2010 Transportation Action Strategy

Marine Mammal
Survey Report

Coeur Alaska
Kensington Mine

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Introduction

Coeur Alaska's Berners Bay/Lynn Canal Transportation Plan (January 2008) includes the adoption of standard operating guidelines to ensure minimal disruption of marine mammals in the area due to marine traffic. Some guidelines are designed to minimize impacts throughout the year, while others are specific to the spring eulachon and herring spawning runs when marine mammals congregate in large groups. This report describes monitoring activities conducted during the April/May 2010 eulachon spawning season. The Coeur Alaska crew transportation vessel during this period was the m/v St. Nadezdha, a 48ft twin-hulled vessel, which was replaced by the 65ft long Majestic Fjord in May. Both vessels transited between Echo Cove and Slate Cove (Figure 1) and docked in Slate Cove overnight.

Methods

Designation of the eulachon spawning season requires some information to be gathered regarding marine mammal activity within Berners Bay as this is a good indicator that eulachon migration has begun. One source of this information is the ADFG herring spawning aerial survey data for Lynn Canal, posted on the internet at *http://documents.cf1.adfg.state.ak.us/TopicContents.po#Herring*. These updates usually include a brief summary of the location of marine mammal concentrations. Observations for 2010 are attached to this report as an appendix. Coeur also conducts aerial, terrestrial or marine based surveys to monitor marine mammal numbers within Berners Bay. These surveys are undertaken by Coeur environmental personnel with experience of observing marine mammals (usually contractors assigned to count out-migrating salmon fry). In addition, the Coeur transportation vessel boat crew records their own observations in the vessel log, including distance to any marine mammals encountered. Survey results are faxed to the NMFS Office of Protected Resources within 24 hours. When Coeur's marine mammal surveys and ADFG herring surveys show a substantial increase in marine mammals within Berners Bay, the eulachon spawning season is declared to have begun.

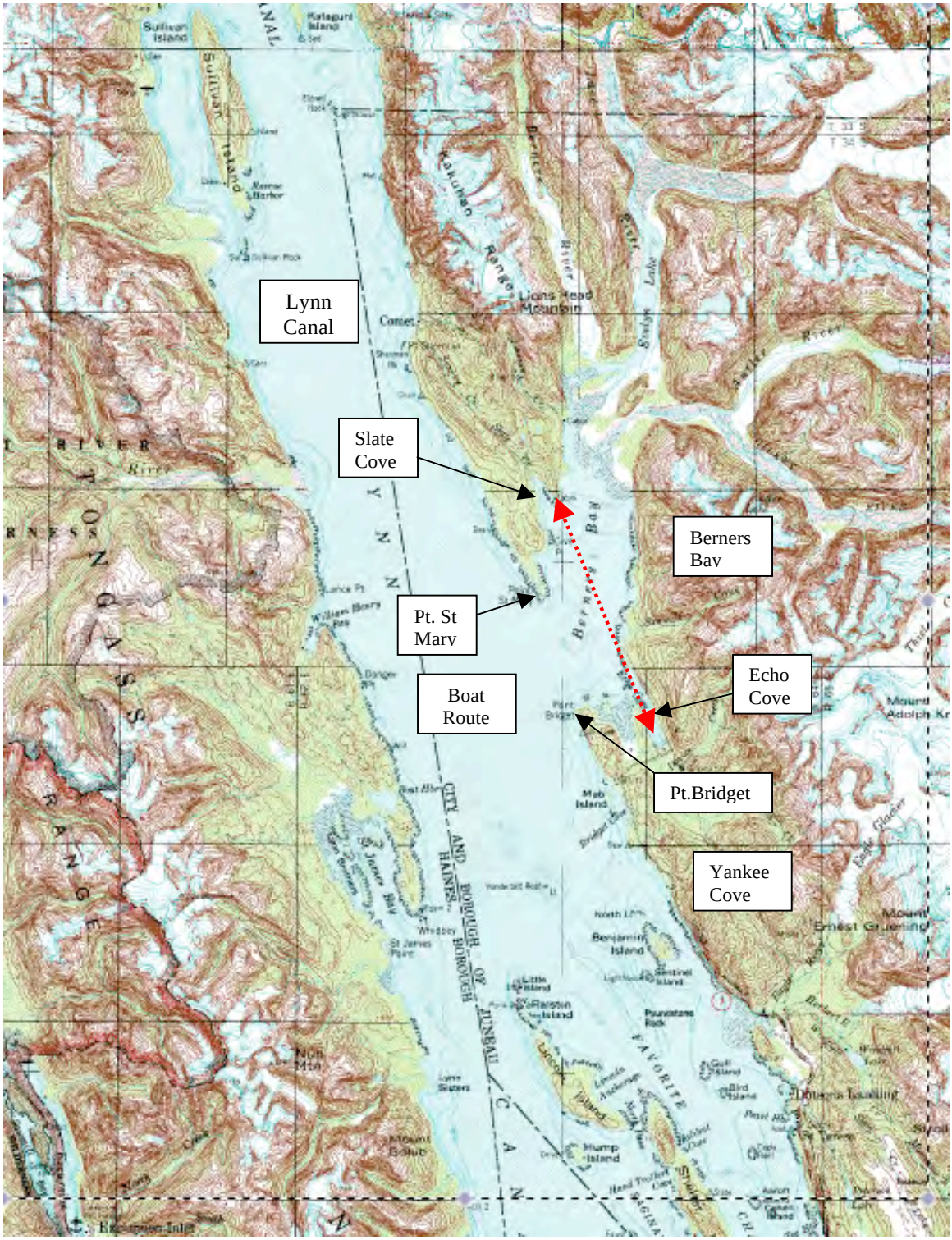

Figure 1: Boat route from Echo Cove to Slate Cove, Berners Bay.

During the eulachon spawning run a marine mammal observer accompanies the Coeur transportation vessel on all crew transfers to help adjust the daily routing into Slate Cove to avoid congregations of fish. The marine observer keeps vigil from the bridge of the vessel and uses binoculars as needed to identify marine mammals. Photography is used to assist with counting total numbers present since at any one time, a portion of the group may be submersed or in motion and difficult to count.

Vessel trips are also kept to no more than 2-3 per day and the vessel maintains a low, constant speed of 13 knots within the bay (within an imaginary line drawn between Point St. Mary and Point Bridget – Figure 1). Fuel shipments by barge are also restricted during the eulachon spawning period. The spawning period typically lasts for 2-3 weeks by which time marine mammal observations have declined again and the spawning season may be declared finished.

Marine mammal observations are categorized into zones by dividing Berners Bay into four quadrants (Figure 2). The first quadrant covers north-east Berners Bay including Slate Cove, the second covers north-west Berners Bay, the third is the south-west and outer part of the bay (including the Benjamin Island Steller sea lion haulout) and the fourth is the south-east quadrant including Cascade Point.

Results

Observations of marine mammals for 2010 began in Slate Cove on March 29 when salmon fry counts began. Observers were posted on the crew vessel on April 8. Transportation vessel trips in the spring of 2010 followed the schedule in Table 1 until May 15 when boats departed from Yankee Cove. A one-way trip from Auke Bay to Slate Cove on the m/v Sentinel used in 2009 takes around 2 hours and consumes approximately 200 gallons of fuel depending on wind and sea conditions (pers comm. Bill Church, Sentinel captain). A one-way trip from Yankee Cove to Slate Cove on the M/V Sentinel takes about 50 minutes and consumes around 85 gallons of fuel, while a roundtrip between Echo Cove and Slate Cove on the Majestic Fjord uses only 65 gallons. The shorter transit time also means less time for marine mammal encounters. The vessels in use in spring 2010 are shown in Figures 4, 5 and 6.

Day	Morning	Evening	Departure	Total trips
Mon	5:30 and 7am	5:30pm	Echo Cove	3
Tues	5:30am	5:30pm	Echo Cove	2
Wed	5:30am	5:30pm	Echo Cove	2
Thur	5:30am	5:30pm	Echo Cove	2 to 3
Fri	No boat	5:30pm	Echo Cove	1
Sat	No boat	No boat	n/a	0
Sun	No boat	6:30pm	Echo Cove	1

Table 1: Boat schedule, Spring 2010.

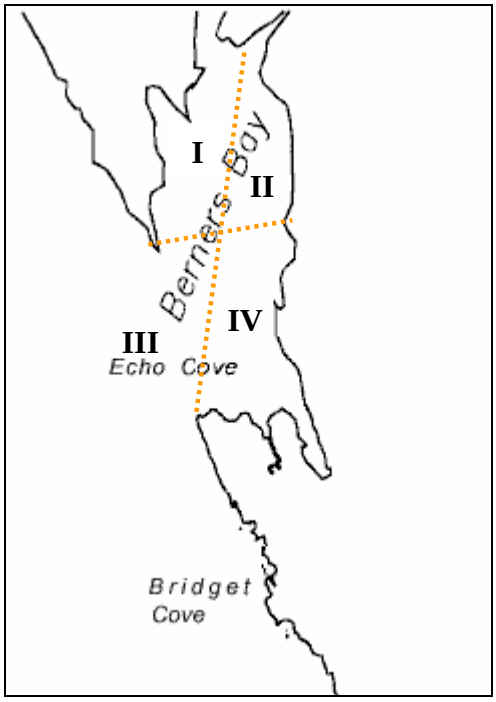

Figure 2: Berners Bay quadrants.

Between March 29 and May 4, 2010, 68 surveys were completed from the crew transportation boat running between Echo Cove and Slate Cove with an additional two surveys from the 26ft freight boat. A further 27 surveys were completed from kayaks between Slate Cove dock and Slate Creek and three surveys were made by observers on Slate Cove dock. The arrival of Steller sea lions in Slate Cove occurred about two weeks earlier than in 2009 with over 150 sea lions present on April 7. Movement of sea lions into Berners Bay from the Benjamin Island haul out was not observed in 2010 due to the crew vessel departing from Echo Cove rather than Auke Bay as in the previous year.

There was a substantial increase in numbers of Steller sea lions in Slate Cove during the first week of April. The eulachon-spawning run was declared to have started on April 12 and the standard operating guidelines for this period were put into effect. Special measures taken during the eulachon run included having a marine observer on the vessel during all trips made and maintaining a speed of 13 knots within the Berners Bay. Regular transit speed is closer to 17 knots. Three trips were made on Mondays (crew change day) two on Tuesdays, Wednesdays and Thursdays and one roundtrip on Fridays and Sundays, which was the normal operating schedule at the time (Table 1). The fisheries crew conducting daily salmon fry counts at Slate Creek made use of kayaks to transit across Slate Cove during the eulachon run to avoid using motorized craft during the eulachon run and also documented marine mammals observed.

Slate Cove had the most observations of Steller sea lion rafts with up to 100 animals in one raft. Groups of up to 110 Harbor seals were also observed in Slate Cove often at the haul out to the southeast of the dock (Figure 7). Large congregations of gulls are also a good indication that eulachon are present (Figure 10). QIII had the most observations of humpback whales and killer whales while QIV had the most Harbor porpoises. Numbers of marine mammals in the Slate Cove quadrant declined again after April 30 with only two sea lions remaining in the area after this time. The spawning season was declared at an end on May 4 and speed restrictions on vessels were removed.

Up to 160 Steller sea lions, 6 humpback whales, 110 Harbor seals and 6 killer whales were observed at any one time within Berners Bay in 2010. QI and QIV had the most Steller sea lion observations, because the ferry route bisected these quadrants each time. QII had the fewest observations, but it is furthest away from observers.

One marine wildlife encounter report was filed with NMFS when a floatplane transporting Forest Service personnel landed in Slate Cove directly over a raft of Steller sea lions causing them to scatter on April 15, 2010.

Discussion

The eulachon run occurred much earlier in 2010 than 2009 with historic records showing eulachon arriving in the Berners Bay area usually in late April and early May (Harris et al 2005). The presence of eulachon was also documented in the salmon fry trap in Slate Creek (Figure 9) on March 29, April 14 to 29, 26, 30, May 1, 2, 9, 10 and May 12 to 15, corresponding to the dates of high tides greater than 17ft (Flory 2010). Marine mammals were already present in Berners Bay by the time ADFG began herring flight surveys on April 16. Marine mammals are attracted into Berners Bay by both eulachon and herring, which can both spawn around the same time (Womble et al 2005), but not necessarily so as events in 2010 illustrated. The most intense herring spawn in Berners Bay appeared to occur around May 3-5, which was towards the end of the speed restriction period. The three-week restrictions were placed at the right time in 2010 to cover the greatest marine mammal activity. Careful observation of marine mammals and birds from the end of March is necessary in order to prepare for the official three-week period of transportation restrictions and ensure the goal of minimizing marine mammal encounters is achieved. The speed restriction helps reduce the likelihood of a collision with a marine mammal and also reduces the impact of engine noise underwater on whales and Steller sea lions. The population of humpback whales in the North Pacific increased at around 7% per year since commercial whaling ceased in 1966 (Calambokidis et al 2008), but they are still considered endangered species owing to a worldwide population estimate being at only 8% of the historical population size (NMFS 1991). The Stellar sea lion population east of Cape Suckling is not considered endangered, but vessel operations must still comply with the Marine Mammal Protection Act of 1972. The measures taken under Coeur's Transportation Action Strategy are designed to ensure compliance with this Federal law.

References

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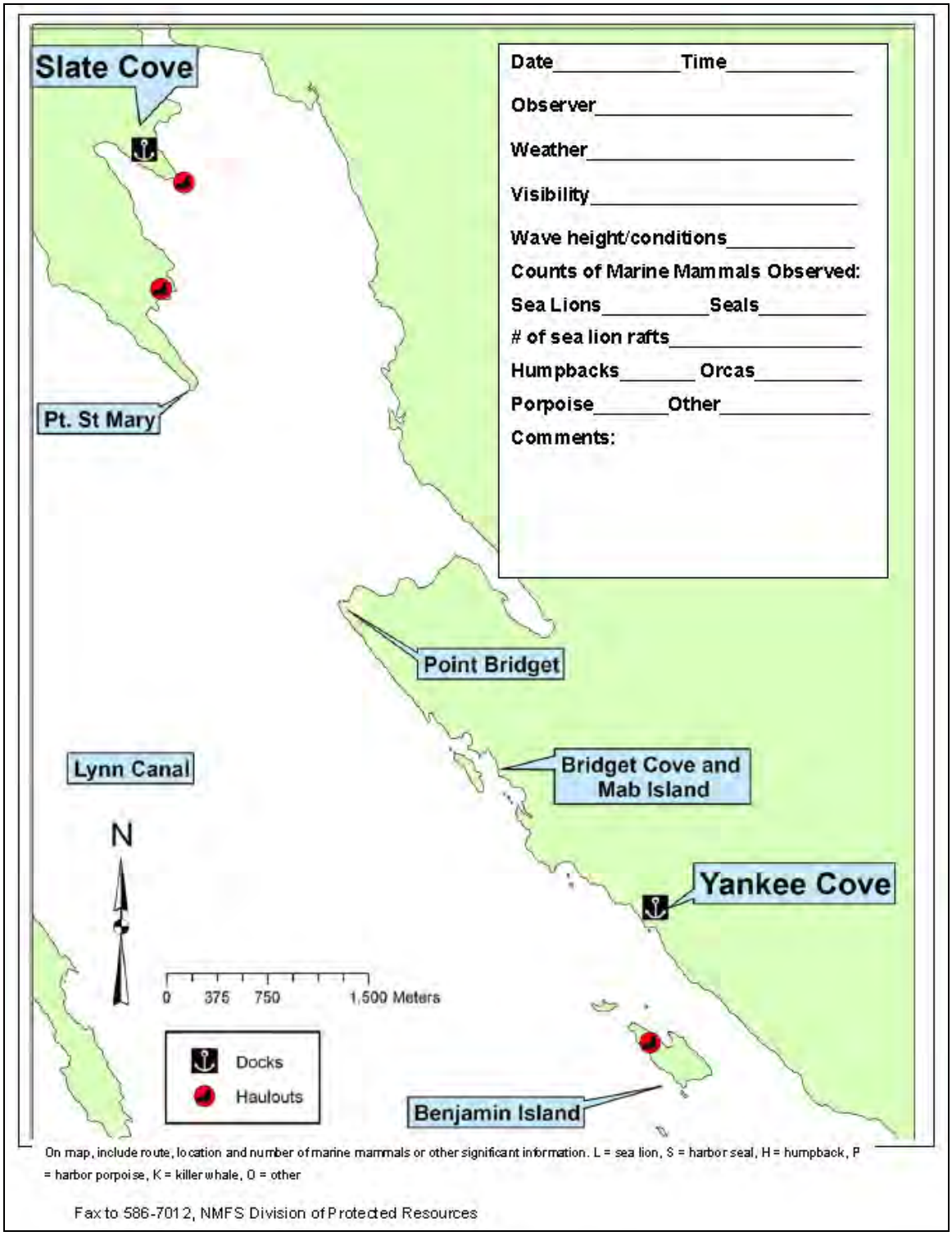

Figure 3: Survey form used for marine mammal observations.

Table 2a: Summary of Marine Mammal Observations.

No.	DATE	TIME	OBSERVERS	TYPE	ROUTE	WEATHER	VIS	Wave Ht (Ft)
1	3/29/10	15:00	Rachael Wadsworth	Kayak	Slate Dock to Creek	partly cloudy	Good	<1
2	3/30/10	14:30	Liz Flory	Kayak	Slate Dock to Creek	partly cloudy/showers	Good	<1
3	4/3/10	14:30	Ray Pohl	Kayak	Slate Dock to Creek	partly cloudy	Good	0
4	4/4/10	6:00	Russ Sullivan	St. Nadezhda	EchoCove-Slate Cove			
5	4/4/10	15:30	James Ray	Kayak	Slate Dock to Creek	partly cloudy/showers	Good	<1
6	4/5/10	14:00	James Ray	Kayak	Slate Dock to Creek	Drizzle	Good	0
7	4/6/10	15:00	Ray Pohl	Kayak	Slate Dock to Creek	Rain, SE wind	Good	2
8	4/7/10	10:15	Ray Pohl	Kayak	Slate Dock to Creek	partly cloudy	Good	0
9	4/8/10	17:30	Ray Pohl	St. Nadezhda	Slate Cove to Echo Cove	mostly sunny	very good	0
10	4/8/10	18:30	Ray Pohl	St. Nadezhda	EchoCove-Slate Cove	mostly sunny	very good	0
11	4/9/10	11:30	James Ray	Kayak	Slate Dock to Creek	mostly sunny	Good	<1
12	4/10/10	15:40	James Ray	Kayak	Slate Dock to Creek	clear, sunny	Good	<1
13	4/11/10	16:15	James Ray	Kayak	Slate Dock to Creek	clear, sunny	Good	0
14	4/11/10	18:00	Ray Pohl	St. Nadezhda	EchoCove-Slate Cove	clear, sunny	Good	0
15	4/12/10	5:30	Jill Michalak	St. Nadezhda	Slate Cove to Echo Cove	clear, sunny	Good	0
16	4/12/10	9:45	James Ray	Observations from dock	n/a	clear, sunny	Good	0
17	4/12/10	13:00	James Ray	Kayak	Slate Dock to Creek	clear, sunny	Good	0
18	4/12/10	17:30	Ray Pohl	St. Nadezhda	Slate Cove to Echo Cove	clear, sunny	Good	0
19	4/12/10	19:00	Ray Pohl	St. Nadezhda	EchoCove-Slate Cove	clear, sunny	Good	0
20	4/13/10	5:30	James Ray	St. Nadezhda	Slate Cove to Echo Cove	Overcast	Moderate	3
21	4/13/10	6:25	James Ray	St. Nadezhda	EchoCove-Slate Cove	Overcast, 15kt S wind	Moderate	3
22	4/13/10	14:30	Ray Pohl	Kayak	Slate Dock to Creek	strong S wind	Good	3
23	4/14/10	5:30	Jill Michalak	St. Nadezhda	Slate Cove to Echo Cove	cloudy, drizzle, S wind	Good	
24	4/14/10	9:00	Ray Pohl	Observations from dock	n/a	Overcast, calm	Good	0
25	4/14/10	13:00	Ray Pohl	Kayak	Slate Dock to Creek	Overcast, calm	Good	0
26	4/14/10	17:25	Ray Pohl	St. Nadezhda	Slate Cove to Echo Cove	Partly sunny	Good	<1
27	4/14/10	19:00	Ray Pohl	St. Nadezhda	EchoCove-Slate Cove	Partly sunny	Good	0
28	4/15/10	5:30	Jerry Harmon	St. Nadezhda	Slate Cove to Echo Cove	clear, sunny	Good	0
29	4/15/10	6:30	Gordon Willson	St. Nadezhda	EchoCove-Slate Cove	clear, sunny	Good	0
30	4/15/10	9:30	Ray Pohl	Kayak	Slate Dock to Creek	clear, sunny	Good	0
31	4/15/10	12:30	Ray Pohl	Kayak	Slate Creek to dock	clear, sunny	Good	0
32	4/15/10	17:30	Ray Pohl	St. Nadezhda	Slate Cove to Echo Cove	clear, sunny	Good	0
33	4/15/10	19:00	Ray Pohl	St. Nadezhda	EchoCove-Slate Cove	clear, sunny	Good	0
34	4/16/10	9:10	James Ray	Kayak	Slate Dock to Creek	clear, sunny	Good	0
35	4/16/10	17:30	James Ray	St. Nadezhda	Slate Cove to Echo Cove	mostly cloudy	Good	<1
36	4/16/10	18:00	James Ray	St. Nadezhda	EchoCove-Slate Cove	mostly cloudy	Good	<1
37	4/17/10	9:10	James Ray	Kayak	Slate Dock to Creek	Overcast	Good	0
38	4/17/10	20:00	Ray Pohl	Observations from dock	n/a	light drizzle	Good	0
39	4/18/10	16:00	Ray Pohl	Kayak	Slate Dock to Creek	light rain	Good	0
40	4/18/10	19:10	Clyde Gillespie	St. Nadezhda	EchoCove-Slate Cove	Overcast	Good	0
41	4/18/10	19:30	Ray Pohl	Kayak	Slate Creek to dock	Overcast	Good	0
42	4/19/10	5:30	Jill Michalak	St. Nadezhda	Slate Cove to Echo Cove	Overcast	Good	0
43	4/19/10	10:15	Ray Pohl	Kayak	Slate Dock to Creek	Rain	Good	0
44	4/19/10	17:30	Ray Pohl	St. Nadezhda	Slate Cove to Echo Cove	Rain	Good	0
45	4/19/10	18:40	Ray Pohl	St. Nadezhda	EchoCove-Slate Cove	Rain	Good	0
46	4/20/10	5:30	Jill Michalak	St. Nadezhda	Slate Cove to Echo Cove	Overcast, drizzle, fog	Moderate	0
47	4/20/10	17:30	Ray Pohl	St. Nadezhda	Slate Cove to Echo Cove	partly cloudy	Good	2
48	4/20/10	18:40	Ray Pohl	St. Nadezhda	EchoCove-Slate Cove	partly cloudy	Good	2
49	4/21/10	5:30	Jill Michalak	St. Nadezhda	Slate Cove to Echo Cove	Rain	Good	0
50	4/21/10	11:30	Rachael Wadsworth	Kayak	Slate Dock to Creek	Partly sunny	Good	0
51	4/21/10	17:20	Rachael Wadsworth	St. Nadezhda	Slate Cove to Echo Cove	Rain	Moderate	3
52	4/22/10	5:35	Gordon Willson	St. Nadezhda	Slate Cove to Echo Cove	Overcast, calm	Good	0
53	4/22/10	6:20	Gordon Willson	St. Nadezhda	EchoCove-Slate Cove	Overcast, calm	Good	0
54	4/22/10	17:30	Char Gutierrez	St. Nadezhda	Slate Cove to Echo Cove	partly cloudy	Good	4
55	4/22/10	18:00	Char Gutierrez	St. Nadezhda	EchoCove-Slate Cove	partly cloudy	Good	1
56	4/23/10	13:30	Ray Pohl	Freight boat	Slate Cove to Echo Cove	clear, sunny	Good	2
57	4/23/10	14:45	Ray Pohl	Freight boat	EchoCove-Slate Cove	sunny, north wind	Good	3
58	4/23/10	17:30	Rachael Wadsworth	St. Nadezhda	Slate Cove to Echo Cove	clear, sunny	Good	0
59	4/24/10	9:20	Ray Pohl	Kayak	Slate Dock to Creek	clear, sunny	Good	0
60	4/24/10	11:50	Ray Pohl	Kayak	Slate Creek to dock	clear, sunny	Good	<1
61	4/25/10	17:30	Ray Pohl	Kayak	Slate Dock to Creek	Overcast, calm	Good	0
62	4/25/10	18:30	Rachael Wadsworth	St. Nadezhda	Slate Cove to Echo Cove	Overcast, calm	Good	0
63	4/25/10	19:00	Ray Pohl	Kayak	Slate Creek to dock	Overcast, calm	Good	0
64	4/25/10	19:30	Liz Flory	St. Nadezhda	EchoCove-Slate Cove	Overcast, calm	Excellent	0
65	4/26/10	5:30	Char Gutierrez	St. Nadezhda	Slate Cove to Echo Cove	Overcast, calm	Excellent	0
66	4/26/10	6:40	Char Gutierrez	St. Nadezhda	EchoCove-Slate Cove	Overcast, calm	Excellent	0
67	4/26/10	7:00	Char Gutierrez	St. Nadezhda	Slate Cove to Echo Cove	Overcast, calm	Excellent	0
68	4/26/10	7:45	Char Gutierrez	St. Nadezhda	EchoCove-Slate Cove	Overcast, calm	Excellent	0
69	4/26/10	17:40	Ray Pohl	St. Nadezhda	Slate Cove to Echo Cove	Overcast	Good	1
70	4/26/10	18:15	Ray Pohl	St. Nadezhda	EchoCove-Slate Cove	Overcast	Good	1
71	4/27/10	5:40	Gordon Willson	St. Nadezhda	Slate Cove to Echo Cove	Overcast	Good	<1
72	4/27/10	6:30	Gordon Willson	St. Nadezhda	EchoCove-Slate Cove	partly cloudy	Good	0
73	4/27/10	17:30	Gordon Willson	St. Nadezhda	Slate Cove to Echo Cove	clear, sunny	Good	0
74	4/27/10	18:00	Gordon Willson	St. Nadezhda	EchoCove-Slate Cove	clear, sunny	Good	1
75	4/28/10	5:40	Ray Pohl	St. Nadezhda	Slate Cove to Echo Cove	partly cloudy	Good	0
76	4/28/10	6:30	Ray Pohl	St. Nadezhda	EchoCove-Slate Cove	partly cloudy	Good	0
77	4/28/10	17:20	Ray Pohl	St. Nadezhda	Slate Cove to Echo Cove	Overcast, calm	Good	0
78	4/28/10	18:25	Ray Pohl	St. Nadezhda	EchoCove-Slate Cove	Overcast, calm	Good	0
79	4/29/10	5:30	Ray Pohl	St. Nadezhda	Slate Cove to Echo Cove	low clouds, rain	Good	0
80	4/29/10	6:20	Ray Pohl	St. Nadezhda	EchoCove-Slate Cove	low clouds, rain	Good	0
81	4/29/10	17:30	Gordon Willson	St. Nadezhda	Slate Cove to Echo Cove	partly cloudy	Good	2
82	4/29/10	18:00	Gordon Willson	St. Nadezhda	EchoCove-Slate Cove	partly cloudy	Good	2
83	4/29/10	18:30	Gordon Willson	St. Nadezhda	Slate Cove to Echo Cove	Overcast	Good	2
84	4/29/10	19:00	Gordon Willson	St. Nadezhda	EchoCove-Slate Cove	Rain	Moderate	2
85	4/30/10	17:15	Ray Pohl	St. Nadezhda	Slate Cove to Echo Cove	Overcast	Good	<1
86	4/30/10	18:00	Ray Pohl	St. Nadezhda	EchoCove-Slate Cove	Overcast, calm	Good	<1
87	5/2/10	18:30	Ray Pohl	Majestic Fjord	Slate Cove to Echo Cove	clear, sunny	Good	1
88	5/2/10	19:50	Ray Pohl	Majestic Fjord	EchoCove-Slate Cove	clear, sunny	Good	1
89	5/3/10	5:40	Ray Pohl	Majestic Fjord	Slate Cove to Echo Cove	clear, sunny	Good	0
90	5/3/10	6:30	Ray Pohl	Majestic Fjord	EchoCove-Slate Cove	clear, sunny	Good	0
91	5/3/10	7:30	Ray Pohl	Majestic Fjord	Slate Cove to Yankee Cove	clear, sunny	Good	0
92	5/3/10	9:00	Ray Pohl	Majestic Fjord	Yankee Cove to Slate	clear, sunny	Good	0
93	5/3/10	13:30	Ray Pohl	Kayak	Slate Dock to Creek	mostly cloudy	Good	0
94	5/3/10	15:00	Joe Kemp	Majestic Fjord	Slate Cove to Echo Cove			
95	5/3/10	17:30	Ray Pohl	Majestic Fjord	Slate Cove to Echo Cove	clear, sunny	Good	<1
96	5/3/10	18:15	Ray Pohl	Majestic Fjord	EchoCove-Slate Cove	clear, sunny	Good	<1
97	5/4/10	10:00	Ray Pohl	Kayak	Slate Dock to Creek	Overcast, calm	Good	0