M/V Selendang Ayu Oil Spill Water Quality Sampling Program
Winter Operations Plan

The attached proposal covers a water quality sampling program for the winter operations period of the Selendang Ayu response. The purpose of this program is to monitor the waters of Unalaska Bay for the presence of whole oil in order to minimize the potential impacts to the pollock, Pacific cod, and halibut commercial fisheries. The program is focused on monitoring the seawater used in Unalaska Bay seafood processors and in the refrigerated seawater (RSW) tanks on pollock and Pacific cod vessels, and in surveying the shoreline for the presence of tar balls or tar patties.

The following is a summary of the proposed activities for the winter operations period, which will begin 2/25/05 and end when seafood processing of pollock in Unalaska ceases (estimated to be the end of March).

- Conduct regular shoreline surveys in pre-identified beach segments in 6 locations throughout Unalaska Bay, and document the presence and abundance of tarballs along these shorelines.
- Tow net sampling will continue at designated stations throughout Unalaska Bay on a continually decreasing basis and will be terminated on or about 3/16/05 unless a statistically significant change in encounter rate occurs.
- Tow net sampling capability will be retained through the end of pollock processing and may be utilized in response to weather events or major shoreline oiling reports.
- Twenty passive sampling devices, which have been stationed throughout Unalaska Bay, will be checked for signs of oil every 10 days.
- Daily monitoring of seawater intakes at Unalaska seafood processors.
- Regular monitoring of RSW tanks on pollock and cod vessels.
- Compile information on local subsistence use.
- Program end points have been defined as the end of pollock processing in Unalaska, which should occur near the end of March.

Approval:

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FOSC

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SOSC

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RP/IC

Selendang AyuWater Quality Sampling Program
Proposed Winter Sampling Plan

Goals and Objectives

The goal of the program is to monitor Unalaska Bay to determine if oil contamination is present in the waters that could impact the commercial fishing industry operating in the area.

The program objectives are:

1. Monitor seawater intakes at Unalaska seafood processing plants for the presence of whole oil;
2. Monitor RSW tanks on pollock catcher boats for the presence of whole oil;
3. Monitor Unalaska Bay for presence of tarballs;
4. Gather information on local subsistence usage for use in designing spring sampling program;
5. Provide a consistent point of contact for the community, fishermen and fish processors for all spill-related water quality issues; and
6. Assist in monitoring local beaches for tarballs.

Scope

The spatial scope of the winter sampling program is Unalaska Bay, including all shore-based and floating fish processing plants, and the refrigerated seawater (RSW) tanks on board pollock and Pacific cod catcher vessels that deliver to Unalaska processors.

The temporal scope of the program involves:

- Daily monitoring of the seawater intakes of the Unalaska fish processing plants;
- Regular monitoring of RSW tanks on the catcher vessels for tarball contamination; and
- Periodic monitoring (tapering off) of the marine waters of Unalaska Bay for the presence and abundance of whole oil in the form of tar balls, tar patties, mousse, or other types of whole oil.
- Periodic monitoring (approximately every 10 days) of the passive sampling devices stationed throughout Unalaska Bay.
- Regular monitoring of Unalaska Bay shorelines for the presence and abundance of whole oil in the forms of tar balls, tar patties, mousse, or other types of whole oil.
- Targeted monitoring of Unalaska Bay (using tow nets and/or beach surveys) for the presence and abundance of whole oil following weather events or in response to other conditions that may potentially cause remobilization of oil and transport to Unalaska Bay.

Fisheries at Risk and Pathways of Exposure

The major commercial fisheries at risk during the winter operations period are Pacific cod and pollock, which comprise a major economic base for the community of Unalaska/Dutch Harbor. Halibut and sablefish IFQ seasons will open during the winter operations period, however landings in these fisheries traditionally do not peak until later in the spring/summer. These fisheries will be a major focus of the spring/summer sampling program.

The primary pathway of exposure to pollock and Pacific cod is through contact with whole oil. Target species may encounter whole oil in the marine environment, or whole oil may contaminate the seawater intakes of Unalaska seafood processing plants or the RSW tanks of the catcher boats when they take on seawater at the docks after delivering their catch. Local processing plants each use as much as 5-7 million gallons per day during the height of the pollock season. Therefore, the primary focus of the winter sampling program will be to monitor Unalaska Bay for the presence and abundance of whole oil, and to monitor the seawater intakes at local processing plants and the RSW tanks on local catcher vessels.

Local subsistence resources are also at risk from oil contamination through many of the same exposure pathways as commercial fish species, and inter-tidal resources could also be exposed to contamination through contact with tar balls, tar patties, or other types of whole oil deposited on local beaches. Contact with contaminated sediments is another potential exposure pathway for groundfish and benthic organisms that may have significant commercial or subsistence value. Sediment contamination and inter-tidal monitoring and sampling will be a major focus of the spring sampling program.

Methods

Beach Tarball Monitoring

Shoreline segments in six designated locations within Unalaska Bay will be surveyed regularly by a team of two technicians for the presence of tar balls. All tar ball observations will be logged (time, date, waypoint, tarball size, other observations) and tar balls will be collected for disposal. Each beach segment will be approximately 1 mile in length, and the same segments will be surveyed repeatedly to develop a data set that can be compared over time and that may be used as an indicator of changes in the abundance of tarballs in Unalaska Bay. Shoreline segments will be located in Wide Bay, Airport Beach (Amaknak Island), the Dutch Harbor spit, Summer Bay, Iliuliuk Bay, and Little South America. Waypoints will be set for beginning and ending survey points to ensure consistency. Figure 1 shows proposed shoreline segment locations.

Samples from any tar balls found will be collected and archived or forwarded to a laboratory for further analysis. Results will be reported through appropriate channels to the Unified Command.

Passive Collection with Oleophilic Snare

Twenty (20) passive collection devices have been constructed consisting of an anchor, anchor line and buoy. Each device will be fitted with oleophilic oil snare on the anchor and every 30 feet along the line to the buoy. The Sampling Group Supervisor will select sampling stations in the study area after consulting with ADEC, ADFG, the Responsible Party and NOAA. Sampling stations will include known convergence areas and areas in the Unalaska Bay region where oil has been reported through previous sampling surveys. The passive collection devices will be dropped on the seabed at the sampling stations and left for a period of 10 days and then examined for the presence of oil contamination on the oleophilic snare. Each snare will be examined by sight, smell and UV light for the presence of oil. Data collected from this method can be directly compared to data collected in earlier phases of the water quality monitoring program to determine trends over time. Results will be reported through appropriate channels to the Unified Command. Any oil found will be achieved or forwarded to a laboratory to attempt to determine the source of the petroleum contamination.

Figure 2 shows the location of the passive collection devices that have been set and will be monitored in Unalaska Bay.

Tow Net Sampling

Two fine mesh tow nets will be used simultaneously to conduct a near surface (0’ to 3’) and a subsurface (9’ to 12’) trawl in the study area. Starting and ending date, time, location, and presence or absence of oil will be recorded for each tow. Average tow length will be approximately one hour, with a net check at 30 minutes, at speeds ranging from 1 1/2 to 2 1/2 knots through the water. Data collected from this method can be directly compared to data collected in earlier phases of the water quality monitoring program to determine encounter rate trends over time. Results will be reported through appropriate channels to the Unified Command. Any oil found will be sampled and archived or forwarded to a laboratory for further analysis. Tow net sampling will occur on a decreasing basis and will be terminated mid-March, with the precise scheduling determined on the basis of weather, vessel availability, and other practical considerations. Additional tow net sampling may be conducted following a severe weather event or in response to new oiling observations in shoreline areas or during overflights. The precise weather conditions that would trigger the need for enhanced sampling would be determined by the Sampling Group Supervisor in consultation with NOAA, the RP, and the Unified Command.

Tow net stations have been standardized, as shown in Figure 3. During each work day, tows will be conducted at all stations, if operationally feasible. The Captains Bay tow station is a priority due to the proximity to seafood processors. Frequency of tow net sampling will be gradually decreased so that the first event will be 5 days from the last tow, then 7 days, then 10 days. Unless a statistically significant change in tarball encounters occurs, the program will be terminated after the third tow.

Seawater Intake monitoring at seafood processors

Oil traps in the seawater system of the fish processing plants in Unalaska Bay and on mobile fish processors operating in and near Unalaska will be monitored for oil contamination. The traps will be monitored daily for the presence of oil. Field observations will be reported through appropriate channels to the Unified Command. Any oil found will be sampled and archived or forwarded to a laboratory for further analysis.

Pollock and Pacific Cod RSW Tank Oleophilic Snare Pouches

Oleophilic oil snares will be secured in a mesh bag and attached to a line and float in the RSW tanks of the pollock and pacific cod catcher boats. The mesh bag will be removed and checked for oil before fish are loaded into the tank at the fishing grounds. The fishing crew will use sight and smell to detect the presence of oil. Results will be reported to the ADFG, ADEC/EH, and the Unified Command. If oil is encountered, the hold will be emptied and decontaminated before it is utilized as a fish hold. Any oil found will be sampled and archived or forwarded to a laboratory for further analysis.

Monitor and Record Local Subsistence Usage

A sampling technician will conduct a survey of local subsistence resource usage and monitor local beaches for subsistence usage. The survey will replicate the methods used in the Subsistence and Food Use in Unalaska and Nikolski study conducted by the Aleutian Pribilof Islands Association in 2003, and by earlier ADFG Subsistence surveys (1982 and 1994), and will include both Alaska Native and non-Alaska Native subsistence users. Results will be reported through appropriate channels to the Unified Command. Any subsistence usage that is observed during beach tarball surveys will be recorded.

End Points

The Unalaska Bay winter water quality sampling program will continue through the end of pollock processing. At that point, all vessel-based sampling will be discontinued. Beach surveys may continue, at the Unified Command's discretion, if this sampling method proves to have an appropriate sensitivity to detecting tarball trends in Unalaska Bay. Regardless of results, vessel-based sampling will end when pollock processing is completed. A spring/summer sampling plan will be developed for operations beginning on or around April 15, 2005.

Resources

One sampling technician will be required throughout the study period and one small fishing vessel (32' – 40') will be chartered approximately nine days total. Transportation for beach surveys at Wide Bay will either be coordinated with vessel trips for tow net sampling or with helicopter overflights (SOSC and RP representative would conduct Wide Bay beach survey and sampling technician would work from vessel). Room, board, a cell phone, internet access, and a pick-up truck will be required for the technician. The majority of the sampling equipment and supplies necessary are already in place through the existing water quality sampling program. The tow net sampling on the 5^{th} and 7^{th} days and any related costs will be paid for by the State of Alaska.

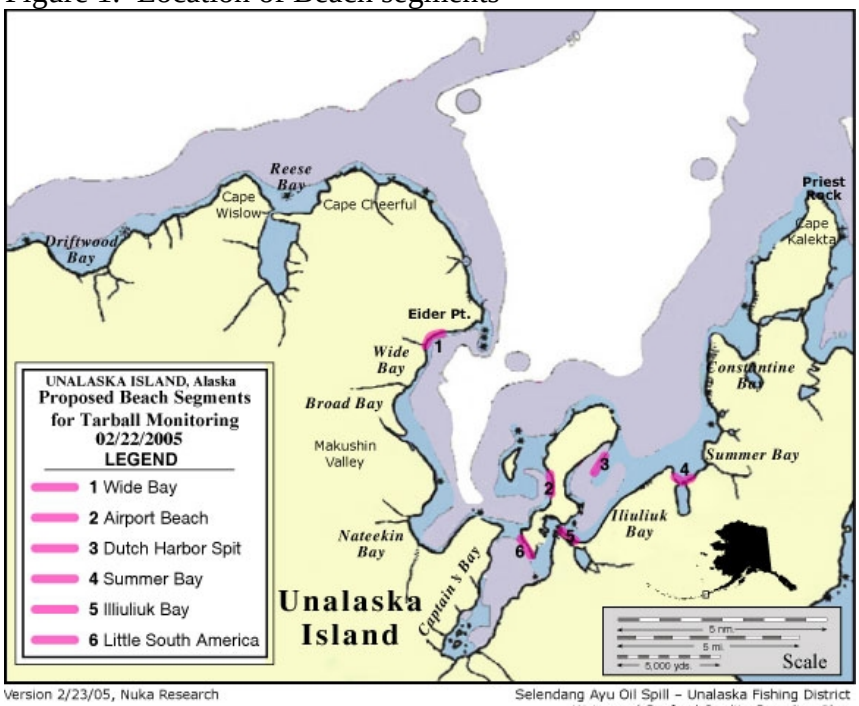
Schedule

The proposed plan would commence by February 24, 2005 and continue until seafood processors cease pollock processing operations. The following schedule is approximate and may be adjusted based on weather or other operational considerations (note that 2/22-2/23 tasking was approved under previous sampling plan).

Date	Tasking
2/22/05	Tow net sampling in Unalaska Bay (completed)
2/23/05	Check passive sampling devices in Unalaska Bay (completed)
2/24/05	No sampling; develop beach survey protocols
2/25/05	Beach survey, processor monitoring
2/26/05	Beach survey, processor monitoring
2/27/05	Tow net sampling in Unalaska Bay (funded by ADEC)
2/28/05	Beach survey, processor monitoring
3/1/05	Beach survey, processor monitoring
3/2/05	Beach survey, processor monitoring
3/3/05	Beach survey, processor monitoring
3/4/05	Beach survey, processor monitoring
3/5/05	Check passive sampling devices
3/6/05	Tow net sampling in Unalaska Bay (funded by ADEC)
3/7/05	Beach survey, processor monitoring
3/8/05	Beach survey, processor monitoring
3/9/05	Beach survey, processor monitoring
3/10/05	Beach survey, processor monitoring
3/1105	Beach survey, processor monitoring
3/12/05	Beach survey, processor monitoring
3/13/05	Beach survey, processor monitoring
3/14/05	Beach survey, processor monitoring
3/15/05	Check passive sampling devices
3/16/05	Tow net sampling in Unalaska Bay
3/17/05	Beach survey, processor monitoring
3/18/05	Beach survey, processor monitoring
3/19/05	Beach survey, processor monitoring
3/20/05	Beach survey, processor monitoring
3/21/05	Beach survey, processor monitoring
3/22/05	Beach survey, processor monitoring
3/23/05	Beach survey, processor monitoring
3/24/05	Beach survey, processor monitoring
3/25/05	Check passive sampling devices & remove
3/26/05	Beach survey, processor monitoring
3/27/05	Beach survey, processor monitoring
3/28/05	Beach survey, processor monitoring
3/29/05	Beach survey, processor monitoring
3/30/05	Beach survey, processor monitoring
3/31/05	Beach survey, processor monitoring
4/1/05	If pollock processing is still ongoing, another cycle of beach survey sampling will be implemented. Otherwise, the program will be discontinued until spring/summer operations, unless the Unified Command directs otherwise.

* location to be determined based on weather and logistical considerations; goal is to survey all 6 locations regularly. Weather days will be used to process data.

Figure 1. Location of Beach segments



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Water and Seafood Quality Sampling Plan

Figure 2. Location of Passive Sampling Devices in Unalaska Bay

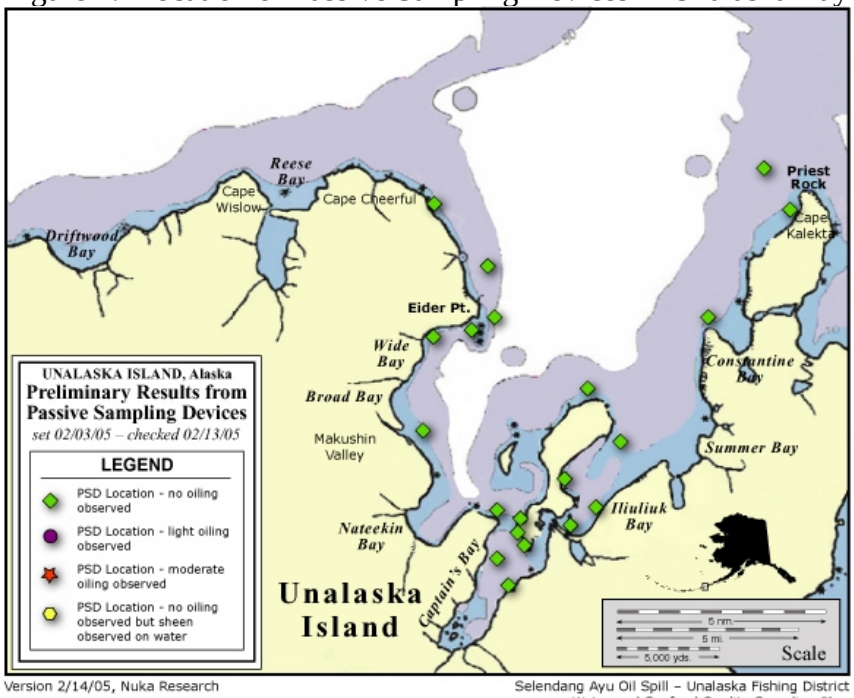

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Figure 3. Proposed tow net sampling stations in Unalaska Bay