

# **Preassessment Data Report #12: Potential Human Use Losses Associated with the *Selendang Ayu* Oil Spill**

Jenifer Kohout  
U.S. Fish and Wildlife Service

Norman Meade  
National Oceanic and Atmospheric Administration

## **INTRODUCTION**

On 8 December 2004, the M/V *Selendang Ayu* ran aground and broke in half in rough seas off Unalaska Island, Alaska (53°38'N, 167° 07'W). An estimated 354,218 gallons of oil (339,538 gallons of bunker oil [IFO 380] and 14,680 gallons of marine diesel and miscellaneous oils) were discharged. Along with determining whether the M/V *Selendang Ayu* oil spill and cleanup (“the spill”) has injured natural resources, the natural resource trustees evaluated existing data and information and spoke with key individuals to help determine whether human use services associated with affected natural resources have been injured. As the trustees examine potential human use injuries, the focus is on shared public, not individual economic, losses.

Most residents of Unalaska (including Dutch Harbor), fish, hunt or gather wild resources. To the extent the spill impaired fishing, hunting, and gathering by residents it resulted in a loss of natural resource services associated with the enjoyment of cultural resources and with recreation. Visitors to Unalaska may have also lost recreational opportunities. Finally, since the spill impacted unique wildlife and relatively pristine natural resources, individuals within and outside of Unalaska may have experienced passive use losses.

## **METHODS**

The following discussion is based upon existing literature, comments made at public meetings and symposia following the M/V *Selendang Ayu* oil spill, and personal conversations with a limited number of individuals with information about resource use in the area.

## **DISCUSSION**

### **Human Use Services on Unalaska Island**

#### *Archaeological Resources*

Archaeologists working on the response and cleanup effort reported that there was no impact from the oil or cleanup activities. (C. Williams, Northern Land Use, pers. com. 2005)

#### *Cultural Resources*

Both Alaska Native and non-native residents enjoy traditions associated with natural resource activities. The subsistence culture and traditions of the Aleut residents of Unalaska and Nikolski (located on Umnak Island, east of Unalaska Island) are well established in the literature (Veltre and Veltre, 1982; Hamrick and Smith, 2003). Aleuts fish, hunt, and gather resources for purposes of consumption, sharing, handicrafts, medicine, and traditional education (Hamrick and Smith, 2003; Community Discussion Notes, Feb. 4, 2005; S. Livingston, Qawalangin Tribe, Aleutian Life Forum, Aug. 2005). The traditions of non-native residents are not as well documented but likely reflect similar patterns of consumption, sharing, and even education as skills are passed down to new generations.

#### *Recreational Opportunities*

In addition to conveying cultural value, natural resources on Unalaska provide abundant recreational opportunities. Fishing, hunting and gathering are integral to life on the Island. Some residents were drawn to the community because of their perception of Unalaska as a frontier community; some, representing a diversity of cultures, came to work in seafood processing; and others call Unalaska home and have been closely connected with the Island's natural resources for countless years. In addition to consumptive activities, non-consumptive recreation such as wildlife viewing also occurs on Unalaska.

Consumptive and non-consumptive recreational opportunities on Unalaska also draw visitors to the Island. Residents run business to support tourists who arrive by plane or ferry to visit the community and engage in resource-related activities.

#### *Passive Use Loss*

Passive use loss involves harm to anyone impacted by the spill who is not a direct user of the injured resources. Passive use values are sometimes referred to as existence, or non-use, values. For example, individuals may value passive use services provided by natural resources for themselves or they may value the provision of passive and direct use services to others (bequest value). Since the spill impacted unique wildlife and relatively

pristine natural resources, individuals within and outside of Alaska may have experienced some passive use losses.

### **Natural Resources on/near Unalaska Utilized by Residents and Visitors**

Natural resources used on Unalaska Island include fish (salmon, halibut, cod, rockfish, etc), marine invertebrates, wild plants, land mammals, marine mammals, birds and eggs. The most common resources used on Unalaska/Nikolski are salmon, halibut, seal oil, cod, King crab, and native plants (including cottonwood driftwood). Moose and reindeer are also commonly shared by other communities in Alaska where these species are located (Hamrick and Smith, 2003; ADF&G, 1998; Veltre and Veltre, 1982).

Resources likely to be found in Skan and Makushin Bays include salmon, marine invertebrates (e.g. butter clams harvested in Cannery Bay; razor clams harvested in Makushin village), and wild plants (for medicinal purposes) (Community Discussion Notes, Feb. 4, 2003; Shaul et al. 2002).

Resources found between Spray Cape and Unalaska Bay include salmon (sockeye) in Reese Bay (80-90% of Unalaska harvest); and marine mammals (sea lions/harbor seals) along northern coast to Koriga Point) (Shaul et al. 2002; Veltre and Veltre, 1982).

### **Patterns of Natural Resource Use**

#### *General Patterns*

According to the Alaska Department of Fish & Game's (ADF&G) most recent baseline survey of Unalaska subsistence uses and harvests (1994), 97 percent of households used wild resources. The average harvest per household was 507.3 pounds, which worked out to 194.5 pounds per person. (ADF&G, 1998; ADF&G Community Subsistence Information System) Alaska Native households on Unalaska harvested even more pounds per person, a wider variety of wild resources, and more salmon and marine mammals than the community average. (ADF&G 1998) Transient seafood processor workers frequently utilize intertidal resources (mussels and other marine invertebrates) in Unalaska Bay although little is known about their specific resource preferences (Community Discussion Notes, Feb. 4, 2005).

The 2004 population in Unalaska/Dutch Harbor was 4,366 including those living in group housing associated with the seafood processing facilities. The 1994 survey of Unalaska households (excluding group housing) revealed that 14% of the population was Alaska Native (ADF&G, 1998; ADF&G Community Subsistence Information System).

The population of Nikolski, on neighboring Unmak Island, was 36, predominantly Alaska Native. The annual use of wild resources was 760 pounds per household. (ADF&G, 1998; ADF&G Community Subsistence Information System).

There is little documented historical information regarding the degree of use of natural resources from the northwest side of Unalaska. It appears that most fishing, hunting and gathering occurs close to Unalaska Bay; due at least in part to boat size, as larger boats can more easily access the northwest bays on Unalaska Island. However, some community members do have use of boats that allow them to reach Skan and Makushin Bays, gather subsistence foods, and share them in Unalaska (Community Discussion Notes, Feb. 4, 2005). In addition, there was occasional use of camps in the Makushin Bay area (R. Brewer, per.com., Nov. 8, 2005).

Although most natural resource activities occurred closer to Unalaska, residents were concerned about contamination in Unalaska Bay (from old Defense sites (PCBs), ship oil disposal practices, oil spills, seafood processing discharge, sewage discharge) and felt pressured to go elsewhere for subsistence activities (Community Discussion Notes, Feb. 4, 2005).

In a conversation with Val Thomas on October 27, 2005, Tanya Kyle, Nikolski Tribal Administrator, reported that at least one tribal member from Nikolski subsists in Skan and Makushin area, which is considered by the tribe a “traditional subsistence use area.”

#### *Cultural Uses*

Sharing wild resources is a community practice in Unalaska with over 80% of residents either receiving and/or giving subsistence resources; food sharing between family members living in different locations is a cultural tradition (ADF&G, 1998).

Subsistence activities are important to Alaska Native cultural traditions in Unalaska. Use of subsistence resources is an important marker of ethnic identity and a way of maintaining continuity with the past (S. Livingston, Qawalangin Tribe, Aleutian Life Forum, Aug. 2005).

Tidal vegetation is used for traditional medicinal treatment of glaucoma, diabetes, thyroid problems, which are common among local residents, elders, and recently children (Community Discussion Notes, Feb. 4, 2005).

#### *Recreational Uses*

Sport hunting, fishing and sightseeing are the dominant forms of recreation on Unalaska Island. Most recreational activities tend to occur in the vicinity of the communities of Unalaska/Dutch Harbor and nearby areas accessible by road such as Captains Bay, Amaknak Island, and Summer Bay (A. Morkill, AK Maritime NWR, Nov. 2005), .

Tourism contributes to the local Unalaskan economy. There are approximately 1,000 tourists a year plus limited cruise ship visitation (FY04: 7 stops approximately \$375,000 in revenue; FY05: 9 ship stops approximately \$1.5 million) (R. Kniazowski, Aleutian Life Forum, Aug. 2005). The largest tourist draws in Unalaska are a mixture of natural resource-related and historic sites including the WWII visitor center, Museum of

Aleutians, Russian Orthodox Cathedral, birding tours, archaeological digs, whale watching, halibut fishing, hiking, and the Grand Aleutian Hotel (Id.).

Examples of fishing-related businesses include the following:

- Volcano Bay Lodge, on the northwest side of the Island, offered halibut charters and fly-in salmon fishing. It was closed in 2005 (R. Kniazowski, Aleutian Life Forum, Aug. 2005).
- Boat charters included F/V Lucille (halibut, salmon, cod fishing); Shuregood Adventures/F/V Miss Peppers (sportfishing); and Sweenhart Aleutian Charters (light & heavy tackle fishing) (2005 brochures)
- The Grand Aleutian Hotel offered package tours (halibut charters and fly-in salmon) (2005 brochure).

According to ADF&G, there were seven active halibut charter vessels – a total of 1,281 angler days expended – in 2001, the most recently reported data available (Schwarz et al. 2002).

Some of the recreational activities that utilized the Skan and Makushin area included kayaking tours (circumnavigate Unalaska) and wildlife viewing of sea lions at haul-outs. (Community Discussion Notes, Feb. 4, 2005). There was also limited viewing of marine birds, primarily east of Unalaska Island in the nearby Baby Islands, and whale watching along the north coast of Unalaska Island from Unalga to Umnak Pass (A. Morkill, AK Maritime NWR, Nov. 2005).

### **Impact of Spill/Cleanup on Resource Utilization**

In and around Skan and Makushin Bays, public access was limited by official closures (e.g., Coast Guard restrictions on water and air access), and by public perception of the level of oiling which was influenced by various factors including ADEC's "impaired water body" declaration and the commercial fishery closure. Compounding the official closures was the increased level of human activity associated with shoreline assessments conducted by helicopter and boat throughout the region; initial cleanup activities of targeted areas during winter of 2005; and intensive cleanup effort in spring and summer of 2005 and 2006, which deployed at its peak 22 vessels, 230 workers, and heavy equipment.

Although there were no closures between Volcano Bay and Unalaska Bay, there were interruptive response activities such as frequent beach monitoring, tarball collection in Unalaska Bay, and cleanup at Wide Bay (ADEC Situation Reports, Unified Command SCAT Reports) that may have disrupted recreational activities that would have/had taken place there. In addition, there was extensive and intensive fisheries' monitoring of all boats coming into Dutch Harbor and of the fish and crabs processed in the plants. In addition to direct conflicts, these activities likely affected public perception about the extent and danger posed by the spill to subsistence resources. Areas south of Spray Cape to Chernofski Harbor were also subject to limited response activities.

Response activities, fisheries closures, Coast Guard access restrictions and concerns about oiling impaired the ability of residents and visitors to engage in recreational activities from Spray Cape to Unalaska Bay and south to Chernofski Harbor.

It is also conceivable that some individuals who might have otherwise visited Unalaska to recreate changed their plans due to the spill. (W. Ayers, Aleutian Life Forum, Aug. 2005). This would have resulted in a loss of use for the potential visitors. Mitigating that loss somewhat is the likelihood that potential visitors displaced by the spill would have had access to alternative areas in Alaska for comparable recreational activities.

## **CONCLUSIONS**

Oil and cleanup activities associated with the *Selendang* spill likely caused a loss of human use of natural resources, with cultural and recreational impacts on residents of Unalaska and possibly those of Umnak Island. Potential visitors to the Island may have also suffered lost recreational opportunities.

Based on the limited information and data gathered to date, it appears that the frequency of resource use at Skan and Makushin Bays was limited due to the distance from Unalaska/Dutch Harbor. That coupled with the availability of unaffected natural resources elsewhere on Unalaska and Umnak Islands may have lessened the magnitude of the human use losses. Also, to the extent some of the losses were caused by interruption from cleanup activities, those losses may have dissipated once cleanup activities were completed.

Additional research would be needed to determine whether any passive use losses of the affected natural resources occurred as a result of the spill and if so to what extent.

## **REFERENCES**

ADF&G Community Subsistence Information System. 2007.  
<http://www.subsistence.adfg.state.ak.us/CSIS>

Division of Subsistence, ADF&G. 1998. Subsistence Uses and Harvests in Unalaska, Aleutian Islands, Alaska. Anchorage, Alaska.

Hamrick, K. and J. Smith. 2003. Subsistence Food Use in Unalaska and Nikolski: final Report. Prepared for Aleutian Pribilof Islands Association by Institute for Circumpolar Health Studies. Anchorage, Alaska. [http://www.mtafund.org/prodlib/aleutian/02-009\\_final\\_report.pdf](http://www.mtafund.org/prodlib/aleutian/02-009_final_report.pdf)

Schwarz, L., D. Tracy and S. Schmidt. 2002. Area management report for the recreational fisheries of the Kodiak and Alaska Peninsula/Aleutian Islands regulatory areas, 1999 and 2000. ADF&G Fishery Management Report No. 02-02. Anchorage, Alaska.

Shaul, A.R. and J.J. Dinnocenzo. 2002. Annual summary of the Commercial, Subsistence and Personal Use Salmon Fisheries and Salmon Escapements in the Alaska Peninsula, Aleutian Islands, and Atka-Amlia Islands Management Areas, 2004. ADF&G Fishery Management Report No. 05-33. Anchorage, Alaska.

USFWS. 2005. Community Discussion on Subsistence & Recreation Resources at Risk from the M/V *Selendang Ayu* Oil Spill -- Summary Notes. Unalaska, Alaska.

Veltre, D.W. and M.J. Veltre. 1982. Resource utilization in Unalaska, Aleutian Islands, Alaska. Alaska Department of Fish and Game, Division of Subsistence. Technical Paper No. 58.