



Environment  
Canada

Environnement  
Canada

Canada



# Canadian Ice Service 101

**David Jackson**

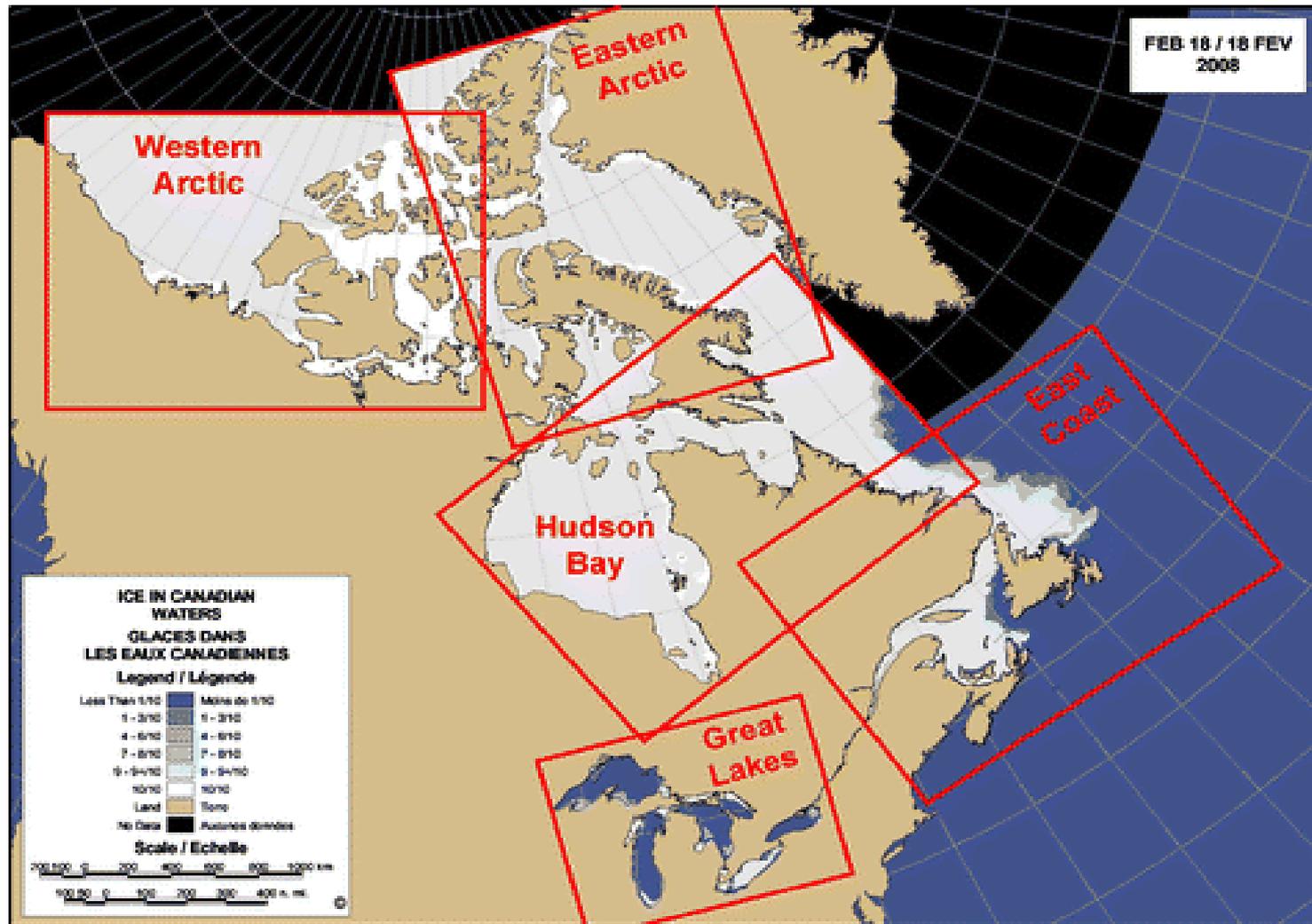
**A/Director, Canadian Ice Service**

# What we do:

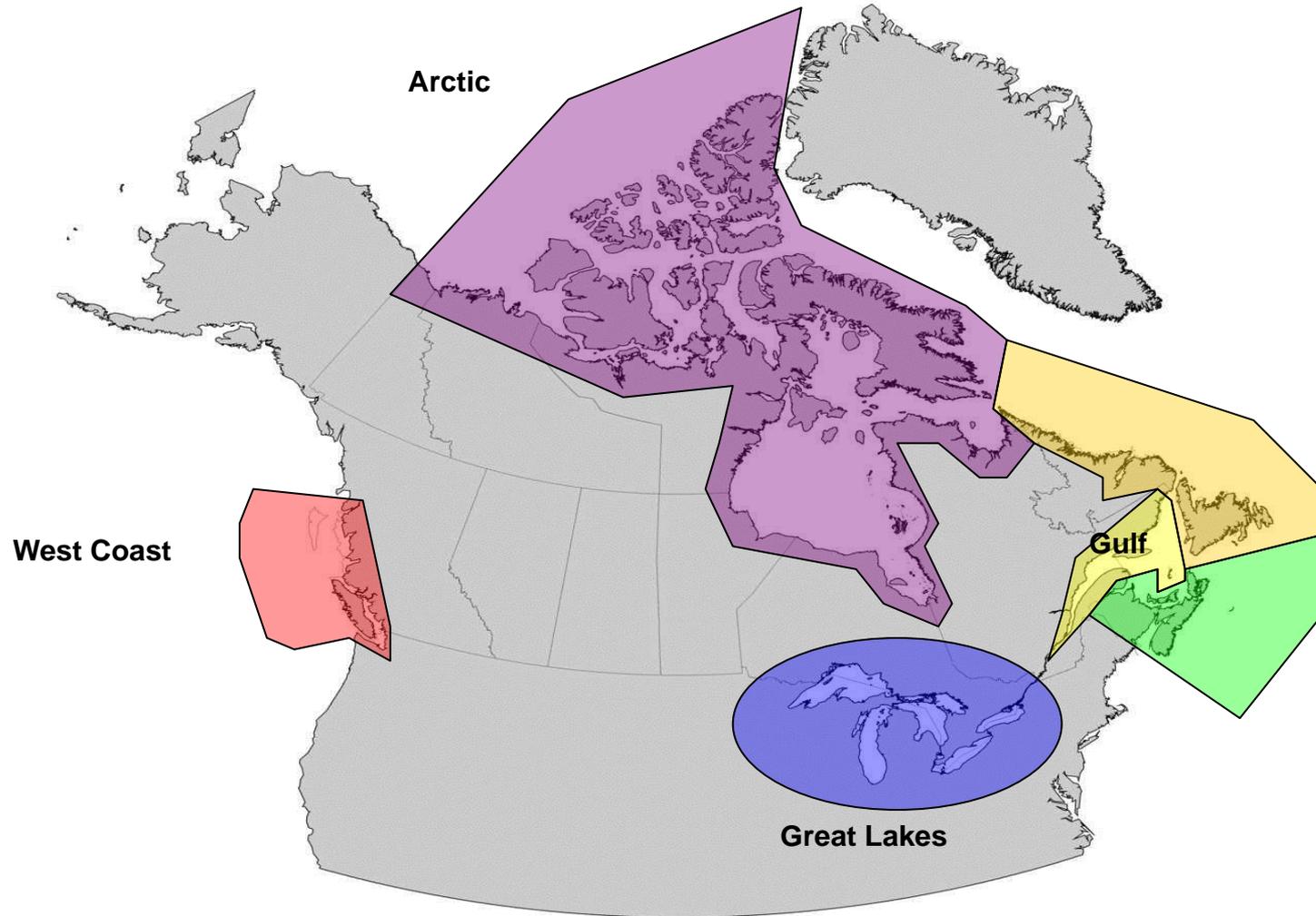
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- *The leading authority for information about ice in Canadian navigable waters.*
- *Mission: provide timely and accurate information about sea ice, lake/river ice and icebergs*
- *Maintain the Canadian Ice Service Digital Archive of ice climatological data used for both policy/regulation development and research*
- *Integrated Satellite Tracking of Pollution (ISTOP): uses satellite imagery to support spill confirmation, tracking and evidence procurement*

# Where we do it (ice information):



# Where we do it (marine oil pollution surveillance):



# How we do it:

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- **Field Operations:**
  - **Ice Service Specialists:** detailed to Canadian Coast Guard (CCG) Ice Centres and icebreakers
  - **DASH 7 (Great Lakes and Arctic); Dash 8 (East Coast); DASH 8 (West Coast):** MOU with Transport Canada, combined Ice/Pollution/Security patrols
- **Imagery Analysis:**
  - **Satellite imagery:** CIS is largest user of RADARSAT imagery in the world
    - 7000 R1 & R2 images
      - \$1.5M R1/R2 processing
      - \$125K ISTOP processing
    - Up to 6000 ENVISAT images if necessary
    - Up to 60,000 images from other satellites owned and operated by: NASA, NOAA and Japan
  - **Analysis and Forecasting:** 18/7 operation
- **Operational support:**
  - **Product distribution and archiving:** product dissemination and information archive.
  - **Applied Sciences:** new sensor development and operational integration, sea ice and iceberg modelling, prediction and validation capability development
  - **Informatics:** development and support to NAIS “Common Production System” to improve interoperability with the NAIS partners.



# Products and Clients

Daily charts

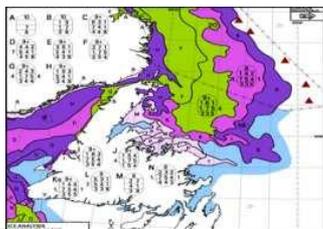
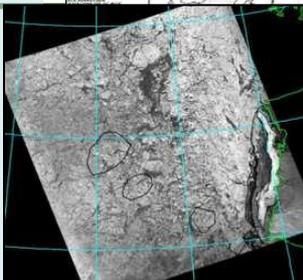
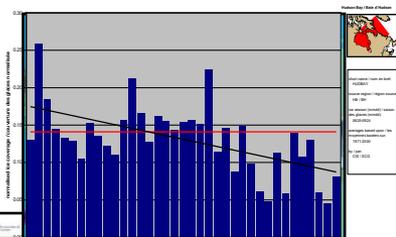


Image Analyses

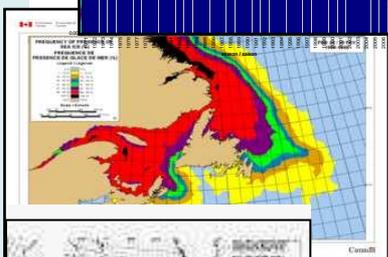


Climate Charts

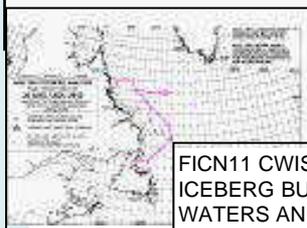
Statistical analysis



Climate products



Iceberg charts



FICN11 CWIS 181450  
ICEBERG BULLETIN FOR EAST COAST WATERS AND THE STRAIT OF BELLE ISLE AND ITS APPROACHES ISSUED BY ENVIRONMENT CANADA FROM CANADIAN ICE SERVICE IN OTTAWA AT 1500 UTC WEDNESDAY 18 OCTOBER 2000.

Bulletins / Warnings



Canadian Coast Guard Icebreakers



Mariners



Scientists



Media



Public



Northern Communities



# How we do it:

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## ***By being highly leveraged :***

- **CIS: A-base:**
  - Salary: \$1.9M
  - O&M: \$1.9M
- **Vote Net Revenue:**
  - CCG: \$8.595M
  - TC: \$1.194M
  - CSA: \$207.5K
  - NRCan: \$141.5K
  - UNCLOS: \$85K

## ***By being innovative and technically advanced in our partnerships:***

- **North American Ice Service:** CIS, US National/Naval Ice Centre, USCG International Ice Patrol, CCG & USCG act as advisors
- **Others:**
  - Academia
  - International Ice Services

# Why this is important to Canadians:

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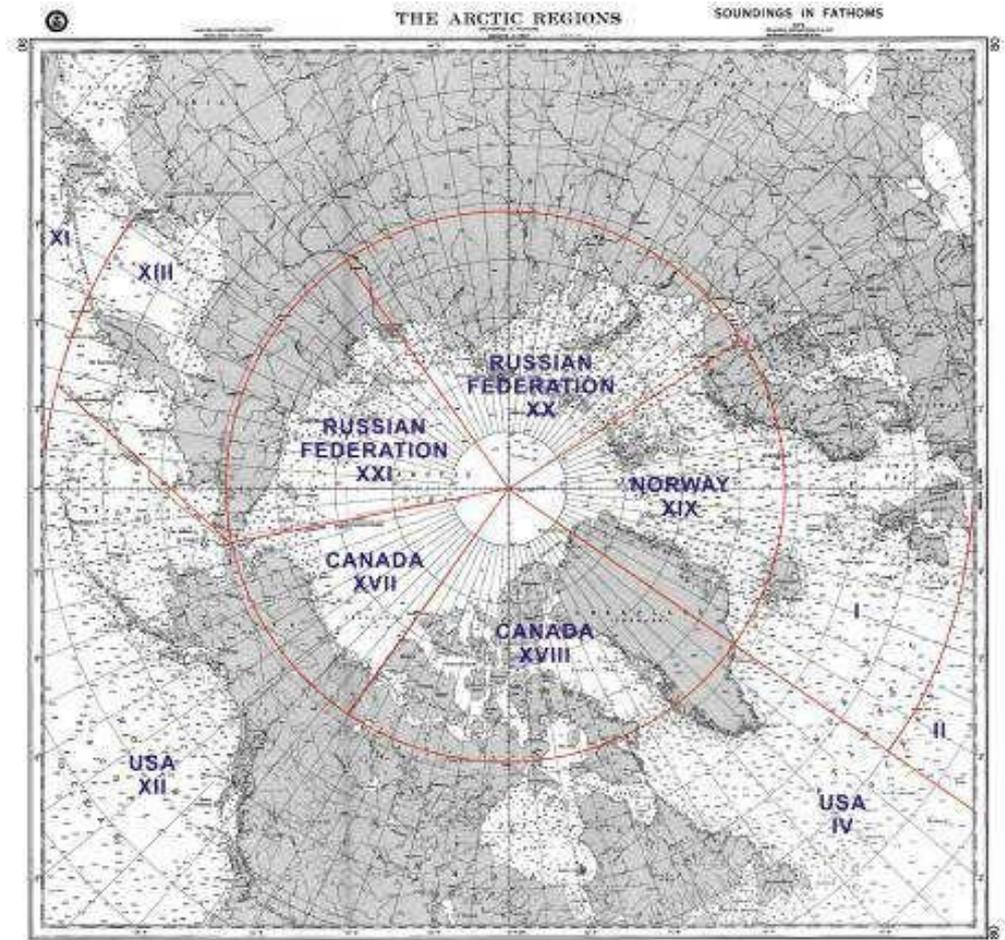
- *To ensure the safety of Canadians, their property and their environment by warning them of hazardous ice conditions in Canadian territorial waters*
- *To provide present and future generations of Canadians with sufficient knowledge about their ice environment to support sound policies, regulations and decision making*
- *To provide partners, clients and stakeholders with sufficient knowledge of the ice environment, both in the present and in the future, to enable them to develop sound policies and make informed investment decisions.*

# Why this is important to Canadians:



# MET/NAV AREAS

- Canada will be providing mariners with weather and ice information for two new METNAV areas
- Russia and Norway have responsibility for the remaining three
- It will be important that this information be harmonised
- Large increase in responsibility in both time and geography



# What does the future hold:

- **Arctic shipping season is lengthening**
  - **Increased demand for marine weather and ice information**
    - Traditional navigation season earlier in the summer – lasting longer in fall
    - Wider geographic span - Non traditional areas
  - **Southern winter shipping season is not shortening yet**
    - southern & northern services beginning to overlap
  - **Inter-seasonal variability in both south and north**
- **Increasing demand due to traffic**
  - Resources, tourism, federal fleets
- **METAREA implementation**
  - IMO creation of 5 new MET/NAV AREAS
  - Year round information required to support the area
- **More reliable ice forecast capacity**
  - Longer lead times for seasonal forecasts
  - Verification
  - Reliability
- **Dependency on satellite data**
  - continuity of existing sources
  - development of new sensors and applications for improved detection as sea ice conditions change
- **Continued and enhanced client engagement**
  - Domestic
  - International