

Terrestrial Resources Presentation For the Grant Lake Hydroelectric Project


Grant Lake Hydroelectric Project (FERC No. 13212)
Natural Resource Studies Meeting
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In Association with



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Key Team Members: McMillen (MCM), BioAnalysts (BA), OASIS Environmental, ERM Company (ERM), Cultural Resource Consultants (CRC), USKH (USKH), Elemental Solutions (ES), Northern Ecological Services (NES), Beck Botanical Services (BBS)

Botanical Resources Studies

- General vegetation type mapping (Beck Botanical Services)
- Sensitive plant and invasive plant survey (Beck Botanical Services)
- Mapping wetlands and other waters of the U.S. (OASIS ERM)

Wildlife Resources Studies

- Raptor nesting surveys
- Breeding landbirds and shorebirds
- Waterbirds
- Terrestrial mammal surveys

OASIS ERM will be completing components of each of the wildlife studies

Field Study Timeline

[illegible]

Vegetation Type Mapping, Sensitive and Invasive Plant Surveys

Goals:

- Vegetation Type Mapping
 - Update existing vegetation type map, produce a technical report with a description of Project vegetation
- Sensitive Plant Survey
 - Satisfy USFS requirements for a technical report and BE for Sensitive plants
- Invasive Plant Survey
 - Document invasive plants in areas affected by Project construction and operation, produce a technical report

Study Area

- Sensitive Plant and Invasive Plant Surveys will occur:
 - 2 vertical feet around the perimeter of Grant Lake
 - 50 feet on either side of Road and Transmission Line
 - 100 foot margin around proposed Project facilities

Work done to date (2010)

- Vegetation
 - A Vegetation Type Map exists for the general Project Area (USFS 2007a)
- Sensitive and Invasive Plants
 - No work has been done to date

Remaining Tasks: Pre-field

- Complete the R10 2009 Pre-Field Review Worksheet for Sensitive plants
- USFS data request for Sensitive plants or Invasive plants in or near the Project area
- AKNHP data request for rare plants in or near the Project area

Field Sampling 2013

- Conduct Sensitive Plant/Invasive Plant Surveys
 - Follow USFS procedures (Stensvold 2002)
 - Focus surveys in high potential habitats
 - Complete TES Plant Element Occurrence Forms
 - Complete the 2008 USFS Plant Survey Field Form
 - Document invasive plants with AKEPIC forms
 - Keep records of survey locations, vascular plants observed
 - Take GPS points, as necessary
- Ground truth the Vegetation Type Map

Data Analysis

- Post-field GIS-based Sensitive Plants and Invasive Plants mapping
- Create map of areas surveyed
- Revise Vegetation Type map based on ground truthing during field work

Reporting

- Sensitive Plant technical report and BE
 - Element occurrence forms (if Sensitive plants are located)
 - Assess potential Project impacts and PME's for Sensitive plants
- Invasive Species technical report
 - Document invasive plants with AKEPIC field forms
 - Assess potential Project impacts with regard to invasive plants
 - Develop plan for managing invasive plants for inclusion in the draft and final license applications and construction BMP's
- Vegetation Type Mapping technical report
 - Update existing vegetation type map
 - Produce technical report with a description of Project vegetation

Communication

- Submit Sensitive plants, Invasive plants and Vegetation type technical reports and Sensitive plants BE to USFS, other agencies
- Communicate with agencies, as necessary

Schedule for Remaining Tasks

- Winter 2012-2013/Spring 2013
 - Complete Pre-Field Review for Botanical Resources
 - Data requests for botanical information
- Summer 2013
 - Conduct Botanical Field Surveys (July)
- Fall 2013/Winter 2013-2014
 - Data management/quality control
 - Create GIS maps using field data
 - Prepare draft technical reports and BEs
- May 2014
 - Finalize technical reports and BEs

Wetlands and Waters of the U.S. Studies

Goal: Fulfill data needs for Section 404 Permit Application in support of FERC License Application

- Wetlands mapping and classification
- Functional assessment

Wetlands and Waters Assessment Area

- Access road / transmission corridor
- Facilities
- Grant Lake inlet area
- As needed/TBD
 - Dam (if included in Project Plan)
 - Grant Lake shore
 - Grant Creek margin

Work done to date (2010)

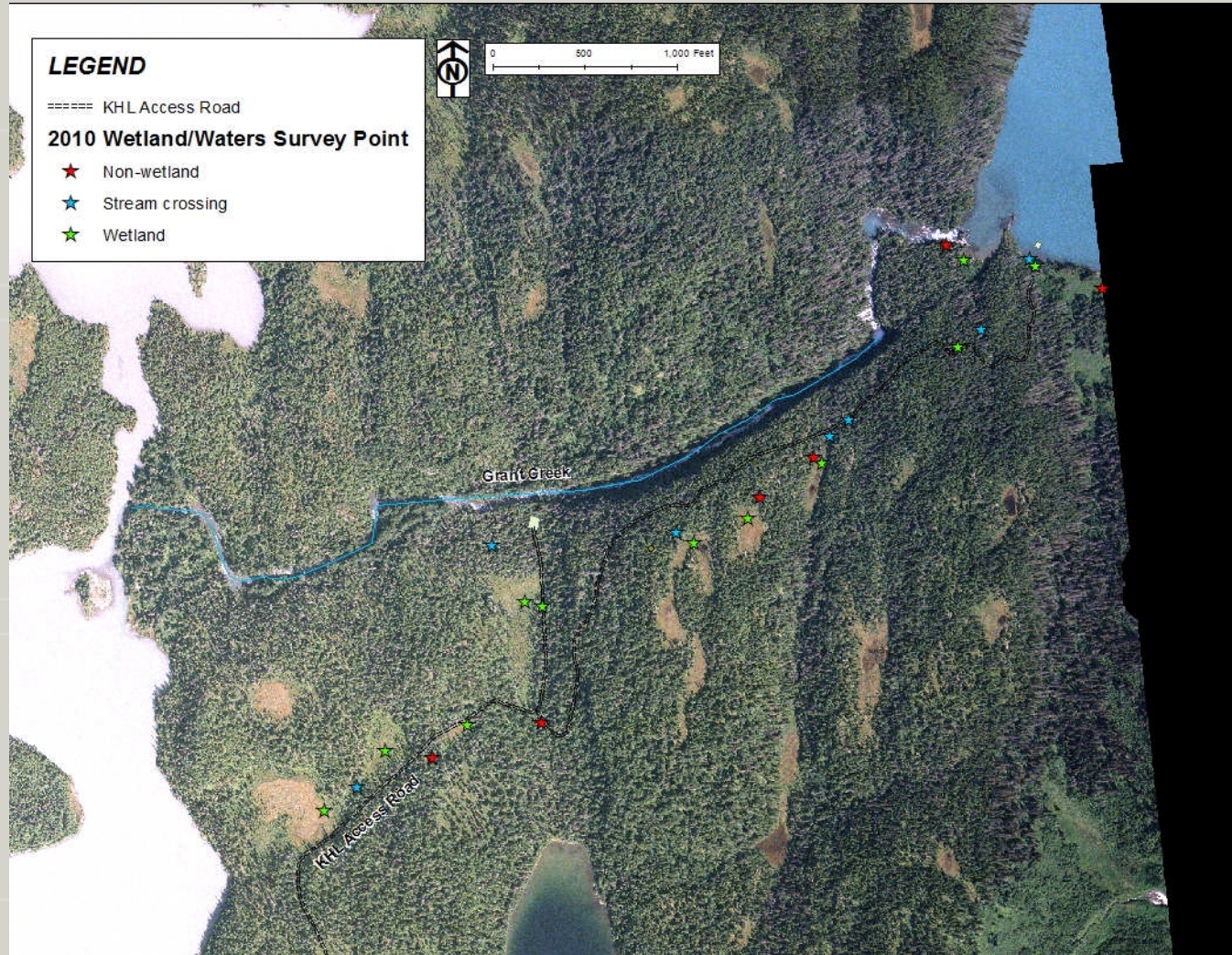
- Pre-field
 - GIS-based wetland mapping using NWI mapping and aerial imagery
 - Identified 77 “field targets” within transmission corridor and lake shore
- Field
 - Sampled late June, 2010
 - Field sampled 43 plots within transmission corridor
- Post field
 - GIS feature class of 43 points

Work done to date (2010)

Continued

Plot Type	Number	NWI Classifications
Wetland determination	21	Wetlands (16): palustrine: emergent, scrub/shrub, forested; Non-wetland (7)
Representative wetland	8	Palustrine: emergent, scrub/shrub, forested
Representative upland	5	Non-wetland
Stream crossing	9	Riverine: upper perennial, intermittent
Total	43	

Field work done to date (2010)



Remaining Tasks: Pre-field

- Confirm functional assessment method with USACE
- Identify mapping gaps
- Pre-mapping in GIS using existing layers:
 - 2010 field plots
 - Aerial imagery
 - NWI mapping
 - Kenai Peninsula Land Cover mapping
 - National Hydrography data set
 - Chugach NF hydrography data set

Field Sampling 2013

- Wetlands and waters mapping and classification
 - Wetland determination points using USACE 1987 Manual and AK Supplement
 - GPS points along all wetland boundaries
- Functional assessment of each wetland/waterbody

Data QC and Summary

- Data quality control
- Post-field GIS-based wetland mapping
- Data Summary
 - Wetland status (wetland or non-wetland)
 - Classification (NWI and HGM classes)
- Functional assessment
 - Summarize wetland functions for each mapped wetland

Reporting and Communication

- Reporting
 - Wetlands and Waters of the U.S. report including
 - Wetland maps
 - Wetland classification
 - Functional assessment
- Communication
 - USACE, USFWS, as necessary

Schedule for Remaining Tasks

- Winter 2012-2013/Spring 2013
 - Acquire/review existing data
 - Develop preliminary wetland map in GIS
- Summer 2013
 - Conduct wetland/waters field sampling (July-August)
- Fall 2013/Winter 2013-2014
 - Data management/quality control
 - Revise wetland maps using field data in GIS; prepare final maps
 - Prepare wetland and waters report (including maps, wetland/waters classification, and functional assessment)

Terrestrial Wildlife Studies

- *Study Component #1 – Raptor Nesting Surveys*
 - Raptor Nest Survey: Completed 2010
 - Goshawk Nest Ground-Based Survey: June & early-July, 2013 & 2014
- *Study Component #2 – Breeding Landbirds and Shorebirds*
 - Breeding Landbird and Shorebird Study: 20 Points Completed 2010
 - Breeding Landbird and Shorebird Study: Mid-May & June, 2013
- *Study Component #3 – Waterbirds*
 - Harlequin Duck Surveys: Completed 2010
 - Waterbird Brood-Rearing Survey: Completed 2010
 - Winter Waterbird Survey: November / December, 2013 & February / March, 2014
- *Study Component #4 – Terrestrial Mammals*
 - Bat Surveys: Complete 2010
 - Bear Dens: Complete 2010
 - Winter Moose Surveys: November / December, 2013 & February / March, 2014

RAPTORS

- **Study Objectives:**

Locate, identify, and map tree and cliff-nesting raptor nest locations,

Compile a list of raptor species nesting in the Project vicinity, and

Assess potential Project effects and propose potential strategies to avoid and minimize impacts to raptors.

- **Field Work (2010):**

Bald eagle nest surveys were conducted by the USFS in 2010 and that information supplied to the Project.

At the request of the USFS, all observations for cliff and tree nesting raptors around Grant Lake were made by boat during the 2010 waterbird surveys.

Observations for tree nesting raptors near proposed Project facilities were made during the 2010 breeding bird survey of proposed Project facilities.

1.5 Northern Goshawk Broadcast Call Surveys, 32 Survey Stations (15,16,19 & 28 June 2010).

RAPTORS

- **Data Collected & Mapped (2010):**

Coordinates and Shapefile for 2 BAEF nests, provided by USFS.

2 BAEF incidental sightings (12 & 23 July 2010), descriptive locations only.

No Northern Goshawks recorded.

- **Analysis & Reporting (2010):**

2010 Summary Report of Field Investigations.

- **Communication (2010):**

Ms. Benoit (USFS)

Lynnda Kahn (USFWS)

RAPTORS

2013 & 2014 Northern Goshawk Broadcast Call Surveys

- Field work
 - (2 surveys / year x 2); June & early-July, 2013 & 2014.
 - Methods: USFS, 2000; Woodbridge, et al. 2006
 - Line Survey covering 4000'.
- Data analysis
 - Qualitative Habitat Association.
 - GIS mapping.
- Reporting
 - Prepare a technical report that includes methodology, results, and figures showing the location of raptor nests, and briefly discusses potential Project effects.
- Communication
 - USFS, USFWS, USGS, ADFG, ADNR

BREEDING LANDBIRDS & SHOREBIRDS

- **Study Objectives:**

Determine which species of landbirds and shorebirds use the study area during the breeding season,

Determine the occurrence and estimate the numbers of landbird and shorebird species of conservation concern that occur in the study area,

Estimate the relative abundance and distribution of breeding landbirds and shorebirds in the study area, and

Describe habitat use in the study area by breeding landbirds and shorebirds.

- **Field Work (2010):**

Breeding landbird and shorebird surveys of the Grant Lake outlet area, penstock, powerhouse, transmission line, and south access road alignment (now abandoned as an access alternative) were completed as planned in summer 2010. (20 points).

BREEDING LANDBIRDS & SHOREBIRDS

- **Data Collected & Mapped (2010):**

20 Breeding Bird Survey Points.

Coordinates and Shapefile for Survey Points.

17 individual incidental sightings (15 June - 23 July 2010), various landbird and shorebird species, descriptive locations only.

- **Analysis & Reporting (2010):**

2010 Summary Report of Field Investigations.

- **Communication (2010):**

Ms. Benoit (USFS)

Lynnda Kahn (USFWS)

BREEDING LANDBIRDS & SHOREBIRDS

2013 Landbird and Shorebird Surveys

- Field work
 - (2 surveys / year); Mid-May & June, 2013.
 - Methods: Standard ALMS
 - Line Survey covering 4000'.
- Data analysis
 - Qualitative Habitat Association.
 - GIS mapping.
- Reporting
 - Prepare a technical report and associated figures and maps based on field data collected for the study area. The technical report will provide detail about avian species and habitat use within the study area and discuss potential Project effects.
- Communication
 - USFS, USFWS, USGS, ADFG, ADNR

WATERBIRDS

- **Study Objectives:**

For this study, waterbirds are defined as freshwater waterfowl (ducks, geese, and swans), shorebirds, gulls, loons, and terns. The specific objectives are to:

Describe species composition of waterbirds using Grant Lake and Grant Creek during breeding season,

Determine locations of nesting areas for waterbirds to allow determination of effects of potential water level fluctuations on nesting habitat,

Determine the occurrence and numbers of waterbird species of conservation concern that occur in the study area, and

Determine winter use by waterbirds in open water habitat of Grant Lake.

- **Field Work (2010):**

Four boat-based surveys were conducted on Grant Lake (6/23/2010, 7/9/2010, 7/16/2010, and 7/23/2010) and one foot survey of Grant Creek was conducted on 7/12/2010.

WATERBIRDS

- **Data Collected & Mapped (2010):**

16 Pages of Raw Data

Coordinates and Shapefile (30 records of habitat and waterbirds).

2 individual incidental sightings (15 June - 23 July 2010), RBME & Goldeneye Sp., descriptive locations only.

- **Analysis & Reporting (2010):**

2010 Summary Report of Field Investigations.

- **Communication (2010):**

Ms. Benoit (USFS)

Lynnda Kahn (USFWS)

WATERBIRDS

2013 - 2014 Winter Waterbird Surveys

- Field work
(2 surveys / year); November / December, 2013 & February / March, 2014.
Methods: Ground Based Observations.
Grant Lake Outlet.
- Data analysis
Qualitative Assessment of Winter Use for Grant Lake Outlet.
- Reporting
Prepare a technical report and associated figures and maps based on field data collected for waterbirds in the study area. Briefly discuss potential Project effects.
- Communication
USFS, USFWS, USGS, ADFG, ADNR

TERRESTRIAL MAMMALS

- **Study Objectives:**

Document presence and distribution information to allow the Project to minimize or avoid impacts to terrestrial mammal species,

Quantify the distribution and abundance of target wildlife species during key seasons of activity in the study area;

Classify and map wildlife habitat in the study area in conjunction with the Botanical Resources Study.

- **Field Work (2010):**

Bat Survey of the historic cabin on July 23 2010.

TERRESTRIAL MAMMALS

- **Data Collected & Mapped (2010):**

1 Page of Raw Data for Bat Survey

Coordinates and Shapefile for 1 Brown Bear den & 1 Wolverine den, provided by USFS.

13 individual incidental sightings (15 June - 23 July 2010), various mammal sp., descriptive locations only.

- **Analysis & Reporting (2010):**

2010 Summary Report of Field Investigations.

- **Communication (2010):**

MS. Benoit (USFS)

Lynnda Kahn (USFWS)

Karen O'Leary (USFS)

TERRESTRIAL MAMMALS

2013 – 2014 Winter Moose Surveys

- Field work
(2 surveys / year); November / December, 2013 & February / March, 2014.
Methods: Standard Line Transect Aerial Surveys.
- Data analysis
Qualitative Assessment of Winter Use for Project Area.
- Reporting
Prepare a technical report and associated figures and maps based on data collected for the study area. The technical report will provide detail about terrestrial mammal species and habitat use within the study area and discuss potential Project effects.
- Communication
USFS, USFWS, USGS, ADFG, ADNR