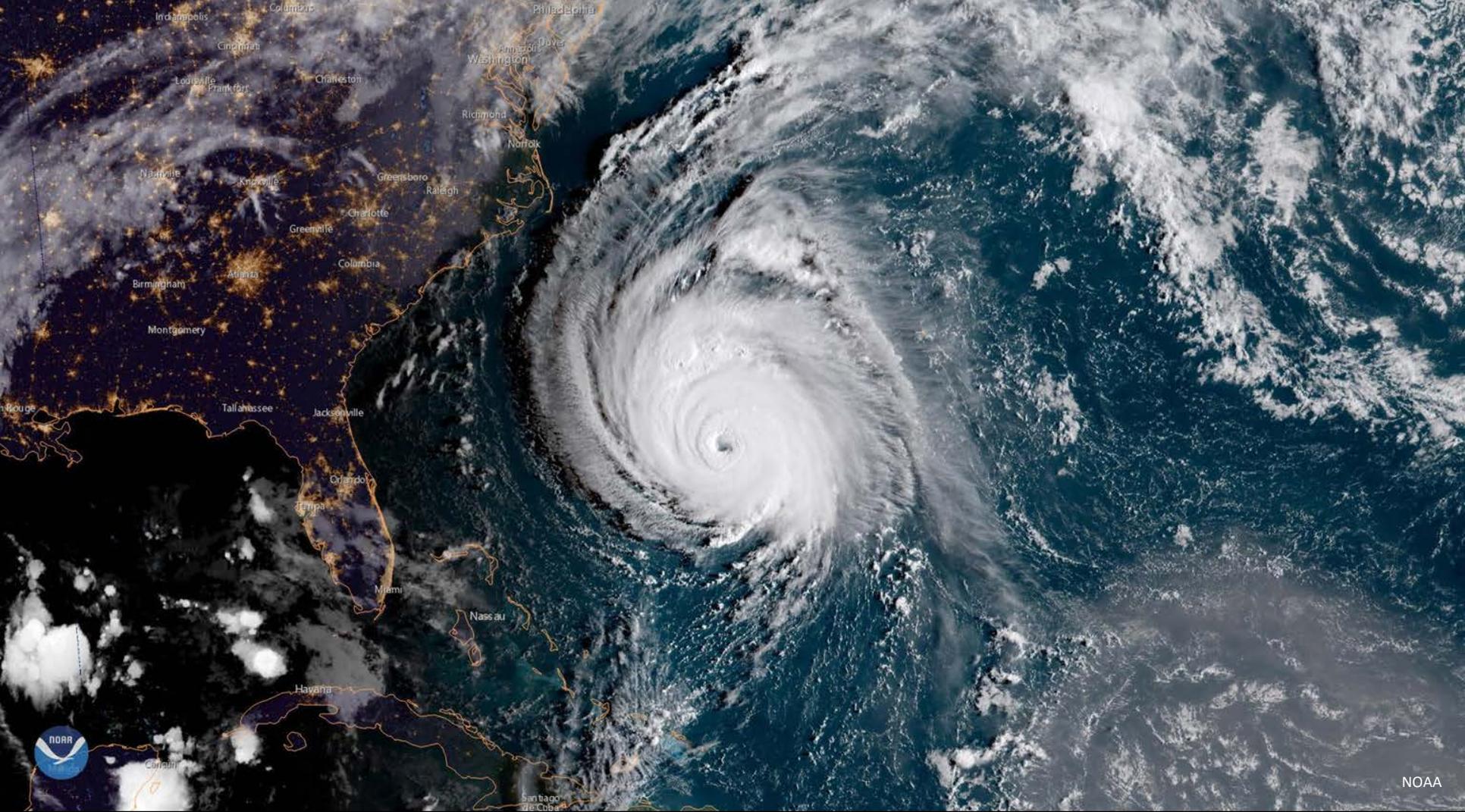
Reduce the
impacts of
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NOAA



Warn-on-Forecast System Utilized During Hurricane Florence Landfall



NOAA



NESDIS Ocean Winds Flight Experiment Collects Invaluable Data During '18 Hurricane Season

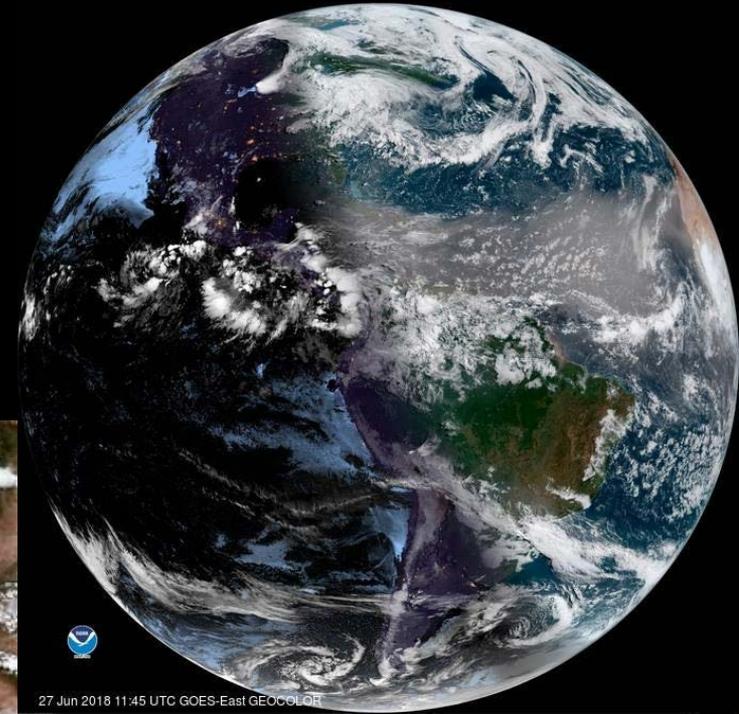


NOAA

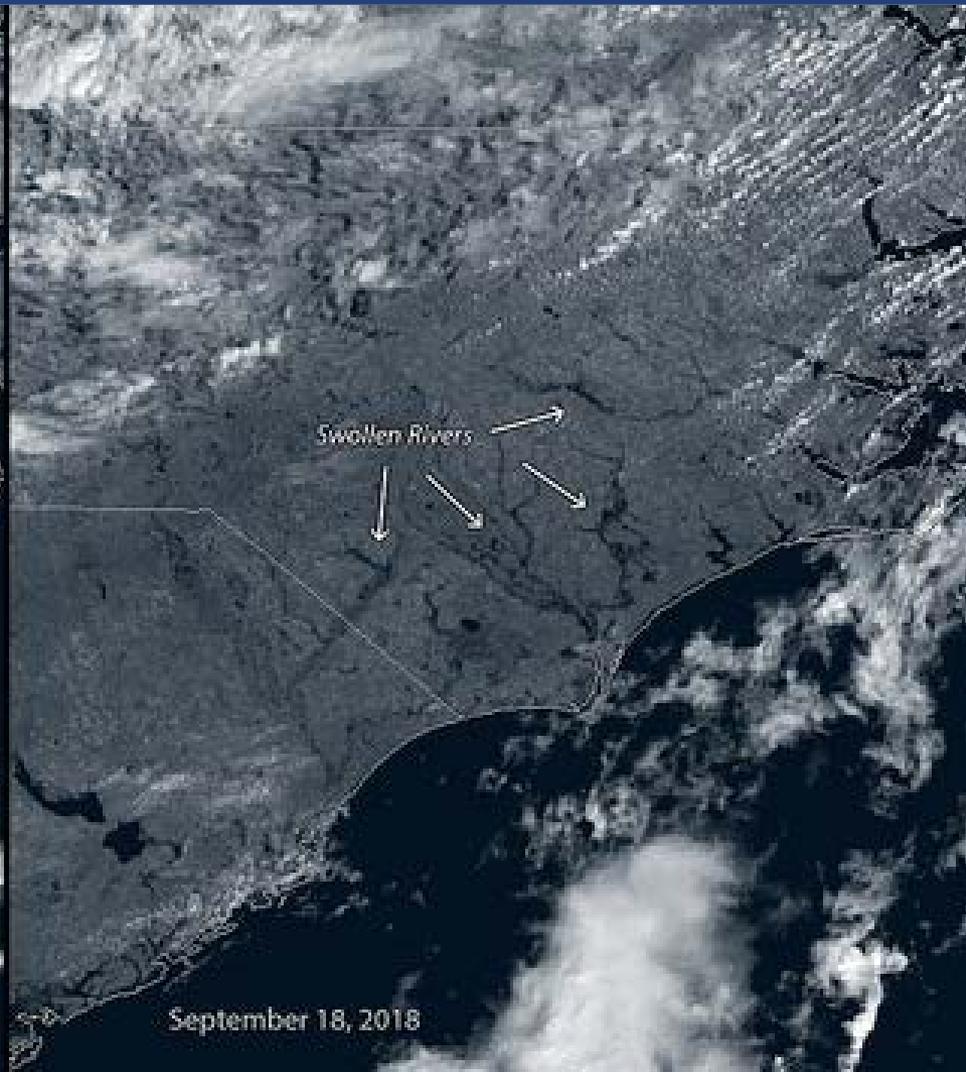
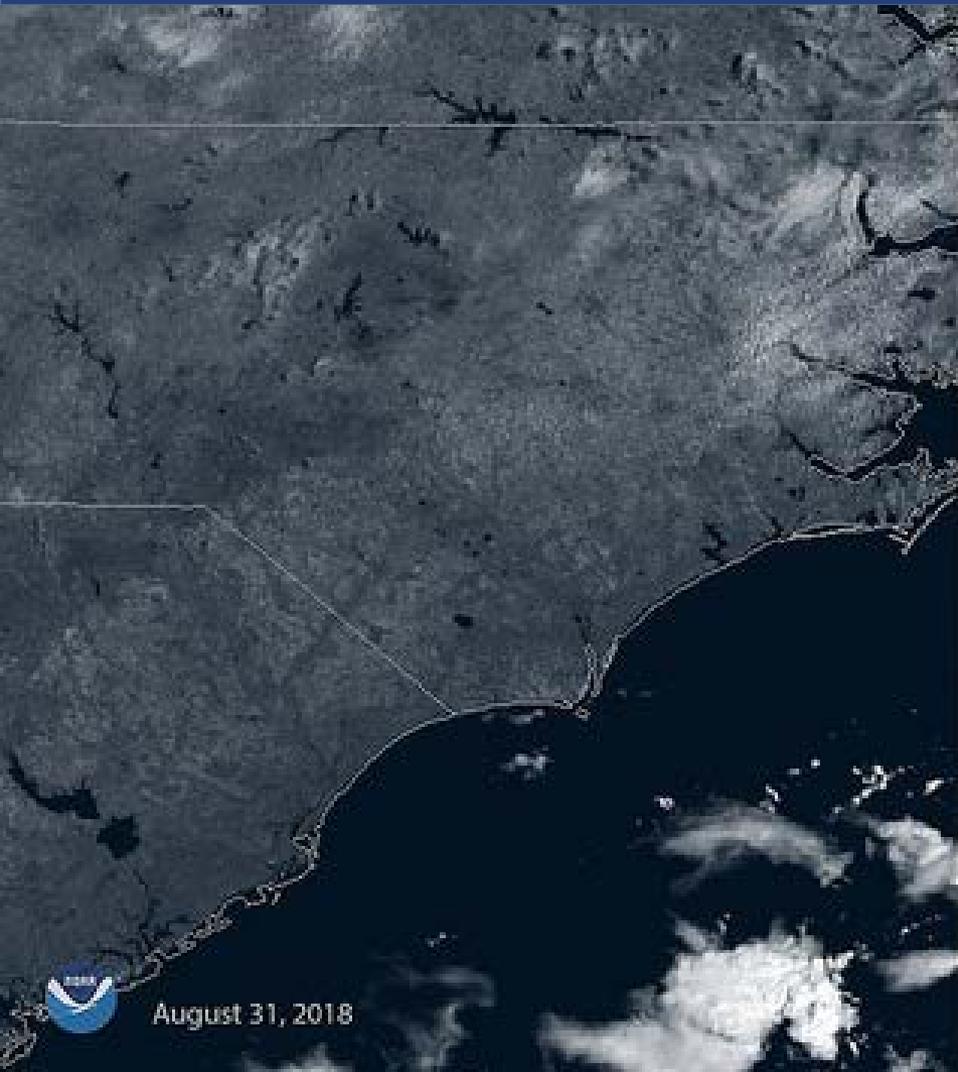
Doppler Radar Mounted "Hurricane Hunter" Aircraft Captures Bird's-Eye View of Tornado Genesis



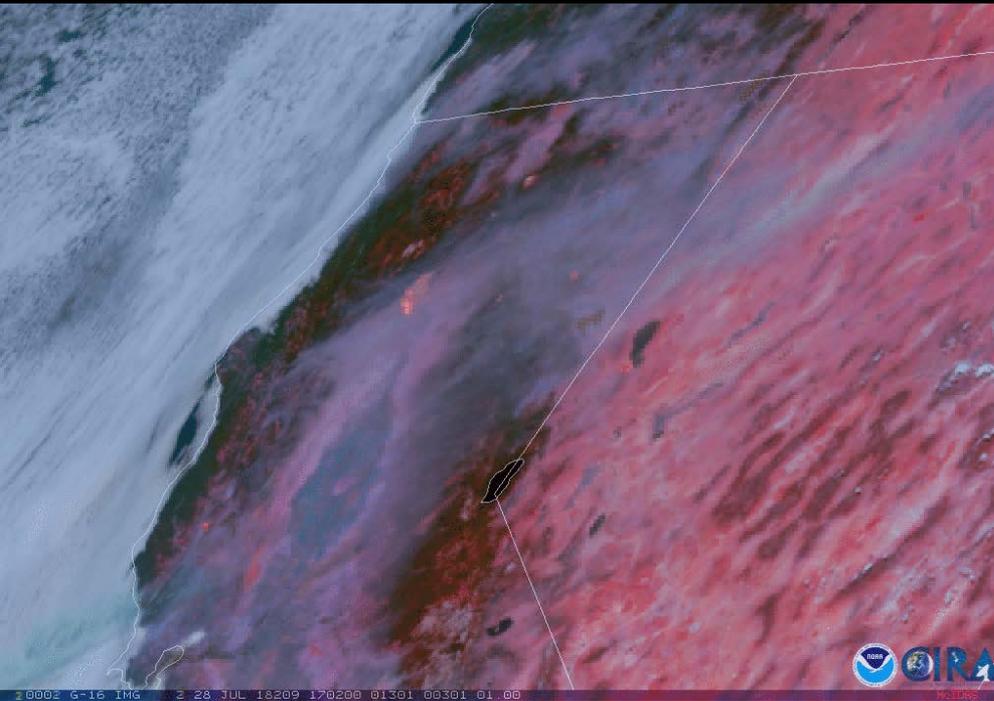
Satellite Products Continue Transition to Operations



Satellites Provide Critical Mapping of Floods



Satellite Imagery and on Site Meteorologists Provide Critical Observations During Active Wildfire Season



NWS forecasters supporting Sockeye Fire

Onsite forecast service to aid firefighters

The Meteorologist In Charge and a forecaster from the Anchorage Forecast Office meet Sockeye Fire staff at the Incident Command Post in Houston



Anchorage based NWS Incident Meteorologist (IMET) briefs the Sockeye Fire Incident Command team with weather information specific to the Sockeye Fire



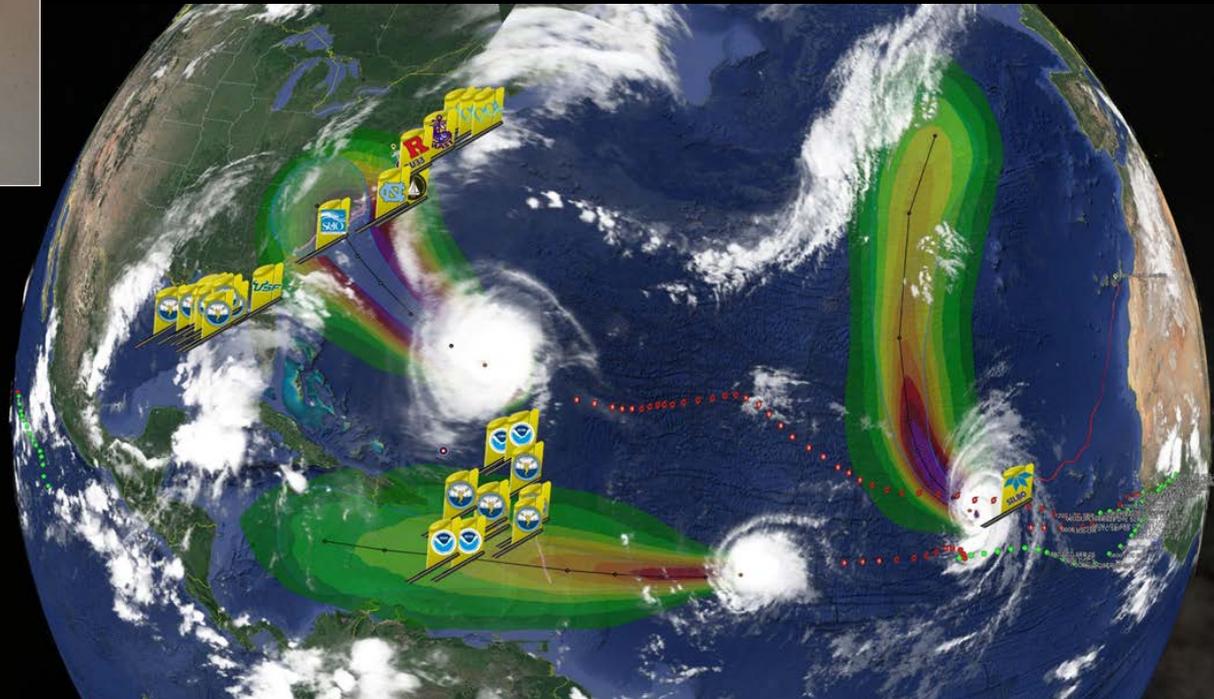
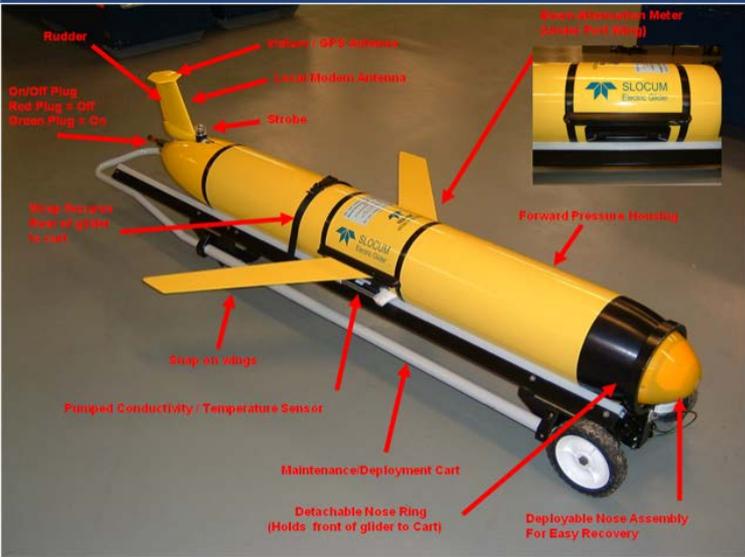
 weather.gov/Anchorage

 [@NWSAnchorage](https://twitter.com/NWSAnchorage)

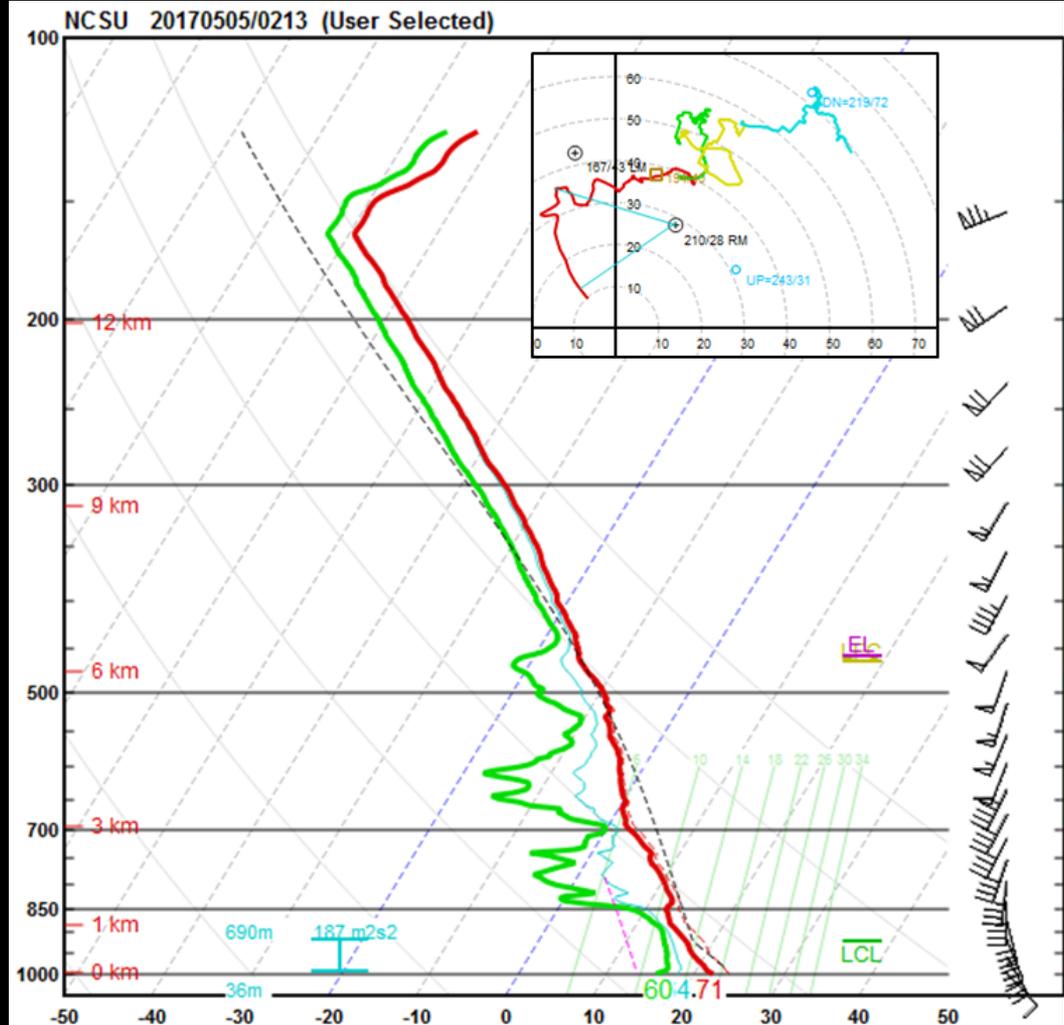
 [NWSAnchorage akwxtv](https://www.youtube.com/channel/UCkwxTV)



Coyote UAV Improving Hurricane Forecasting



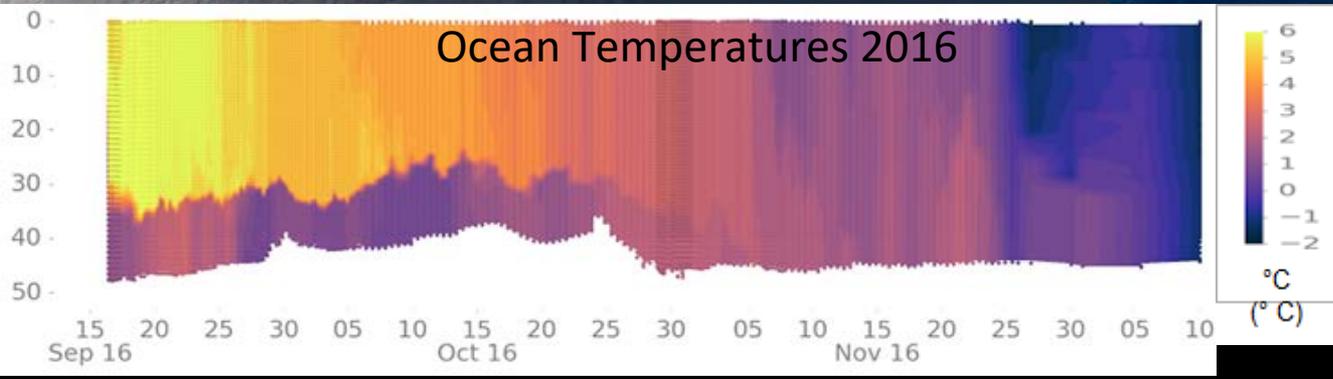
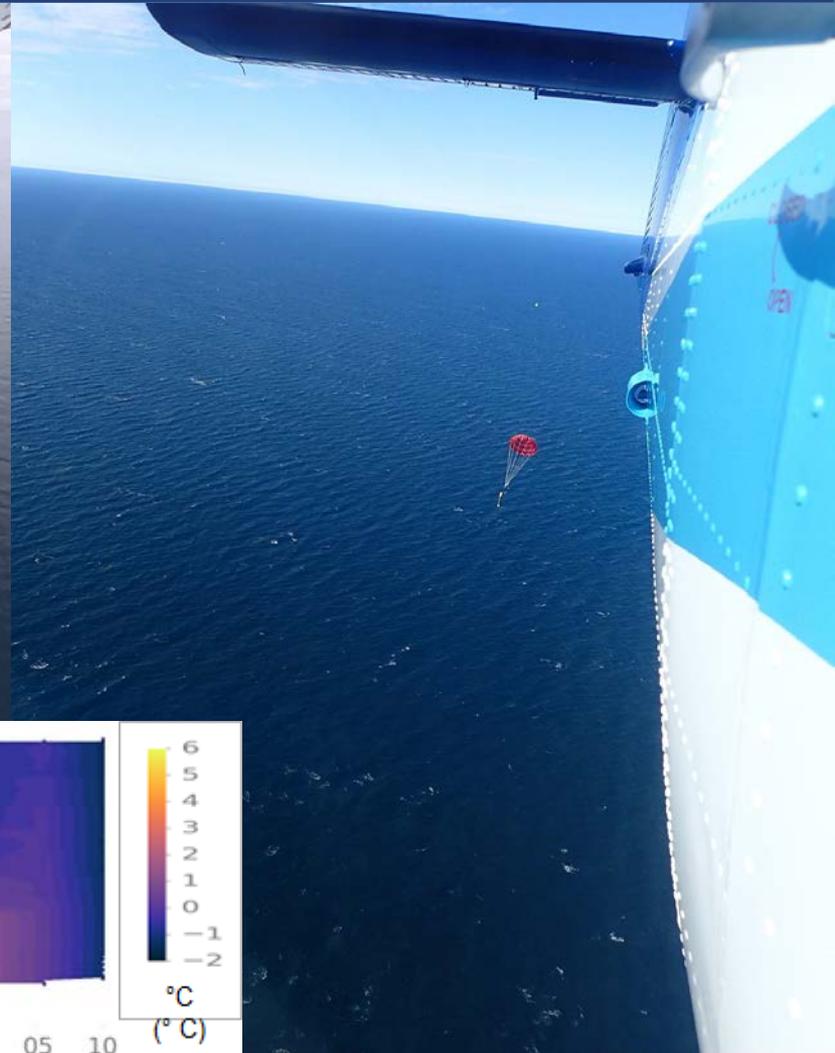
Severe Weather Soundings Program Improves Forecasts by Partnering Research, Education, and Operations



Predicting Snowpack Before Snow Falls



Arctic Heat Project



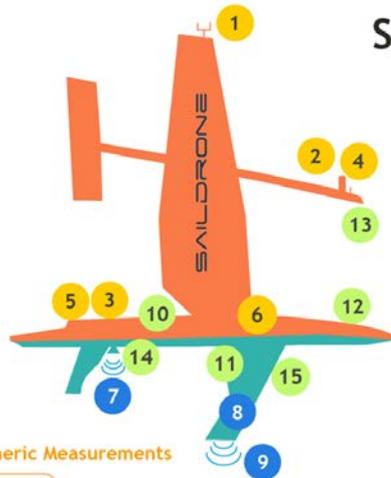
Increase the sustainable economic contributions of our fishery and ocean resources



NOAA

NOAA Uses Autonomous Saildrones to Make Key Observations

Saildrone Sensor Suite



Specifications

- Length: 7 m
- Height: 4.6 m (above water line)
- Depth: 2 m
- Weight: 545 kg, (fully loaded)
- Speed: Transit - 3 Kt, Max - 8 Kt
- Payload Power: 30W Steady state
- Payload Capacity: 100 kg
- Max deployed duration: 12 months
- Longest voyage: 16,100 km

Atmospheric Measurements

- Wind Speed: 1 Anemometer @ +5.0m
Gill WindMaster 3D Ultrasonic 20Hz
- Wind Direction: 1 Anemometer @ +5.0m
Gill WindMaster 3D Ultrasonic 20Hz
- Sunlight & Infrared Radiation: 2 Sunshine Pyranometer @ +2.5m
Delta-T Devices SPN1
- Air Temperature: 3 Pyregeometer +0.7m
Eppley PIR
- Humidity: 4 Meteorological Probe @ +2.4m
Rotronic HC2 - S3 with rad shield
- Air Pressure: 5 Digital Barometer @ +0.3m
Vaisala BAROCAP® PTB210
- Air pCO₂: 6 CO₂ System @ +0.5m
PMEL ASVCO₂

Oceanic Surface Measurements

- Wave Height & Period: 10 Dual GPS & IMU
Vectornav / KVH
- Seawater pCO₂ & pH: 11 CO₂ System
PMEL ASVCO₂ @ -0.5m
Honeywell Durafet @ -0.5m
Aanderaa Optode @ -0.5m
Sea-Bird Scientific SBE PRAWLER @ -0.6m
- Dissolved Oxygen: 11 CO₂ System
PMEL ASVCO₂ @ -0.5m
Honeywell Durafet @ -0.5m
Aanderaa Optode @ -0.5m
Sea-Bird Scientific SBE PRAWLER @ -0.6m
- Water Temperature: 11 CO₂ System
PMEL ASVCO₂ @ -0.5m
Honeywell Durafet @ -0.5m
Aanderaa Optode @ -0.5m
Sea-Bird Scientific SBE PRAWLER @ -0.6m
- Salinity: 11 CO₂ System
PMEL ASVCO₂ @ -0.5m
Honeywell Durafet @ -0.5m
Aanderaa Optode @ -0.5m
Sea-Bird Scientific SBE PRAWLER @ -0.6m
- Magnetic Field: 12 Magnetometer
Barrington MAG 648
- Skin Temperature: 13 SST IR Pyrometer @ +2.2m
Heitronics KT15 II

Oceanic Subsurface Measurements

- Ocean Current: 7 ADCP @ -0.3m
Teledyne RDI 300 kHz Workhorse Sentinel
- Marine Mammal Presence: 8 Passive Acoustic Recorder @ -1.3m
Greenridge Sciences Inc. Acousonde
- Fish Biomass: 9 Scientific Echosounder @ -1.8m
SIMRAD WMINI
Multi-beam Sonar @ -1.8m
Norbit IWBMS
- Bathymetry: 9 Scientific Echosounder @ -1.8m
SIMRAD WMINI
Multi-beam Sonar @ -1.8m
Norbit IWBMS

- Chla: 14 Fluorometer and Backscatter @ -0.2m
Sea-Bird Scientific WET Labs Eco Triplet
- CDOM Concentration: 14 Fluorometer and Backscatter @ -0.2m
Sea-Bird Scientific WET Labs Eco Triplet
- Red Backscatter: 14 Fluorometer and Backscatter @ -0.2m
Sea-Bird Scientific WET Labs Eco Triplet
- Water Temperature: 15 Thermosalinograph CTD @ -0.6m
Teledyne RDI Citadel TS-NH
- Salinity: 15 Thermosalinograph CTD @ -0.6m
Teledyne RDI Citadel TS-NH

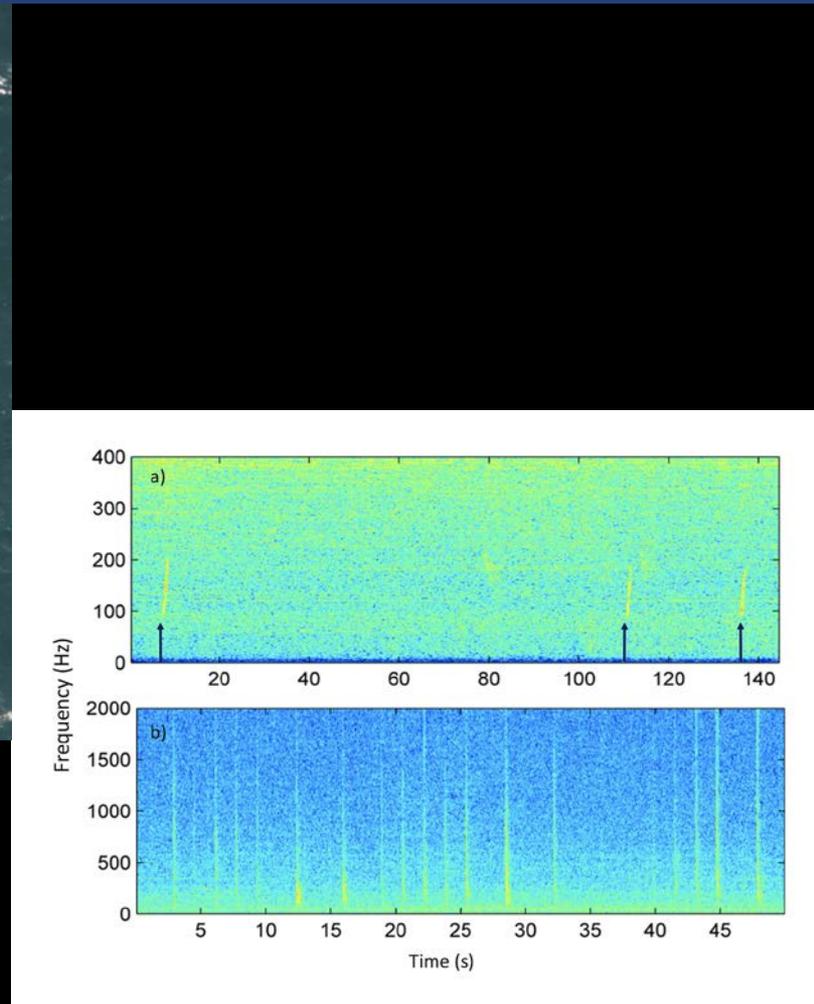


NOAA Employs Unmanned Aerial Systems (UAS) to Assess the Health of Endangered Resident Killer Whales

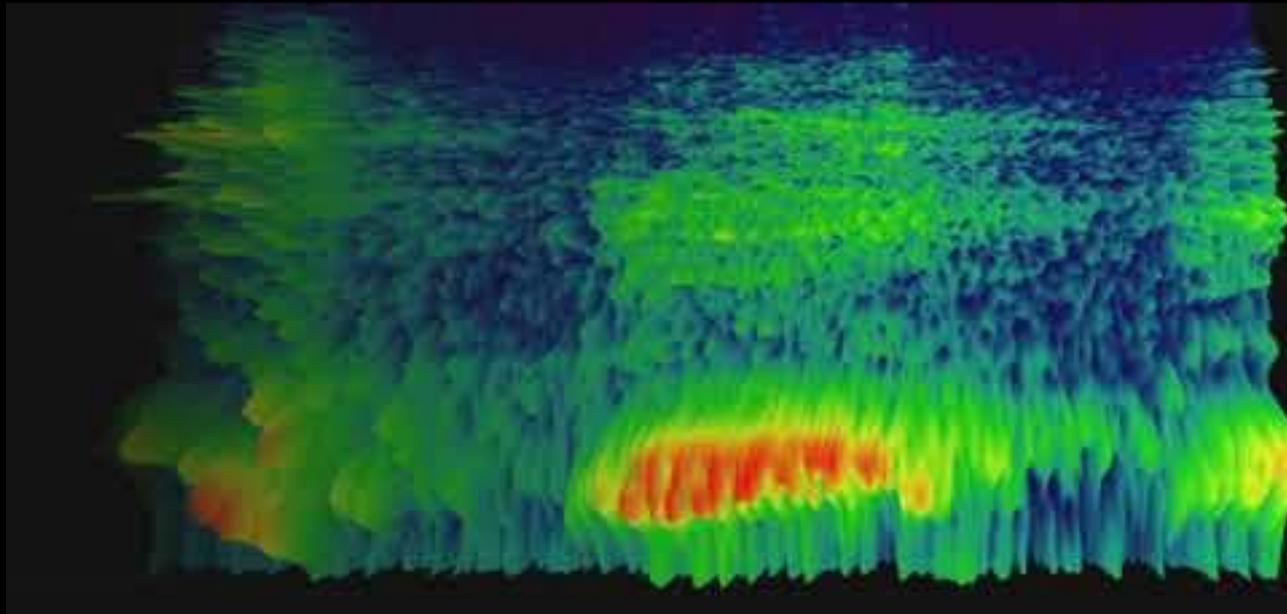


NOAA

Study Shows Potential for Interactions between Critically Endangered North Pacific right whale and vessels in high-traffic Aleutian Island Pass



Humpback Whale Acoustic Monitoring



National Survey Shows Ocean and Coastal Recreation is Big Business



NOAA



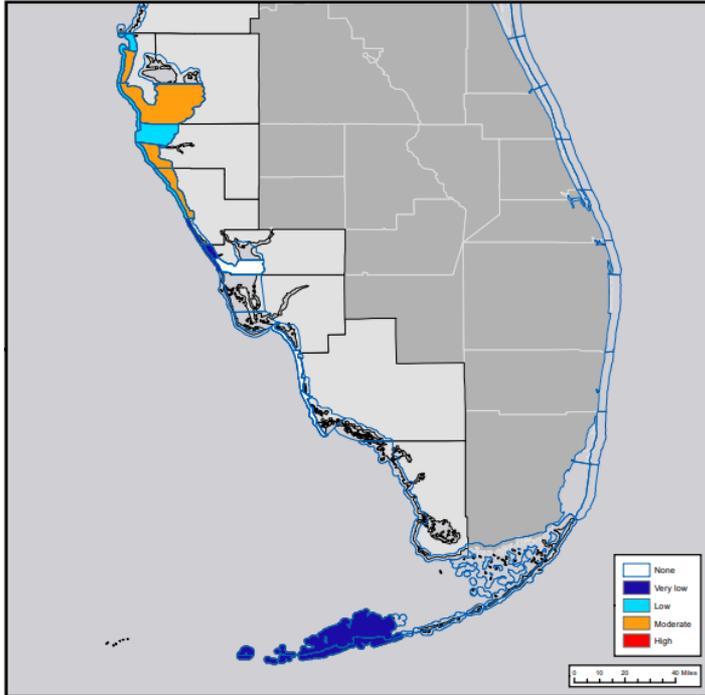
Experimental HAB Forecast Product Deployed in FL's Gulf Coast



Gulf of Mexico Harmful Algal Bloom Bulletin

Monday, October 22, 2018
 NOAA National Ocean Service
 NOAA Satellite and Information Service
 NOAA National Weather Service

Instructions for viewing this geospatial pdf are available at: <https://go.usa.gov/xn9g2>.



The image above is the top layer in a series of maps for 10-22-18 to 10-25-18 displaying the highest level of potential respiratory irritation forecasts in each region.

Region: Southwest Florida



Conditions Report

Not present to high concentrations of *K. brevis* (commonly known as red tide) are present along- and offshore portions of southwest Florida, and are present in the Florida Keys. *K. brevis* concentrations are patchy in nature and levels of respiratory irritation will vary locally based upon nearby bloom concentrations, ocean currents, and wind speed and direction.

Recently Reported Impacts (Listed by County):

Respiratory irritation: Pinellas, Manatee, Sarasota
Dead fish: Pinellas, Manatee, Collier

Definition of respiratory irritation levels.

RESPIRATORY IRRITATION LEVEL	AFFECTED POPULATION				
	NONE	CHRONIC RESPIRATORY CONDITION	SENSITIVE TO RED TIDE	GENERAL PUBLIC (MILD SYMPTOMS)	GENERAL PUBLIC (INTENSE SYMPTOMS)
None	X				
Very low		X			
Low		X	X		
Moderate		X	X	X	
High		X	X	X	X

Additional Resources

Health Information:

Florida Department of Health:
<http://www.floridahealth.gov/environmental-health/aquatic-toxins/red-tide.html>

Other resources: <https://go.usa.gov/xQNWp>

Recent, Local Observations and Data:

Note Marine Laboratory Daily Beach Conditions:

<http://visitbeaches.org>

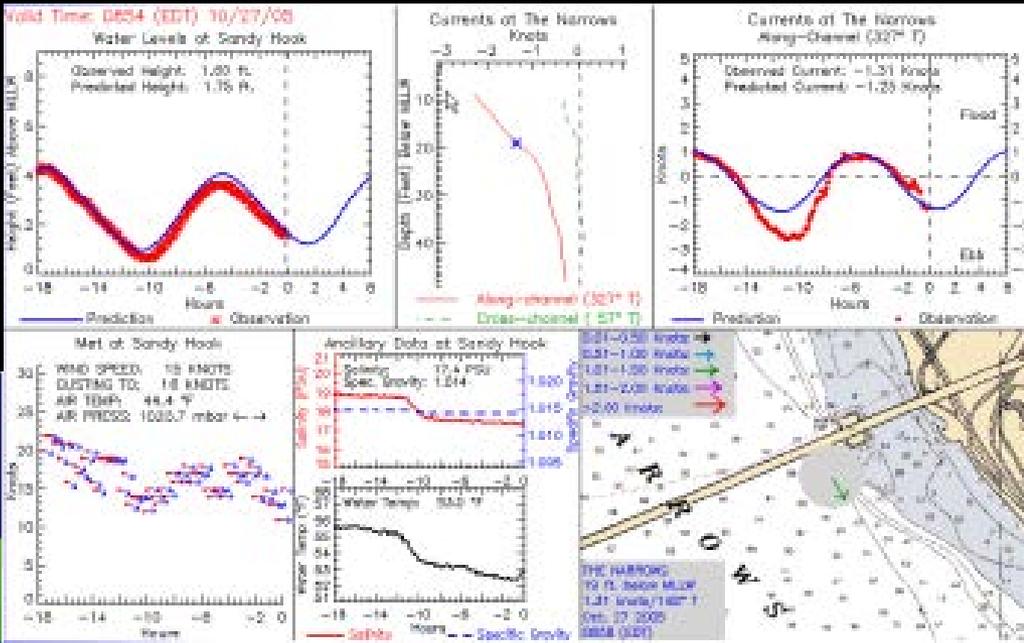
Florida Fish and Wildlife Conservation Commission:

<http://myfwc.com/redtidestatus>



NOAA

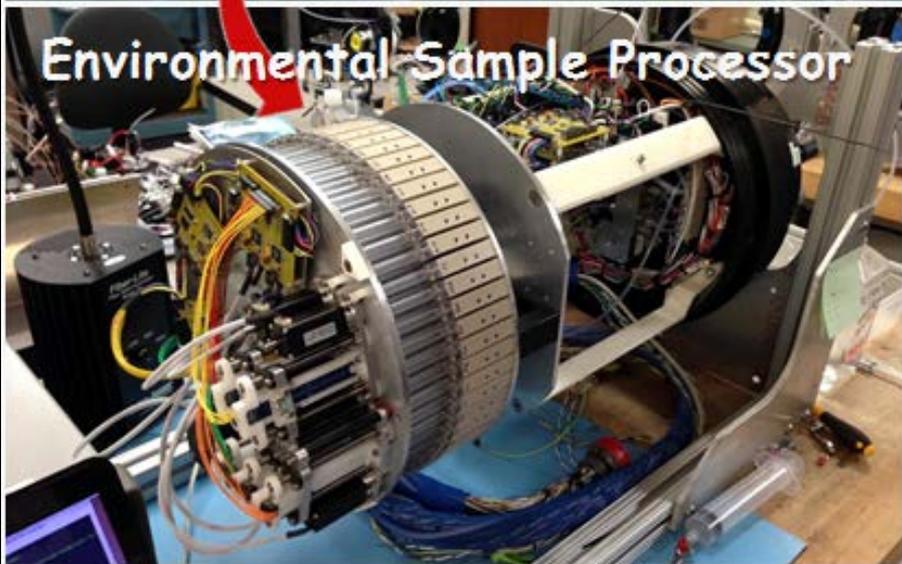
New PORTS[®] Established in Toledo, OH



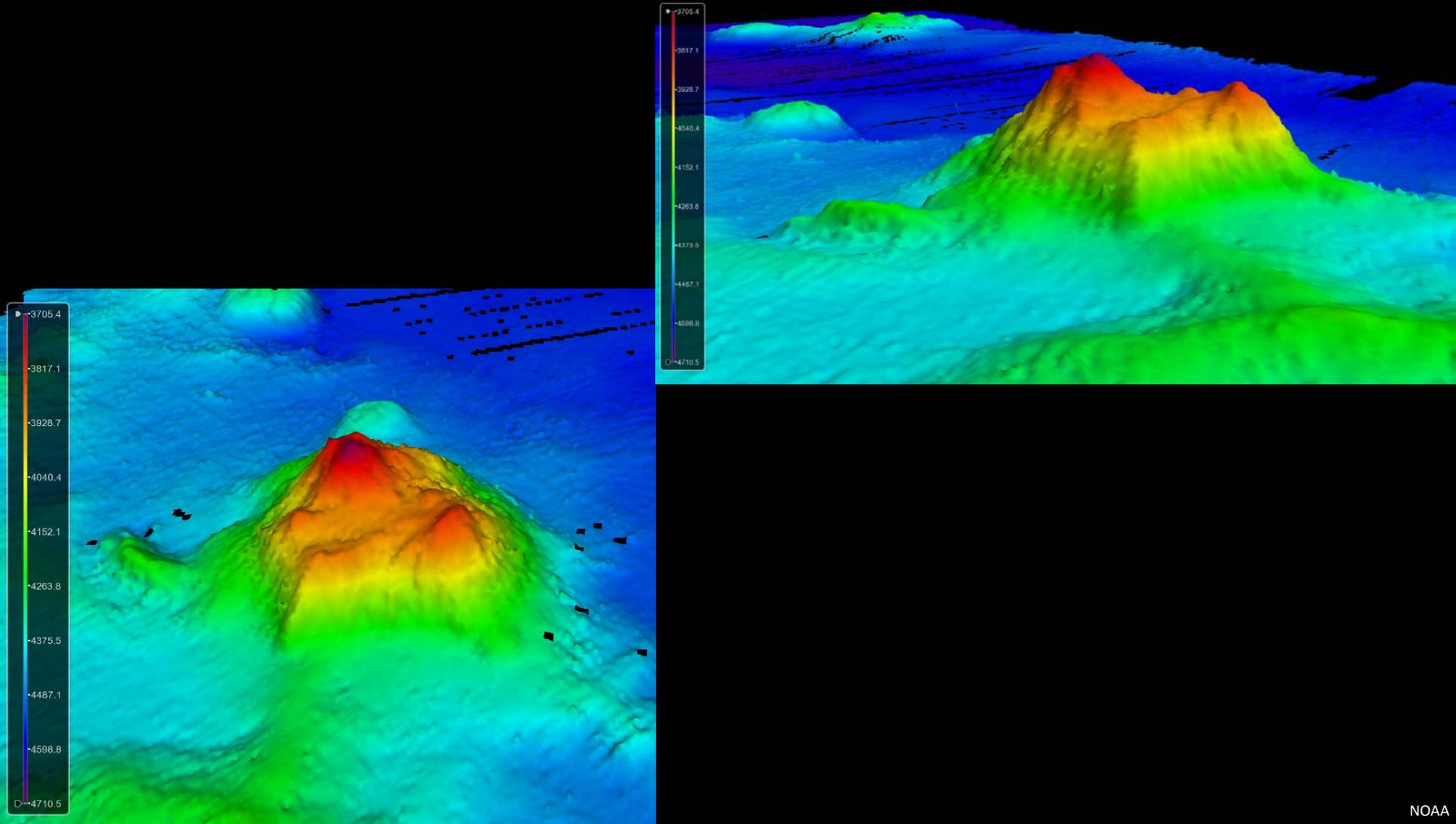
Oil Spill Research Conducted at Mississippi Canyon Well Site (MC20)



Environmental Sample Processor (ESB) - AUV: 'Lab-in-an-AUV' for real-time surveillance



Ron Brown Discovers Unmapped Seamount in Indian Ocean



NOAA and Biomedical Researchers Collaborate to Find Out if Cancer Cures are Living on Alaska's Seafloor

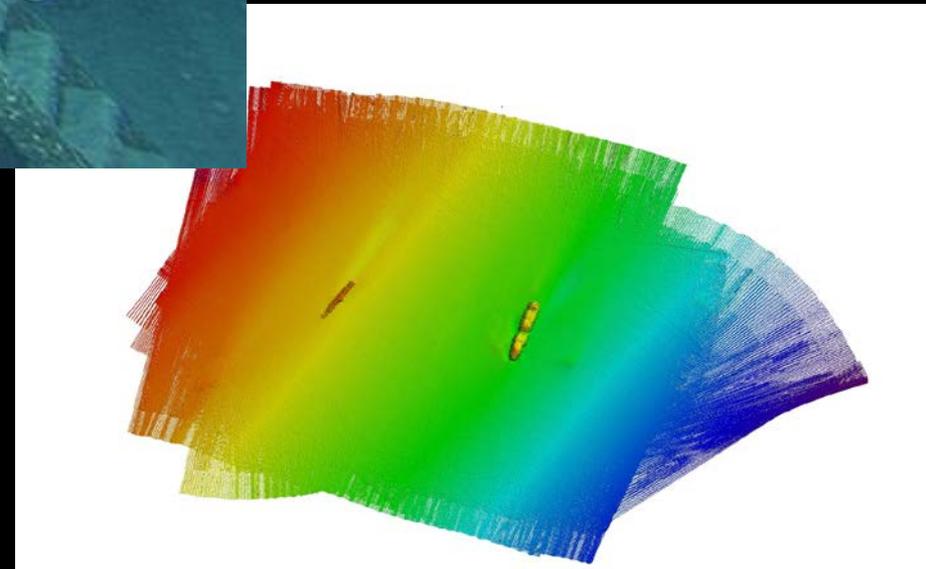


NOAA

Concept for Genomics is no Longer Science Fiction

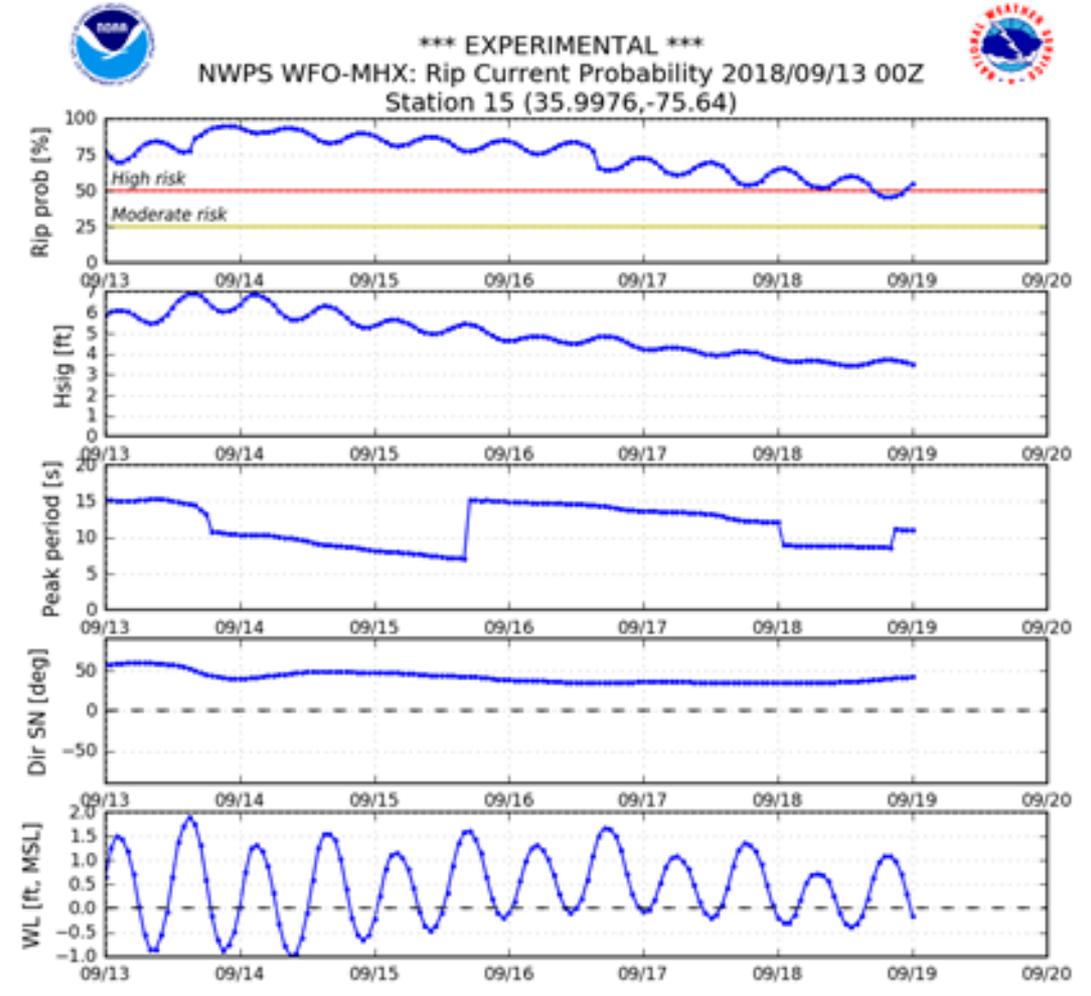


ONMS Maritime Archeology: SS Bluefields and U-576



NOAA Probabilistic Rip Current Model

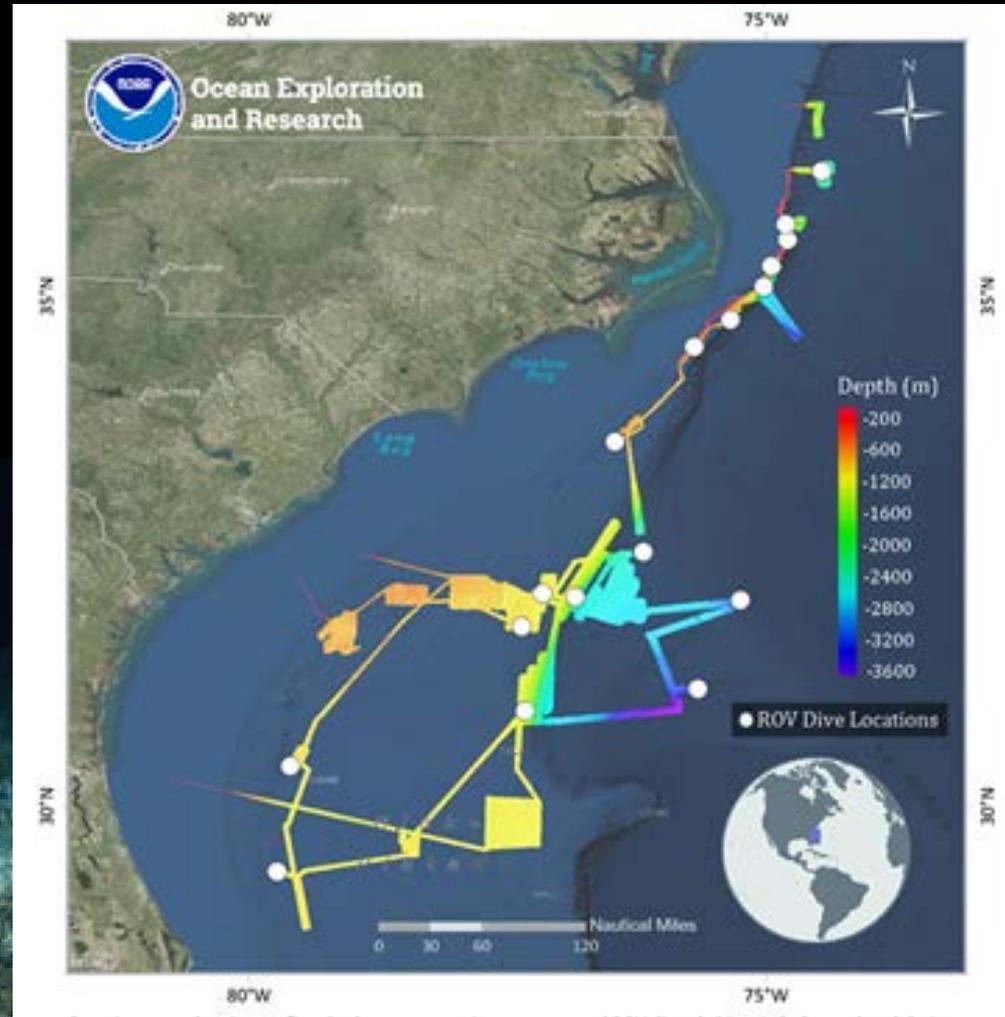
NWPS Nearshore Wave Prediction System



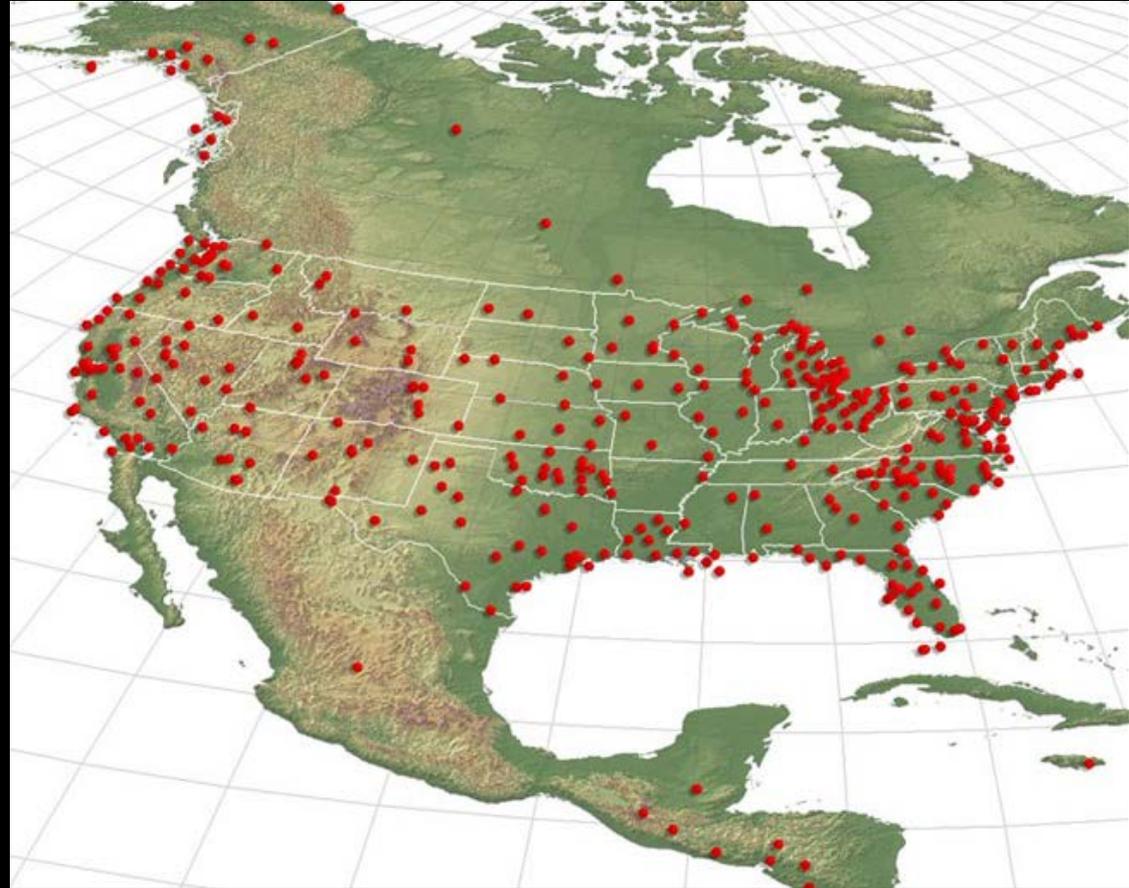
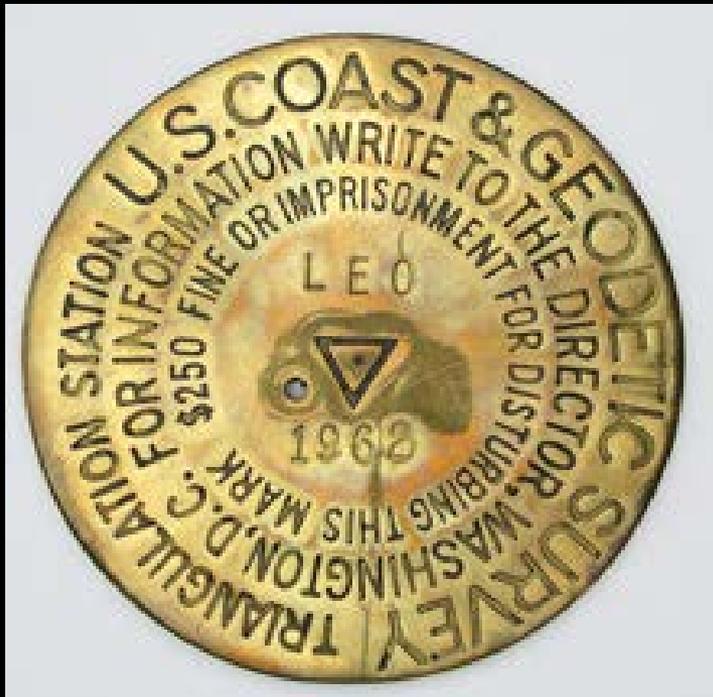
Autonomous Surface Vehicles: New Tool for Hydrographic Surveys



DEEP SEARCH 2018: Deep coral reef system discovery off east coast



Modernizing the National Spatial Reference System



Next NOAA Research and Development (R&D) Plan

- NOAA will be collecting public input for the next R&D Plan
 - Public comment period – to be announced in the Federal Register
 - Town halls
 - AGU in Washington, DC - December 13, 12:30-1:30 pm
 - AMS in Phoenix, AZ - January 8, 7:00-8:15 am
- Target release of plan: Spring 2019



Questions?

