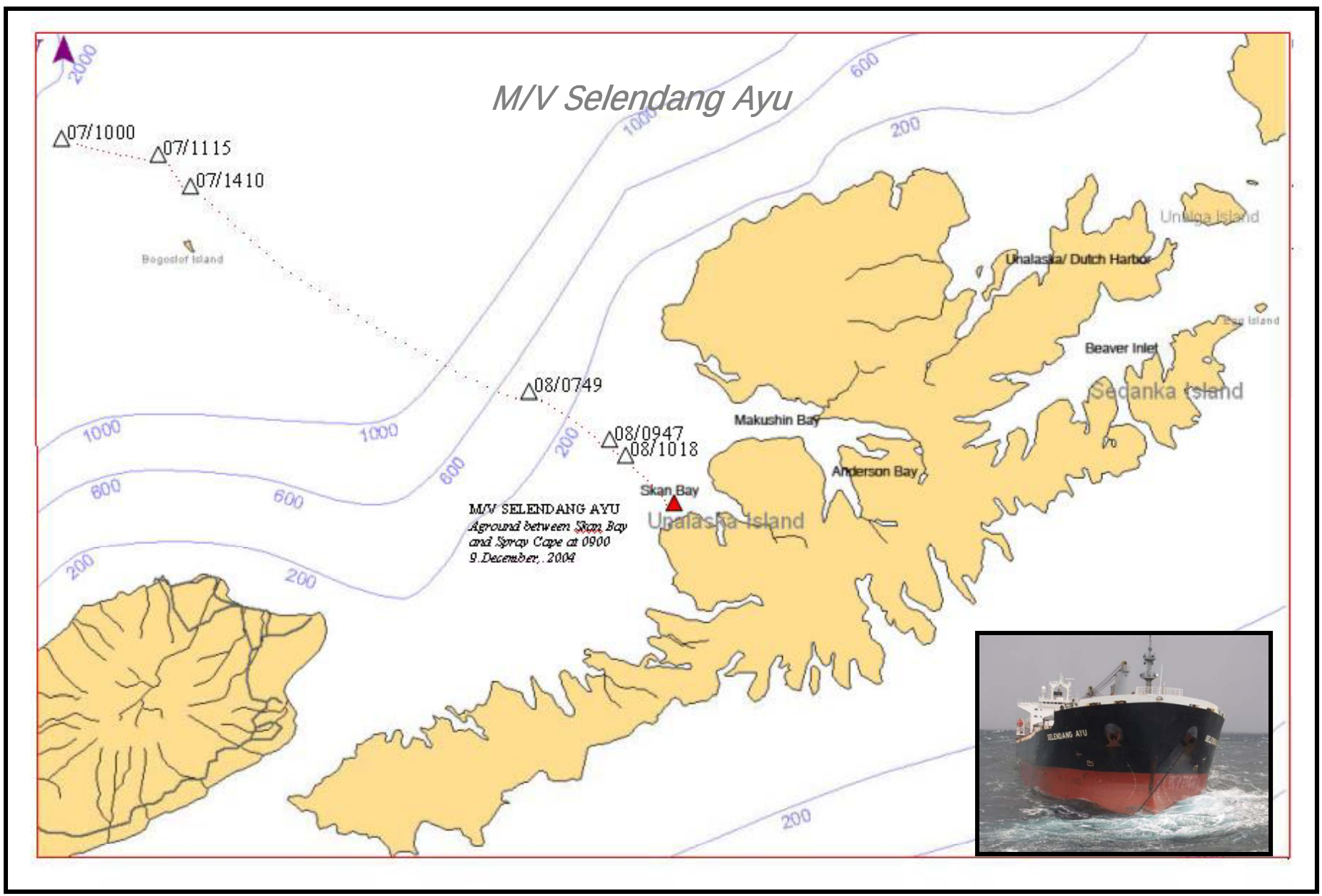
M/V SELENDANG AYU

Unalaska Island, Alaska
December 2004

Characteristic Aleutians Response

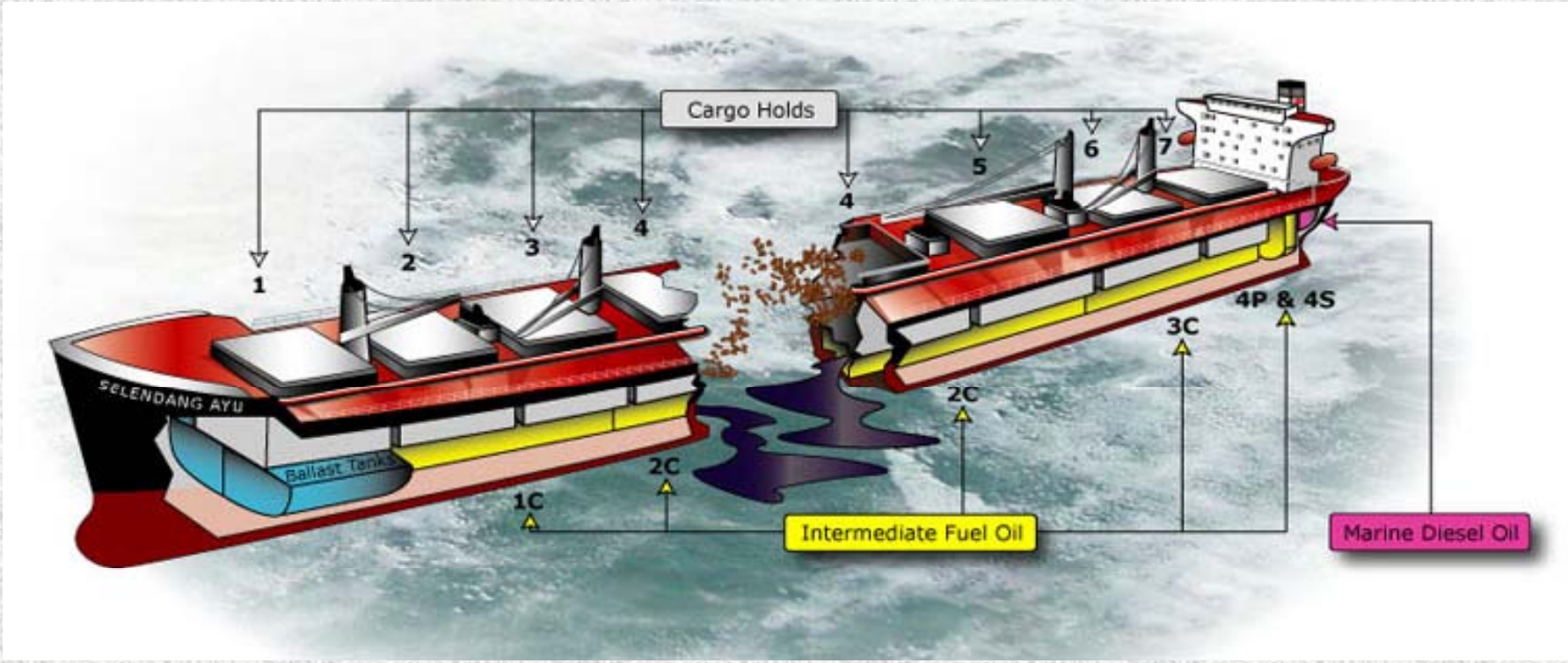
- Foreign flag vessel on innocent passage
- Lack of spill response vessels
- Economically important fisheries
- Subsistence resources
- Remote location logistics
- Extreme weather and operating conditions


CHUKCHI SEA
Wainwright
Barrow
Point Hope
FAR NORTH
Colville River
Umiat
GULF OF ANADYR
CHUKOTK
RUSSIA
UNITED STATES
Uelen
Lavrentiya
Little Diomede
Providenіya
Shishmaref
Wales
Nuntak
Noatak River
Kotzebue
Noorvik
Selawik
GATES OF THE ARCTIC NAT'L PARK & PRESERVE
Anaktuvuk Pass
BROOKS
Teller
Taylor
Gambell
Pilgrim Springs
Savoonga
ST. LAWRENCE ISLAND
Nome
Council
White Mountain
ARCTIC CIRCLE
Bettles
Huslia
Nulato
Unalakleet
St. Michael
Galena
Tanana
Rampart
Manley Hot Springs
Fairbanks
ST. MATTHEW ISLAND
Emmonak
Yukon R.
INTERIOR
Scammon Bay
Hooper Bay
Saint Mary's
Holy Cross
DENALI NAT'L PARK & PRESERVE
Kantishna
Healy
Mekoryuk
NUNIVAK ISLAND
McGrath
MT. McKINLEY
Cantwell
Bethel
Aniak
Kuskokwim River
KUSKOKWIM MTNS
ALASKA RANGE
BERING SEA
Talkeetna
PRIBILOF ISLANDS
SOUTHWEST
Quinhagak
Willow
Houston
Lake Louise
Wasilla
Big Lake
KISKA ISLAND
ST. PAUL ISLAND
Goodnews Bay
Wood-Tikchik System
TOGIAK NAT'L WILDLIFE REFUGE
LK. CLARK NAT'L PARK & PRESERVE
Anchorage
Palmer
CHUGACH MTNS
ST. GEORGE ISLAND
Dillingham
Nushagak River
Iliamna
Iliamna Lake
Lake Clark
Kenai
Soldotna
Whittier
PRINCE WILLIAM SOUND
Nimelchik
Anchor Pt.
Seward
Naknek
King Salmon
Homer
COOK INLET
Seldovia
KENAI FJORDS NAT'L PARK
KATMAI NAT'L PARK & PRESERVE
ALEUTIAN ISLANDS
ANIAKCHAK NAT'L MONUMENT & PRESERVE
Port Lions
Kodiak
SOUTHCENTRAL
Dutch Harbor
Akutan
False Pass
Cold Bay
King Cove
Chignik
KODIAK ISLAND
Old Harbor
Unalaska
Sand Point
KODIAK NATIONAL WILDLIFE REFUGE
GULF OF ALA
PACIFIC OCEAN


M/V Selendang Ayu
07/1000
07/1115
07/1410
08/0749
08/0947
08/1018
Bogoslof Island
Unalaska/ Dutch Harbor
Beaver Inlet
Sedanka Island
Makushin Bay
Anderson Bay
Skan Bay
Unalaska Island
M/V SELENDANG AYU
Aground between Skan Bay
and Spray Cape at 0900
9 December, 2004
2000
1000
600
200


OCEAN HARVESTER

Double bottom fuel tanks present a lightering challenge



December 9th.

The anchor is still attached to the bow and the stern is believed to be floating free.

Seas have calmed for the moment, but this break in the weather does not last long. Winds increase to 40 mph that night

Break at # 2C fuel tank containing 40,131 gallons

On DECEMBER 10th, winds increase to 45 mph from the SW, with 22 foot seas.

The ship's stern is believed to be hard aground.

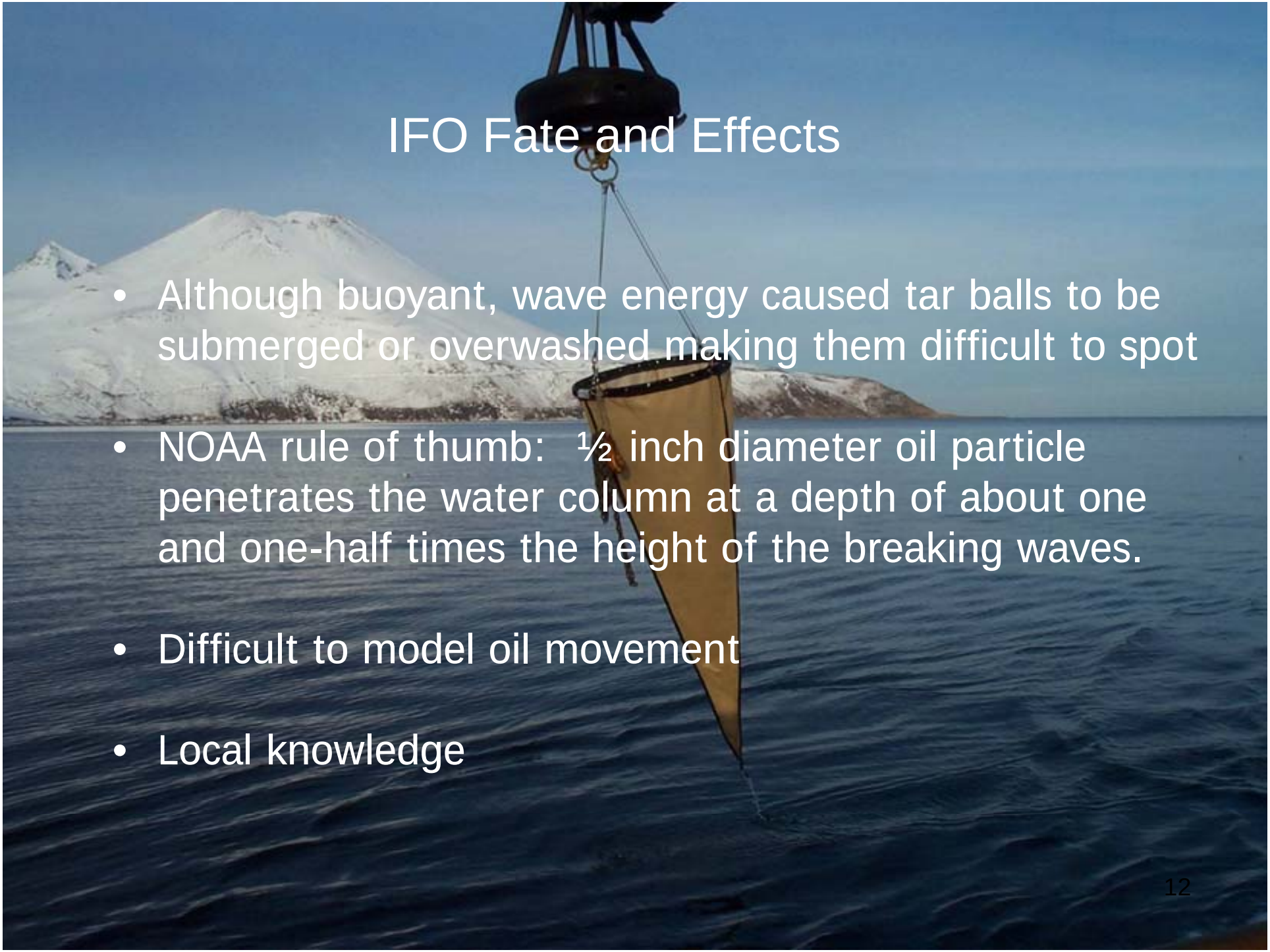
DECEMBER 11th brings gale warnings with SW winds at 45 knots and seas building to 24 feet .

December 11th


December 12th
 # 1C (bow) and # 3C (stern) fuel tanks “tidal with water bottom”
Tanks contain 176,473 and 104,448 gallons, respectively

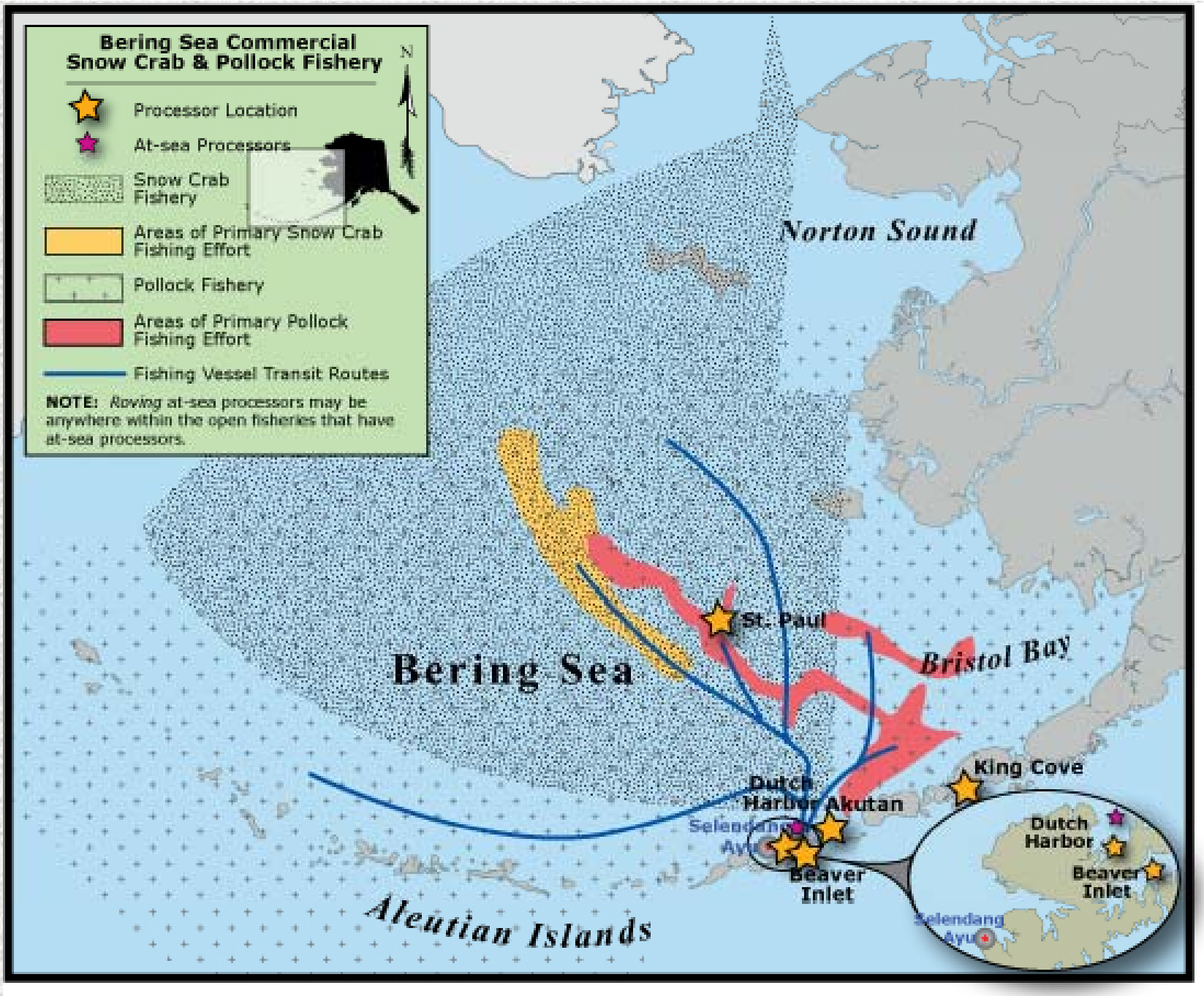
Heavy fuel oils can defy conventional spill tracking methods

- With a density of 0.989 g/cc, IFO 380 has the consistency of honey
- Large breaking waves were the primary mixing mechanism
- Viscous oil quickly broken into pancakes and blobs, eventually forming tar balls



IFO Fate and Effects

- Although buoyant, wave energy caused tar balls to be submerged or overwashed making them difficult to spot
- NOAA rule of thumb: ½ inch diameter oil particle penetrates the water column at a depth of about one and one-half times the height of the breaking waves.
- Difficult to model oil movement
- Local knowledge


Bering Sea Commercial
Snow Crab & Pollock Fishery
N
Processor Location
At-sea Processors
Snow Crab Fishery
Areas of Primary Snow Crab Fishing Effort
Pollock Fishery
Areas of Primary Pollock Fishing Effort
Fishing Vessel Transit Routes
NOTE: Roving at-sea processors may be anywhere within the open fisheries that have at-sea processors.
Norton Sound
St. Paul
Bering Sea
Bristol Bay
King Cove
Dutch Harbor
Akutan
Beaver Inlet
Selendang Ayu
Aleutian Islands

Water Quality Monitoring

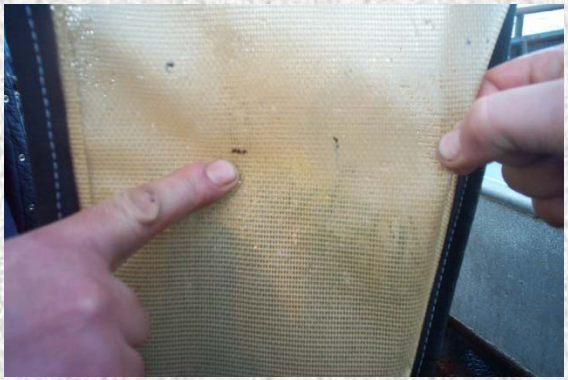
- Whole water samples
- Tow net trawls
- “Pom Pom” packs in RSW tanks
- Crab pots with oil snare

Observations

- Tar balls randomly dispersed, small in size
- Most likely to encounter tar balls in convergence zones

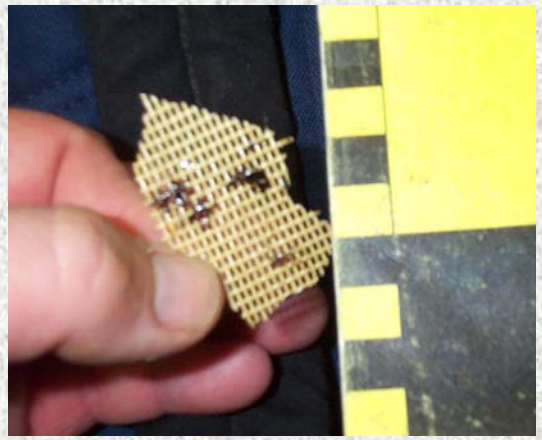
- No tar balls encountered in Akutan Bay or transit lanes
- In Unalaska area, tar balls were encountered as far offshore as 12 nm

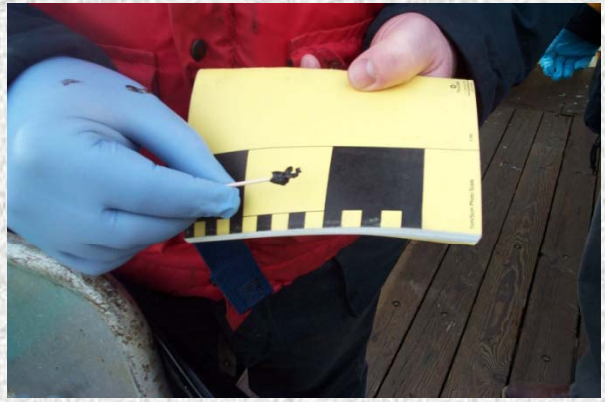
Tow Net Oiling Observations



Trace oiling

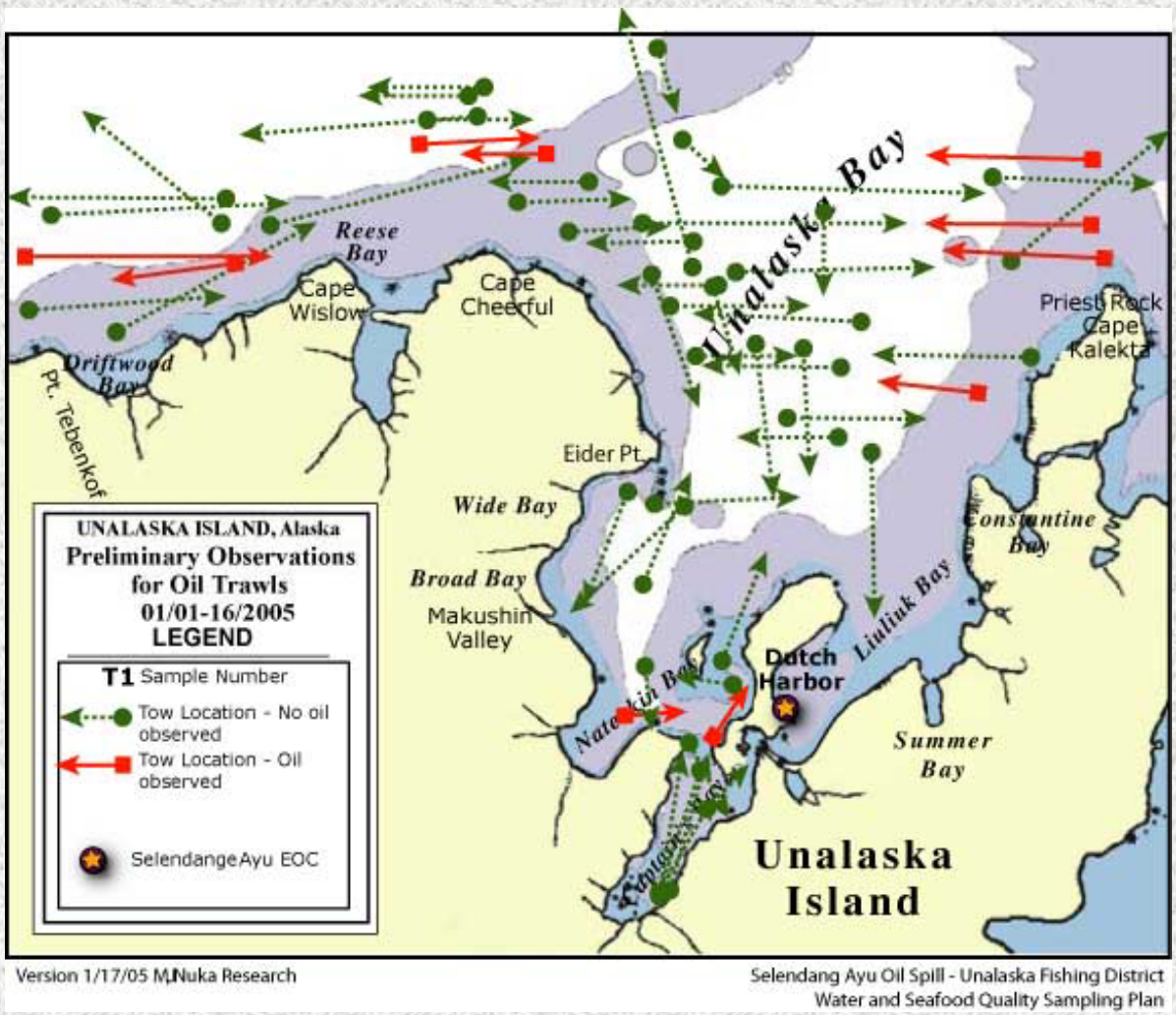
1-2 mm tar balls





Largest tar balls to date

Composite Map of Tow Net Data January 1st to 16th – Unalaska

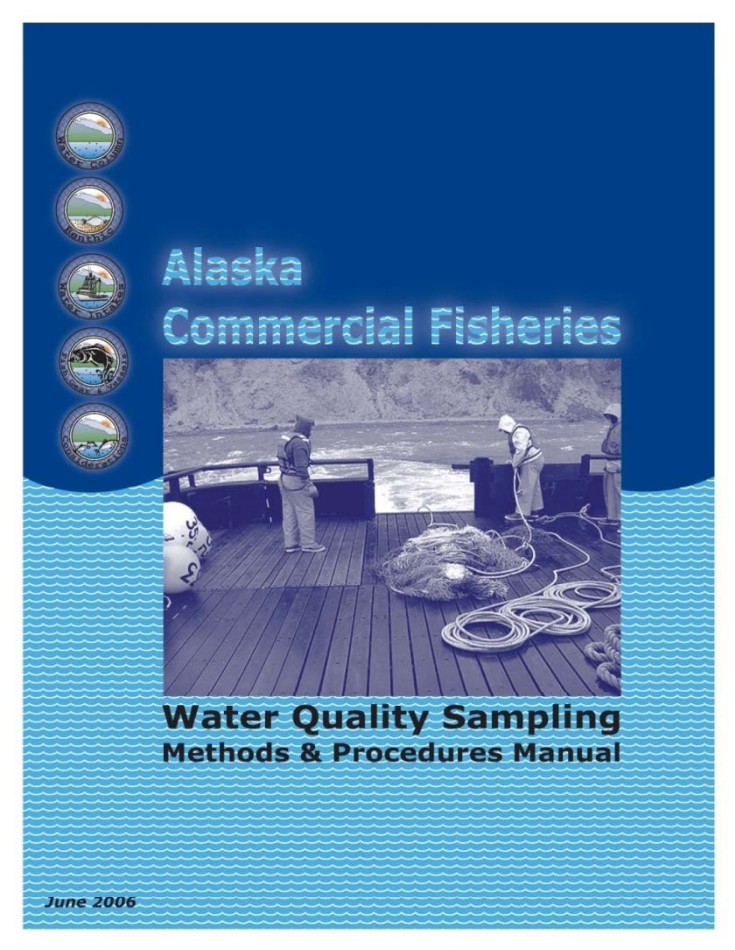


Red tows indicate oil encounter

Seafood Inspections & Public Outreach

- No contaminated seafood found by ADEC seafood inspectors
- Daily public meetings
- Vessel advisories - Recommended tracklines to Dutch Harbor
- Notice to Pollock and Cod Catcher Boats – “Pom Pom” Packs
- Fisheries Managers Work Group

We captured what we learned about tracking tarballs and protecting fisheries



Offshore Recovery:

"Current Buster"

- Very little recoverable oil offshore

Response infrastructure built from scratch


PENAIR


DEC 31 2004


FURUNO
15 2:32 PM


DEC 31 2004


POLAR BEAR


SIRÈNE
SEATTLE, WA


N511EH
APL
APHU 625887 2
45G1
APL

We learned a great deal about shoreline cleanup

Alaska Shoreline Cleanup Guidance Manual

- Presents requirements, policies, and expectations for cleanup of oil-impacted shorelines
- Identifies current treatment techniques for consideration during shoreline cleanup operations
- Outlines cleanup approval process and prescribed controls required for specific techniques
- Establishs statewide standard for shoreline cleanup of persistent oiling.
- Captures cleanup endpoint criteria .

Making Winter Decisions

- The Unified Command decide when to suspend cleanup and response operations for the winter season (February 9, 2005).
- Decision was made based on a number of factors, including the following three significant accomplishments:
  - The opilio crab fishery completed with no tainted product.
  - Lightering operations completed.
  - Successful completion of gross oil removal on approximately 70% of the oiled shorelines identified as areas very likely to have oil remobilized through tidal and wave activity.
  - Weather conditions deteriorated and prevented cleanup crews from landing on beaches for nine of the past twelve days. Local knowledge says weather conditions in February and March are typically worse than January.
  - Water-quality sampling and wildlife recovery operations will continue as weather permits.

What About the Soybeans?

- Loaded in Port of Seattle
  - 132 million pounds of dried #2 yellow soybeans
- Human consumption-
  - No pesticides or preservatives
- Up to 2% other materials
  - Other grains
  - Dust/stems
  - Seed pods
  - Weed seeds
- May sprout, but zero % chance of viabililty
- A common agricultural commodity
  - Not hazardous, will degrade naturally

SOYBEANS On The Beach

- The un-oiled soybeans are regulated as solid waste by the state.
- SCAT assessment teams assessed the amount and condition of the soybeans on the shoreline. Since rate of decomposition was acceptable to the state, ADEC did not require removal.
- If the rate of decomposition was slow and unacceptable to the state, ADEC would have required removal from the shoreline.