

Locating the F/V *Destination*

Commander Mark Van Waes, NOAA
Commanding Officer, NOAA Ship *Fairweather* (S220)
August 17, 2017



U.S. Department of Commerce

National Oceanic and Atmospheric Administration

Office of Marine and Aviation Operations



National Oceanic and Atmospheric Administration

WHAT IS NOAA?



U.S. Department of Commerce

National Oceanic and Atmospheric Administration

Office of Marine and Aviation Operations

National Oceanic and Atmospheric Administration

NOAA's Mission:

Science, Service, and Stewardship.

To understand and predict changes in climate, weather, oceans, and coasts;

To share that knowledge and information with others; and

To conserve and manage coastal and marine ecosystems and resources.



U.S. Department of Commerce

National Oceanic and Atmospheric Administration

Office of Marine and Aviation Operations

National Oceanic and Atmospheric Administration

- Six line offices:
 - National Environmental Satellite, Data, and Information Service
 - National Marine Fisheries Service
 - National Ocean Service
 - National Weather Service
 - Office of Oceanic and Atmospheric Research
 - **Office of Marine and Aviation Operations**



U.S. Department of Commerce

National Oceanic and Atmospheric Administration

Office of Marine and Aviation Operations

NOAA's Ships and Aircraft

OFFICE OF MARINE AND AVIATION OPERATIONS



U.S. Department of Commerce

National Oceanic and Atmospheric Administration

Office of Marine and Aviation Operations

Office of Marine and Aviation Operations

Mission:

To safely deliver effective Earth observation capabilities, integrate emerging technologies, and provide a specialized, flexible, and reliable team responsive to NOAA and the Nation.



U.S. Department of Commerce

National Oceanic and Atmospheric Administration

Office of Marine and Aviation Operations

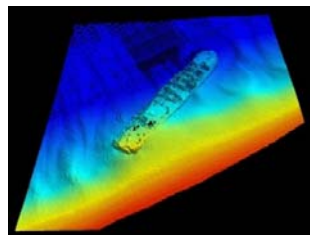
NOAA's Ships and Aircraft

NOAA's 16 ships conduct fisheries and marine mammal assessments, collect oceanographic data, conduct seafloor mapping activities, and explore the vast depths of the ocean, among other work.

NOAA's 9 specialized aircraft collect environmental and geographic data essential to studying climate change, assessing marine mammal populations, surveying coastal erosion, investigating oil spills, and improving hurricane and winter storm forecasts.



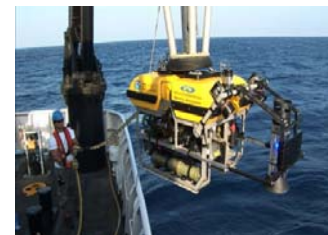
9/11 Aerial Survey



Hydrographic Survey



Hurricane Research



Ocean Exploration



Fisheries Survey



U.S. Department of Commerce

National Oceanic and Atmospheric Administration

Office of Marine and Aviation Operations

NOAA/USCG PARTNERSHIP



U.S. Department of Commerce
National Oceanic and Atmospheric Administration
Office of Marine and Aviation Operations

NOAA/USCG Partnership

- NOAA and the USCG have long partnered to ensure the nation's maritime resiliency, environmental sustainability, and environmental research.



U.S. Department of Commerce

National Oceanic and Atmospheric Administration

Office of Marine and Aviation Operations

NOAA/USCG Partnership

- Oil spill response
- Marine debris removal
- Safety of navigation
- Scientific data acquisition
- Maritime Domain Awareness
- Joint training

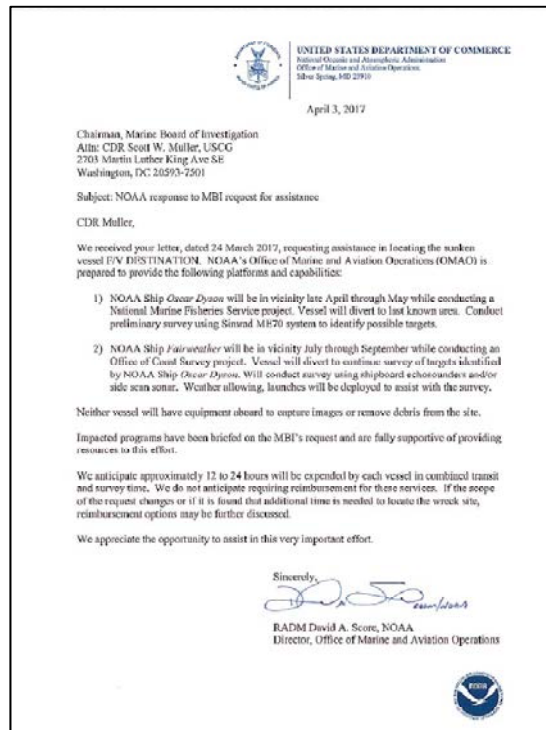


U.S. Department of Commerce

National Oceanic and Atmospheric Administration

Office of Marine and Aviation Operations

Request for Assistance



Per USCG request in March 2017, OMAO offered the services of two NOAA ships, the *Oscar Dyson* and the *Fairweather*, in locating the *Destination*



U.S. Department of Commerce
National Oceanic and Atmospheric Administration
Office of Marine and Aviation Operations

NOAA'S SEARCH EFFORT



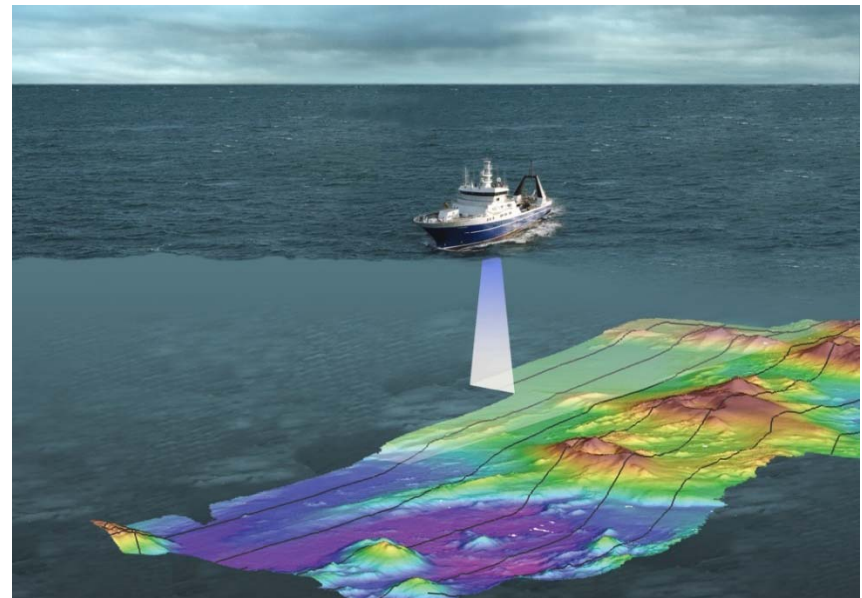
U.S. Department of Commerce

National Oceanic and Atmospheric Administration

Office of Marine and Aviation Operations

Overview of Technology

- Multibeam sonar
 - Ensonifies a “swath” of the seafloor
 - Depending on frequency, depth, and other considerations, able to detect objects as small as 1 meter or less
 - General procedure is to systematically cover an area (“mowing the lawn”)



U.S. Department of Commerce

National Oceanic and Atmospheric Administration

Office of Marine and Aviation Operations

Overview of Technology



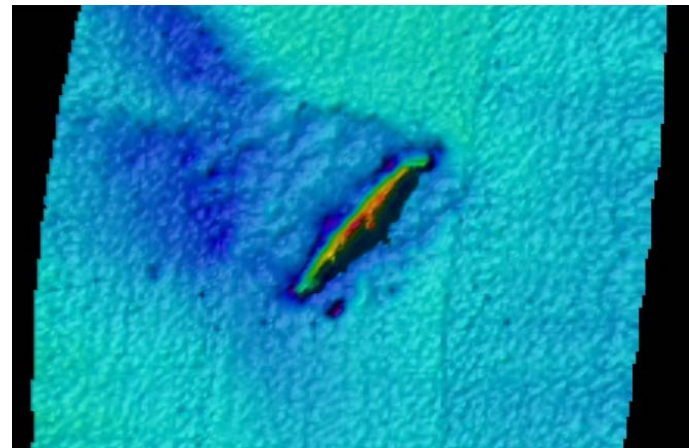
U.S. Department of Commerce

National Oceanic and Atmospheric Administration

Office of Marine and Aviation Operations

Overview of Technology

- From the multibeam sonar data, we can generate a 3D model of the seafloor
- Wrecks, obstructions, and other objects can be detected and examined when processing the data



Example of what a wreck might look like in multibeam data



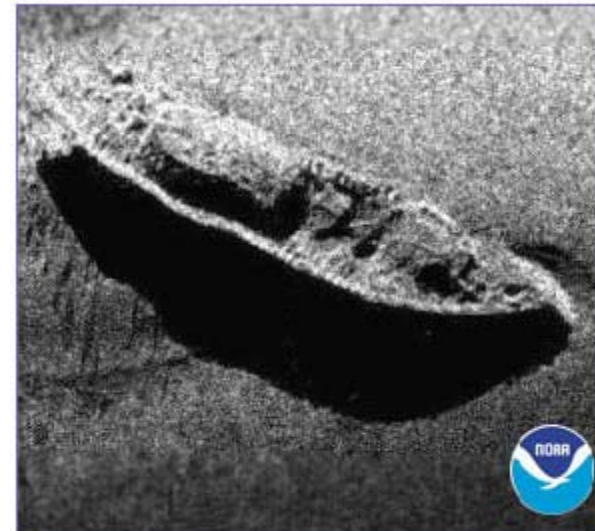
U.S. Department of Commerce

National Oceanic and Atmospheric Administration

Office of Marine and Aviation Operations

Overview of Technology

- Sidescan sonar
 - Provides imagery, but not depth data
 - Often useful for locating objects on the seafloor
 - Can determine size and height of objects from data



Example of what a wreck looks like in sidescan data



U.S. Department of Commerce

National Oceanic and Atmospheric Administration

Office of Marine and Aviation Operations

NOAA Ship *Oscar Dyson*: April 30 –May 2

- Mission: Fisheries Research
- Homeport: Kodiak, Alaska
- Length: 208'
- Breadth: 49'
- Draft: 20' (30' with centerboard)
- Complement:
 - 5 NOAA Corps officers
 - 19 civilian mariners
 - 15 science party
- Capabilities:
 - Stern trawl
 - Two small boats
 - Simrad ME-70 multibeam echosounder
 - Simrad EK-60 science echosounder

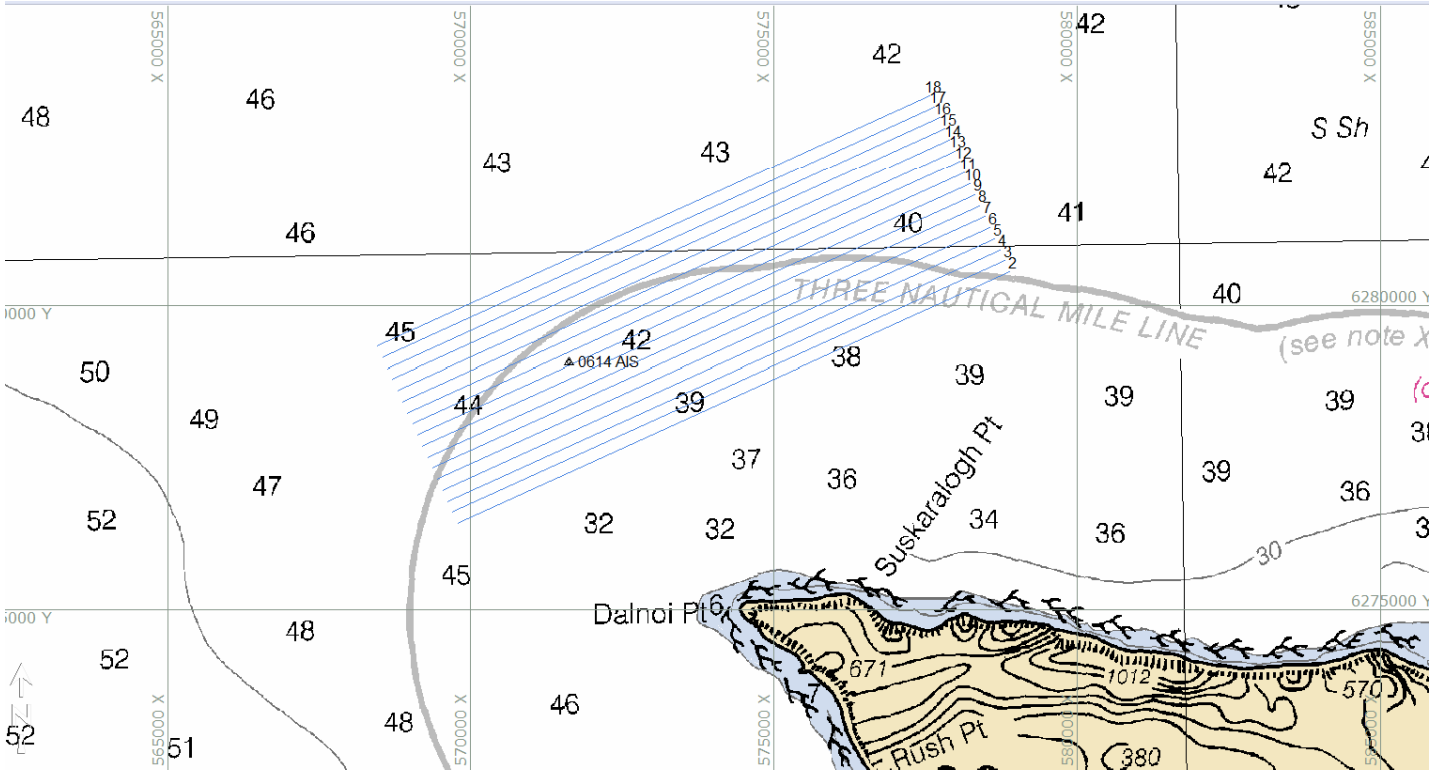


U.S. Department of Commerce

National Oceanic and Atmospheric Administration

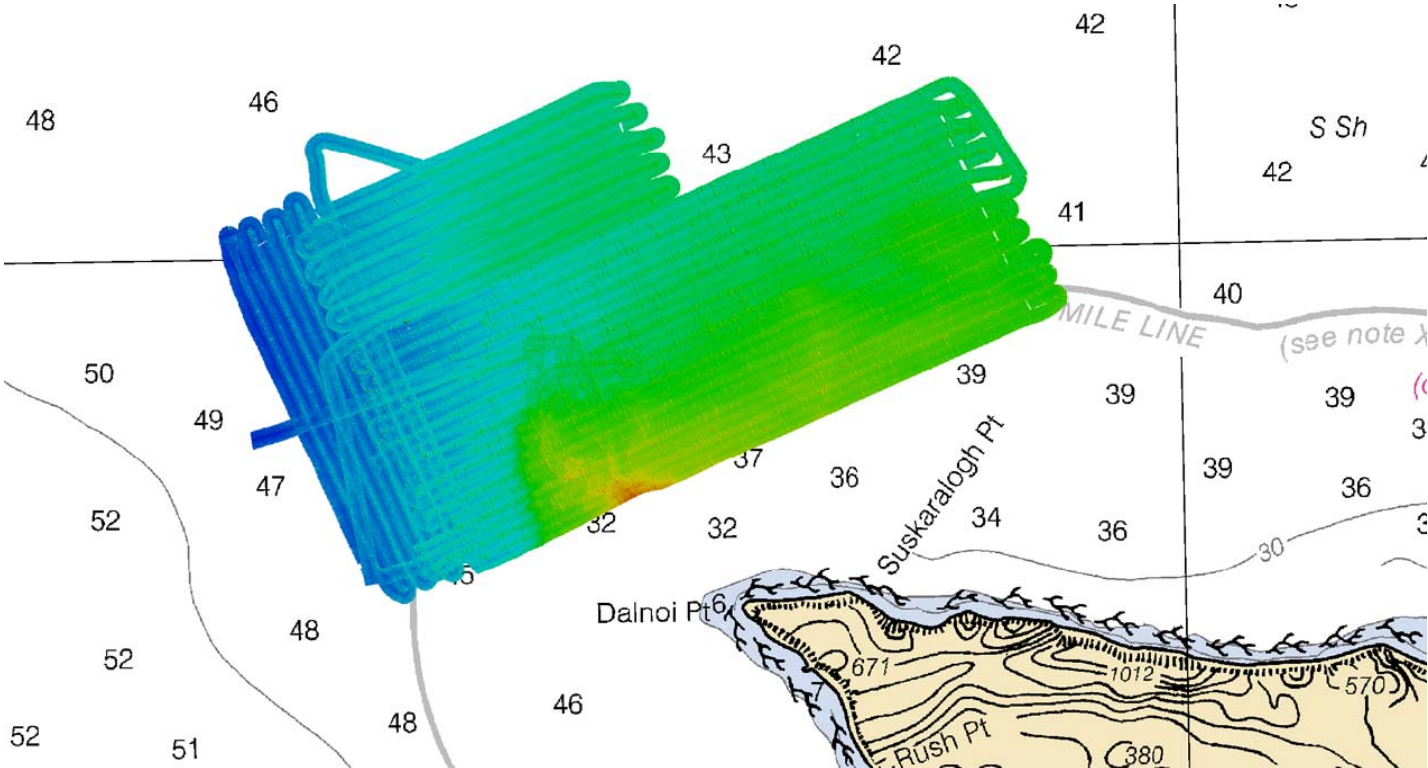
Office of Marine and Aviation Operations

NOAA Ship *Oscar Dyson*: April 30 – May 2



U.S. Department of Commerce
National Oceanic and Atmospheric Administration
 Office of Marine and Aviation Operations

NOAA Ship *Oscar Dyson*: April 30 – May 2



U.S. Department of Commerce
National Oceanic and Atmospheric Administration
Office of Marine and Aviation Operations

NOAA Ship *Fairweather*: July 8-9

- Mission: Hydrographic Survey
- Homeport: Ketchikan, Alaska
- Length: 231'
- Breadth: 42'
- Draft: 16'
- Complement:
 - 12 NOAA Corps officers
 - 39 civilian mariners
- Capabilities:
 - Four 28' survey launches and three small boats
 - Kongsberg EM 710 multibeam echosounder (ship)
 - Kongsberg EM 2040 echosounders (launches)
 - Klein 5000 side-scan sonar

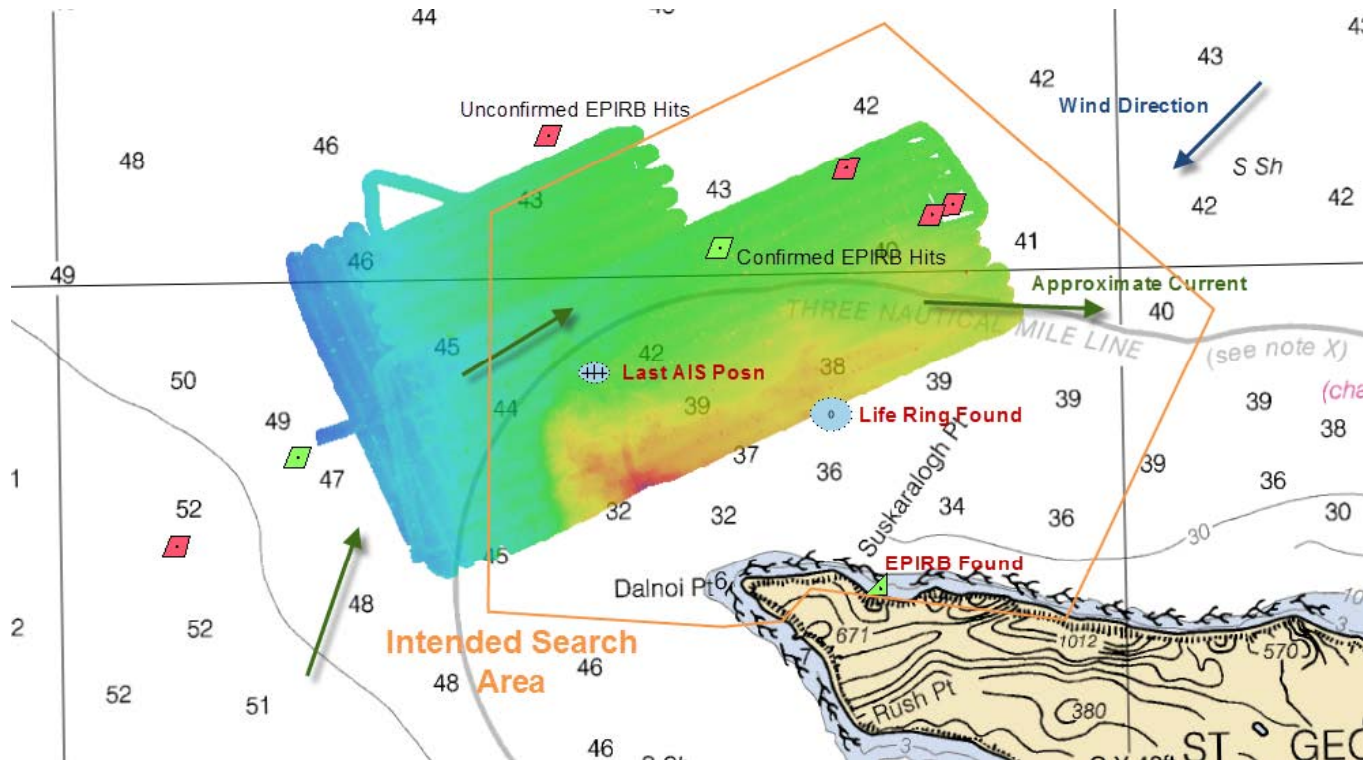


U.S. Department of Commerce

National Oceanic and Atmospheric Administration

Office of Marine and Aviation Operations

NOAA Ship *Fairweather*: July 8-9

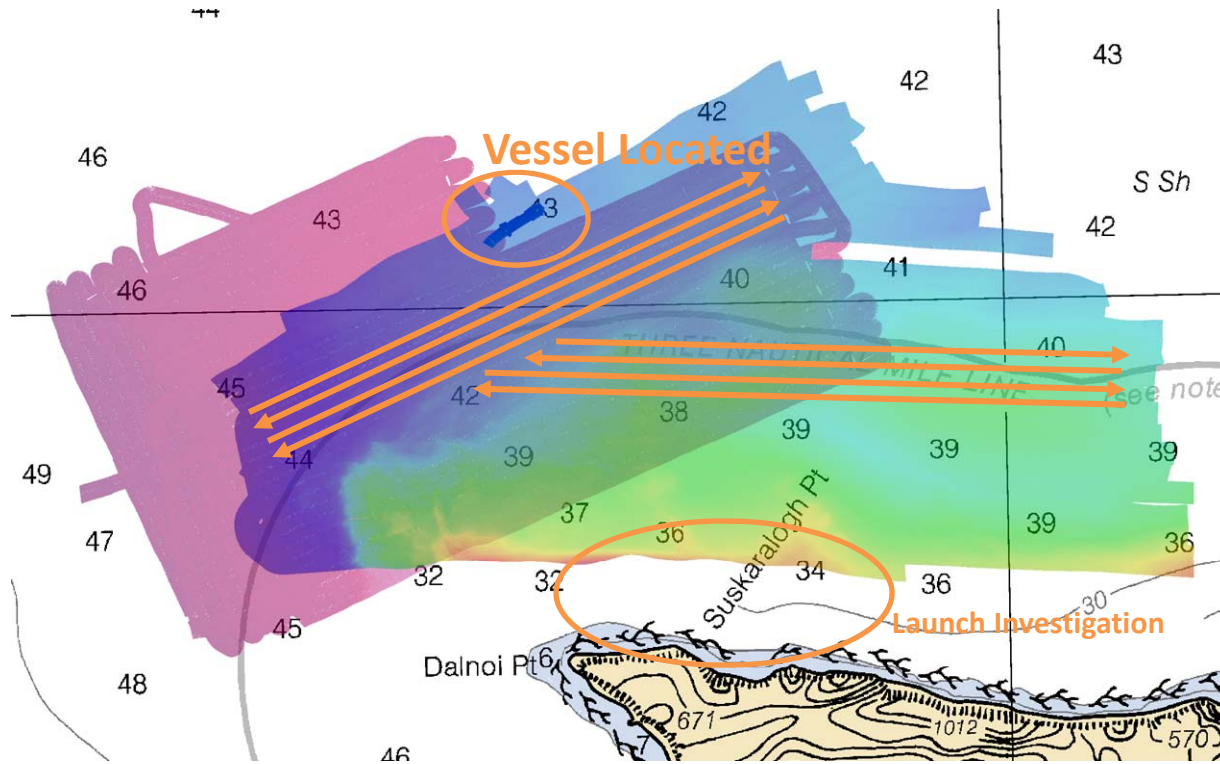


U.S. Department of Commerce

National Oceanic and Atmospheric Administration

Office of Marine and Aviation Operations

NOAA Ship *Fairweather*: July 8-9



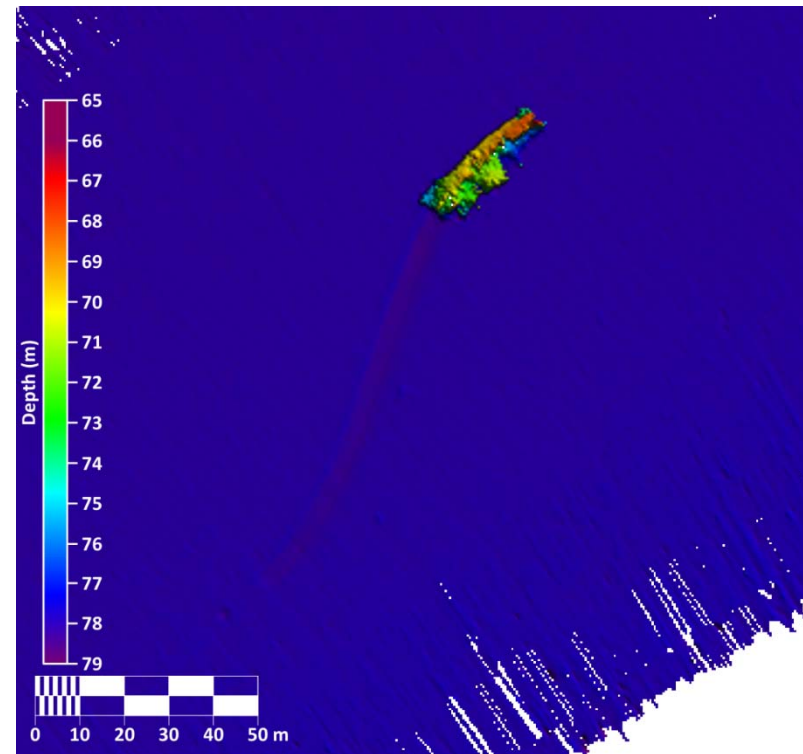
U.S. Department of Commerce

National Oceanic and Atmospheric Administration

Office of Marine and Aviation Operations

NOAA Ship *Fairweather*: July 8-9

- The vessel is lying on its port side, facing southwest, in approximately 78 meters (256 feet) of water.
- A scour line extends approximately 100 meters (330 feet) southwest from the vessel.

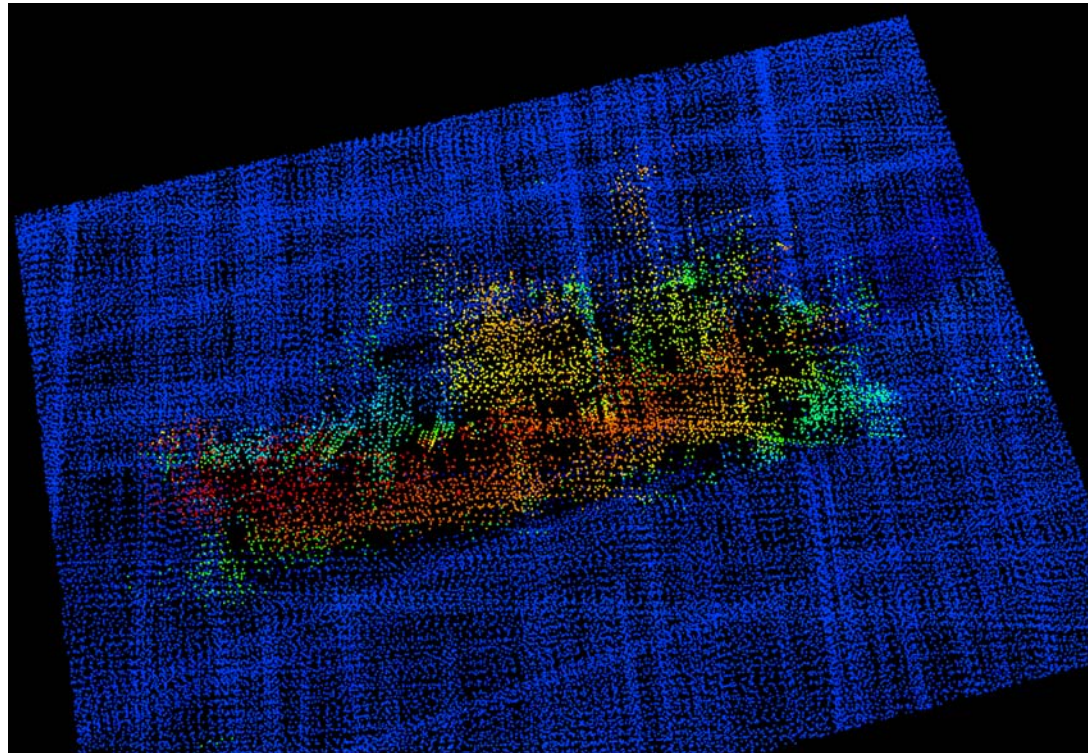


U.S. Department of Commerce

National Oceanic and Atmospheric Administration

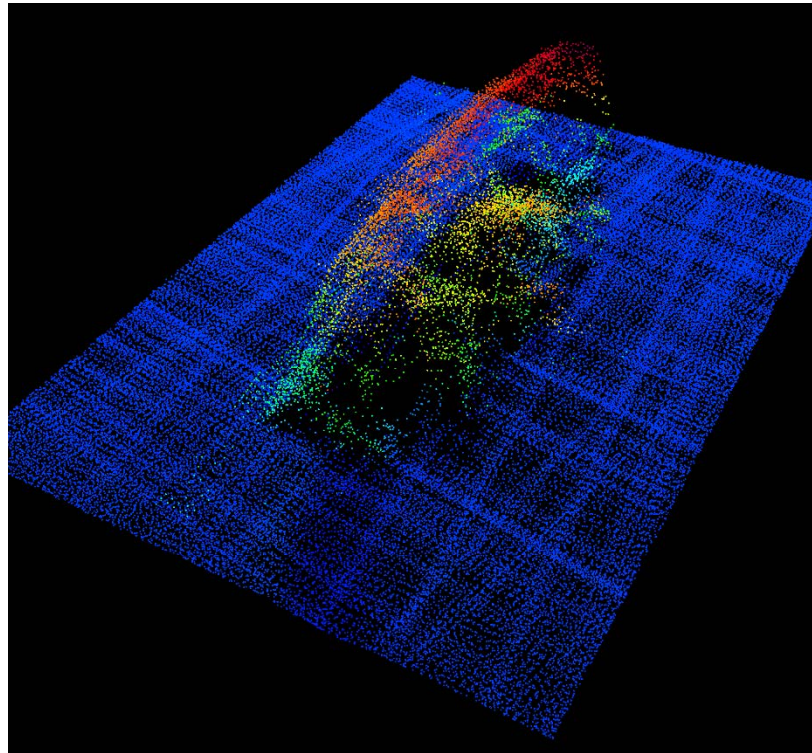
Office of Marine and Aviation Operations

NOAA Ship *Fairweather*: July 8-9



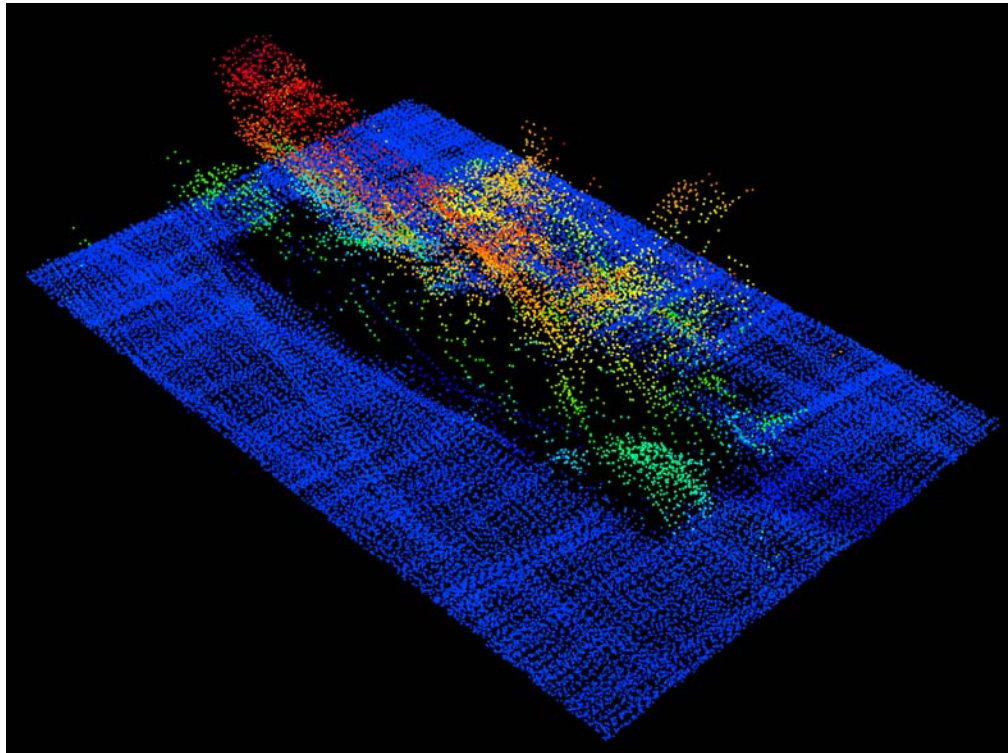
U.S. Department of Commerce
National Oceanic and Atmospheric Administration
Office of Marine and Aviation Operations

NOAA Ship *Fairweather*: July 8-9



U.S. Department of Commerce
National Oceanic and Atmospheric Administration
Office of Marine and Aviation Operations

NOAA Ship *Fairweather*: July 8-9

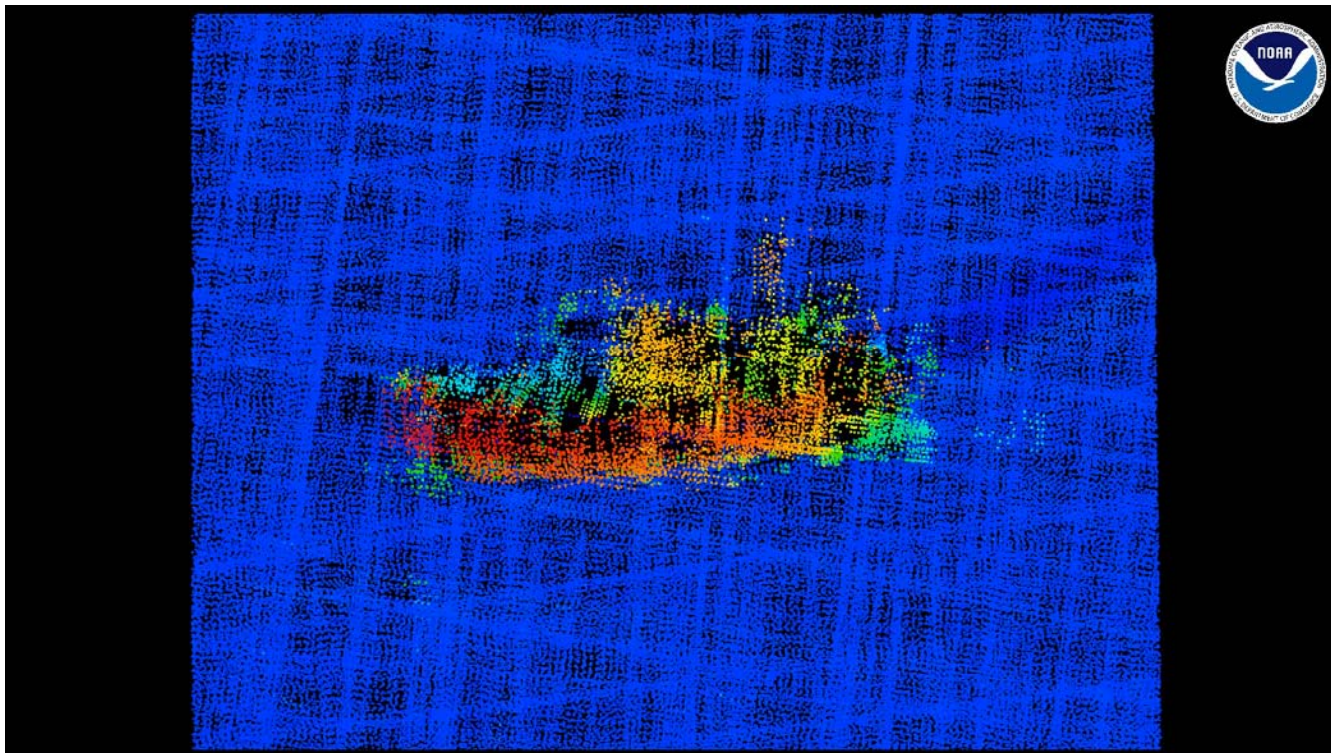


U.S. Department of Commerce

National Oceanic and Atmospheric Administration

Office of Marine and Aviation Operations

NOAA Ship *Fairweather*: July 8-9



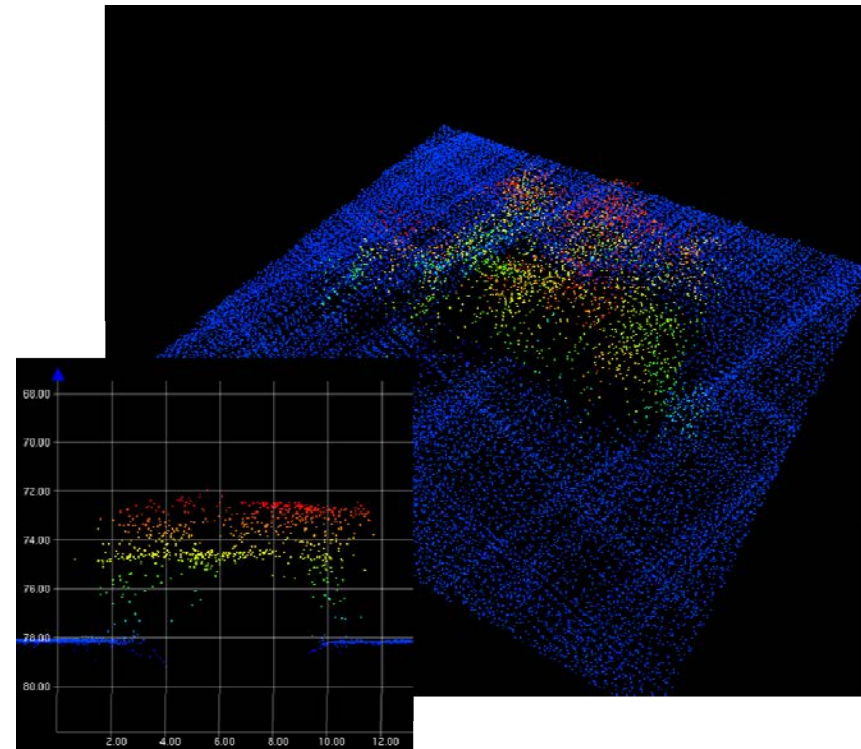
U.S. Department of Commerce

National Oceanic and Atmospheric Administration

Office of Marine and Aviation Operations

NOAA Ship *Fairweather*: July 8-9

- In addition to the vessel, another target was identified approximately 617 meters (2,024 feet) southwest of the vessel.
- The dimensions of the target approximately match what appear to be those of the missing equipment from the deck of the *Destination*.

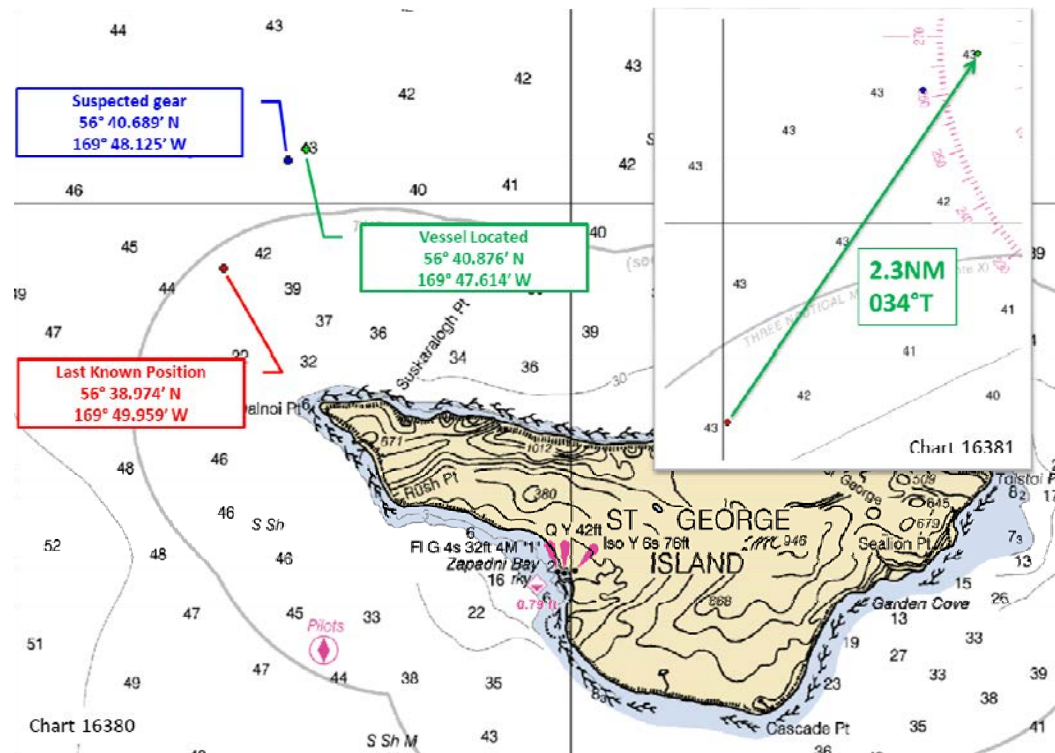


U.S. Department of Commerce

National Oceanic and Atmospheric Administration

Office of Marine and Aviation Operations

NOAA Ship *Fairweather*: July 8-9



U.S. Department of Commerce

National Oceanic and Atmospheric Administration

Office of Marine and Aviation Operations

Questions?



U.S. Department of Commerce

National Oceanic and Atmospheric Administration

Office of Marine and Aviation Operations

