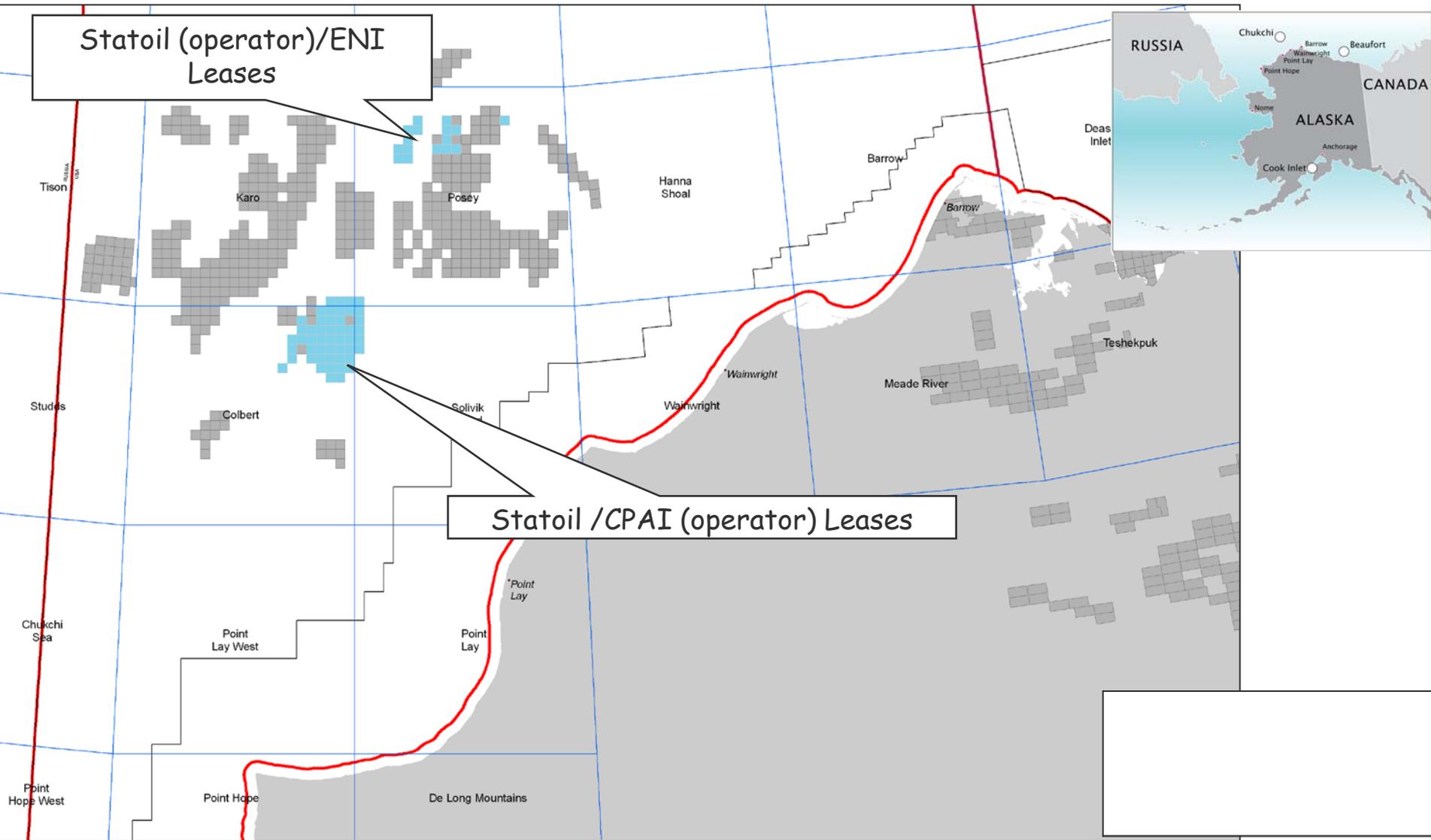




2011 Statoil Site Survey and Soil Investigation Program

April Parsons, Alaska Lead Geoscientist

Statoil Acreage Position



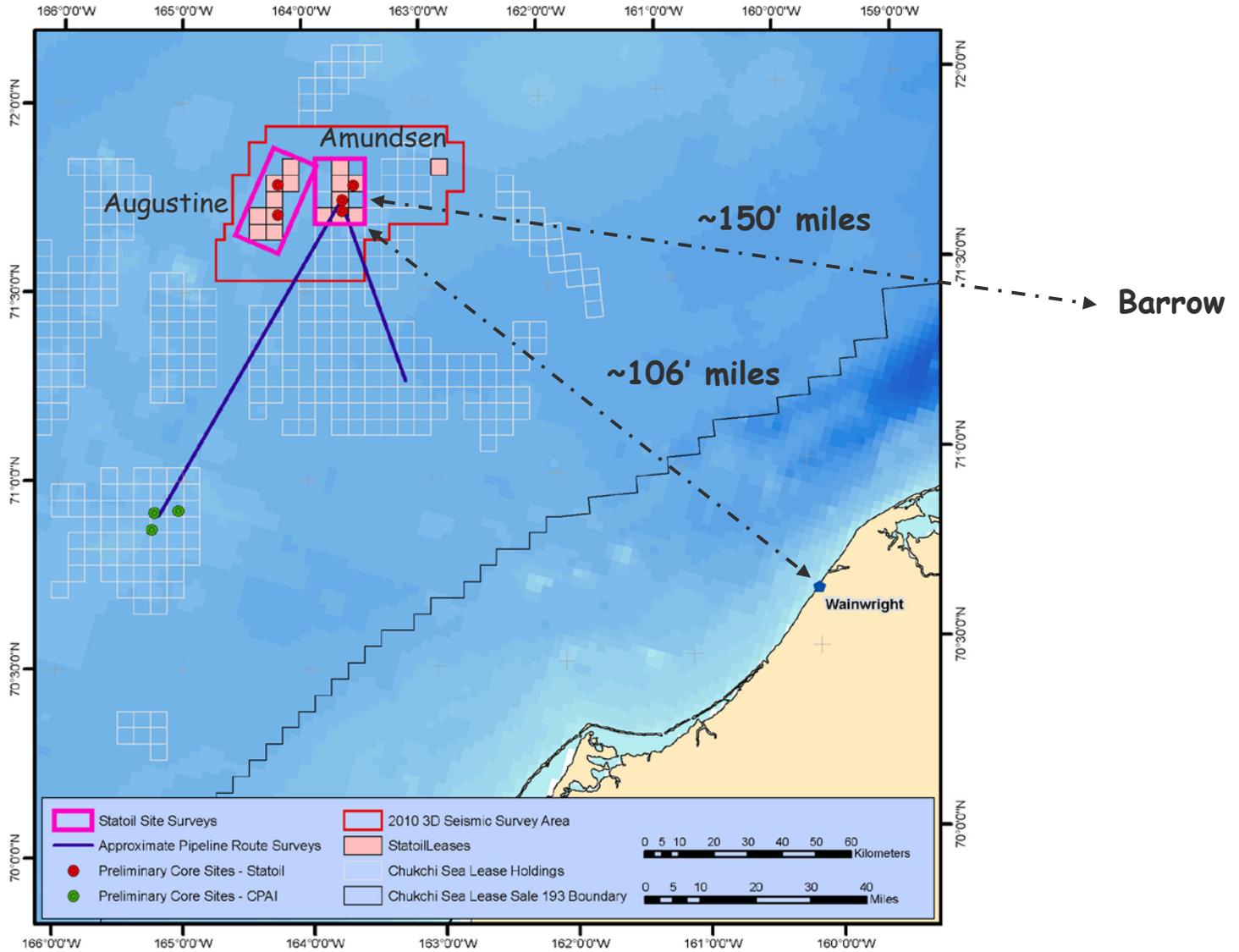
Site Survey Program

- Required by 30 CFR 250.201, 30 CFR 250.203, 30 CFR 250.204, 30 CFR 250.208, 30 CFR 250.214, 30 CFR 250.244, 30 CFR 250.414, CFR 250.901, 30 CFR 250.1007(a), 30 CFR 250.1010
- Required in a Drilling Plan and necessary to validate a safe location on the seafloor to situate a rig or provide for adequate anchoring of a moored drillship
- Identifies potentially hazardous conditions at or below the seafloor that are to be avoided in drilling operations

Federal Requirements Dictate these activities be performed:

- Seafloor imagery - Bathymetry
- High resolution Seismic profiles
- Water column Anomaly Detection
- Side Scan Sonar
- Magnetometer
- Archaeological Survey
- Accurate Navigation
- Shallow Core Data

2011 Permit Activity Area



2011 Statoil Site Survey Program

Seafloor Surveying & Shallow Seismic:

- Area: Amundsen and Augustine prospect areas (~2500 km)
- *Other Areas for facilities & regional understanding*

Soil Sampling/Coring - 3-4 cores (10-50m) per site:

- Statoil Operated Acreage
 - Amundsen with 3 coring sites
 - Augustine with 2 coring sites
 - One or two facility sites
- Statoil's partner operated leases (CPAI)
 - 3 sites
- *Other Areas for ice gouge & regional understanding*

Statoil's Site Survey Vessel



Contractor: CGGVeritasGardline Pte Ltd

Vessel: M/V Duke - former Polar Duke

1983/2007 built in Norway

'DNV 1A1-EO-Sealer'(ice strengthened)

219 feet

11.5 knot cruising speed

Space for 50 persons



CGGVeritasGardline M/V Duke Equipment

- Kongsberg SBP 3000 subbottom profiler
- Simrad dual head EM2040 Multibeam echosounder
- GeoAcoustics 160D Dual frequency side-scan sonar with a piggybacked magnetometer
- Single 10 cu. in. Mini-airgun with 150m GeoEel streamer at 1m tow depth 3.125m group length
- 12.5m group length solid streamer for main seismic utilizing a 4x10 cu. in. airgun array
- *May add a deep towed camera which can be run simultaneously with other equipment for habitat mapping purposes.*
- *May add a high quality shallow box coring unit to sample the seabed for analysis of the micro-stratigraphy, geochemistry, micro fauna, etc. to assist in dating ice gouge*

Statoil's Soil Investigation Vessel



Kongsberg EA600 Echosounder and Kongsberg 500 high precision acoustic positioning system (HiPAP) for precise vessel positioning during coring

Contractor: Fugro

Vessel: *M/V Fugro Synergy*

2008 built Bergen, Norway

Ice strengthened

15 knot cruising speed

340 ft Dynamically Positioned
multipurpose drilling,
geotechnical & soil investigation
vessel

Moon Pool and automated drilling

Space for 70 persons

Additional Science Program

- Contingent upon funding and available time and weather window after leasehold data is acquired
- Seabed mapping to collect data on ice gouge, paleogeology, archaeology, benthic habitat and other data that will improve the overall understanding of the Chukchi benthos and allow for the assessment and planning of later stage activity including pipeline routes and design.
- ~2000 km of seabed mapping with similar acoustic sources as those described for the site survey activity but without airgun sources and to include up to 40 shallow cores (10m depth)

Schedule of Activity

- July 15 - ships mobilize in Dutch Harbor for training and supplies
- August 1st - arrive on location in Chukchi sea and deploy equipment for site survey
- August 15th - Soil sampling acquisition begins
- Operations should be concluded by early October if ice and weather conditions permit
- Operations could continue through Mid-November if significant weather downtime is experienced
- Crew changes to occur via Nome midway through program
- In case of emergency transit via Wainwright

Statoil's 2011 Survey - Preparations

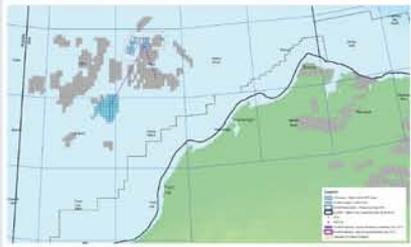
Permits required:

- **IHA:** The Incidental Harassment Authorization of Marine Mammals (Whales, seals); National Marine Fisheries Service (NMFS)
- **Ancillary Activities Notice** (BOEMRE)
- **LOA:** Letter of Authorization (Polar Bears and Pacific Walrus); US Fish and Wildlife Services (US FWS)
- **USACE Nationwide Permit #6:** (US Army Corps of Engineers)

Environmental Analysis:

- **Environmental Evaluation Document**
Statoil 2011 Statoil Site Surveys:
 - Survey is 100+ miles offshore
 - Not expected to conflict or interfere with the community's subsistence harvest
 - Marine Mammals; Whales, and other animals
- **Chukchi 2011 Surveys Cumulative Effects Analysis** included in EED

Measures to Reduce Impact



Survey Area

The survey area is located far offshore (>100 miles) and will not interfere with subsistence activities.



Marine Mammal Monitoring

Vessels operated by Statoil will take every precaution to avoid harassment of marine mammals, including whales, seals, walrus or polar bears in the water when a vessel is operated near these animals.

- Marine Mammal Observers (MMOs) will be employed on both vessels.
- Scientific and Inupait MMOs
 - 5 on site survey vessel until mid-August, then possibly 3 or 4
 - 3 on soil sampling vessel

Statoil will prepare a polar bear interaction plan that addresses food and waste management, personnel training, and safety and communication regarding polar bears.



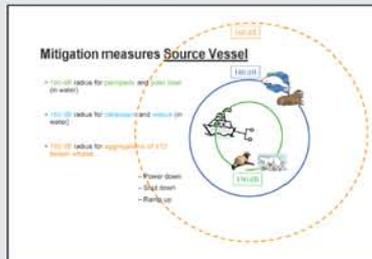
Ice Management

Ice conditions (radar, satellite imagery) in the project area will be monitored during the seismic survey in order to minimize survey

time and activity close to the ice edge.

Communication and Call Centers

Statoil will operate communication protocols through Wainwright for emergency situations & cooperation with subsistence activities.



Mitigation Procedures

- Establishment of safety radii through sound source verification measurements of airgun array.
- In the established exclusion or safety zone, power down, shut down, and ramp-up procedures will be in place.

Environmental & Baseline Monitoring

Statoil is participating in environmental baseline monitoring with Shell and ConocoPhillips. This includes:

- Seabed and water sampling and analysis over old drill sites
- Fixed seabed acoustic recorders to monitor marine mammal activity in the Chukchi Sea.
- Ecological studies of Chukchi fish populations.

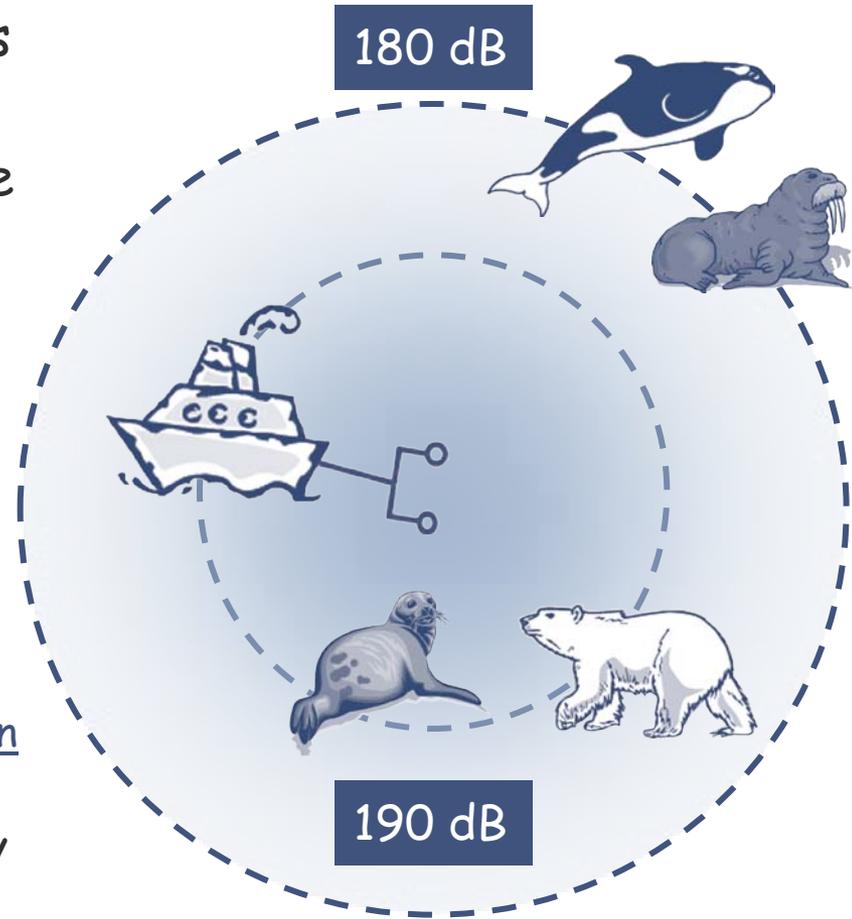


Vessel Based Marine Mammal Monitoring

- Marine Mammal Observers (MMO's) will be employed on both vessels
- Biologist and Inupiat MMO's for reporting of "takes"
 - 5 on Site Survey Vessel
 - 3 on Coring Vessel
- At least one Inupiat MMO on each vessel will also communicate with coastal communities and directly with whalers during whaling season

Procedures to mitigate impact

- Sound source characterization will be used to establish safety radii distances
- Observation of marine mammals in or approaching safety radii shall cause the survey to power down or shut down activity
- Modeled radii of 4x10 cu. in. airgun for mitigation measures:
 - 190 dB radius for pinnipeds and polar bear (in water) - approx 50m
 - 180 dB radius for cetaceans and walrus (in water) - approx 190m
 - 160 dB radius for aggregations of ≥ 12 baleen whales - approx 2250m (1.4 mi.)
- Detailed data will be provided in the 90-day report following the end of the survey



Estimated Distances of Harassment Thresholds

Sound Source	Distance (km)
4x10 cu. in. Airgun Array (>160 dB)	2.25
10 cu. in. Airgun (>160 dB)	0.715
Coring Activity (>120 dB)	7.5

Estimated Number of Takes

Activity	Estimated Number of Takes					
	Odontocetes		Mysticetes		Pinnipeds	
	Avg	Max	Avg	Max	Avg	Max
Airgun	19	51	28	71	599	1002
Coring	80	163	118	244	2445	4068
Science Program (Coring)	39	89	57	130	1221	2036

Plan of Cooperation

- Meetings have been held with leaders of Barrow, Wainwright, Point Lay, Point Hope and Kotzebue regarding the 2011 program
 - Beluga Committee Meeting - October 2010
 - AEWG - December 2010
 - North Slope Planning Commission - December 2010
 - NSB Wildlife Department - December 2010
- A draft Plan of Cooperation is being developed based upon these discussions
- Public POC meetings will be held later this month in Barrow, Point Hope, Point Lay and Wainwright to obtain input from the communities and subsistence hunters

Thank you

2011 Statoil Site Survey
and Soil Investigation Program

April Parsons

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