Industry Perspective on Arctic Science

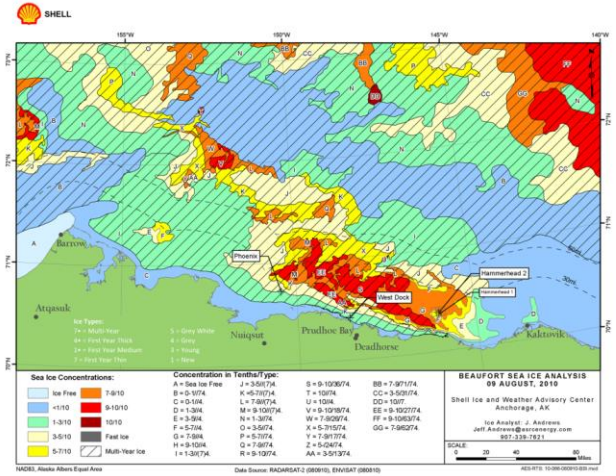
Michael Macrander

Industry and Developmental Interests Play an Important Role in the Scientific Research Process

- Historically investment in and advancement of science have been associated with opportunities
  - Early investigation of the Arctic was associated with search for a Northwest Passage
  - Whaling brought naturalists and Arctic observers
  - Geologic explorers came seeking mineral deposits
  - Military mounted a cold war to protect the Nation
  - Oil and gas exploration and development have been a major source and reason for investment
- Whether funding has come from industry, the potential for development has been a reason for public and private investment.

Drivers for Industry Investment in Science

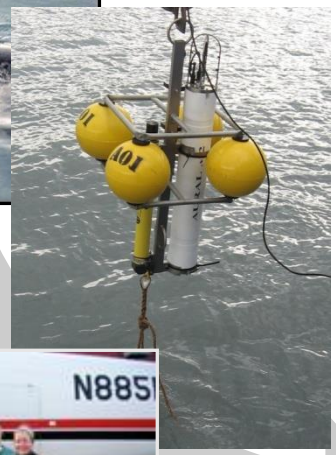
- By conducting and participating in research that is aimed at understanding the physical, ecological, and human environments in which they operate, industry is enabled to:
  - Operate safely in challenging environments,
  - Plan and operate in a manner that is in compliance with regulations and accepted standards,
  - Obtain and comply with permits, and
  - Meet the expectations of critical stakeholders

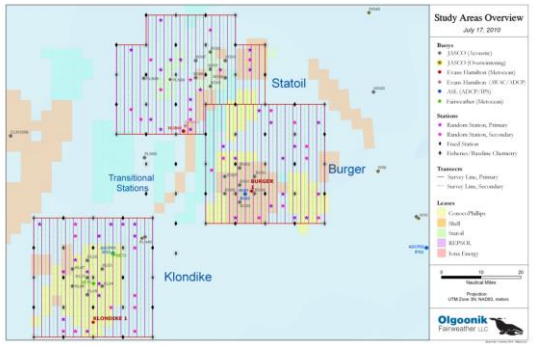


Important Aspects of Industry Investigations

Monitoring

- Permit driven (compliance)
- Marine Mammal MP
- Threatened & Endangered
- Air



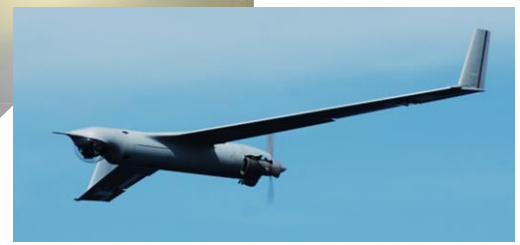


Baseline studies

- Provides basis for project design
- Identifies issues
- Fills data gaps
- Provides basis for NEPA documents (EIS)
- Ecological
- Ice/weather
- Ice gouge / streudel scour / soil testing
- Traditional knowledge

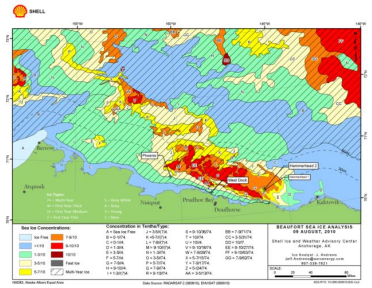
Engineering & Technology

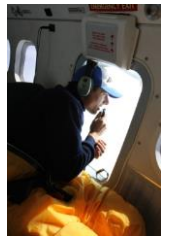
- Enabling both E & P
- Unmanned aerial
- Autonomous underwater
- On-ice seismic
- Sound mitigation
- Ice forces

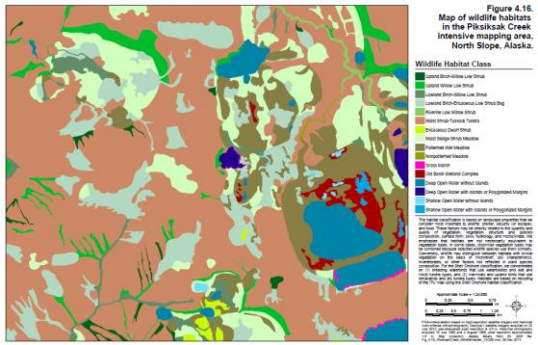


Some of the Main Industry Research Initiatives in the last Decade

- Ice & weather characterization and forecasting
- Integrated ecological assessment (CSESP)
- Assessment of impacts
  - Marine mammals
  - Sound characterization
- Assessment of discharges and impacts
- Onshore environmental assessment
- Collaborative studies







National Petroleum Council Report

- Developed for and at the request of U.S. Department of Energy
- Significant findings
  - Sufficient information & technology exist to prudently move forward
  - Main challenges are regulatory, license to operate, & season length
  - Areas of science and technology development exist that would further enhance capacities to work prudently
- Key areas
  - Ice and weather monitoring and forecasting
  - Oil spill prevention and response
  - The ecological environment
  - The human environment