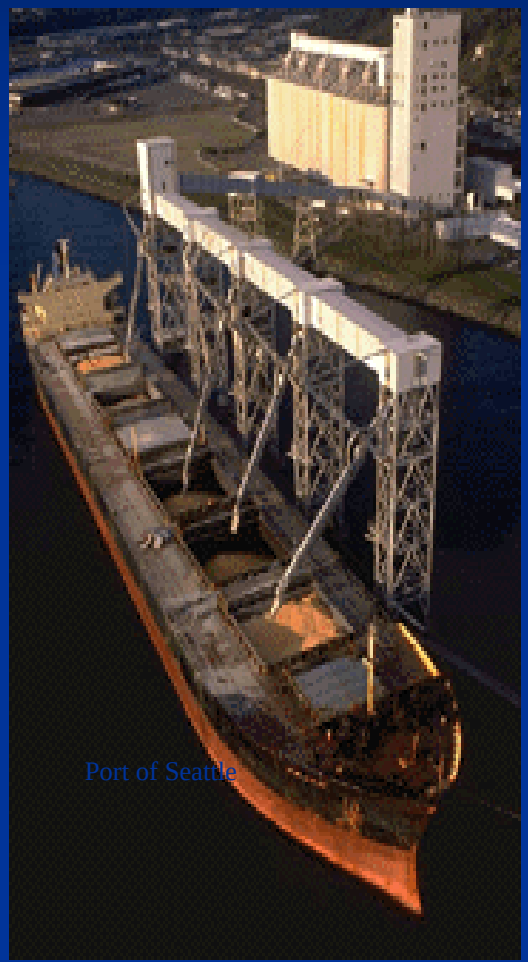
Soybean Survey Selendang Ayu

Presented to the Residents of Unalaska

February 14, 2005

Initial Information for the Soybean Cargo



- Loaded in Port of Seattle
  - 132 million pounds of dried #2 yellow soybeans
  - 12% moisture content
  - Voucher samples available
- Human consumption-
  - No pesticides or preservatives
- Up to 2% other materials
  - Other grains
  - Dust/stems
  - Seed pods
  - Weed seeds

Soybeans in the hull

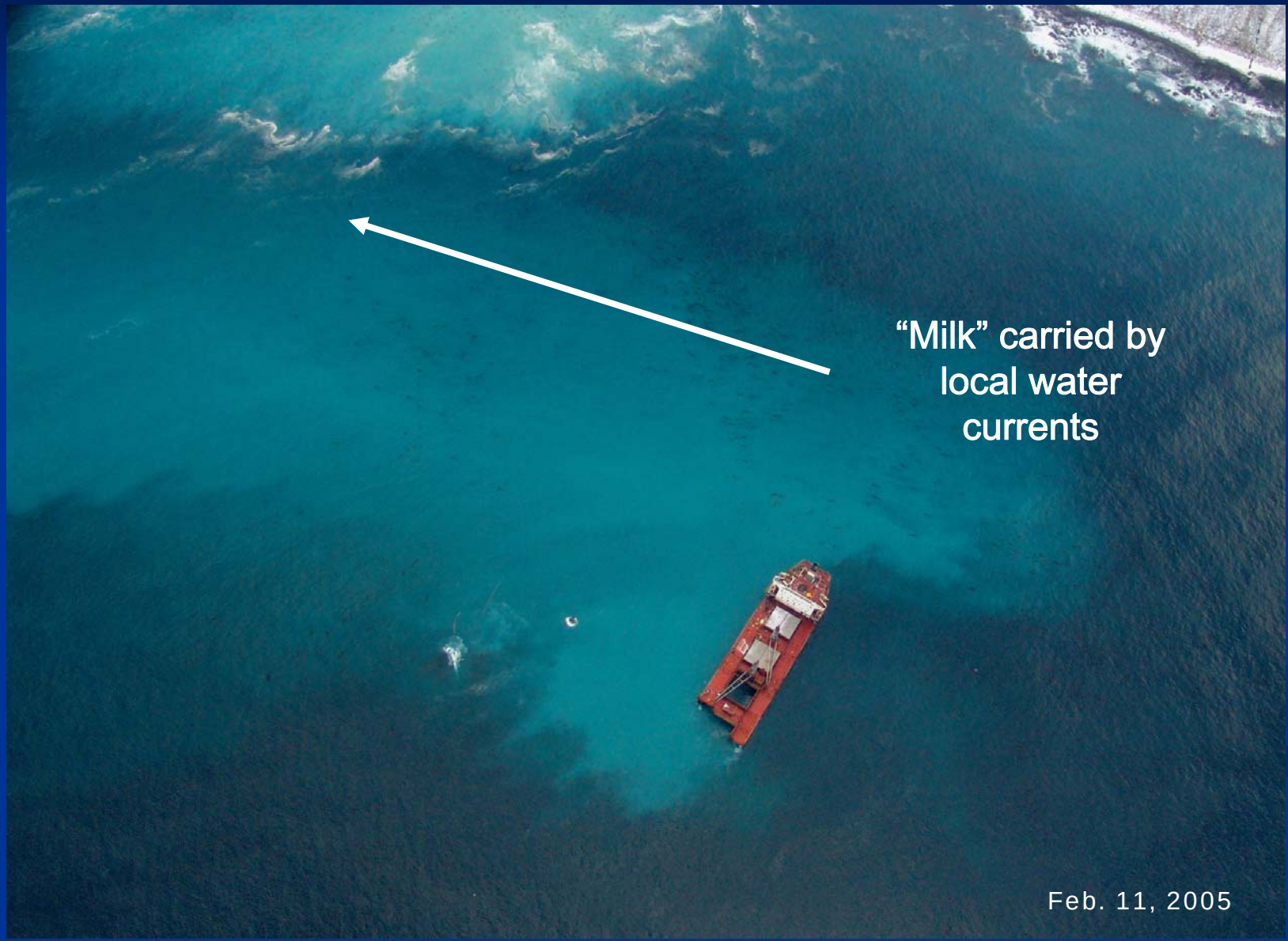
- Seeds may swell to double in size when wet
  - Potential to cause further structural damage to vessel
- Flooded cargo hulls will promote fermentation and biodegradation
  - Low temperatures and salinity will slow these processes
  - Oxygen, methane, ethanol, and hydrogen sulfide levels could be an issue in confined spaces

Soybeans in the water

- A common agricultural commodity
  - Not hazardous, will degrade naturally
  - Large masses could create localized oxygen demand
- Most beans will sink in seawater
  - Small percentage may float
  - Foreign material may float
  - Over time beans will absorb water and approach neutral buoyancy
  - Wave energy could be sufficient to suspend or strand the soggy beans

Beans IVO the Wreck

Bean Milk Transport - Wreck



Bean Milk Transport - Beach

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Bean Deposition on the Beach


Feb. 11, 2005


Feb. 11, 2005


WAVE
DEPOSITION
LINES
Feb. 11, 2005


Feb. 11, 2005


Feb. 11, 2005


Feb. 11, 2005

Field Observations

From the Feb. 11th Survey:

- Bean deposition visually estimated at 2m (6.5') or more in places.
- Individually firm, like oatmeal to walk on.
- No odor – slow decomposition
- Bean slurry in surf edge, bean deposition and transport by surf action similar to sand.

- **Beach Dynamics:**

Soybeans

+

High Wave Energy

+

Cobbles

= Buried Beans

Samples Taken

- **BEACH**
- **CARGO HOLD**

- Herbicides
- Pesticides
- Fungicides

SOYBEANS
On The Beach

- The un-oiled soybeans are regulated as solid waste by the state.

- April SCAT assessment will assess the amount and condition of the soybeans on the shoreline. If the rate of decomposition is acceptable to the state, ADEC won't require removal.

- If the rate of decomposition is slow and unacceptable to the state, ADEC will require removal from the shoreline.

SOYBEANS
On The Bottom

- Represent a possible Biological Oxygen Demand (BOD) threat or physical smothering.
- Treated as a Zone of Deposition similar to seafood processing operations.

- ROV survey: sunken beans are already fairly widely distributed in sheets of fairly easily lofted drifts of beans 6-8” or less and discontinuous sheets filling in low spots.

- NOAA SSC and ADEC’s WQ program do not believe that BOD is an issue for the sunken beans due to the wreck site’s exposed, high energy location.

WINTER OPS PLAN
- SOYBEANS -

- Monitoring of the soybean distribution will be continued during the Winter Operational Period and during the Spring Shoreline Assessment and cleanup phases.


QUESTIONS ??
Feb. 11, 2005