

ENVIRONMENTAL SERVICES FOR MINING PROJECTS

Resource Inventories & Mapping, Impact Assessment, Monitoring Assistance



ABR's multidisciplinary team of scientists has extensive experience providing timely and accurate environmental services to those who conserve, manage, or develop natural resources. Our expertise includes preparation of pre-development resource inventories, wetland delineations and habitat assessments, baseline water quality assessments, GIS mapping, NEPA documentation, environmental permitting, and evaluations for land reclamation. We can custom design and implement innovative solutions to meet both the unique needs of the mining industry and agency requirements for a wide range of environmentally sensitive issues. Our services include:

- Wildlife Studies
- Fisheries & Aquatic Sciences
- Endangered, Threatened, & Sensitive Species Studies
- Wetland Science
- Soil, Water, & Vegetation Studies
- GIS Services
- Water Quality Assessment
- Radar Ornithology
- Macroinvertebrate Identification
- Ecological Restoration & Land Rehabilitation
- Ecological Land Classification & Mapping
- NEPA, Environmental Impact Assessments and Permitting Support
- Ecological Risk Assessment
- Project Design, Data Analysis, and Quality Control Plan Development

RESEARCH TEAM

Charles T. ("Terry") Schick, Senior Scientist. Over 25 years of experience studying birds, plants, and landscape ecology, with emphasis on landscape approaches to habitat-use studies and environmental impact assessments.

Janet G. Kidd, Senior Scientist, Research Coordinator. Over 18 years of experience in restoration ecology and wetland, plant, and soil science. She manages ABR's Ecological Restoration Program and serves as technical advisor for ABR's Wetlands Program.

Andra J. Love, Senior Scientist, Fish and Aquatic Ecologist. Over 11 years of experience designing and conducting scientific studies in fisheries, macroinvertebrates, periphyton, and water quality.

Robert M. Burgess, Senior Scientist, Research Coordinator. Over 30 years of experience in biological investigations in Alaska. Bob oversees ABR's wildlife/ ecology program. He has conducted long-term wildlife studies, and he manages research involving water quality, macroinvertebrates, and landscape ecology.

John Seigle, Research Biologist. Over 16 years of experience designing and conducting scientific studies in fisheries and lake, stream, and estuarine ecology.

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ABR's research scientists are supported by statisticians and GIS staff to provide complete environmental products for the Mining Industry.

SOME OF OUR CLIENTS

- BHP Billiton Diamonds, Inc. •
- Coeur Alaska, Inc. • Pebble Limited Partnership • Teck Cominco, Inc. •
- Teck Pogo Corporation • Newmont Gold Company • Alaska Department of Natural Resources • Fairbanks Gold Mining, Inc. • Nova Gold Resources, Inc. • USMX, Inc. •
- Triple D Mining, Inc. • Talon Gold •
- NANA Regional Corporation, Inc.



REPRESENTATIVE PROJECTS

RECLAMATION PROJECTS

EKATI Diamond Mine Reclamation Research Program, NT, Canada ABR designed and began implementing a long-term research program to identify the best options for revegetation and habitat restoration at the EKATI Diamond Mine. We also are assisting mine personnel in developing a data registry for tracking the progress of reclamation efforts. *BHPBilliton Diamonds Inc.*

Rehabilitation of the Winter Ice Road to the Pogo Claim Site, Goodpaster River, Alaska ABR assisted in closeout and rehabilitation of the winter ice road constructed to the mining claim. *Teck Corporation*

Technical Support for Reclamation and Revegetation of the Red Dog Mine, Northwestern Alaska ABR developed a revegetation plan for the mine site as part of the approval of a solid waste permit. Tasks included recommendations for site preparation techniques (dirtwork); soil amendments and fertilizer rates; plant materials; and a monitoring plan for measuring success. *Teck Cominco Alaska, Inc.*

AQUATICS/WATER QUALITY

Alaska Water Quality Assessment:
•Conducted physical and chemical sampling at the Terra Project. *Talon Gold*
•Managed surface water quality study at Iliamna Lake. *Pebble Limited Partnership*
•Managed macroinvertebrate and periphyton studies. *Pebble Limited Partnership*

Snow Surveys for Mine Development, Iliamna, Alaska ABR conducted snow surveys to characterize the distribution, snow-water equivalent, and ablation rates of late-season snow across the landscape of the mine region. Surveys and modeling were applied to characterize baseline conditions in the regional catchments and to allow prediction of changes in snow distribution caused by terrain alterations associated with mine development. *Pebble Limited Partnership*



WILDLIFE SURVEYS

Baseline Wildlife Surveys and Habitat Mapping for the Proposed Pebble Gold Copper Project, Southwestern Alaska ABR is conducting baseline surveys for wildlife species (waterbirds, raptors, marine mammals, caribou, bears) and mapping wildlife habitat types in the project area between the proposed mine site and Cook Inlet. Multi-season and multi-year surveys are being conducted to provide baseline data for future NEPA documents and permit support. *Pebble Limited Partnership*

Wildlife Habitat Mapping and Breeding-Bird Surveys at the Proposed Rock Creek and Big Hurrah Mines Near Nome, Alaska ABR surveyed birds, wildlife habitats, and quantified habitat relationships for breeding birds. We also assessed and evaluated each mine within the context of available breeding-bird habitats in the Nome area. *Alaska Gold Company*

Caribou Monitoring Program for the Red Dog Mine and DeLong Mountains Transportation System ABR provides the Project Caribou Specialist for this ongoing program to monitor movements by the Western Arctic Herd near the 85 km DeLong Mountains Transportation System and the port site on Kotzebue Sound. *NANA Regional Corporation, Inc.*

THREATENED AND ENDANGERED SPECIES RESEARCH

Survey of Wildlife and Plant Species of Concern, Pogo Mine Prospect, Interior Alaska ABR conducted surveys for rare species of wildlife and plants in the Pogo mining claims near the Goodpaster River. We used aerial surveys to assess nesting by Peregrine Falcons and Golden and Bald eagles, and ground-based surveys to locate Olive-sided Flycatchers and Northern Goshawks, and plant species of concern. *Teck Corporation*

Northwest Alaska Coal Project: Reclamation Planning ABR conducted a vegetation and soil resources inventory to provide baseline information for developing rehabilitation strategies for land disturbed by mining. We also initiated a research program to test various plant-cultivation techniques, and monitored water quality in compliance with the Alaska Surface Mining Control and Reclamation Act. *Arctic Slope Consulting Group*

WETLAND DELINEATION

Wetlands Surveys for Gold Mine Prospects, Fairbanks, Alaska ABR classified and delineated wetlands in two project areas being considered for gold extraction. *Fairbanks Gold Mining, Inc.*

Wetlands Survey for Red Dog Mine, Northwestern Alaska ABR classified and delineated wetlands in areas surrounding the mine site. *Teck Cominco Alaska, Inc.*

GIS MAPPING

GIS Mapping and Support for Pogo Mine Advanced Exploration ABR provided GIS mapping services to support the advanced exploration phase of the Pogo project. We also managed the database for GIS products developed by others working on the project. *Teck Corporation*

BRANCH OFFICES

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ABR, Inc.—Environmental Research and Services, has been a leader in the environmental consulting business since 1976. We specialize in fish and wildlife studies, aquatic sciences, ecological restoration, wetland sciences, impact assessment, ecological support for risk assessment, and GIS mapping and analyses. Our efforts to seek practical solutions for our clients' needs—within the framework of company resource stewardship, community support, and economic viability—have been prominent in our evolution. For more information visit our website www.abrinc.com or contact us directly.

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