Kensington Gold Project
2005 Annual Report

Prepared by:
Coeur Alaska, Inc.
3031 Clinton Drive, Suite 202
Juneau, AK 99801

for:
U.S. Forest Service
Alaska Region (R-10)
Tongass Minerals Group
Juneau Ranger District
8465 Old Dairy Road
Juneau, AK 99801

May 2006

Table of Contents

Tables

Attachments

References

1. Coeur Alaska, Inc., 2005a, Kensington Gold Project NPDES Permit AK-005057-1 Annual Water Quality Monitoring Summary Volume 1: Aquatic Resource Surveys 2005.
2. Coeur Alaska, Inc., 2005b, Kensington Gold Project NPDES Permit AK-005057-1 Annual Water Quality Monitoring Summary 2005 Volume 2: Water Quality Data.
3. ADFG, Lynn Canal Mountain Goat Study: Project Update, January 20, 2006.

1 Introduction

The Kensington Gold Project is owned and operated by Coeur Alaska, Inc. (Coeur Alaska), a wholly owned subsidiary of Coeur d'Alene Mines, Inc. The project is located on the western and southern flanks of Lions Head Mountain; between Berners Bay and Lynn Canal; and in the drainages of Johnson, Sherman, and Slate Creeks (Attachment 1). Coeur Alaska has prepared this annual report to comply with requirements of the U.S. Forest Service (USFS) Plan of Operations (POO) for the Kensington Gold Project.

The Kensington Gold Project received authorization under the POO on June 13, 2005. The Final Supplemental Environmental Impact Statement, U.S. Forest Service Record of Decision and all necessary major permits were issued prior to year end 2005. Coeur Alaska issued construction contracts and ground breaking was initiated on July 2005.

Section 2.0 contains a synopsis of the activities conducted at the Kensington Gold Project during calendar year 2005, and Section 3.0 contains projections of activities planned for calendar year 2006. Section 4.0 is a project water balance projection.

No mining occurred during 2005. Construction concentrated on surface access and facilities at Slate Creek Cove, the Johnson Creek facilities site, and the Jualin Access Road.

Project personnel on site are a mix of Coeur Alaska employees and contractors. As of first quarter 2006, Coeur Alaska employed 197 personnel between the Juneau office, Johnson Creek camp and Comet Beach camp, including 85 contractor employees.

Construction activities and operations have been consistent with the approved POO. No gold production occurred during calendar year 2005.

2 Summary of 2005 Activities

2.1 Public Safety

Public access to the project site is limited according to the Public Access Control Plan. Public access to the site must be limited for reasons of safety and security. During construction activities, hazards such as truck traffic, blasting, barge and tug operations, clearing operations, and earthwork could result in physical and other health hazards. As such, the agencies have agreed the project area – which is largely private property – is closed to the public.

Transportation to the project site was via boat or rotary wing aircraft. During 2005, personnel accessed the site largely via rotary wing aircraft and to a lesser extent by fixed wing float plane. Heavy equipment and supplies were transported via barge or landing craft and received at Slate Cove or Comet Beach.

Marine vessel transport was between Juneau or Adlersheim Lodge and Slate Cove or Comet Beach. Future marine vessel traffic would shift to Cascade Point when that facility has been constructed and made operational. Cascade Point would be operated by others. Marine waters around all marine facilities discussed above are open to public access.

A temporary dock was erected at Slate Creek Cove per the Corps of Engineers (COE) and ADNR permits, but was destroyed by fall storms. A replacement structure has been permitted through the COE and was constructed as of year end 2005.

2.2 Construction Operations

Site construction operations commenced in July 2005 with the landing of Alaska Industrial Construction (AIC) contractors at the Slate Creek Cove barge facility. Total site employment (direct employees and contractors) as of first quarter 2006 totaled 197. Sub-categories of this total are:

- 26 Alaska Natives.
- 59 Local (Juneau) Hire.
- 116 Alaska Hire.

From ground breaking through end of 2005, work began on select facilities (Table 2-1). In all cases, total disturbance is less than total approved disturbance.

Construction equipment utilized has been typical of that used for road expansion, bridge construction, clearing and grubbing, foundation excavation, and building pad development in remote areas.

Table 2-1. Project Surface Disturbance.

Parcel #	Description	Permitted Disturbance Acreage Total	Actual Disturbance Acreage Total	COE Fill Volume (cu.yd.) Permitted	COE Fill Volume (cu.yd.) Actual	Acreage of Water of the U.S. as of January 1, 2006 Permitted	Acreage of Water of the U.S. as of January 1, 2006 Actual	Reclaimed Wetland Acres Permitted	Reclaimed Wetland Acres Actual
1	Kensington Comet Beach Camp	3.2	3.2	0	0	0.0	0.0	0	0
2	Kensington Road	8.1	8.1	0	0	0.9	0.9	7.6	0
3	Kensington Borrow Source	1.5	1.5	0	0	0.3	0.3	1.5	0
4	Kensington Development Rock Storage	14.3	14.3	500,000	19,000	5.1	5.1	0	0
5	Kensington Water Treatment Plant/Ponds	4.3	4.3	20,000	3,000	2.6	2.6	4.3	0
6	Kensington Topsoil Stockpile Area	2.1	0.0	30,000	0	2.1	2.1	2.1	0
7	Kensington 2050 Level Portal Waste Rock Dump	1.5	1.5	0	0	0.0	0.0	0	0
8	Jualin Process Area	12.9	12.9	21,000	21,000	1.1	1.1	0	0
9	Jualin Development Rock Storage Area - Eliminated	4.3	0.0	100,000	0	4.3	0.0	0	0
10	Jualin Process Area Treatment Pond	1.5	0.0	20,000	0	0.0	0.0	0	0
11	Jualin Process Topsoil Stockpile Area	0.3	0.3	10,000	1,367	0.0	0.0	0	0
12	Jualin Pumphouse Area	0.1	0.0	0	0	0.1	0.0	0	0
13	Jualin Access Road	33.8	30.7	26,000	20,355	8.2	7.1	0	0
14	Jualin Laydown Area #1	0.4	0.4	4,800	4,800	0.4	0.3	0.4	0
15	Jualin Laydown Area #2 (Batch Plant)	3.5	3.5	0	22,553	3.5	2.6	0	0
16	Jualin Laydown Area #3	0.8	0.5	0	0	0.8	0.5	0	0
17	Jualin Administration Area (Camp & Admin)	2.5	2.5	32,000	7,743	2.5	3.1	0	0
18	Jualin Borrow Source #1	2.0	2.0	0	0	0.0	0.0	0	0
19	Jualin Borrow Source #2	1.3	1.3	0	0	0.1	0.1	0	0
20	Jualin Borrow Source #3	3.6	3.6	0	0	2.4	1.8	3.6	0
21	Jualin Borrow Source #4	0.7	0.0	0	0	0.7	0.0	0.7	0
22	Tailings Facility Access Road & Pipeline	7.4	0.0	20,000	0	4.7	0.0	0	0

Table 2-1. Project Surface Disturbance.

Parcel #	Description	Permitted Disturbance Acreage Total	Actual Disturbance Acreage Total	COE Fill Volume (cu.yd.) Permitted	COE Fill Volume (cu.yd.) Actual	Acreage of Water of the U.S. as of January 1, 2006 Permitted	Acreage of Water of the U.S. as of January 1, 2006 Actual	Reclaimed Wetland Acres Permitted	Reclaimed Wetland Acres Actual
23	Tailings Facility Access Road	2.6	0.0	2,000	0	0.3	0.0	0	0
24	Tailings Lake (tailings as fill)	39.9	0.0	3,168,000	0	23.5	0.0	61.8	0
25	Tailings Lake Margin Working Area	17.9	0.0	450	0	8.5	0.0	8.5	0
25a	Tailings Lake Water Treatment Plant	0.0	0.0	1,000	0	0.2	0.0	0	0
25b	Tailings Lake Diversion Pipe Intake Dam	0.0	0.0	25	0	0.0	0.0	0	0
26	Tailings Dam Borrow Source	4.6	0.0	0	0	0.3	0.0	0.5	0
27	Tailings Pipeline & Access Road	10.1	0.0	15,000	0	3.0	0.0	2.8	0
28	Tailings Dam and Plunge Pool Area	6.8	0.0	120,000	0	5.9	0.0	5.9	0
29	Slate Creek Cove Marine Terminal	1.9	1.9	10,475	2,206	1.9	1.9	1.9	0
30	Slate Creek Cove Topsoil Stockpile Area	0.2	0.0	4,000	0	0.2	0.0	0.2	0
31	Jualin Topsoil Stockpile Area	0.0	0.0	in progress	0	in progress	7.0	in progress	0
	TOTALS	**194.1**	**92.5**	**4,104,750**	**102,024**	**83.7**	**36.5**	**101.8**	**0.0**

CF ENV 13.6.5 USFS_Dist & Wetland_Impactst_020806.xls

Topsoil and growth media salvaged during 2005 construction activities included slash, stumps, duff, A horizon soil, organic illuviated soils, and other suitable mineral soil. Approximately 300,000+ cubic yards of salvaged soil were placed at the Jualin Topsoil Stockpile Area (Parcel #31), located along the Jualin access road roughly half way between Slate Creek Cove and the Jualin Millsite area.

Timber was felled along the access road and Tailings Pipeline Access Road (Parcel #27), but had not been yarded as of year end 2005.

2.2.1 Storm Water Controls

Construction operations on both the Jualin and Comet sides of the Kensington Gold Project were conducted in compliance with storm water requirements. Both temporary construction Best Management Practices (BMPs) and permanent sediment pond BMPs were installed to control excess sediment production from disturbed areas that otherwise might enter waters of the state. A full accounting of storm water controls can be found in Appendix 4F of the USFS POO, entitled: Storm Water Pollution Prevention Plan (SWPPP) for the Kensington Gold Project.

Sediment ponds were constructed, silt fence was installed, check dams were placed in road ditches, and diversion channel was cut – in some cases including channel armoring. Designs for these construction BMPs are discussed in the SWPPP. Most operational (long-term) sediment ponds were constructed prior to year end, and all were constructed as designed in the SWPPP Addendum B, entitled Sediment Pond Design Kensington Gold Mine – Jualin Area Borough of Juneau, Alaska, January 26, 2006 (Table 2-2). Two addendums regarding updates to the SWPPP were submitted during 2005.

The nature of construction BMPs is transitory; i.e., they change in response to site conditions and the rapidly evolving ground conditions encountered during construction. Therefore, designs are dependent on site conditions, which may change day by day. However, as construction elements are completed, operational BMP sediment ponds can be developed, which discretely demonstrate compliance with the SWPPP "as amended".

Table 2-2. Summary of Permanent Sediment Ponds.

Location	*Watershed Area (sq.ft.)*	*Peak Flow 10-year (cfs)*	*Peak Flow 100-year (cfs)*	*Fine Pond Volume (cu.ft.)*	*Coarse Pond Surface Area (sq.ft.)*
Northern Mill Site (MSSP-1)	287,600	6.4	9.7	94,100	2,900
Southern Mill Site (MSSP-2)	242,000	5.4	8.2	79,300	2,400

Location	*Watershed Area (sq.ft.)*	*Peak Flow 10-year (cfs)*	*Peak Flow 100-year (cfs)*	*Fine Pond Volume (cu.ft.)*	*Coarse Pond Surface Area (sq.ft.)*
Haul Road A (HRA-1)	29,900	0.7	1.0	10,500	300
Batch Plant (CBP-1)	148,900	3.4	5.1	49,700	1,500
Topsoil Stockpile	309,700	6.5	10.1	97,600	2,900
Topsoil Stockpile (with Haul Road B)(HRB-1)	358,000	7.67	11.9	115,078	3,479
Waste Dump Expansion	203,000	4.41	6.8	66,036	1,980
Pit #4	182,000	3.97	6.1	59,392	1,780
Bridge #1 Pond	21,900	0.61	0.82	8,736	275

In addition to construction of BMP sediment ponds, site receiving water monitoring was conducted in compliance with the NPDES permit to help document compliance with state water quality standards. Receiving water sampling data are discussed below under NPDES monitoring (section 2.9.1).

2.2.2 Corps of Engineers Wetland Disturbance

An annual summary of wetland areas impacted and reclaimed is a requirement of the Corps of Engineers (COE) 404 fill permit. Wetland areas impacted are tallied in Table 2-1. Overall, total wetland disturbance as of year end 2005, including mechanical disturbance (e.g. logged) and soil excavation or fill placement was 36.5 acres.

2.2.3 Access Corridors

Road improvements were an initial priority of project construction. Improvements to the Jualin access road realized in 2005 included:

- Installation of storm water BMPs (please refer to section 2.2.1).
- Replacement of Jualin access road bridges 1 and 2.
- Road realignment at bridges.
- Tree removal.
- Roadway extension to mill site (Parcel #8).
- Initial construction of safety turnouts.

No modifications were made to the Kensington 850 Level Portal access road.

2.3 Mine Operations

2.3.1 Ore Production

Mill operations had not commenced during the reporting period, and no ore was produced.

2.3.2 Waste Rock Production

Construction activities in 2005 involved earthmoving operations, including clearing and grubbing of surface facility areas and partial earthwork for the facility benches. These earthworks do not constitute waste rock. Waste rock is non-ore removed from the mine for purposes of constructing underground infrastructure or access to ore. Fill material utilized for surface facility foundation preparation was solely derived from local sources and borrow sites and does not constitute waste rock.

Mine development produced 4050 bank cubic yards of waste rock, which were hauled outside and stored on the Kensington Waste Rock Storage Facility (Parcel #4). Construction of the New Jualin Drift had not commenced as of year end 2005 and as a result no waste rock was placed on the Jualin Development Rock Storage Facility (Parcel #9A).

Progress on the New Jualin Drift will commence in 2006 at which time waste rock production will commence. Waste rock will be placed on both the Jualin and Kensington waste rock storage areas.

2.3.3 Dust Suppression Activities

Construction activities were initiated on July, 2005 and were ongoing through year end. Late summer, fall and early winter 2005 were exceptionally wet and very limited road watering via water wagon was required.

2.4 Mill Operations

Initial work on the mill foundation bench was suspended as of year end 2005.

2.4.1 Gold Production

No gold or gold equivalent was produced during the reporting period.

2.4.2 Tailing Production

As the mill complex was in the early stages of construction, the project was not operational during 2005 and no tailing – the residual ground rock following ore beneficiation – was generated.

2.5 Solid/Hazardous Waste Generation and Transport

Solid waste was generated from the Comet and Jualin sides of the Kensington Gold Project, including but not limited to incinerator ash, construction debris, worn cable, and broken equipment. This material was managed in accordance with the approved ADEC

Solid Waste Management Permit. Coeur Alaska managed the Comet side operations from which approximately 49,820 pounds of solid waste, including 3,200 pounds of incinerator ash, were shipped to Juneau by a contract waste handling firm. These materials were then transported to disposal facilities or otherwise managed according to controlling regulations and permits (Table 2-2b).

Table 2-2b. Kensington Gold Project Solid Waste Shipment.

Date	Description	Camp	Quantity	Units
11/17/2005	empty corrosive containers	Comet	120	pounds
11/17/2005	Steel cable, wire metal	Comet	22000	pounds
11/17/2005	Steel cable, wire metal	Comet	4800	pounds
11/17/2005	Steel cable, wire metal	Comet	5600	pounds
11/17/2005	Steel cable, wire metal	Comet	1400	pounds
11/17/2005	empty corrosive containers	Comet	120	pounds
11/17/2005	used computer equipment	Comet	240	pounds
10/10/2005	cut wires and cable	Comet	400	pounds
10/10/2005	contaminated soil and dirt	Comet	2400	pounds
10/10/2005	old computers and monitors	Comet	120	pounds
10/10/2005	incinerator ash	Comet	400	pounds
10/10/2005	fluorescent light bulbs	Comet	50	pounds
10/10/2005	batteries	Comet	100	pounds
10/10/2005	ferric chloride & caustic soda	Comet	300	pounds
10/10/2005	empty 55 gallon drums	Comet	100	pounds
10/10/2005	rubber fuel bladders	Comet	300	pounds
10/10/2005	ice machine & steam table	Comet	200	pounds
10/10/2005	incinerator ash, cans, metal	Comet	1200	pounds
10/10/2005	Steel cable, wire metal	Comet	1500	pounds
10/10/2005	Steel cable, wire metal	Comet	1200	pounds
8/30/2005	empty ferric chloride 55 gal drums	Comet	50	pounds
8/30/2005	rubber coated wire and cable	Comet	400	pounds
8/30/2005	contaminated soil and dirt	Comet	2400	pounds
8/30/2005	old computers and monitors	Comet	120	pounds
8/30/2005	incinerator ash	Comet	200	pounds
8/30/2005	incinerator ash	Comet	200	pounds
8/30/2005	incinerator ash, cans, metal	Comet	1200	pounds
8/30/2005	Steel cable, wire metal	Comet	1500	pounds
8/30/2005	Steel cable, wire metal	Comet	1200	pounds

CF ENV 40.4/Waste Generation Summary Log.xls

Camp and construction operations on the Jualin side of the Kensington project are managed by contractors in the same general manner as those from Comet. That is, food wastes were incinerated and the ash and other solid waste was containerized and returned to Juneau for proper management. The construction camp was occupied from October through year end, and no shipments of waste were returned to Juneau during 2005.

TCLP aqueous solution extraction results for incinerator ash samples collected on August 22, 2005 for the Comet Camp incinerator show only barium and/or cadmium exceed method detection limits. Of four samples measured, all show barium from 0.18 to 0.46 mg/L (average 0.34) and cadmium between non-detect and 0.11 mg/L (average 0.057). These values are orders of magnitude below characteristic levels for hazardous waste (barium = 100, cadmium = 1.0 mg/L).

Hazardous waste, including Universal waste, generated at the site could include:

- Lead/acid batteries
- Rolled roofing
- Lamps
- Dry cell batteries
- Computer backup power supplies

A waste contractor packaged, transported, and managed wastes from the Comet Beach and Jualin sides of the Kensington Gold Project (Table 2-2b). None of these materials were manifested as hazardous. Universal wastes (batteries, lamps, mercury switches) need not be manifested. Therefore, in no month was more than 100 kg of hazardous waste generated, accumulated, or transported to Juneau for disposal.

2.6 Tailings Storage Facility

During 2005, no construction was initiated on the Tailings Storage Facility (TSF). Timber was felled but not yarded on the permitted disturbance area along the east shore of Lower Slate Lake (Parcels #24 & 25) in anticipation of construction activities scheduled for spring/summer 2006.

2.7 Compliance

ADEC brought one compliance action against Coeur Alaska for non-conformity to the approved SWPPP. A Notice of Violation was issued and a remedial action plan was agreed between EPA, ADEC, and Coeur Alaska. A revised and detailed SWPPP was prepared and approved.

During 2005, all other project activities were in full compliance with authorizing permits and plans. One component of these plans is the reporting of hydrocarbon spills. Spills that occurred during 2005 were all very small, yet each release was taken very seriously and all site resources were brought to bear on clean-up – as appropriate – on each occurrence. A total of eight incidents were reportable during 2005 (Table 2-3).

Table 2-3. 2005 Spill History.

Date	Description	Quantity	Units	Hydrocarbon
12/13/2005	Camp generator injector break.	<1	gallon	diesel
11/5/2005	Hose slipped off pump while pumping used oil from 850 generator.	1	gallon	used oil

Date	Description	Quantity	Units	Hydrocarbon
9/29/2005	Slate Creek Cove drill rig hydraulic hose break.	3	gallon	hydraulic oil
9/28/2005	Skid mounted core drill dropped while offloading in Slate Creek Cove, puncturing fuel tank.	2.5	gallon	diesel
9/28/2005	Skid mounted core drill dropped while offloading in Slate Creek Cove, puncturing fuel tank (same incident as above).	1	gallon	hydraulic oil
9/11/2005	Forklift dropped generator into Slate Creek Cove on unloading from landing craft.	2	gallon	diesel
9/10/2005	Veco contractor - unspecified.	<1	gallon	diesel
8/24/2005	Aviation fuel bladder seal leaked on offloading at Comet Beach.	2-3	ounces	aviation fuel
8/20/2005	Severed transmission cooler line.	4-5	quarts	transmission oil

CF ENV 40.4/Waste Generation Summary Log.xls

2.8 Reclamation

No permanent reclamation was performed in 2005. Interim stabilization of some construction areas was performed as a BMP under the approved SWPPP plan.

2.8.1 Revegetation Test Plots

Revegetation test plots will be installed at the Tailings Storage Facility (TSF) following construction of the Phase I dam and flooding of the reservoir. As construction of the dam and TSF had not been initiated in 2005 these test plots were not installed during the reporting period.

2.9 Monitoring

2.9.1 NPDES

Results of the extensive monitoring program contained in the Kensington Gold Project NPDES permit AK-005057-1 is compiled in the NPDES Annual Water Quality Monitoring Summary Volume 1: Aquatic Resource Surveys 2005, and Volume 2: Water Quality Data (Coeur, 2005a). This report was submitted to the US Forest Service, Juneau under separate cover.

2.9.2 Fresh Water

Fresh water monitoring requirements are contained within the USFS POO. Monitoring performed for the NPDES permit and summarized in the Kensington Gold Project NPDES Permit AK-005057-1 Annual Water Quality Monitoring Summary 2005 Volume 2: Water Quality Data (Coeur, 2005b) are inclusive of requirements under the USFS POO. This report was submitted to the US Forest Service, Juneau and EPA, Seattle under separate cover, as the NPDES 2005 Annual Report.

2.9.3 Water Usage

Under requirements of the ADNR water rights, certain water usage and stream flow submittals are prepared. Some of these filings are made monthly while others are submitted quarterly. These reports are available at ADNR's offices, Juneau.

2.9.4 Aquatic Resource Surveys

The USFS POO references aquatic resource surveys, which are to include:

- Annual photographs of stream habitat types.
- Fish surveys and minnow trapping in Upper Slate Lake.
- Salmon escapement surveys in Sherman, Slate, and Johnson Creeks.

Annual photographs of stream habitat types are included in the Kensington Gold Project NPDES Permit AK-005057-1 Annual Water Quality Monitoring Summary Volume 1: Aquatic Resource Surveys 2005 (Coeur, 2005a).

Fish surveys and minnow trapping in Upper Slate Lake will commence contemporaneously with TSF construction activities. These activities were not initiated during 2005 and thus no data are available to report.

Baseline aquatic vegetation mapping was conducted on Upper and Lower Slate Lakes, Spectacle Lake, and Fat Rat Lake (Attachment 2). Field work was conducted in late August 2005. Plant species were mapped via boat or shore surveys. Plant species identified were categorized as 1) emergent, 2) submerged, 3) floating, or 4) moss. GIS data management on orthophotos provides effective data presentation and manipulation.

Salmon escapement surveys were performed in 2005 on Sherman, Slate, and Johnson Creeks. Tabulations of these data are presented in the Kensington Gold Project NPDES Permit AK-005057-1 Annual Water Quality Monitoring Summary Volume 1: Aquatic Resource Surveys 2005.

2.9.5 Marine

The U.S. Forest Service Plan of Operations Appendix 4.d. contains a marine monitoring program for Berners Bay. Requirements of this monitoring plan have been contracted to various agencies that are responsible to implement and report on portions of the plan (Table 2-4).

Table 2-4. Marine Monitoring Plan.

Marine Monitoring Plan Component	Responsible Party and Arrangement	Status
Cascade Point herring surveys Contact: Kevin Monagle 465-4206 Kevin_monagle@fishgame.state.ak.us	Alaska Department of Fish and Game by MOU dated July 22, 2005 contained in USFS POO Appendix 3	ADFG Commercial Fisheries conducted surveys of Berners Bay as a component of regional herring surveys. 2005 results are in draft form. Interim results say; "…spawning activity for the entire Lynn Canal herring stock [is] now centered between Bridget Cove and the west shoreline of Berners Bay. Since 1982 the documented spawn has ranged from 0.5 to 9 nautical miles, averaging only 3.7 nautical miles…". The 2005 survey showed 1.4 nmi of spawn compared to 5.1 nmi in 2004 between Bridget Cove and the mouth of Cowee Creek. 2005 spawn was not referenced at Cascade Point.
Marine mammal and water bird occurrence associated with Kensington Gold Project Slate Creek Cove barge facility and Cascade Point ferry terminal during construction Contact: Aleria Jensen 586-7248 Aleria.Jensen@noaa.gov	National Marine Fisheries Service by Contract to Coeur Alaska, and Coeur Alaska	Ferry activities have not begun in support of the Kensington Gold Project. A work plan was developed but not implemented in 2005 due to timing issues. for mammal monitoring was in the planning stages during 2005 and should be agreed and implemented in 2006.
Hydrocarbon monitoring at Cascade Point ferry terminal Contact: Patricia Harris 789-6022 Pat.Harris@noaa.gov	National Marine Fisheries Service by Contract to Coeur Alaska	Hydrocarbon samples were collected per the approved work plan, but analyses were not available in time to be incorporated into this annual report.

Marine Monitoring Plan Component	Responsible Party and Arrangement	Status
Cascade Point breakwater colonization as it may effect herring spawning Contact: Kevin Monagle 465-4206 Kevin_monagle@fishgame.state.ak.us	Alaska Department of Fish and Game by MOU dated July 22, 2005 contained in USFS POO Appendix 3	ADFG performed dive investigations of Cascade Point habitat. Results are preliminary and will be available in 2006.

CF ENV 31.4.3 Berners Bay Studies Status.docs

2.9.6 Air

During the period, quarterly Facility Operating Reports, including fuel use summaries, were submitted to the Fairbanks office of ADEC Air Permits Program (610 University Avenue) in compliance with ADEC air quality permits. These reports are not reproduced here, but can be found in the offices of ADEC, Fairbanks.

2.9.7 Archeology

A contract archeologist (Walking Dog Archeology of Anchorage, AK) was employed to monitor site construction work from July 11 through September 11, 2005. Following that time, construction operations were shifted entirely to storm water control efforts.

Archeological monitoring was conducted at the mill site pad, new construction pad, batch plant, and road extension. The summary report for 2005 archaeological monitoring activities is attached to this annual report (Attachment 2b). No previously undiscovered or undocumented sites were observed. A number of artifacts were encountered and collected from known sites. These are in the care of Coeur Alaska and will be managed is consultation with the controlling agencies.

2.9.8 Ecological Monitoring for Fish Habitat Permits

An ecologic monitoring plan for Upper and Lower Slate Lakes and East Fork Slate Creek is required by ANDR Fish Habitat Permit FH05-1-0050 and Permit # SF-2005-161. In October 2005 an initial minnow trapping effort was undertaken by Coeur staff of Upper Slate Lake and its inlet stream (Attachment 3). A total of six minnow traps were set in the lake and inlet stream. The trap opening limited fish size captured. Following an overnight soak, only one of 17 fish captured – the largest – showed spawning colors. It was hypothesized spawning may occur later in the year and/or spawners may be of a larger size class.

2.9.9 Marine Vessel Transportation

It is a requirement of the Berners Bay Transportation Policy, Mitigation, and BMP Plan to collect information on company marine vessel encounters with special fish, marine mammals, and important bird species during the eulachon spawning season in Berners Bay. A work plan was under negotiation with NMFS as of year end 2005. During 2005,

no ferry service occurred in Berners Bay. The temporary Slate Creek Cove dock was monitored during construction and no marine mammals were observed. Field data sheets were faxed to Aleria Jensen at NMFS, Juneau in March 2006.

Monitoring of mammals within the Bay did commence following the reporting period in mid March 2006 wherein select flight personnel traveling to and from the mine site over Berners Bay. Flight co-pilots are observing and recording sightings on maps, which are then relayed to the Juneau Coeur office for compilation.

2.9.10 Waste Rock and Tailings

Waste rock and tailing sampling for acid base accounting (ABA) is a requirement of the POO. As noted in section 2.3.2 above, limited waste rock was produced and placed on the Comet side storage facility. No sampling of this material was performed as only minimal volume was produced. Sampling for acid base accounting will be initiated with full mine development in 2006.

No tailings were generated during 2005. Future quarterly sampling of tailing for acid base accounting will commence following project commissioning and commercial production.

2.9.11 Wildlife

2.9.11.1 ADFG Goat Monitoring

Mountain goat monitoring in the Lions Head Mountain area associated with the Kensington Gold Project has been conducted intermittently since the late 1980's, in part to help determine mine impacts on this population. The current ADFG goat study contains three study areas 1) Lion's Head, 2) South Katzehin, and 3) North Katzehin. Twenty two goats had been GPS/radio collared from inception of the project in August 2005 and year end 2005. Winter snow curtailed collaring activities, but plans exist to collar a further 38 goats in 2006 for a total of 60 collared goats. GPS collars record location information every 6 hours and are remotely downloaded via fixed wing aircraft on two month intervals. Data recovery averaged 80%, including during use of winter low elevation timbered habitat. One goat died and may have incurred fatal injuries as a result of collaring activities (ADFG, 2006).

2.9.11.2 Raptor and Heron Observations

A condition of the USFS POO is to collect opportunistic observations of raptor and heron presence in the Kensington Gold Project area. Observations are to be collected by company employees on an opportunistic basis in the normal performance of job duties. Several observations were made of raptors and herons during the reporting period. Individual observation sheets were filled out and filed in Coeur Alaska Environmental Department files for future compilation.

2.9.11.3 TSF and Upper Slate & Spectacle Lake Waterfowl Observations

Similar to raptor and heron observations discussed in the proceeding section, waterfowl observations are to be collected in the area of the tailings storage facility (TSF) and Upper Slate and Spectacle Lakes. Observations are to be made by company employees on an opportunistic basis in the normal performance of job duties. During 2005, no construction activities were undertaken at the TSF or the associated Upper Slate and Spectacle Lakes. Observations for waterfowl in these areas are predicated on initiation of construction activities in 2006.

To provide a baseline of area wildlife habitat, Coeur Alaska commissioned a study by a local wildlife contractor (Attachment 4). That report's findings describe the area as poor mammal habitat, supporting transient use, but good geese habitat with evidence of use at all the open water bodies.

2.10 Dam Safety Oversight Status

The dam safety approval to construct was recently issued in March 2006 (following the reporting period). As authority for dam construction was not issued in 2005, no construction occurred on the dam or appurtenant facilities. Phase I dam construction will commence in 2006 in accordance with permit stipulations, including such items as notification of construction commencement and results of geological/geotechnical foundation inspections.

3 Projected Activities for 2006

3.1 Key Issues and Permitting Activities

The Kensington Gold Project was under construction during the reporting period and will continue in this status during much if not all of 2006. As conditions in the field may vary from conditions projected during initial permitting, it is likely that modifications to approved permits, plans, leases, and other authorizations may be requested. These modifications cannot be anticipated prior to actually encountering changed conditions in the field. It is anticipated any such potential changes or modifications will be relatively minor in scope.

3.2 Public Safety

No changes to the Public Access Control Plan are contemplated for 2006.

3.3 Mine Operations

Project construction will be the primary focus of 2006 activities. Some mine development may be excavated in ore, in which case the ore will be stockpiled on surface or underground as mill feed.

3.4 Mill Operations

Mill commissioning and start-up are anticipated in late 2006.

3.5 Tailings Storage Facility

The TSF Phase I dam will be under construction in 2006. The TSF will begin receiving tailings with mill commissioning and startup.

3.6 Access Corridors

Access road and corridor upgrades will be completed relatively early in 2006.

3.7 Reclamation

No significant reclamation activities are anticipated in 2006. Temporary stabilization activities; such as interim cover on the topsoil stockpile, will be undertaken.

3.8 Proposed Modifications to Monitoring Plans for 2006

Modifications to the anadromous fish population inventories in Sherman, Slate, and Johnson Creek will likely be formulated and proposed to the appropriate agencies. No specific modifications of this plan are proposed in this annual report.

3.9 Bonding

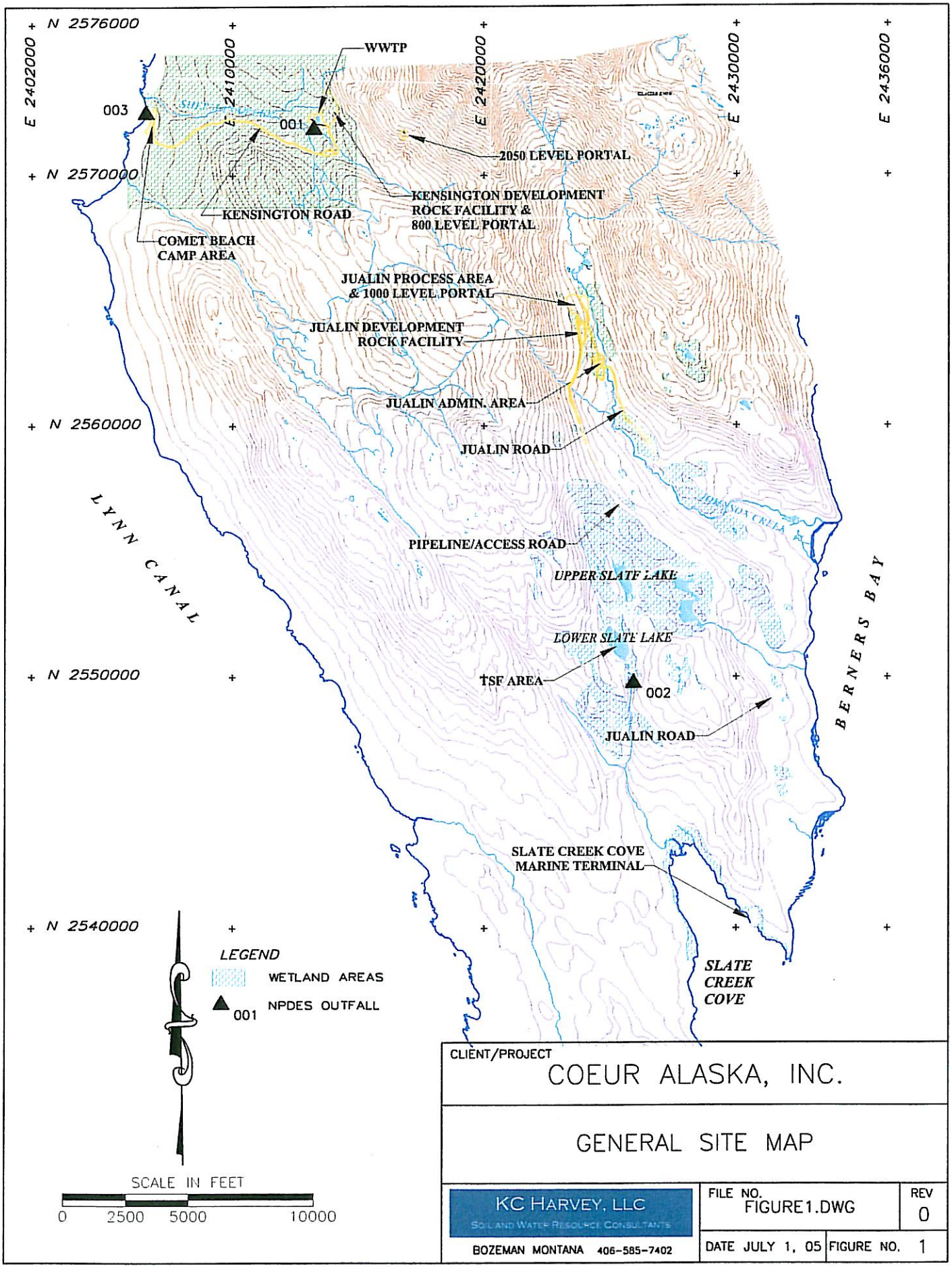
The Kensington Gold Project is currently bonded for full development – including the tailings storage facility – as described in the 2005 FSEIS and USFS Record of Decision. No modification of that bond calculation is proposed herein.

4 2005 Water Balance

Project construction is currently underway, therefore no water balance measurements area available. Upon project commissioning and startup, data will be captured on the overall mine/mill/TSF water balance to verify projected water usage, conservation, and discharges. These data will help confirm projected water production, allowable discharge quantities ("net precipitation"), water use, and efficient recycle. Coeur Alaska is presently collecting additional baseline information, which will be of use in water balance preparation.

Attachment 1

Project Area



CLIENT/PROJECT

COEUR ALASKA, INC.

GENERAL SITE MAP

KC HARVEY, LLC
SOIL AND WATER RESOURCE CONSULTANTS
BOZEMAN MONTANA 406-585-7402

FILE NO.	REV
FIGURE1.DWG	0
DATE JULY 1, 05	FIGURE NO. 1

Attachment 2

Baseline Aquatic Vegetation Mapping in the Slate and Spectacle Lakes Complex, August 2005, Koren Bosworth, Juneau, AK.

Baseline Aquatic Vegetation Mapping in the Slate and Spectacle Lakes Complex

August 2005

Prepared for Coeur Alaska

By

Koren Bosworth
Juneau, Alaska

Introduction

The lakes of the Slate and Spectacle Lakes Complex were surveyed in August, 2005 for aquatic vegetation. Plant species were identified, a community classification was devised, coverage amounts were determined and maps were made using GIS.

Methods

Field surveys were conducted for Lower Slate, Upper Slate, Fat Rat and the Spectacle Lakes on August 24, 25 and 26, 2005. Shore and boat-based photo survey and field mapping was conducted for the vegetated portions of all water bodies. High altitude aerial photos were used to make sketch maps of the 5 lakes surveyed in the Slate Lake area. These maps along with digital photography were used in the field to record and locate the aquatic plant species and plant communities in the lakes. Aquatic reconnaissance was done in all but Fat Rat Lake, in an inflatable raft and was aided by a hand held bottom dredge and a digital rangefinder. (In Fat Rat Lake, a much smaller lake, the survey was done from the shoreline.) The plant communities included were all aquatic communities, including those as shallow as emergent aquatic types – the survey did not include the wetland communities that were often found at the inlet end of most of the lakes. Floating *Sphagnum* mat communities were included as aquatic as they usually were floating in relatively deep water. Plant species for each community were recorded and unknowns were collected and identified to species. Nomenclature generally follows Hulten(1968) except for the genus *Potamogeton* which follows Douglas, Meidinger and Pojar (2001).

Photo points were linked to GPS positions using GPS-photolink software (http://www.geospatialexperts.com/). This information was transferred to a GIS that included USFS orthophoto quarter quads (6 foot pixel resolution) and 20 foot contours. Heads up digitizing of aquatic vegetation communities was conducted over USFS orthophoto quads. The photo interpretation was supported by the georeferenced ground survey photos, field maps and low elevation (approximately 1,000 feet) true color aerial imagery taken from several helicopter flights in the summer of 2005.

Classification of individual covertype patches was determined by the ecologically dominant plant species and acreages of covertypes was measured.

Results

PLANT SPECIES

Table 1: Plant Species list (project wide)

(E) Emergent
(S) Submerged
(F) Floating
(M) Moss

Callitriche anceps (F)
Callitriche verna (S)
Carex livida (E)
Carex rostrata (E)
Carex sitchensis (E)
Chara sp.(S)
Eleocharis palustris (E)
Eriophorum russeolum (E)
Hippuris vulgaris (E)
Juncus bufonius (E)
Menyanthes trifoliata (E)
Nuphar polysepalum (F)*
Oxycoccus microcarpus (E)
Potamogeton alpinus (S)**
Potamogeton epihydrus (F)**
Potamogeton gramineus (F)**
Potamogeton natans (F)**
Potamogeton pusillus (S)**
Potentilla palustris (E)
Sparganium angustifolium (S)
Sparganium emersum (S)
Sparganium hyperboreum (S)
Sphagnum sp. (M)
Utricularia minor (S)
Viola glabella (E)

*The pond lilies (*Nuphar polysepelum*) that we measured were always in water under 15 ft. deep.

**the pondweeds grew in water slightly deeper than the pond lilies – we saw them in water up to 18 ft.

Tables 2-5: Species lists by lake:

Lower Slate Lake

Carex livida (E)
Carex rostrata (E)
Carex sitchensis (E)
Chara sp.(S)
Hippuris vulgaris (E)
Menyanthes trifoliata (E)
Nuphar polysepalum (F)
Potamogeton alpinus (S)
Potamogeton gramineus (F)
Potamogeton natans (F)
Potamogeton pusillus (S)
Potentilla palustris (E)
Sparganium angustifolium (S)
Sparganium hyperboreum (S)
Sphagnum sp. (M)

Upper Slate Lake

Carex livida (E)
Carex sitchensis (E)
Chara sp.(S)
Hippuris vulgaris (E)
Menyanthes trifoliata (E)
Nuphar polysepalum (F)
Potamogeton alpinus (S)
Potamogeton gramineus (F)
Potamogeton natans (F)
Potamogeton pusillus (S)
Potentilla palustris (E)
Sparganium angustifolium (S)
Sparganium emersum (S)
Sparganium hyperboreum (S)
Sphagnum sp. (M)

Upper and Lower Spectacle Lakes

Callitriche anceps (F)
Callitriche verna (S)
Carex livida (E)
Carex sitchensis (E)
Chara sp.(S)

Eleocharis palustris (E)
Eriophorum russeolum (E)
Hippuris vulgaris (E)
Juncus bufonius (E)
Menyanthes trifoliata (E)
Nuphar polysepalum (F)
Oxycoccus microcarpus (E)
Potamogeton alpinus (S)
Potamogeton epihydrus (F)
Potamogeton gramineus (F)
Potamogeton natans (F)
Potamogeton pusillus (S)
Potentilla palustris (E)
Sparganium angustifolium (S)
Sparganium hyperboreum (S)
Sphagnum sp. (M)
Utricularia minor (S)
Viola glabella (E)

Fat Rat Lake

Carex livida (E)
Carex sitchensis (E)
Chara sp.(S)
Eleocharis palustris (E)
Eriophorum russeolum (E)
Hippuris vulgaris (E)
Menyanthes trifoliata (E)
Nuphar polysepalum (F)
Oxycoccus microcarpus (E)
Potamogeton gramineus (F)
Potamogeton natans (F)
Potamogeton pusillus (S)
Potentilla palustris (E)
Sparganium angustifolium (S)
Sparganium hyperboreum (S)
Sphagnum sp. (M)

PLANT COMMUNITIES

Six aquatic vegetation community covertypes were used for complete mapping of each water body, including: Open Water (OW), Pond Weed(PW), Pond Lily(PL), Burreed(B), Floating Mat(FM), and Sitka Sedge(SS). Although data displayed in existing map products reflects only 7 distinct covertypes there were 41 unique aquatic plant assemblages.

Tables 6-9: Plant Community Covertype Acreages by Lake

Spectacle Lakes

Covertype	Acreage
Sitka sedge	2.5
Floating mat	0.6
Burreed	0.8
Pond lily	3.8
Pond weed	0.3
Open water	12.8

Upper Slate Lake

Covertype	Acreage
Sitka sedge	0.9
Floating mat	0.0
Burreed	0.03
Pond lily	1.2
Pond weed	0.7
Open water	9.1

Lower Slate Lake

Covertype	Acreage
Sitka sedge	0.3
Floating mat	0.6
Burreed	0.4
Pond lily	2.3
Pond weed	1.0
Open water	17.1

Fat Rat Lake

Covertype	Acreage
Sitka sedge	0.1
Floating mat	0.1
Burreed	0.0
Pond lily	1.3
Pond weed	1.0
Open water	0.2

Table 10: Plant Community Covertype Species Composition and Relative Amounts

(Species listed by 1st two letters of plants genus and species and relative amounts uses following classification)

A- Abundant
C -Common
S -Scattered
F -Few
L –Local (modifier)

Type	Species
Burreed	SPHY_C, CASI_LF, METR_S, NUPO_F, HIVU_F
Burreed	SPHY_C, CASI_LF, METR_S, NUPO_F, POGR_S, HIVU_F
Burreed	SPHY_C, CASI_LF, METR_S, NUPO_LS
Burreed	SPHY_C, CASI_LF, METR_S, NUPO_S
Burreed	SPHY_F
Burreed	SPHY_S
Floating Mat	CASI_LC, METR_S, POPA_F, SPsp_A
Floating Mat	CASI_LC, METR_S, POPA_F, SPsp_A, ERRU_LS
Floating Mat	CASI_S, CALI_F, METR_F, POPA_F, SPsp_A, ERRU_LS, ELPA_LF, OXMI_C, NUPO_S, SPAN_LF
Floating Mat	CASI_S, METR_LC, POPA_F, SPsp_A, ERRU_LF, JUBU_F
Floating Mat	CASI_S, METR_S, POPA_F, SPsp_A, ERRU_LF, JUBU_F
Open Water	Open Water
Pond Lily	NUPO_A, CHARA_F, POAL_S, METR_F
Pond Lily	NUPO_A, METR_S, PONA_S, CHARA_C, POGR_S, POPU_S
Pond Lily	NUPO_A, PONA_LC, CHARA_C, POPU_S, POGR_S, SPHY_LS
Pond Lily	NUPO_A, PONA_S, CHARA_C, POGR_S, POPU_S
Pond Lily	NUPO_A, PONA_S, CHARA_C, POGR_S, POPU_S, METR_S
Pond Lily	NUPO_A, PONA_S, CHARA_C, POGR_S, POPU_S, SPEM_F
Pond Lily	NUPO_A, PONA_S, CHARA_C, POGR_S, POPU_S, SPHY_LF
Pond Lily	NUPO_A, PONA_S, CHARA_C, POPU_S, POGR_S
Pond Lily	NUPO_A, PONA_S, CHARA_C, POPU_S, SPHY_LC
Pond Lily	NUPO_S, POGR_S, SPHY_LS, HIVU_LF
Pond Lily	NUPO_S, POGR_LS, HIVU_F, SPHY_F, UTMI_R, CAVE_F, METR_F, CARA_S, POPU_S, SPAN_F, PONA_F, POEP_F
Pond Lily	NUPO_S, PONA_F, CHARA_S, POGR_F, POPU_S
Pond Lily	NUPO_S, PONA_S, CHARA_C, POGR_S, POPU_S

Pond Weed	PONA_A, CHARA_C, POPU_C, POEP_F, CAAN_F
Pond Weed	PONA_C, CHARA_A, POPU_C, POGR_F, POAL_S, NUPO_S
Pond Weed	PONA_C, CHARA_C, POPU_S, POGR_S, POAL_F
Pond Weed	PONA_F, CHARA_A, POPU_C, POGR_F, POAL_S
Pond Weed	PONA_S, CHARA_S, POPU_S, POAL_F, SPHY_LF
Sitka Sedge	CASI_A, METR_C, POPA_F, CARO_LR
Sitka Sedge	CASI_A, METR_LC, SPsp_C
Sitka Sedge	CASI_A, METR_S
Sitka Sedge	CASI_A, METR_S, POPA_F, HIVU_R
Sitka Sedge	CASI_A, METR_S, POPA_F, CARO_R, HIVU_R
Sitka Sedge	CASI_A, METR_S, POPA_F, HIVU_R, CALI_F, SPsp_A
Sitka Sedge	CASI_A, METR_S, POPA_F, SPsp_S
Sitka Sedge	CASI_A, METR_S, SPsp_S
Sitka Sedge	CASI_C, METR_S, POPA_F, HIVU_F, SOso_A, ERRU_LC, VIGL_F
Sitka Sedge	CASI_S, METR_S, POPA_F, HIVU_F

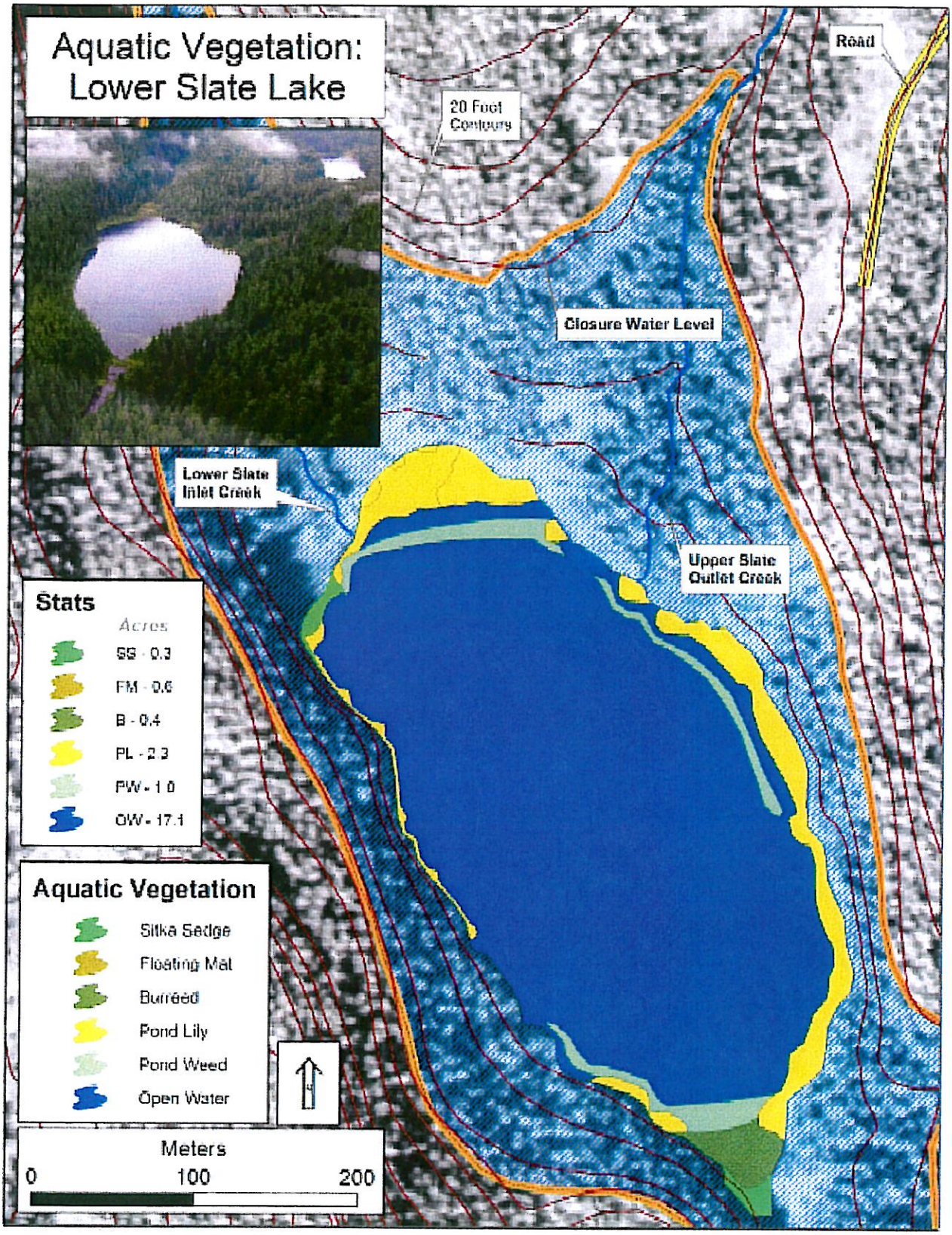


Figure 1: Lower Slate Lake Aquatic Vegetation Map

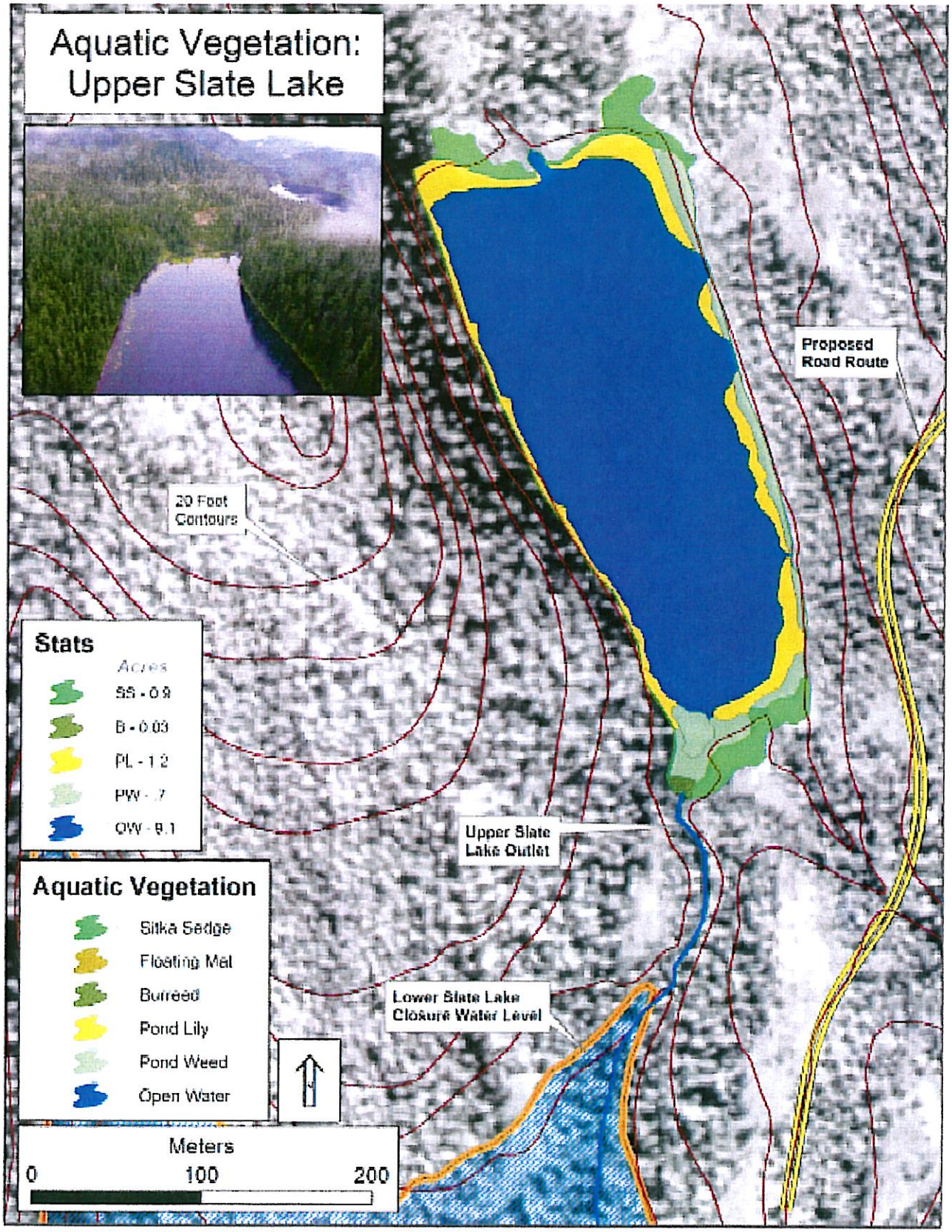


Figure 2: Upper Slate Lake Aquatic Vegetation Map

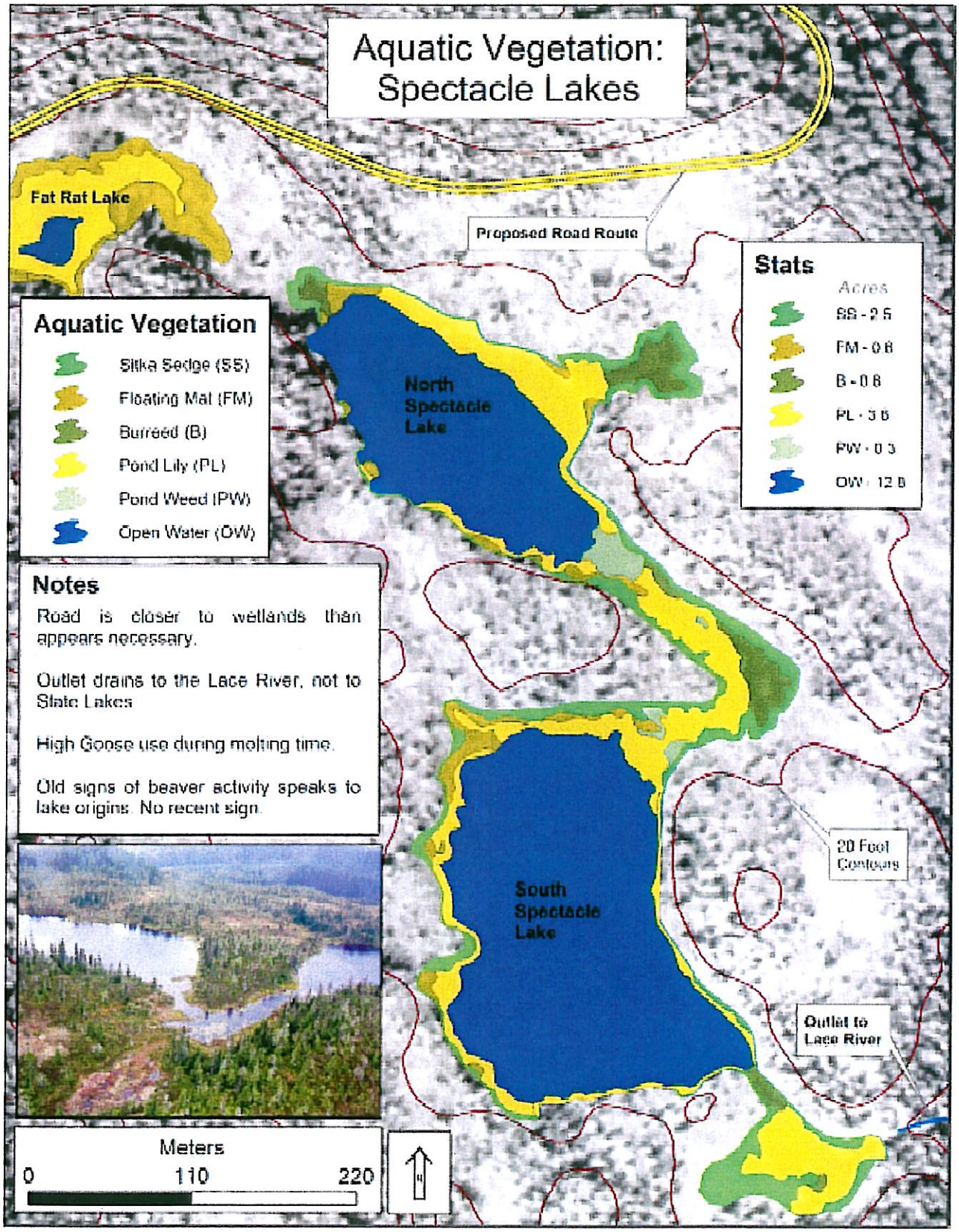


Figure 3: Spectacle Lakes Aquatic Vegetation Map

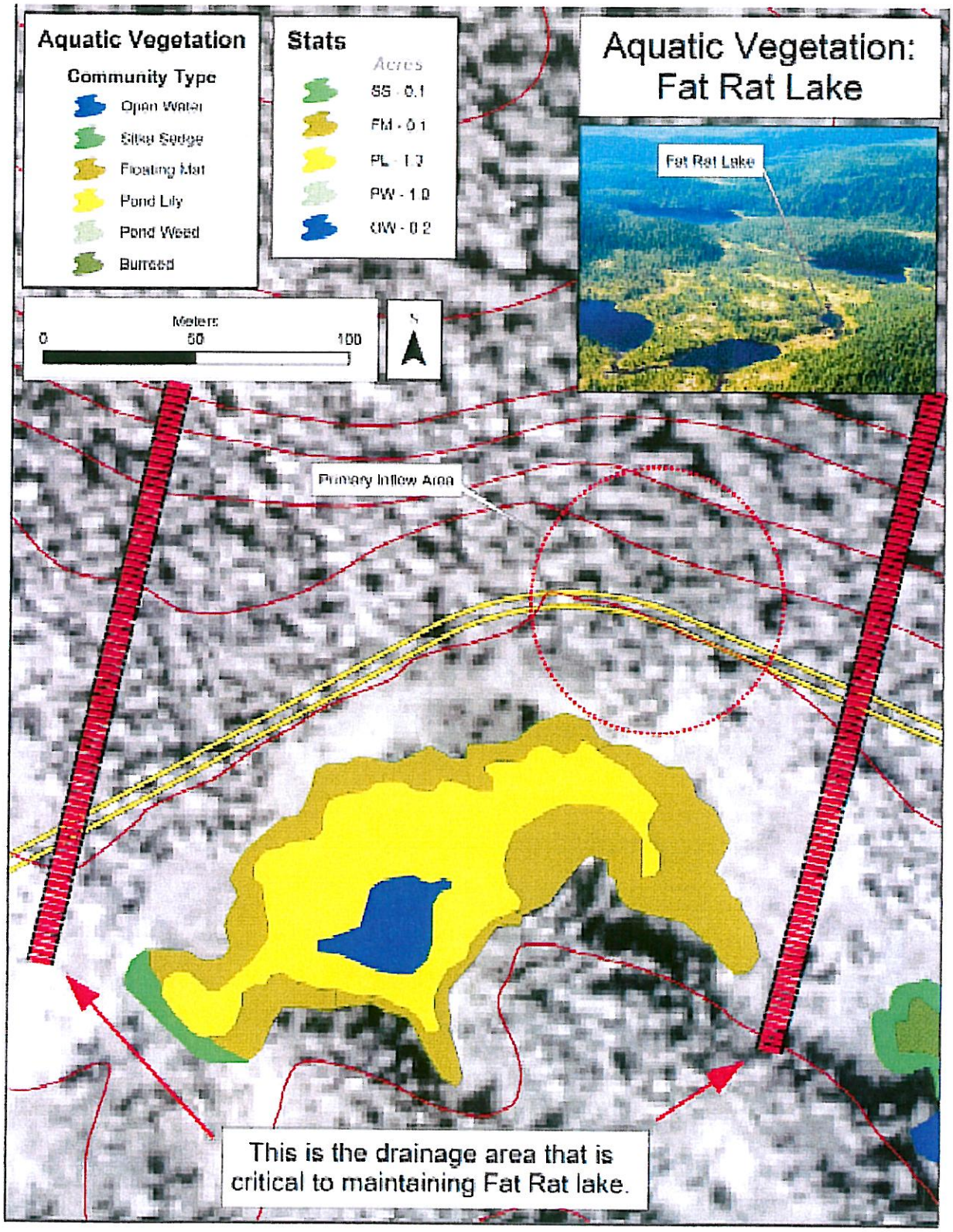


Figure 4: Fat Rat Lake Aquatic Vegetation Map

Attachment 3

Report Prepared for ADFG for collection activities under Permit # SF-2005-161: Upper Slate Lake, North Berners Bay, Elizabeth Flory, December 2005.

Report Prepared for ADFG for collection activities under Permit # SF-2005-161: Upper Slate Lake, North Berners Bay.

By Elizabeth Flory PhD,
Aquatic Science Inc.,
4546 River Road,
Juneau AK 99801
907-364-2857

December 2005

Introduction

Upper Slate Lake is approximately 12 acres in surface area and is thought to support a population of approximately 1500 Dolly Varden (Ed Kline pers. Comm.). The lake bed consists of mostly soft organic sediments unsuitable for spawning, but the inlet creek to the north provides gravel substrate near the shore. Resident Dolly Varden in Southeast Alaska are thought to spawn around October through November. This report describes an attempt to determine Dolly Varden spawning, timing and location under ADFG permit SF-2005-161.

Methods

Minnow trapping was performed once during October, 2005 at the north end of Upper Slate Lake to examine the coloration of Dolly Varden (Figure 1). Four traps with 1.5 inch diameter entrance holes, baited with cured salmon eggs, were set in an inlet stream to the lake and 2 traps were set in the lake itself, at 1600 hours on October 18 (Figure 3 to 5). A large diameter entrance hole was used to allow larger fish, which might be more likely to spawn, to enter the trap. The traps were left to soak overnight and fish recovered at 0900 the next morning. Water temperature and pH were recorded at the time of fish recovery at each location. Captured fish were anesthetized in a solution of tricaine methanesulfonate (MS-222), weighed to the nearest 0.1g and their total length measured to the nearest 1mm. The fish were then placed in a bucket of fresh stream water with an aerator to recover before being returned to the locations from which they were captured.

Results

17 Dolly Varden were captured after 17 hours soaking. 2 of the traps in the creek were empty with the bait removed. One of the traps set in the lake contained 12 fish of various sizes. Water temperature of the lake at the minnow trap site (12 inches deep) was 5.4 °C while pH was 7.42. The inlet stream had a temperature of 4.7 °C and pH of 8.00. Table 1 provides the lengths and weights of fish captured in each trap. Fish ranged in length from 64mm to 197mm (Table 1, Figure 2). Only the largest fish showed any potential spawning coloration with orange belly and spots and white tips to the fins (Figure 6). No milt was evident in any of the fish. No redds were observed in the inlet creek or lake shore gravel.

Discussion

The traps captured mostly fish smaller than 170mm. The size of the trap entrance hole limits the size of fish that may enter. Larger fish are more likely to be mature and ready to spawn, therefore this method may not sample the spawning population very effectively. The larger entrance holes used may also allow fish to escape more easily. Overnight soaking was selected since fish tend to be inactive at water temperatures less than 8°C. A shorter soak time may yield more fish. Only one fish greater than 190mm was captured and this was the only fish that displayed potential spawning coloration.

Spawning may also occur later than mid-October. Further sampling is required to determine timing.

Figure 1: Location of sampling area

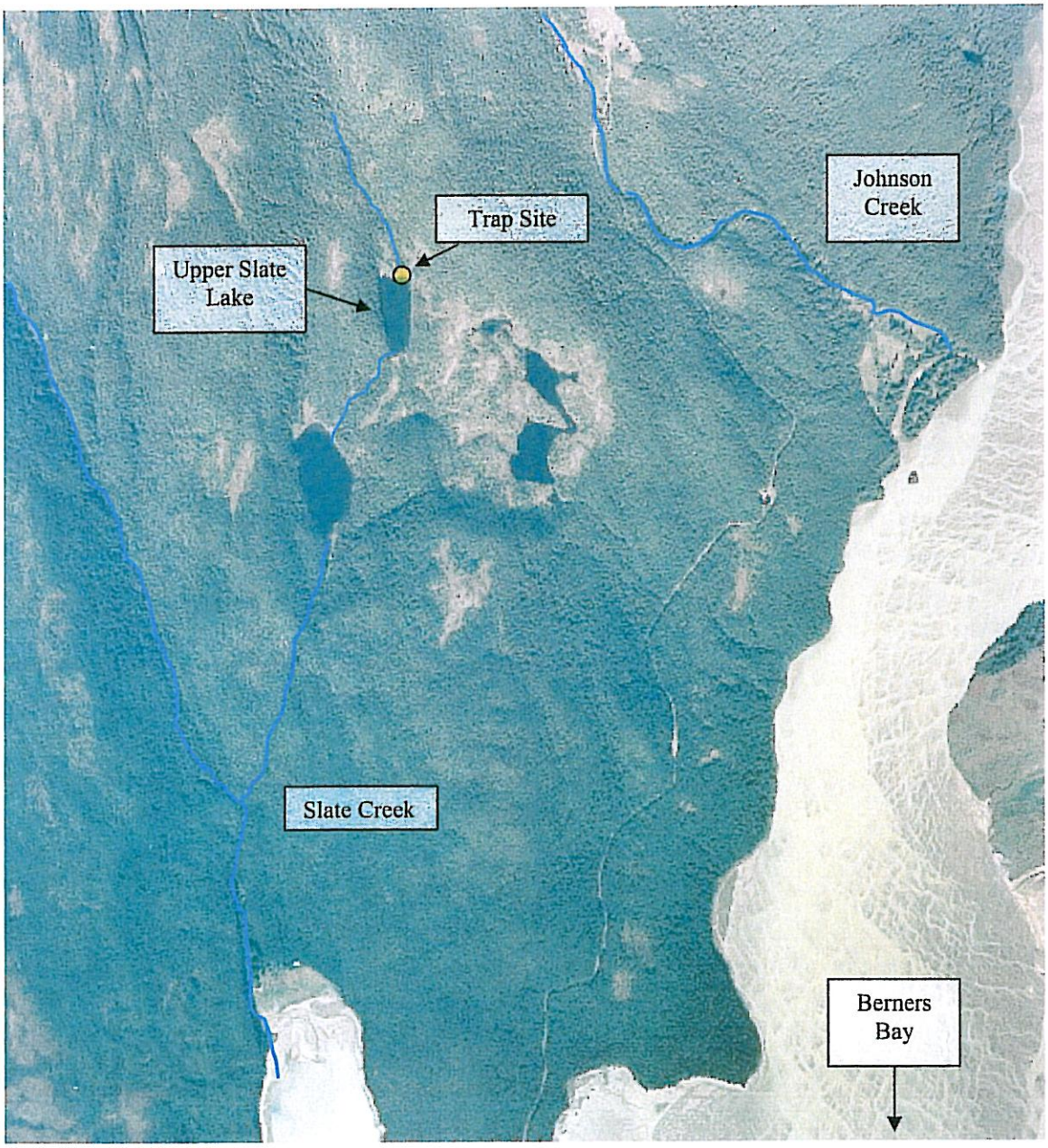


Table 1: Length and weights of Dolly Varden

Traps 1 & 2 set in lake; traps 3 to 6 set in creek

Trap #	Fish Length (mm)	Fish Weight (g)
1	130	17.4
2	64	1.9
2	65	1.9
2	93	6.0
2	93	6.3
2	98	6.4
2	116	11.5
2	136	18.8
2	151	24.2
2	151	25.3
2	154	25.3
2	159	26.5
2	170	33.4
5	95	5.8
6	132	17.6
6	160	26.0
6	197	56.9

Traps 3 & 4 empty

Figure 2: Length – Frequency Histogram

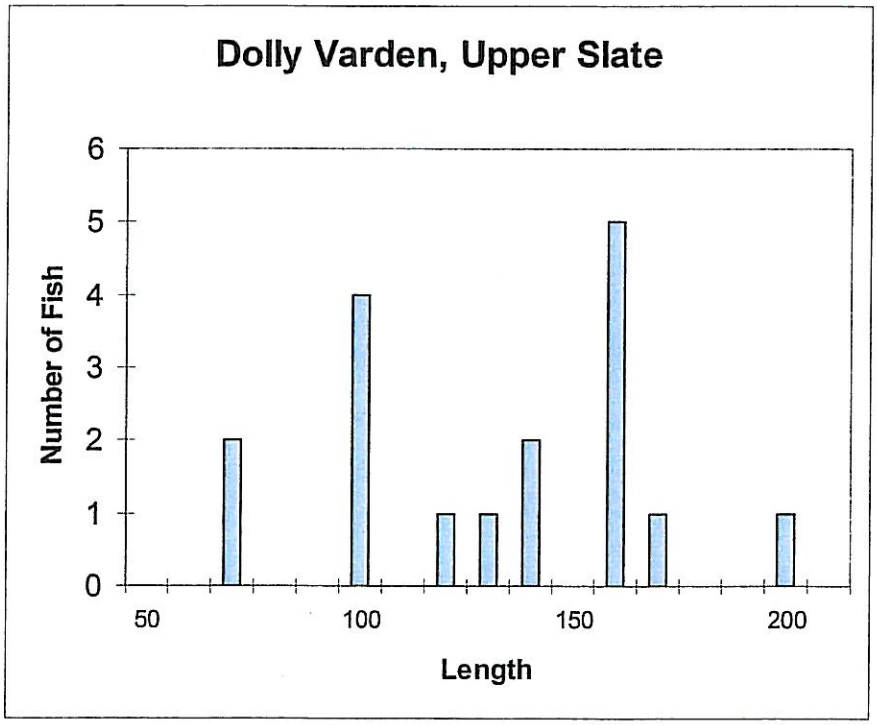


Figure 3: Upper Slate Lake, October 19, 2005; 2 traps set near shore

Figure 4: North Inlet to Upper Slate; 4 traps set in creek

Figure 5: Minnow trap in North Inlet Creek

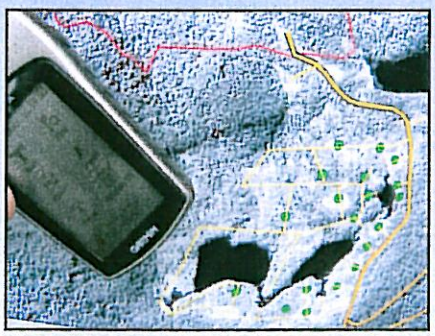
Figure 6: Largest Dolly captured; some orange coloration, white tips on fins

Attachment 4

Living Systems Design, 2005, Wildlife Habitat & signs of its Use in the Slate Lakes Area: August 22-23 Surveys.

Wildlife Habitat & Signs of its Use in the Slate Lakes Area:

August 22-23 Surveys



Prepared by
Living Systems Design
for
COEUR Alaska

Introduction

Habitat surveys were conducted to assess wildlife values and signs of use in an approximately 1 square mile area around Lower Slate Lake, Upper Slate Lake, Fat Rat Lake and the Spectacle Lakes. This area is located in northern Southeast Alaska, near the center of the Lynn Canal Ecoprovince and in the vicinity of Berner's Bay (Figure 1). Field surveys and Geographic Information System (GIS) assessments were conducted to assess and support mitigation of impacts from proposed developments associated with the Kensington Mine Project (KMP) (Figure 2). Focal species were medium to large mammals but efforts were also made to document use of the area by geese. The field surveys took place August 22-23, 2005.

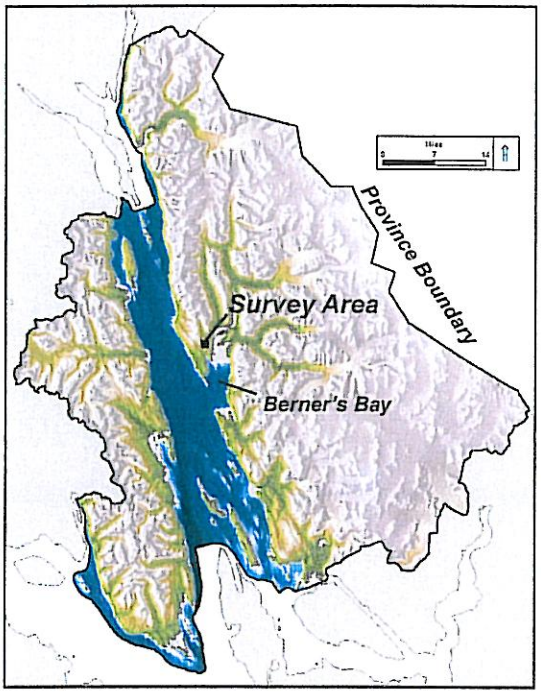
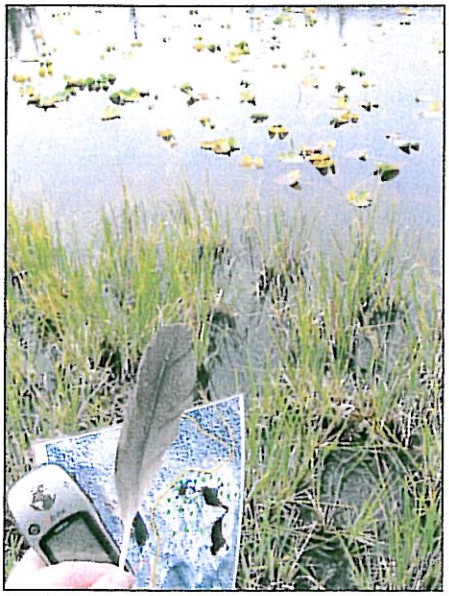


Figure 1: Lynn Canal Province, Berner's Bay & the Survey Area

Methods

Animal sign and vegetational resources were mapped with pre-field review and heads up digitizing methods adapted from Brown Bear Habitat and Signs of Brown Bear Use in the Pack Creek Zoological Area (PCZA) (Christensen et al 2005). Survey routes were identified prior to entering the field through GIS assessment of aerial imagery and USFS corporate data layers. Survey routes were designed to provide control points for very detailed vegetation mapping and to provide opportunistic insight into wildlife use of the survey area. GPS units were used to locate and follow the survey routes as well as to establish a survey track and provide spatial locations for field notes and photographic and video documentation. This data was later synthesized in a *GIS. Detailed descriptions of the methods employed in these wildlife habitat surveys are available online in the PCZA report at http://www.seawead.org/admiralty/index.html.



GPS and Laminated Aerial + goose sign.

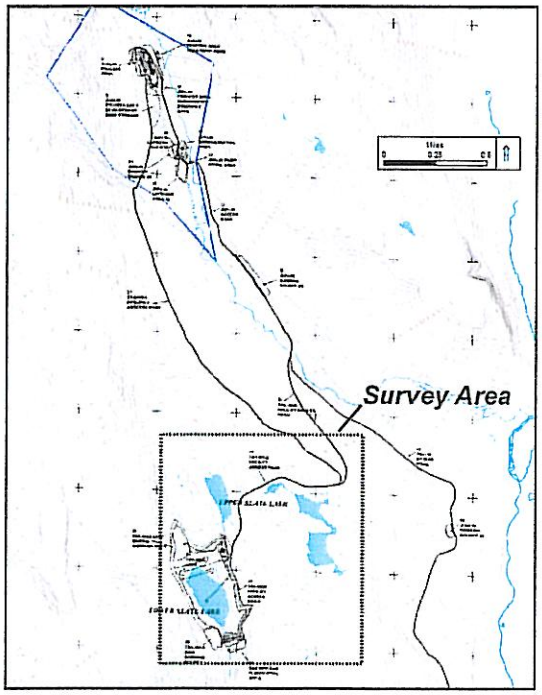


Figure 2: Kensington Mine Proposed Infrastructure & Survey Area

Findings

Terrestrial Plant Communities - Like most glaciomarine terraces in southeast Alaska, the plant community mosaic in the survey area is comprised of bog, fen, scrub forest and productive old growth (POG) forest (Figure 3). Bog communities tend to dominate poorly drained, flat and gently sloping landforms. Moderate increases in slope tend to improve drainage and lend themselves to scrub forest and fen coloniza-

** This GIS project (wildlife.pmf) is available on the DVD that came with this report and includes data for survey tracks, field imagery and video hyperlinks, survey area vegetation and plant resources, USFS habitat suitability models for bear and deer, Kensington project infrastructure, and aerial imagery. This project can be accessed using ESRI ArcReader. Please see http://www.esri.com/software/arcgis/arcreader/download.html for availability.*

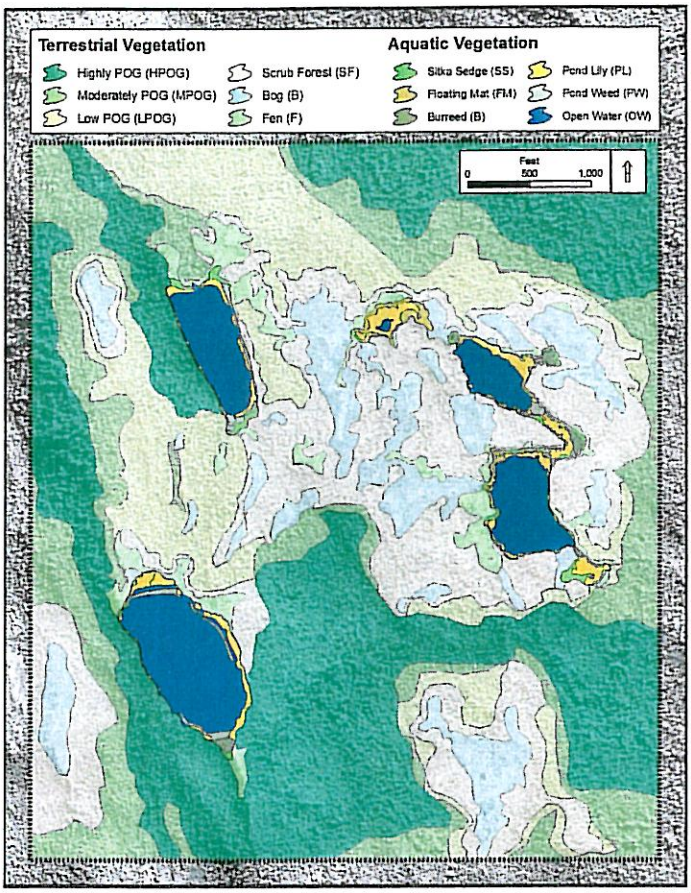


Figure 3: Terrestrial and Aquatic Vegetation

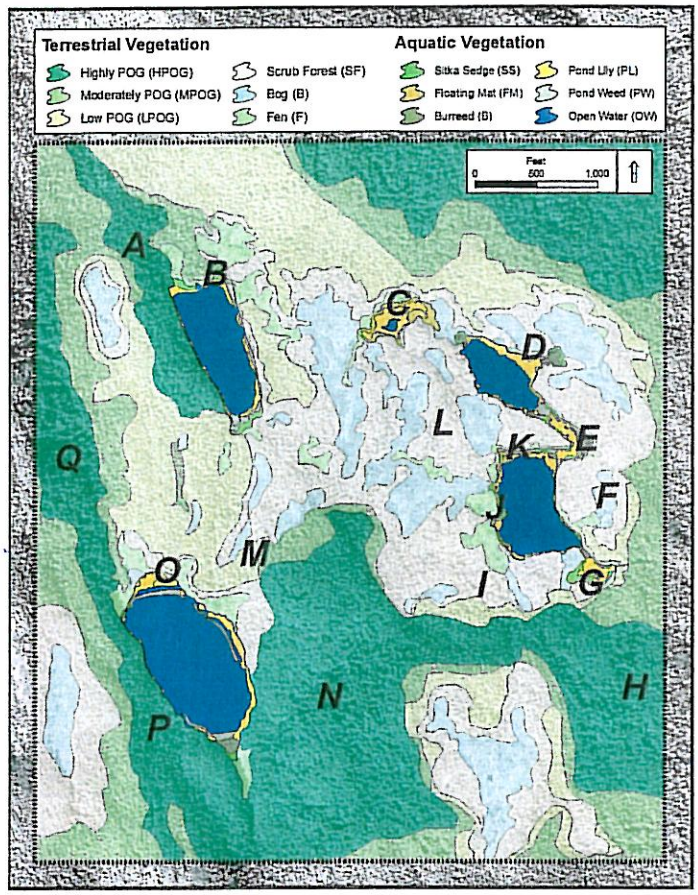


Figure 4: Terrestrial and Aquatic Food Resources

tion. Fen colonization also occurs along open wetland and creek margin. Steeper slopes and better drained areas support a spectrum of POG. In general, fen, scrub forest and 'POG with gappy canopies' tend to provide the highest food values in the uplands of this region. Levels of productivity depend largely on the condition of the soil, aspect and elevation. Fens can provide herbaceous grazing opportunities, scrub forest can yield relatively high biomasses of berries from Vaccinium sp. and gappy POG forest with rich shrub understories can yield relatively high biomasses of currant, elderberry and salmon berry fruits in the region.

Aquatic plant communities - Aquatic vegetation was mapped by Koren Bosworth in the summer of 2005 and is included here along with the terrestrial plant data in figures 3 and 4. Aquatic vegetation is relevant to this report in its ability to provide food resources, especially to moose and waterfowl.

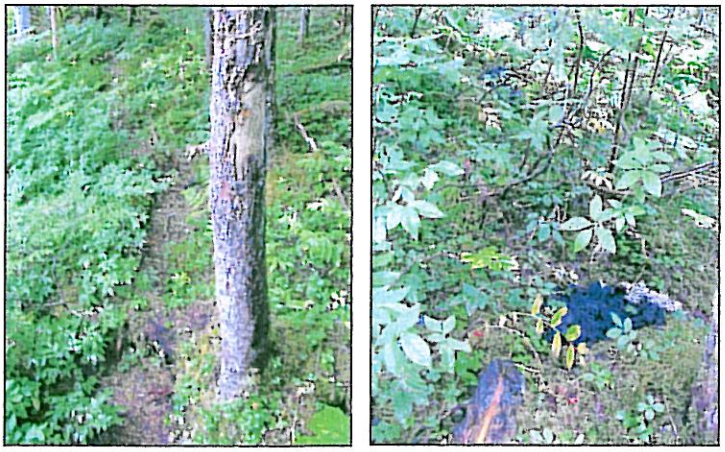
Plant food resources in the survey area - The plant community patches in the survey area generally provide low feeding opportunities with the notable exceptions occurring along the lake margin fens, scrub forest with dense shrub layers, and the gappy highly productive old growth (HPOG) patches north and southeast of lower Slate Lake, and north of upper Slate Lake (Figure 3):

A - Gappy HPOG with rich understory component.
B - Lush sedge fen and abundant aquatics.
C - Some sedges and abundant Pond Lily in the lake.
D - Some sedges and abundant Pond Lily in the lake.
E - Lush sedge fen and abundant aquatics.
F - Rich blueberry thickets around bog and lake.
G - Sedges along lake margin.
H - Gappy HPOG with rich understory component.
I - Rich blueberry thickets in west sloped scrub forest.
J - Some sedges and Pond Lily in the lake.
K - Some sedges and Pond Lily in the lake.
L - Rich blueberry thickets in west sloped scrub forest.
M - Herbaceous grazing opportunities in fen.
N - Gappy HPOG with rich understory component.
O - Some sedges and abundant Pond Lily in the lake.
P - Gappy HPOG with rich understory component.
Q - Gappy HPOG with rich understory component.

Wildlife Signs - Terrestrial mammals that are likely to occur in the survey area are moose, brown bear, black bear, Sitka black-tailed deer, marten, ermine, mink, beaver, river otter, muskrat, dusky shrew, red squirrel, Keen's mouse and long-tailed vole. The methods used for documenting wildlife sign in the survey area were opportunistic but fairly intensive in their application (Figure 5), however, not intensive enough to adequately characterize small mammal use (ermine or smaller).

Animal signs that were recorded included perennial types (i.e. trails, beds, dens and sign trees) and ephemeral types (e.g. scat, digging and tracks). Perennial signs differ from ephemeral signs in that they tend to persist for several years, even without continued activity (e.g. well worn trails and sign trees). Ephemeral signs are those that tend to be unobservable after one or two seasons of inactivity (e.g. scat, digging, & bedding activity). Perennial sign is useful for understanding long term patterns of use. Ephemeral sign is useful for understanding seasonal patterns of activity and corroborating classification for trail use.

Bears - Very little perennial bear sign was encountered during the survey effort (Figure 6). Minor trailing occurred in dispersed locations, with the heaviest wear evident in the Slate Lake vicinity. The trails were clearly used by moose, porcupine, and other mammals but their perennial nature was due to habitual bear activity. The most heavily worn trail occurred on the east side of the lower Slate Lake, though the wear is likely also due to historical human use. Only 3 sign trees were recorded during the survey effort, two of which are possibly associated with recent human activities. Signs of digging and feeding (scat) were for the most part dispersed, though the upper Slate Lake had more of this kind of sign than anywhere else. Scats were almost exclusively comprised of berries.



Examples of perennial and ephemeral bear sign encountered in the survey area: trail and sign tree (left) and fresh 'blueberry' scat (right).

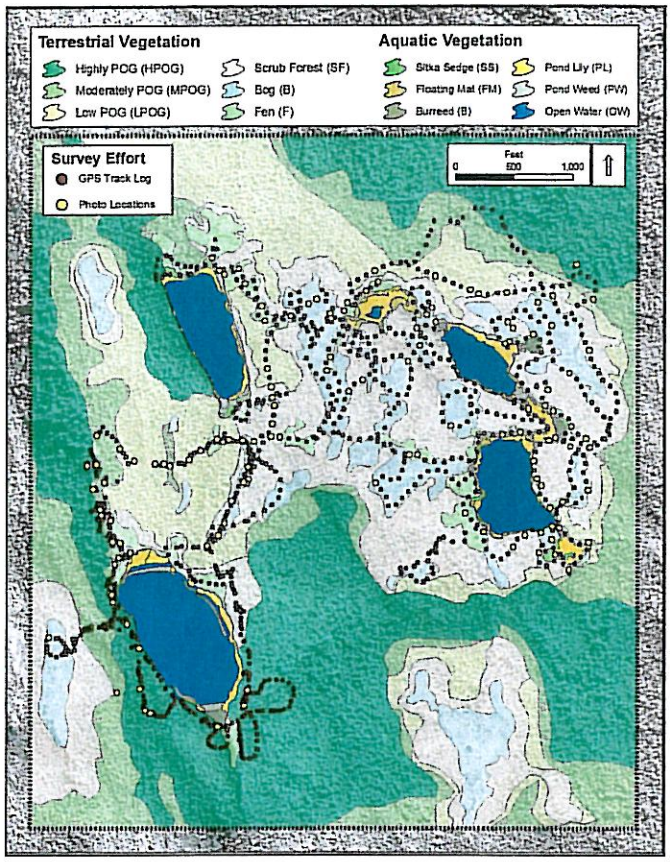


Figure 5: Survey Effort and Photo Locations

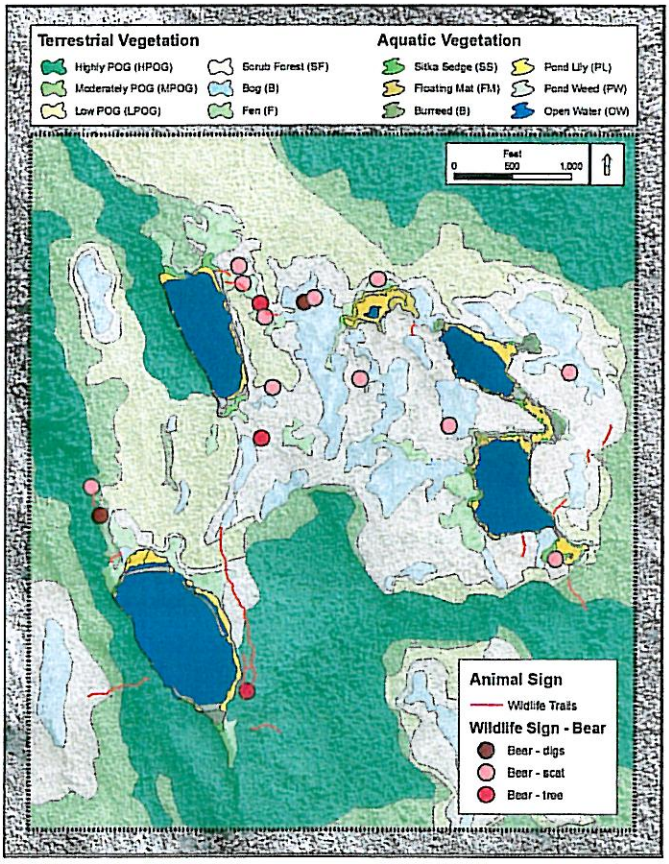
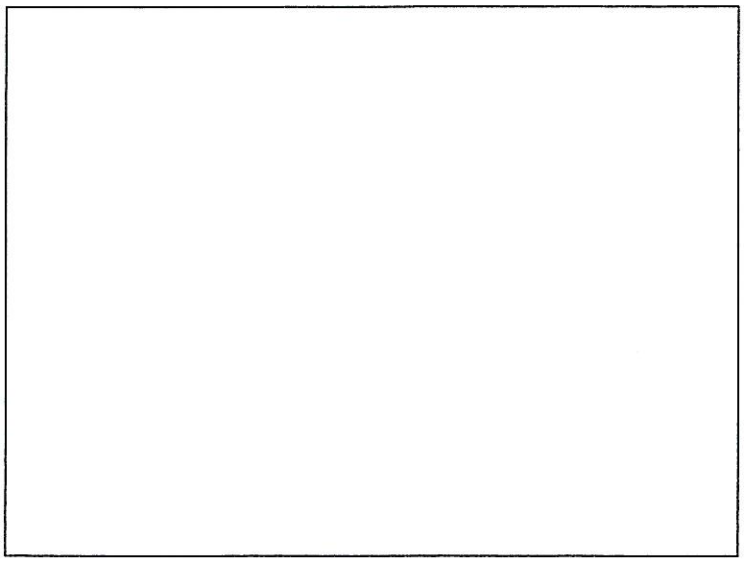


Figure 6: Bear Sign

Moose - Very little moose sign was encountered during the survey effort (Figure 7). Minor trail use was observed, inferred from scattered tracks along trail lengths. Most tracks were encountered dispersed in the bog and fen areas where their impressions would last for at least a year. Scat was encountered in a few locations and signs of grazing were observed at the upper and lower Slate Lakes.

Porcupine - Porcupine sign was generally low throughout the survey area (Figure 8). The highest concentrations of porcupine sign was encountered in the forest just to the north of Fat Rat Lake - just downhill of the proposed road route. Most sign recorded in the survey area was in the form of tree scarring. One inactive den was observed on the shore of the south Spectacle Lake.

Beaver - Although no contemporary beaver sign was encountered during the survey effort there was ample evidence of historical use. The basal remains of two dams were identified at the outflows of the Spectacle and Fat Rat Lakes. Almost nothing remains of the original dams but shore observations suggest that lake levels were at one time 2-3 feet higher than they are now. It does not appear that there has been much in the way of beaver foods in the area since the little ice age so although past beaver impact was significant it was probably short lived.



Examples of moose, porcupine and beaver sign encountered in the survey area: moose scat (bottom left), porcupine tree scarring (bottom center) beaver logging (bottom right) and the basal remains of an old beaver dam (above). Click on the graphic above = movie.

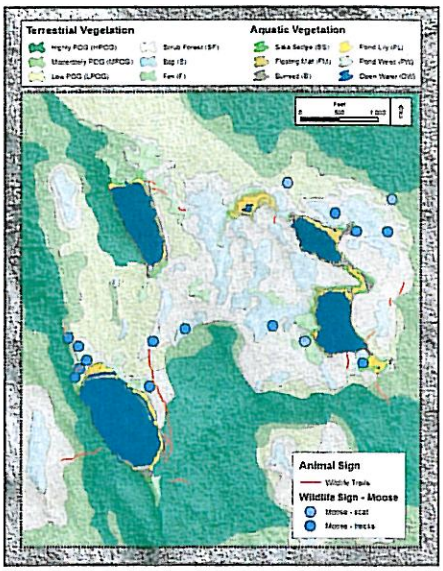


Figure 7: Moose Sign

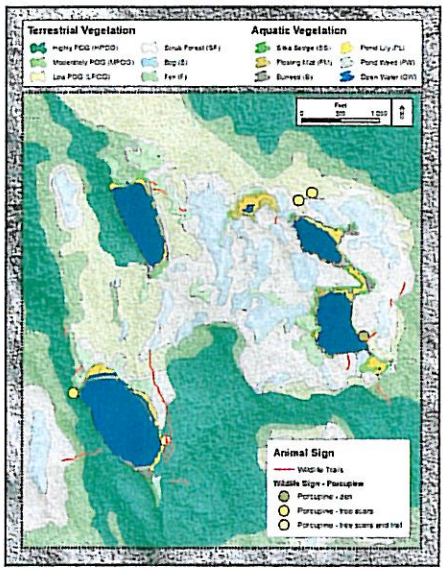


Figure 8: Porcupine Sign

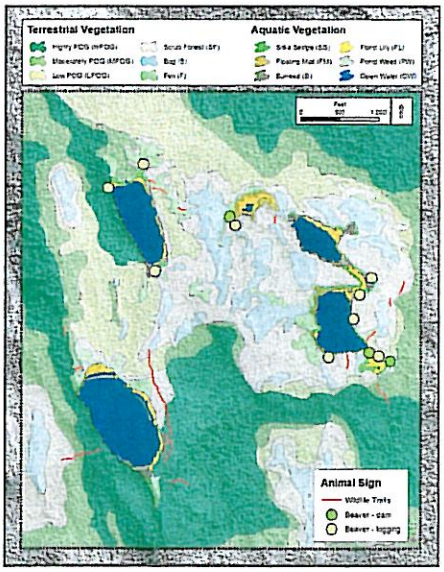


Figure 9: Beaver Sign

Geese - The most abundant and noteworthy signs of wildlife use were those from occupation of the area by molting geese. The generally low levels of mammal activity in the area, particularly carnivores that would typically predate on geese, and the availability of suitable wetlands, enhance this area's value as a refuge for molting geese. Goose scat and feathers were noted in many locations throughout the survey area but were concentrated along the lake margins. South facing margins tended to have higher concentrations of sign. Correlations were also noted between the abundance of shore side sedges and goose sign. These sedges appeared "mowed" in some locations, especially along the channel connecting the north and south Spectacle Lakes.

Conclusion

The survey area is poorly to moderately productive in providing food resources to land mammals. Though some areas are rich in berry production, opportunistic observations of wildlife sign suggest that most mammalian activity is transient in nature (absence of bedding areas and significant perennial trailing). The generally poor conditions for land mammals, suitable wetlands and the abundant goose sign suggest the area is likely an important refuge for molting geese.

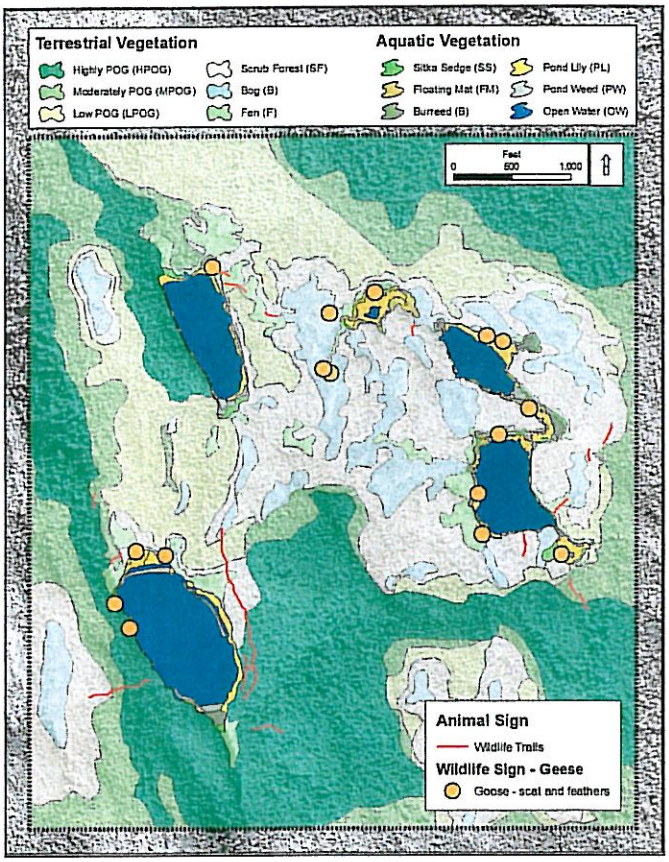
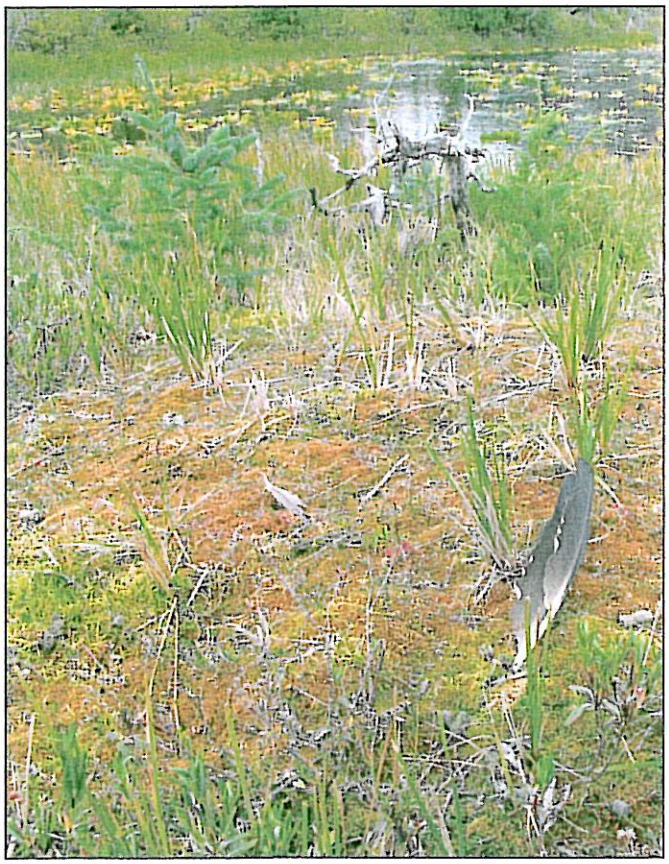


Figure 10: Goose Sign

Goose feathers and scat along upper Slate Lake.



Goose feathers and scat along north Spectacle Lake.

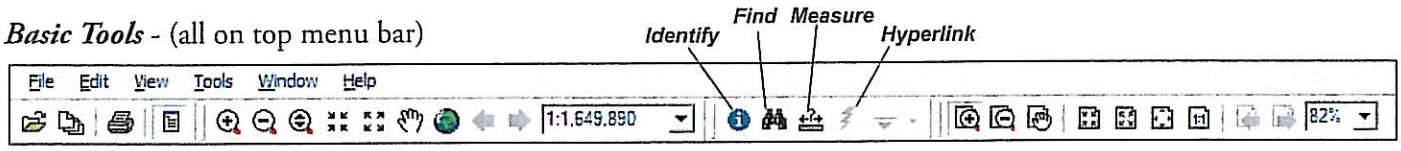
Additional Information

Reference - The methods employed in the field work for this report were adapted from a report done for the USFS on bear habitat and signs of its use in the Pack Creek Zoological Area - Admiralty National Monument. This report is available for viewing and download here: http://www.seawead.org/admiralty/index.html.

Contact - The principal investigator on the field work and writing for this report was Bob Christensen. Bob can be contacted via e-mail at bob@critterweb.org.

GIS - The GIS project assembled for this report is available on the DVD in a folder named "GIS". The project is called "wildlife.pmf". You will need to install ArcReader in order to run this GIS project. A copy of the ArcReader installation program is included on the DVD in a folder called "programs". ArcReader provides read-only access to the GIS data assembled for this report. The map program will open with a default screen that is zoomed in on Lynn Canal Ecoprovince. Explore freely and don't worry about losing track of your location – it will always open to the default view. Each layer can be turned on or off by simply checking the box next to the name of the layer on the left side table of contents (TOC). A helpful way to compare layers that overlap one another is to right click on the layer name in the TOC at left, click transparency, then adjust it to make the layer stand out more or less relative to other layers.

Basic Tools - (all on top menu bar)



Zoom: To zoom in, click on the magnifier and hold the left mouse key down while you draw a box around the area you want to enlarge. Likewise, use the minimize magnifier to draw boxes to zoom back out. Whenever you want to return to the full view, click on the globe icon.

Hand: Use the hand tool to pan map visibility.

Arrows: Click on the arrows to the right of the globe to move back and forth between previous views.

Hyperlink: This tool is accessed by clicking on the lightning bolt button and is used to show images and movies.

Identify: This is a very helpful tool that allows you to click on a feature in the map and have an information screen pop up, telling you about the feature. The tools is accessed by clicking on the button.

Find: With this tool you select feature(s) based on an attribute and zoom in to have a closer look. Click the binocular icon in the tool bar to pull the find dialog box up and type in your query parameters. Once your features are listed, right click on the feature(s) and select an option from the context menu (flash feature, zoom to feature, center feature or identify feature (this last one pulls up the same info as the identify tool).

Measure: To the right of the binocular icon is a measuring tool. Click on it, then click your mouse on a location on the map, and drag the mouse to another location. It will tell you the distance between the two points.

Printing & ***Saving as image*** - You can print your view at any time from the file menu>print. To export a bitmap image of the view go to File>Export Map>save.

For questions about this project please contact Bob Christensen - bob@critterweb.org