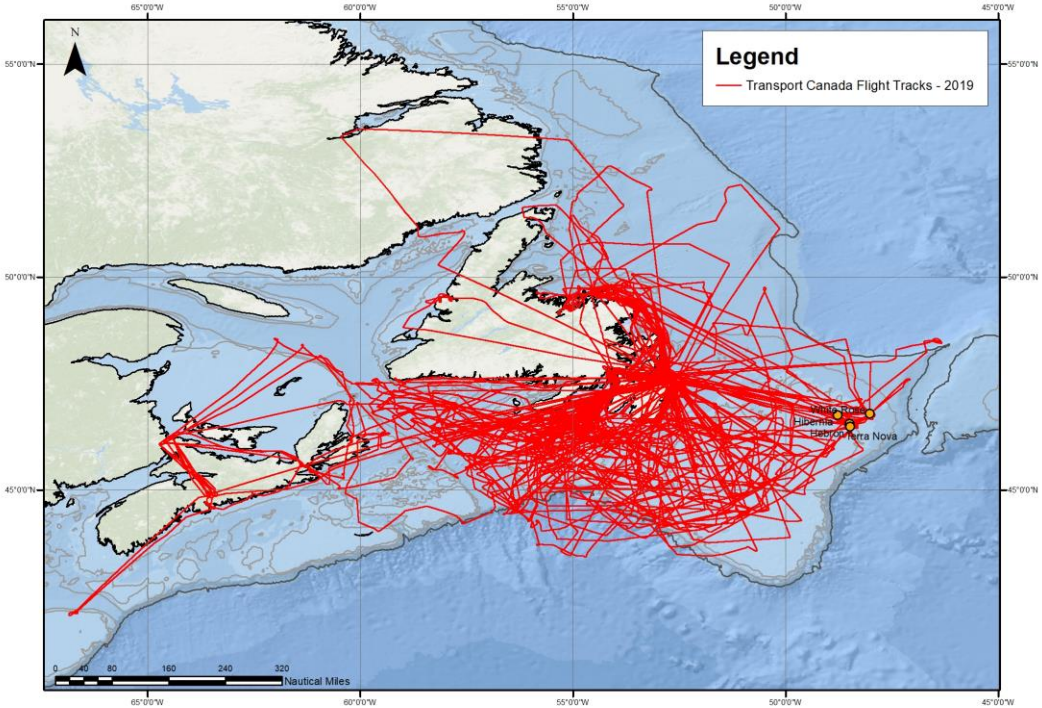
PALaerospace

2018/2019 ENVIRONMENTAL FLIGHT SUMMARY

2018/2019 Environmental Aerial Reconnaissance

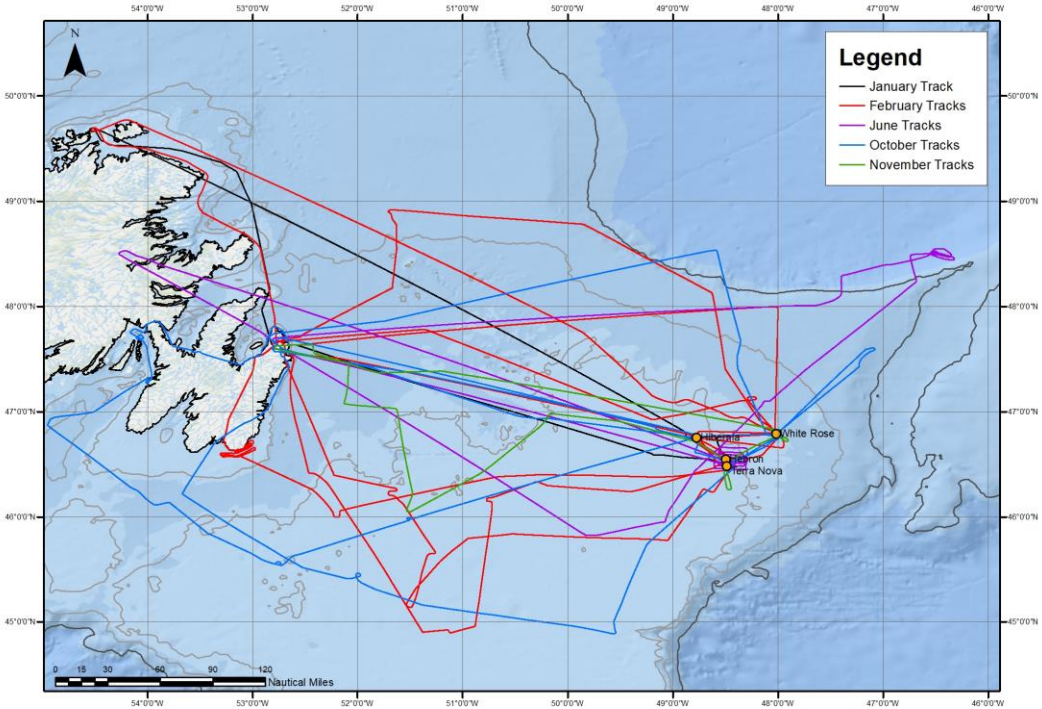
- Ice and Environmental Services processed 59 dedicated environmental reconnaissance flights that were flown by PAL Aerospace's Aerial Surveillance Division from November 2018 through to September 2019.
  - 310 total air hours.
- There were a total of 105 Transport Canada flights in 2019.
  - 11 occurring over the operators area on the Grand Banks.
  - Transport Canada's mission is to detect and monitor environmental incidents.
- 22 Government of Canada flights conducted by PAL Aerospace in 2019 detected some form of pollutant (i.e. oil, vessel fuel, etc.)

2019 Transport Canada Flights



Transport Canada Flight Tracks for 2019

2019 Transport Canada Flights Over the Operators Area



Transport Canada Flight Tracks for 2019

PAL Aerospace History of Environmental Flights

- PAL Aerospace flight crews have an extensive history of identifying pollutants along the coast of Newfoundland and Labrador, around the Maritimes, and offshore on the Grand Banks.
  - 20+ years of environmental monitoring
- The Aerial Surveillance Division personnel at PAL Aerospace are all Transport Canada certified in pollution detection and classification, and utilize Transport Canada guidelines when observing and logging potential pollutants offshore.

Objectives of Environmental Flights

There are Four Objectives

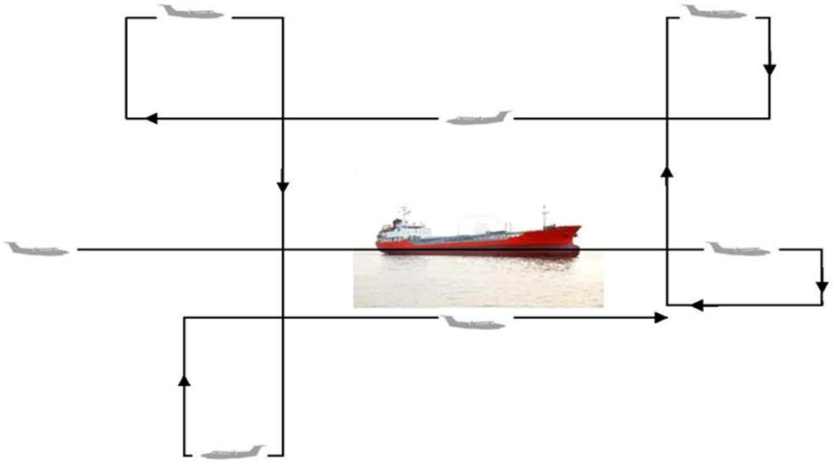
• Deterrence: The physical and audible presence of the surveillance aircraft is a deterrent to would-be violators.	• Enforcement: The principle role of the pollution patrol is to record evidence of violations and present it to the Regional Supervisor of Environmental Response • Canadian Coast Guard
• Emergency Response: To provide assistance in oil spill emergencies and provide support to search and rescue operations.	• Program Support: To provide essential information to the national pollution database.

Operations of Environmental Flights

- Flights are conducted at 1,200 to 2,000 feet above sea level in a manner that permits the over-flight of the maximum area.
- Vessels and facilities seen to be polluting are flown at a much lower altitude to further verify discharge.
- The Radar Operator will record video using the forward looking infrared (FLIR) system.
- The camera is made ready as the aircraft moves to the end of the pollutant.

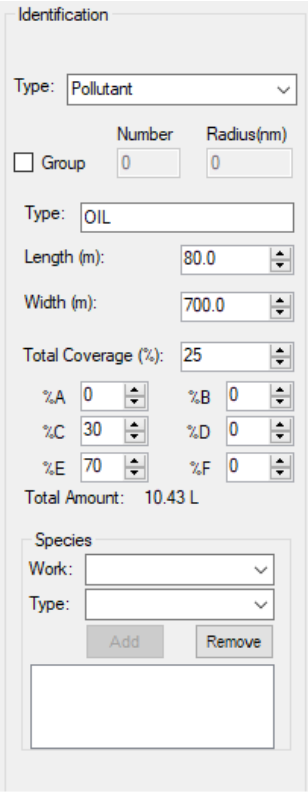
Environmental Flight Pattern

- The Radar Operator or Data Management System Operator takes the ‘on top’ for the start of the pollutant.
  - Initial position of the end of the pollutant as the aircraft moves above it.
- Video is taken continuously as the aircraft flies up the pollutant toward the vessel/facility or other end of the pollutant.
- A pattern similar to the image to the right is flown to ensure 100% of the area is covered.



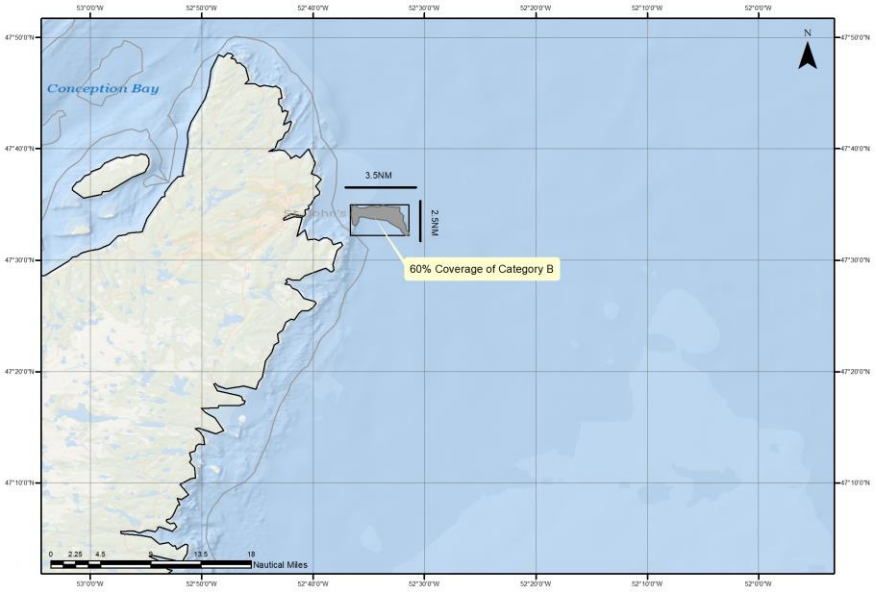
Environmental Flights Reporting/Recording

- Flights observe, record, and report any marine pollution identified while on patrol.
  - In house software, the airborne data acquisition management system (ADAM), records pollutant classifications and calculates the amount based on Transport Canada's guidelines.
- Any spills sighted are reported to Marine Communications Traffic Services (MCTS) while in flight.
  - Post-flight the reports are emailed to Transport Canada.



Environmental Flights Results

- Flight crew identifies boxed area of the spill.
  - One corner will be the ‘on-top’ position (bottom right)
- Crew relay length and width of box.
  - L=3.5NM/W=2.5NM
- Identify area of box that is covered.
  - 60% coverage
- Determine classification of pollution type.
  - 100% Category B



Environmental Flight Results

Transport Canada's Spill Classification Form

DIMENSIONS OF SPILL | LENGTH | WIDTH

AREA OF COVERAGE (km^2)

% TOTAL COVERAGE

PERCENT

REFLECTS MORE LIGHT THAN WATER, VISIBLE ADJACENT TO BARE WATER, BRIGHTNESS INCREASES WITH THICKNESS

PERCENT

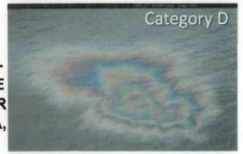
APPEARS AS A SILVERY OR GREY SHEEN ON THE WATER, THICKER AREAS HAVE A PEARLY APPEARANCE

PERCENT

FIRST COLOURS APPEAR AS WARM TONES, MORE BRONZE THAN YELLOW, THICKER PATCHES DEEP VIOLET OR PURPLE.

PERCENT

FIRST SET OF BANDS APPEARS, BRONZE-PURPLE-BLUE-GREEN. COLOURS ARE PURE AND INTENSE, THICKER PATCHES BECOME MAJENTA, BLUE/GREEN.



PICTURES TAKEN AND VERIFIED.

- SHIP NAME- BRIDGE AREA ☐
- SHIP'S NAME - HOME PORT ☐
- UNPOLLUTED WATER AHEAD ☐
- UNPOLLUTED WATER - PORT ☐
- UNPOLLUTED WATER - STAR ☐
- PORT SIDE OF SHIP ☐
- STARBOARD SIDE OF SHIP ☐
- POLLUTION IN WAKE OF SHIP ☐
- OVERVIEW ☐
- DISCHARGE FROM SHIP ☐
- STAINS ON HULL ☐
- WILDLIFE IN THE AREA ☐

WEATHER

Sea State

Wind speed

CALCULATED OIL VOLUME

LITRES

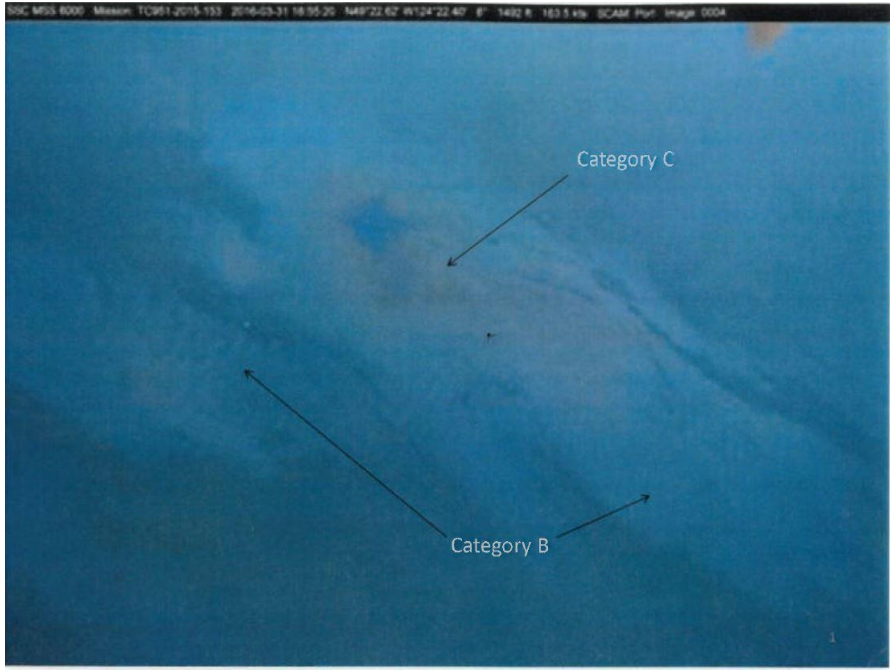
PERCENT

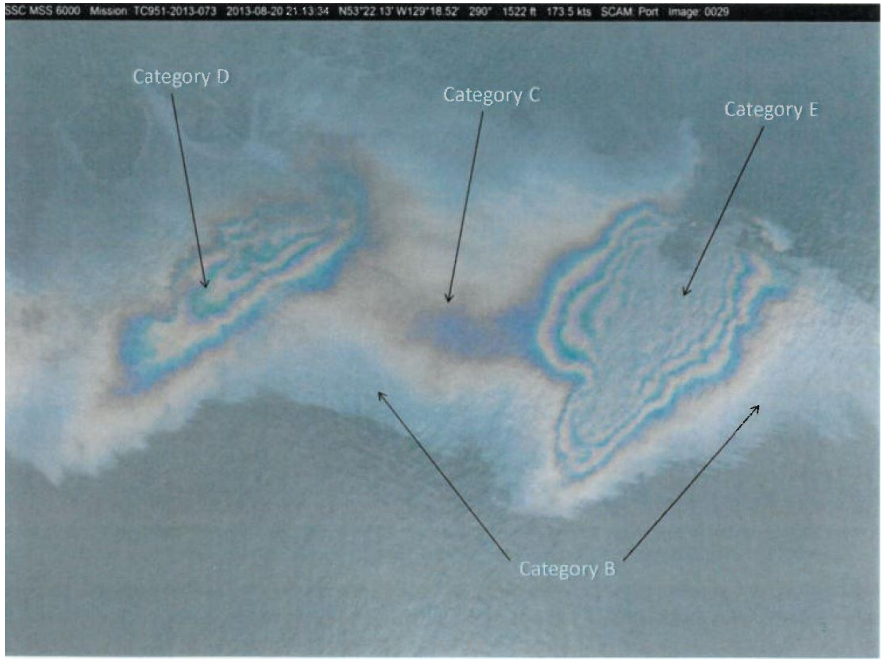
REDUCTION IN PURITY OF COLOURS, RICH TERRA-COTTA/TURQUOISE, PROGRESSIVELY DULLER.

PERCENT

ANY COLOUR IS MERELY A TINT IN LIGHT. LIGHT AND DARK ALTERNATING BANDS

Classification Examples





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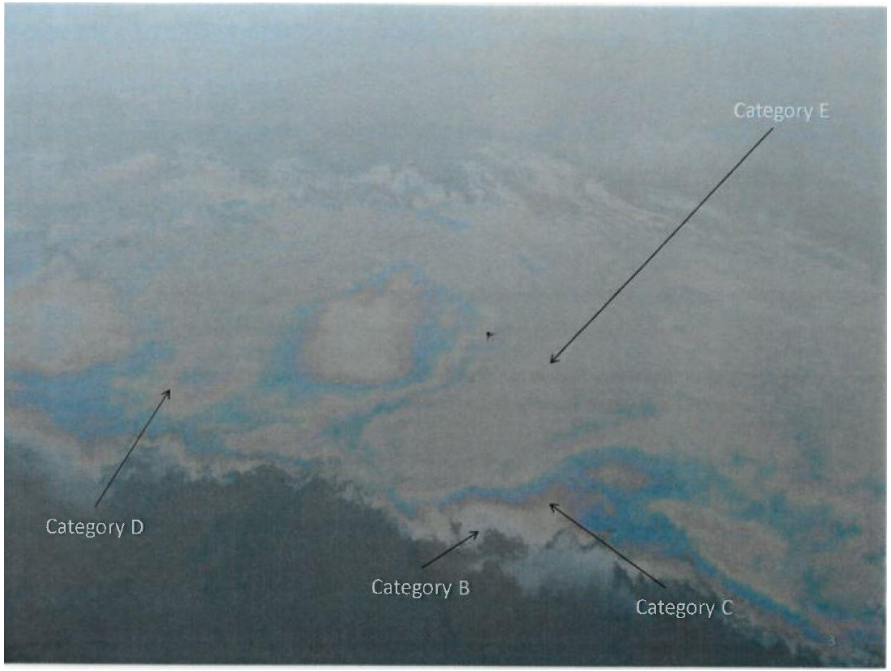

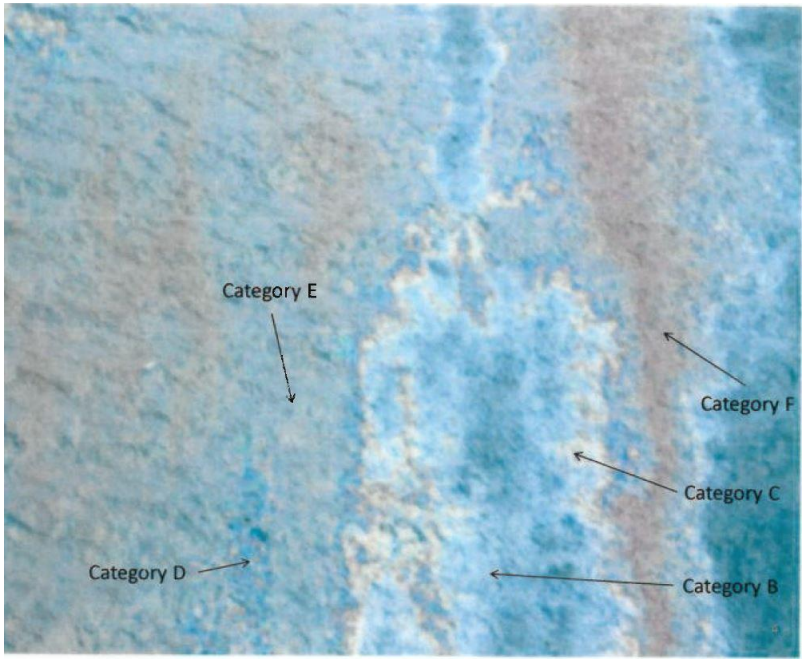

Questions?