

**02-04-15  
OVERVIEWS:  
DNR - DIVISION  
OF MINING, LAND  
& WATER AND  
DIVISION OF  
GEOLOGICAL &  
GEOPHYSICAL  
SURVEYS**

<TARGET><BILL></BILL><SUBJECT>02-04-15 OVERVIEWS  
DEPARTMENT OF NATURAL RESOURCES, DIVISION OF MINING, LAND  
and WATER AND DIVISION OF GEOLOGICAL and GEOPHYSICAL  
SURVEYS</SUBJECT><COMM>HRES29</COMM></TARGET>



# DIVISION OF MINING, LAND & WATER OVERVIEW

House Resources Committee  
4 February 2015





# DIVISION OF MINING, LAND & WATER MISSION STATEMENT

To provide for the appropriate use and management of Alaska's state owned land and water, aiming toward maximum use consistent with the public interest.





# CORE SERVICES

- Acquire land
- Defend and assert state ownership interests
- Defend access to state land and water
- Create plans to direct management of state land and water
- Sell and transfer land into private and municipal ownership
- Issue short and long term authorizations for use of state land and water
- Provide regulatory oversight for: water use, dam safety, unorganized borough platting review, coal exploration and development and mine reclamation activities throughout the state
- Collect revenues from the use and disposal of state land and water
- Provide active stewardship of state land and water



# MISSION RESULTS

- Acquire state land entitlement, defend and plan for use of state land.
- Ensure an adequate amount of state land is transferred into private ownership and to municipalities for settlement, recreation, development and other uses.
- Make legally defensible decisions for businesses, individuals and other entities to obtain authorizations necessary for the environmentally sound use and development of state land, water and resources.
- Ensure that all state land is unencumbered by unauthorized use, contamination, or waste that makes it unavailable for other public use and development.



# ANATOMY OF A LARGE SCALE DEVELOPMENT PROJECT

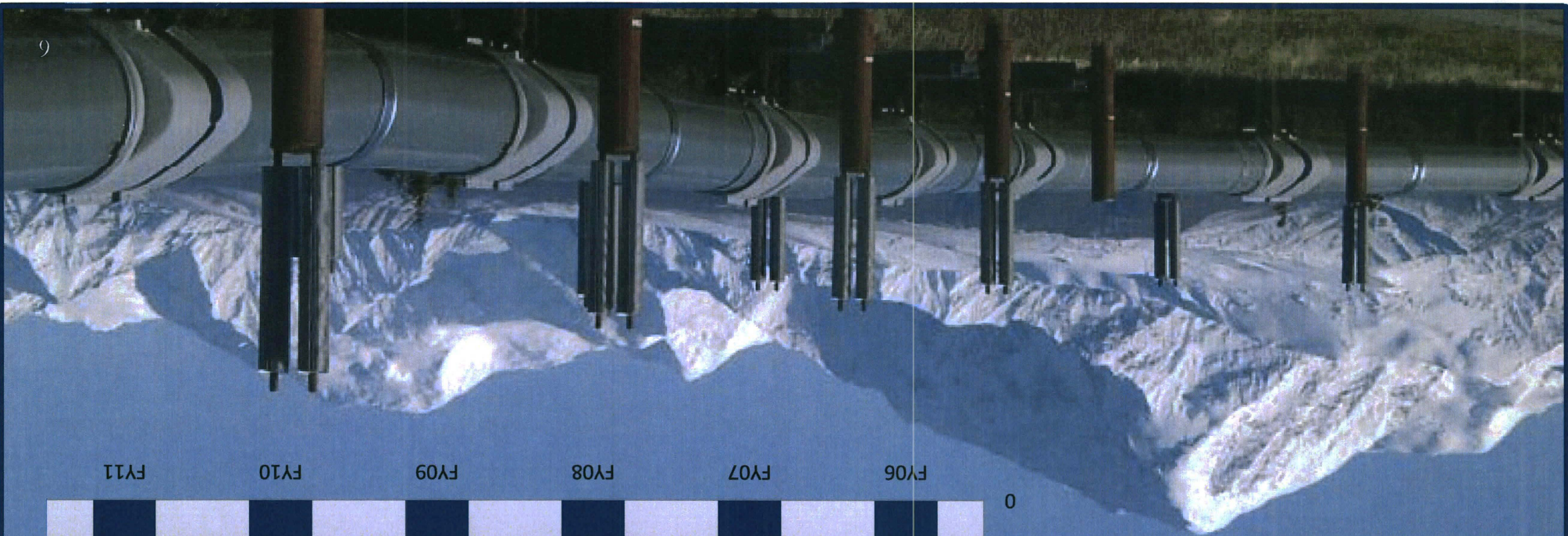
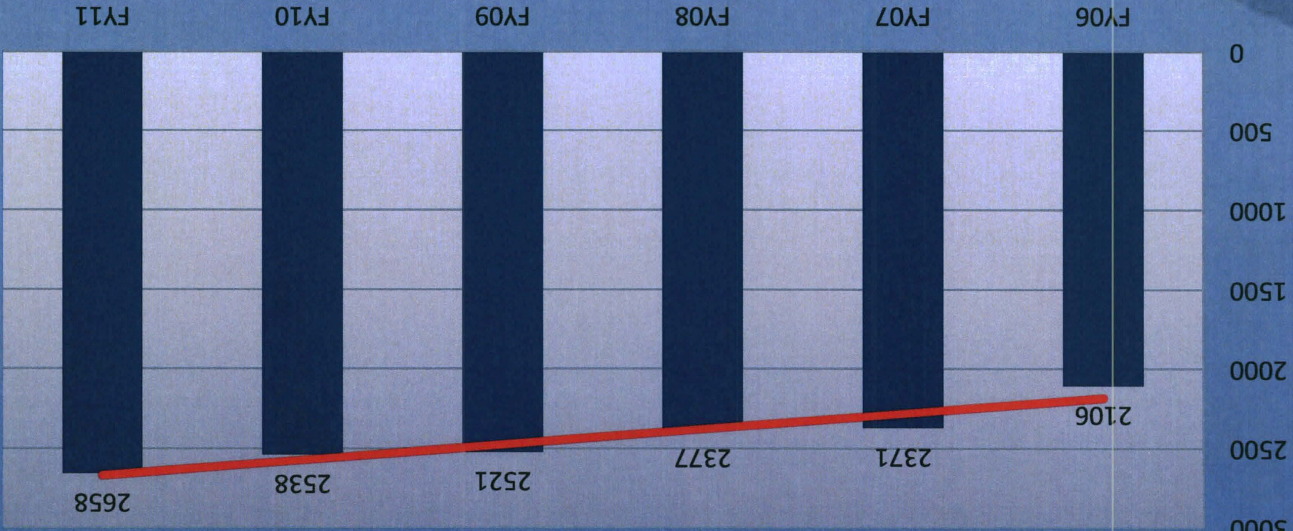
- Most have statewide or strong regional impact with regards to infrastructure, economic growth and opportunities
- Generally require long term leases or dedicated legal access such as easements in order to obtain project financing
- Often short term land use permits are necessary for construction
- Material sales need to be timely for development
- Water authorizations are critical for development and long term operation





# THE CHALLENGE: ADDRESS PERMITTING DEFICIENCIES

Permit Backlog





# 2011 PERMIT BACKLOG PLAN

- Submitted to the House Finance Subcommittee on 22 Feb 2011
- “It is now our highest priority to address this (permit backlog) problem.”
- Goal: “To timely process all incoming land and water use applications, and to eliminate the backlog.”
- Comprehensive, multi-faceted approach to eliminating the backlog and preventing its re-occurrence

## STATE OF ALASKA


DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF MINING, LAND & WATER

SEAN PARNELL, GOVERNOR

550 WEST 7<sup>TH</sup> AVENUE, SUITE 1070  
ANCHORAGE, ALASKA 99501-0904  
PHONE: (907) 269-8800  
FAX: (907) 269-0904

### Memorandum

To: Representative Mia Costello, Co-Chair  
House Finance Subcommittee on Natural Resources

From: Wyn Menefee, Acting Director  
DNR Division of Mining, Land & Water 

Date: 2/22/2011

Re: Permit Backlog Plan

Please accept this written response to your request on February 11, 2011.

#### The Problem:

There is a substantial backlog of applications and other authorization management duties in the Division of Mining, Land and Water (DMLW). This has a direct adverse impact on many businesses, communities, and individuals seeking to develop and use state land and resources. This in turn negatively affects job creation, contracts, economic stimulus in communities, and further development of Alaska. It is now our highest priority to address this problem.

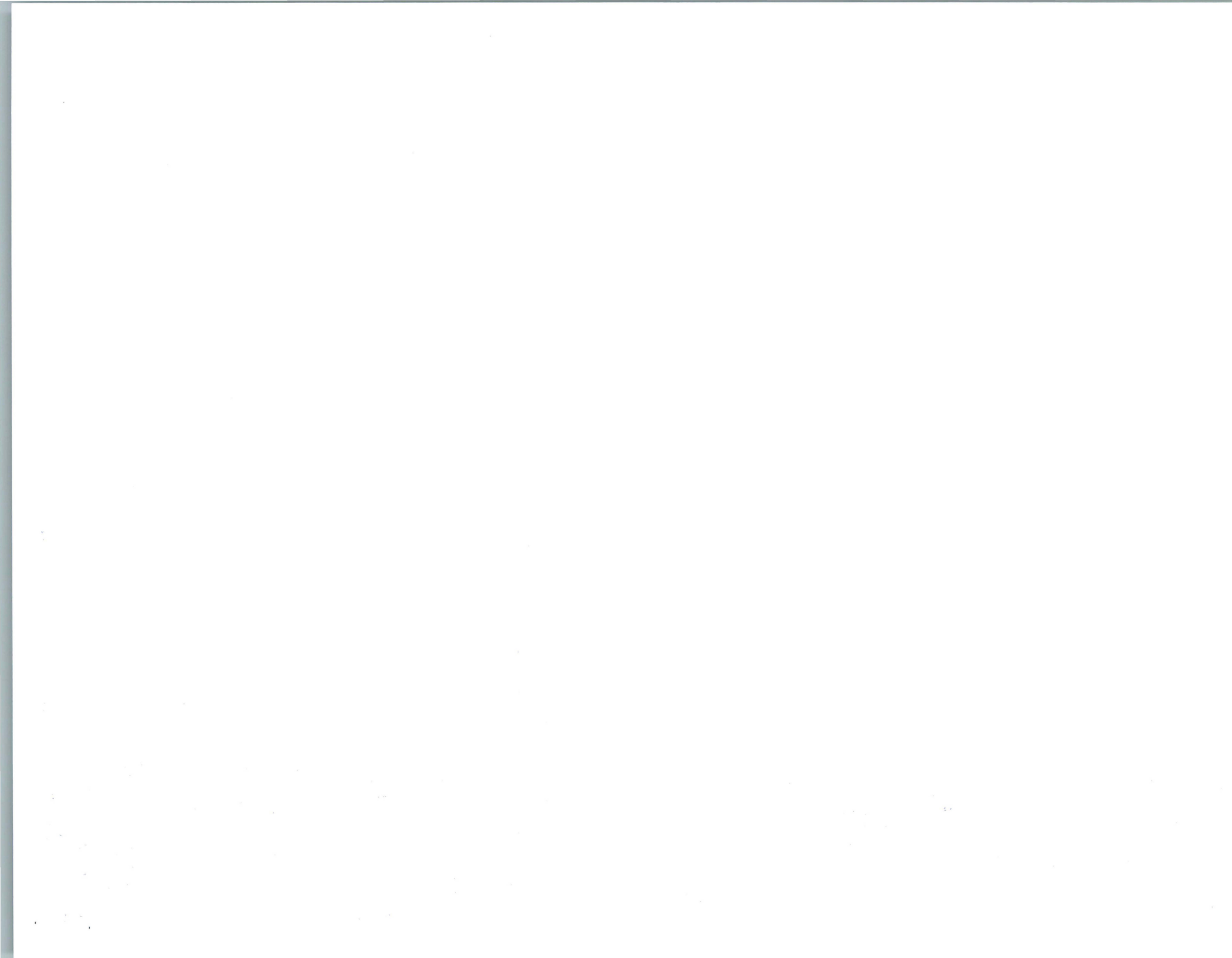
At the beginning of FY11, there was a backlog of over 2,500 authorizations for the main types of authorizations necessary for development projects. This includes applications for permits (314), leases (297), easements (658), material sales (181), water rights (742), and instream flow reservation applications (346). This does not include the other types of authorizations or the administration workload for the existing authorizations. There is a spreadsheet attached that shows the full backlog per authorization type as requested. We are not yet able to show average and maximum cycle time for each authorization type, but that is being programmed into the reporting system so that we can report on in the future.

The backlog of applications range in complexity from very basic authorizations such as a commercial recreation permit that can be issued within a day, to large projects requiring multiple interrelated authorizations, multi-agency coordination, required studies and review that may take a few years to complete the authorizations. Each specific application may present an assortment of obstacles that can vary the processing times such as land ownership disputes, multiple use conflicts, business transaction delays, unresponsive applicant, encumbrance removal, project revisions, appeals and litigation.

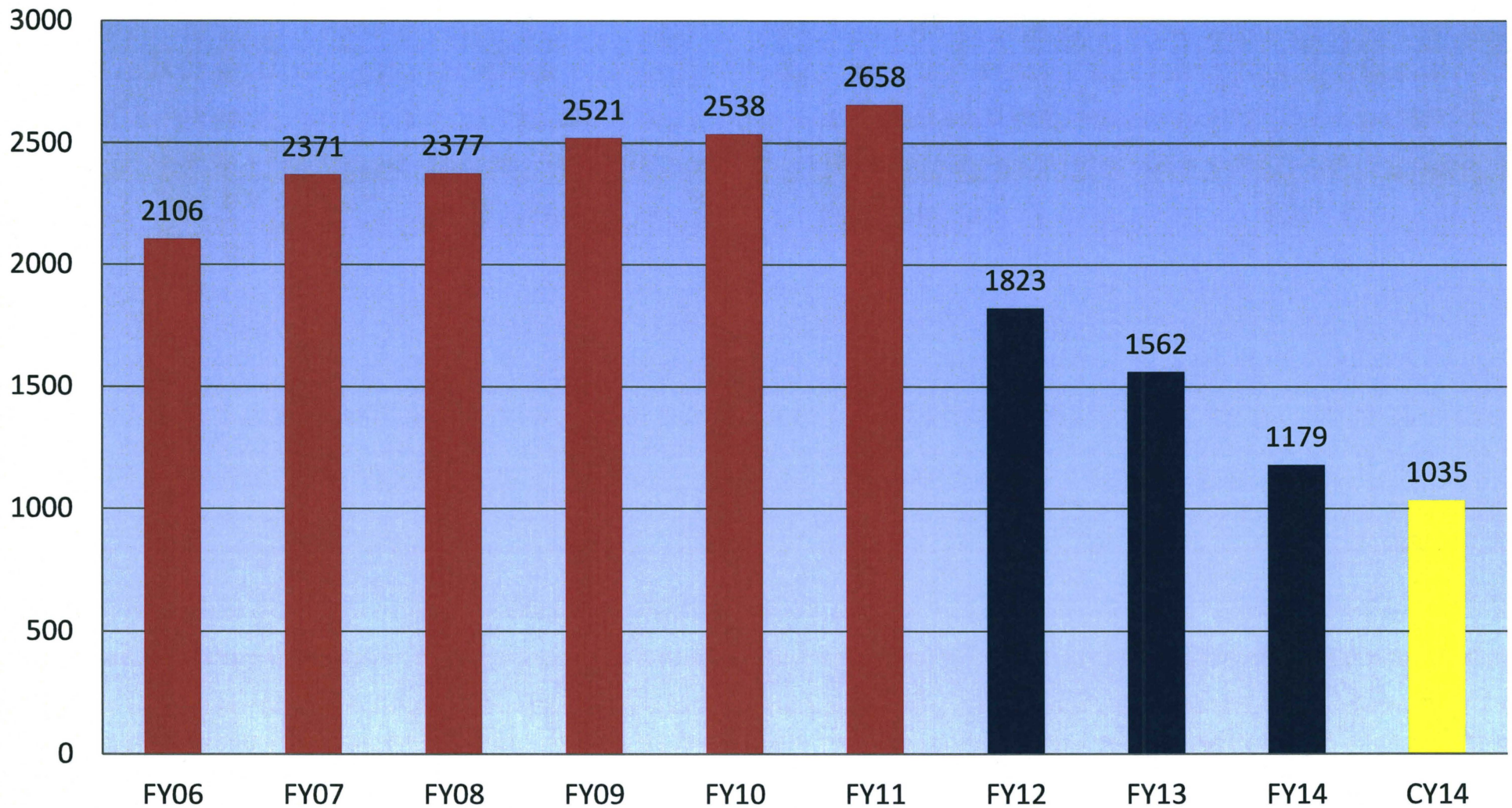
This backlog of applications has been growing in recent years because the division has only been able to process 87% of incoming applications. This is due to a number of reasons:

- Inefficient internal processes and cumbersome regulatory requirements.
- Land ownership patterns have become more complex, thereby increasing the conflicts that have to be resolved.
- Increasing federal and municipal regulation has increased the processing time for applications.

*“Develop, Conserve, and Enhance Natural Resources for Present and Future Alaskans.”*



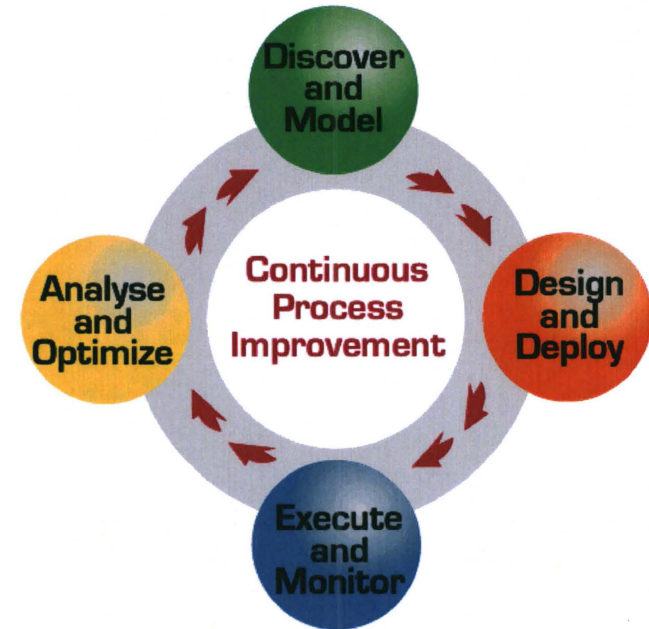
# DMLW BACKLOG AUTHORIZATION TOTALS BY FISCAL YEAR





# WHAT IS THE UNIFIED PERMIT PROGRAM?

- It is an umbrella of various programming efforts to create permitting efficiencies
- It is meant to benefit all of the Department although initially focused on DMLW
- It is a key element to developing **incremental efficiencies** to help initially eliminate and subsequently prevent the Department from slipping back into permitting backlogs



Continuous Process Improvement Model



# TOP THREE PROGRAM GOALS

- Shorten and make consistent cycle times for authorizations
- Build internal systems that directly support DNR productivity
- Develop better internal and external transparency within the process



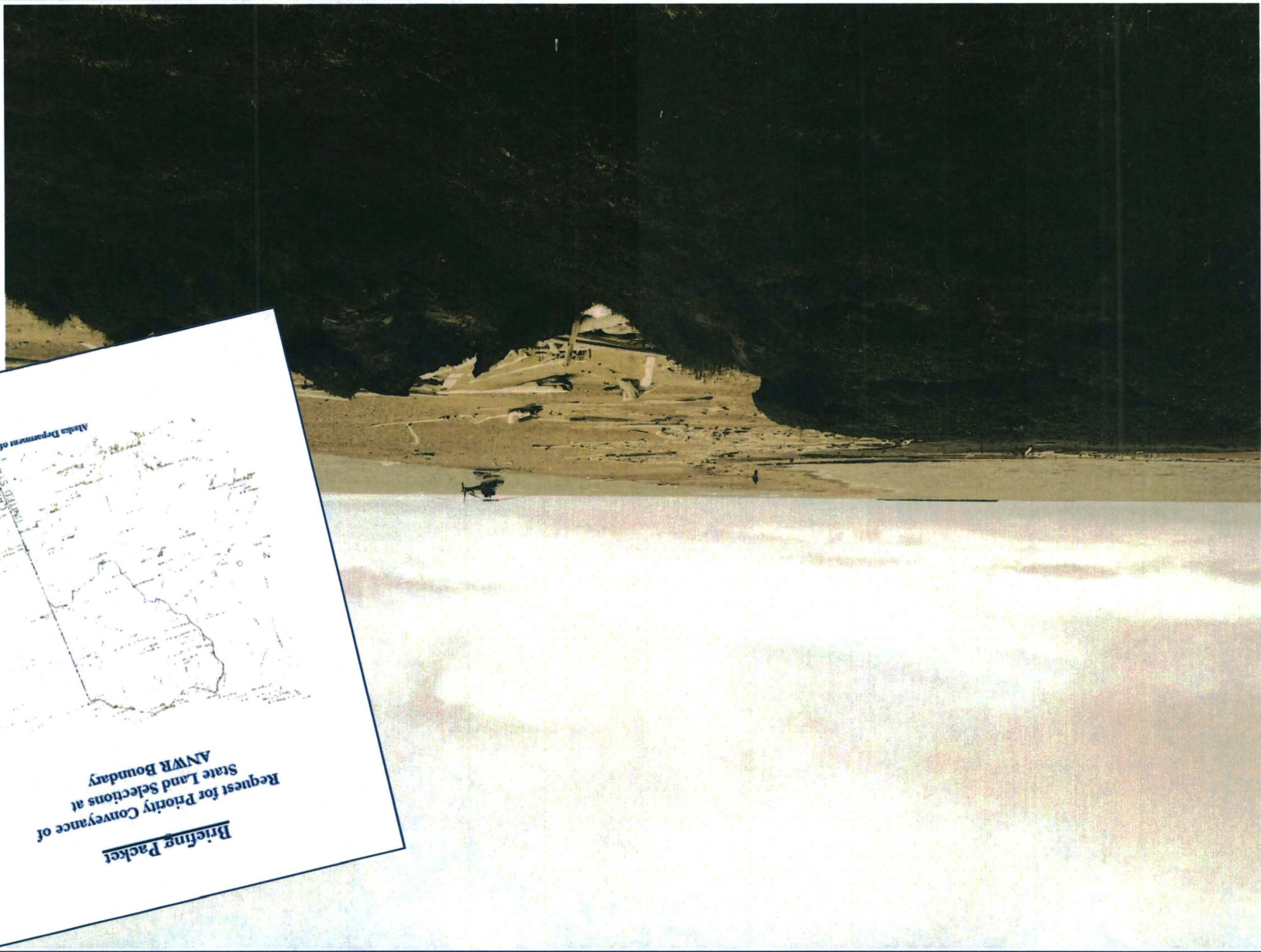
# PROGRAM PRINCIPLES



- Meet Statutory and Regulatory Requirements
- Contribute to Backlog Elimination or Prevention with Every Project
- Maximize Business Value for the Entire Program
- Maximize Business Value for the Case Type
- Enable Continuous Improvement
- Maximize User Adoption
- Maximize Re-Use
- Minimize Re-Work
- Ensure System Can be Efficiently Maintained in the Long-Term



# ANWR BOUNDARY UPDATE



**Briefing Packet**  
**Request for Priority Conveyance of**  
**State Land Selections at**  
**ANWR Boundary**

Alaska Department of Natural Resources  
October 16, 2014





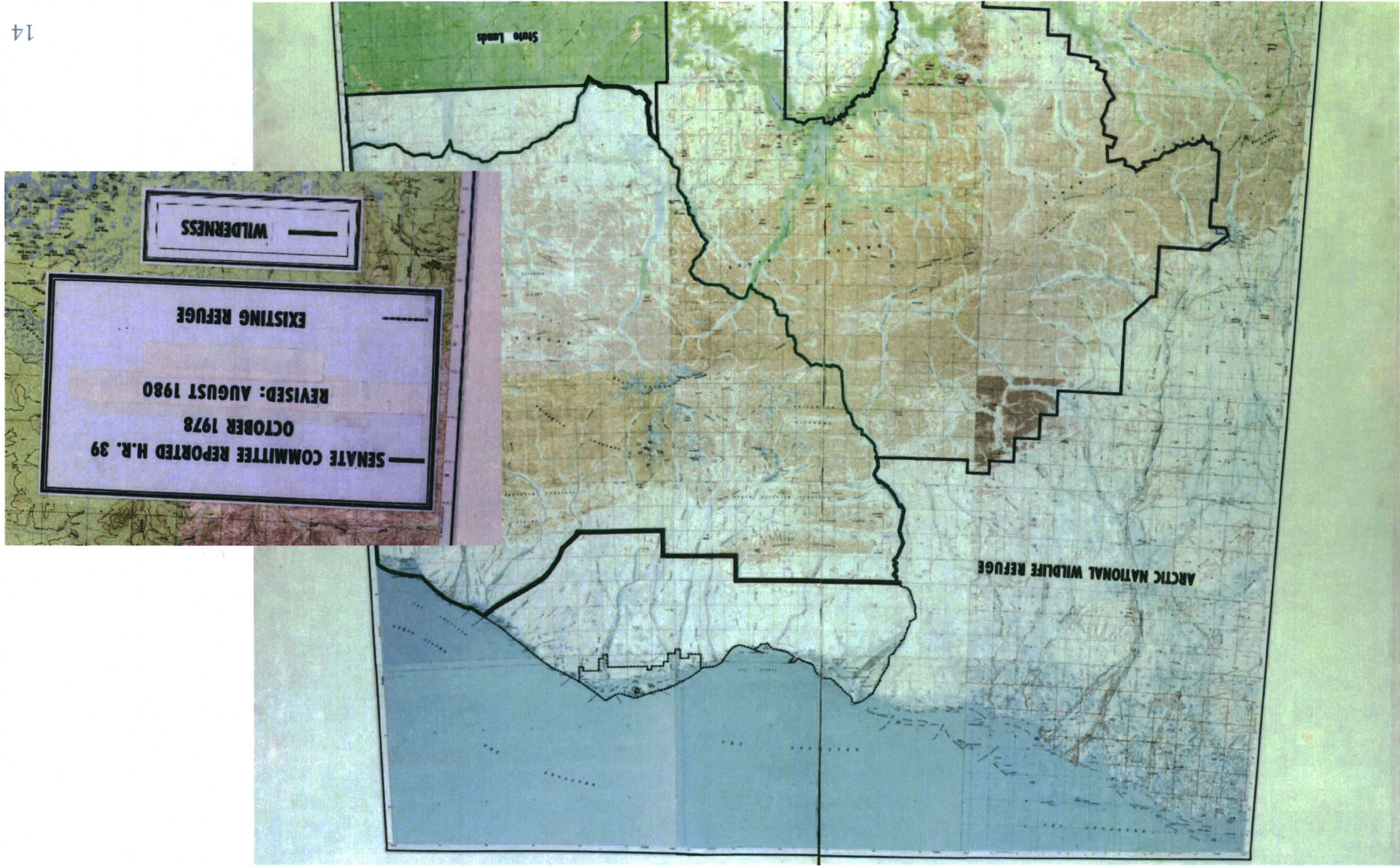
# ANWR BOUNDARY UPDATE

Original proposed boundary map for the Arctic National Wildlife Range, published 1957





# ANWR BOUNDARY UPDATE





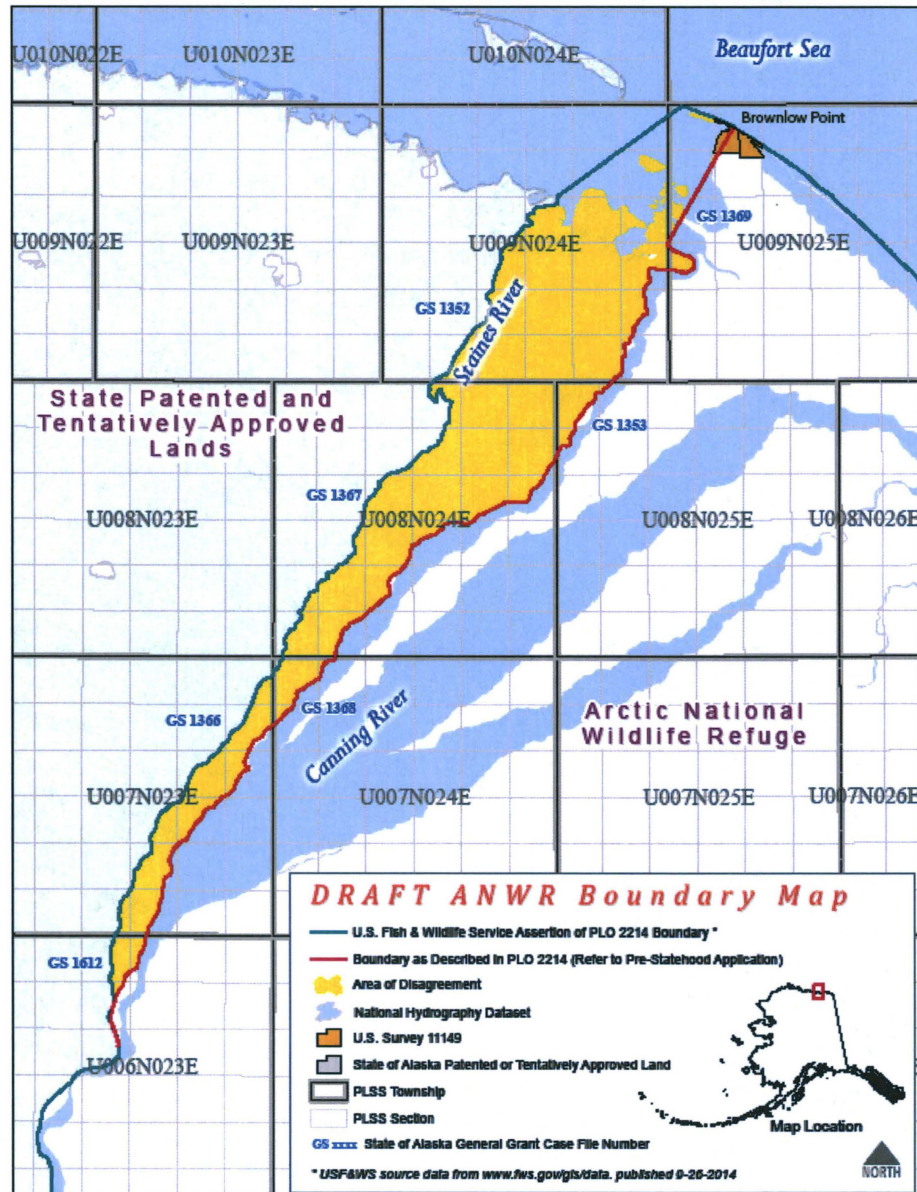
# ANWR BOUNDARY UPDATE

B E A U R T





# ANWR BOUNDARY UPDATE





State of Alaska  
Department of Natural Resources

Division of Geological & Geophysical Surveys

House Resources Committee Update

February 4, 2015

Steven Masterman CPG  
State Geologist and Director





# DGGS – Applied Geoscience for Alaska

*There is established within the department a division of geological and geophysical surveys under the direction of the state geologist (AS 41.08.010)*

*The state geologist shall conduct geological and geophysical surveys to determine the potential of Alaskan land for production of metals, minerals, fuels, and geothermal resources, the locations and supplies of groundwater and construction material; and the potential geologic hazards to buildings, roads, bridges and other installations and structures; and shall conduct such other surveys as will advance knowledge of the geology of the state. (AS 41.08.020a)*



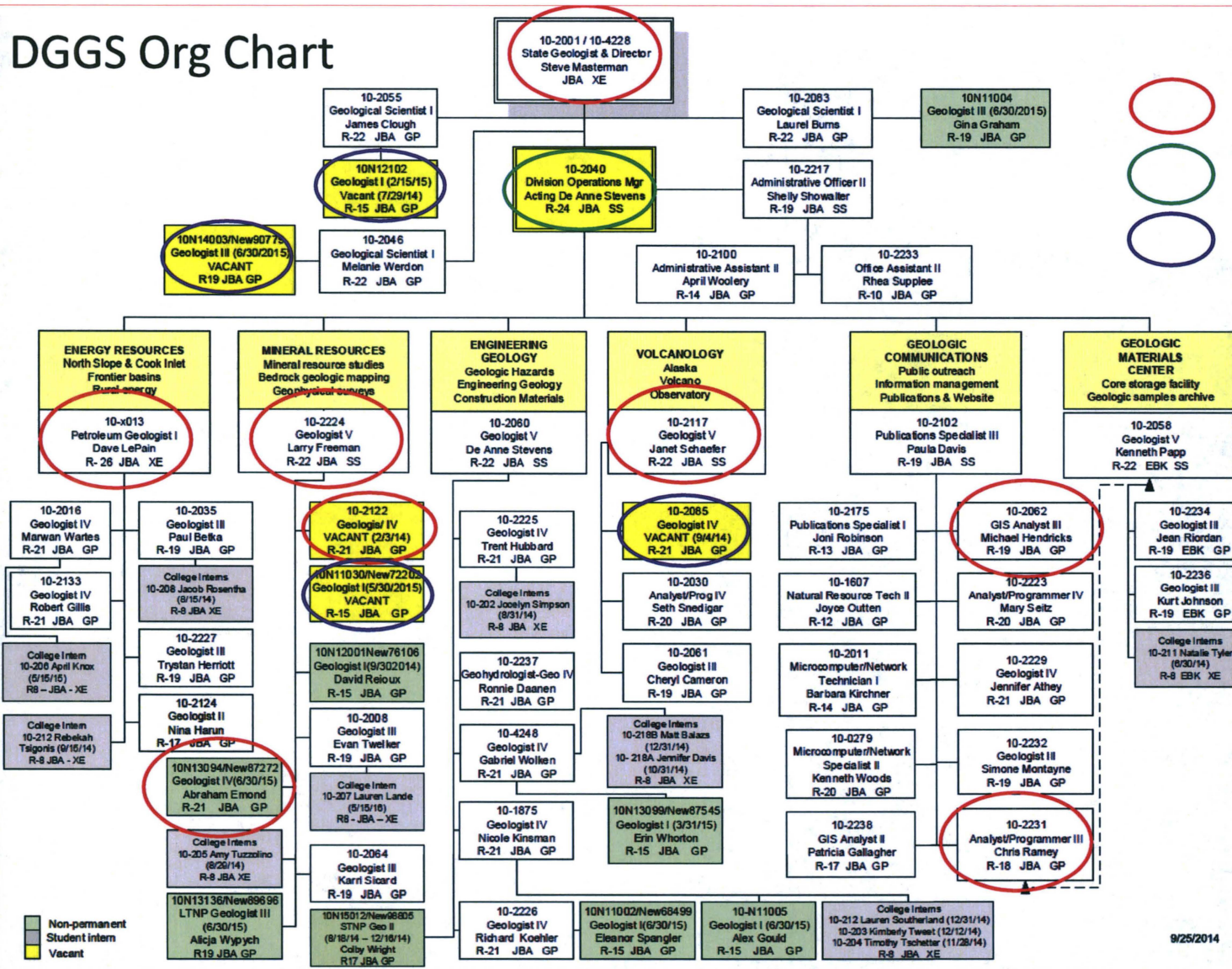
# How we apply this mission

- Provide geoscience to foster energy and mineral development, and reduce the cost of local energy
- Stimulate industries that provide state revenues
- Provide geoscience information to reduce the cost to construct and maintain facilities in Alaska
- Provide information to reduce risks from geologic hazards to Alaska's residents, communities and businesses
- Increase public awareness of, and access to information about Alaska's geology and resources
- Preserve and expand the states geologic materials collection for future discoveries





# DGGS Org Chart



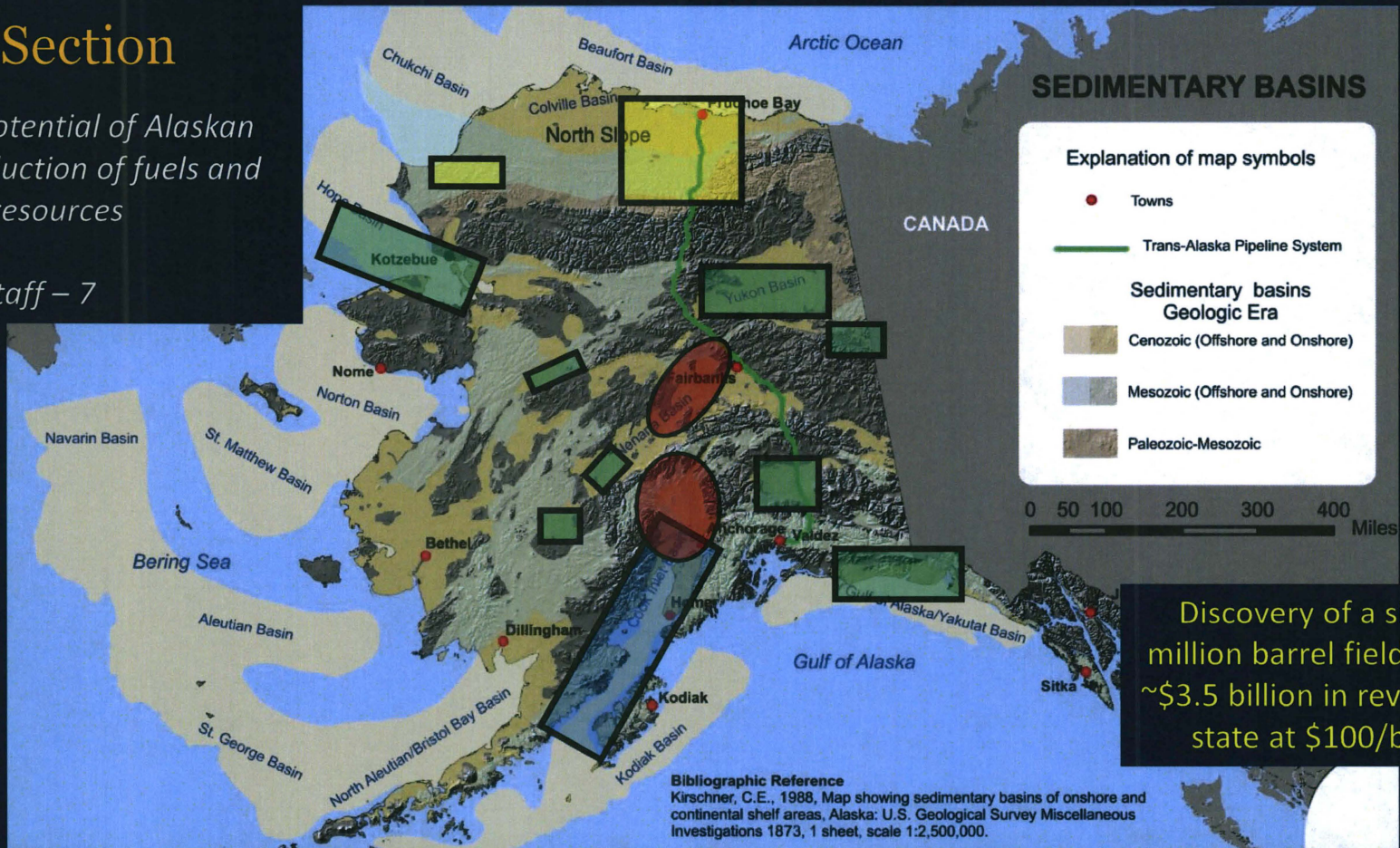
2014 Hires  
Recruitments  
Evaluating



## Energy Section

Determine potential of Alaskan land for production of fuels and geothermal resources

Permanent staff – 7



Discovery of a single 100 million barrel field will return ~\$3.5 billion in revenue to the state at \$100/barrel oil

The Energy Resources Section conducts geologic investigations to address specific scientific questions or problems to assist and stimulate exploration in basins with energy resource potential for in-state use or export



# Alaska as a Storehouse of Hydrocarbons

## North Slope

USGS estimates that Alaska's North Slope has more oil than any other Arctic nation

**OIL:** Est. 40 billion barrels of conventional oil (USGS & BOEM)

**GAS:** Est. 207 trillion cubic feet of conventional natural gas (USGS)

Alaska has world-class unconventional resources, including tens of billions of barrels of heavy oil, shale oil, and viscous oil, and hundreds of trillions of cubic feet of shale gas, tight gas, and gas hydrates

**Compared to most basins, Alaska is relatively underexplored, with fewer than 600 exploration wells on the North Slope, compared to Wyoming's approximately 19,000**

## Cook Inlet

USGS estimates that significant undiscovered volumes of hydrocarbons remain to be found in the Cook Inlet:

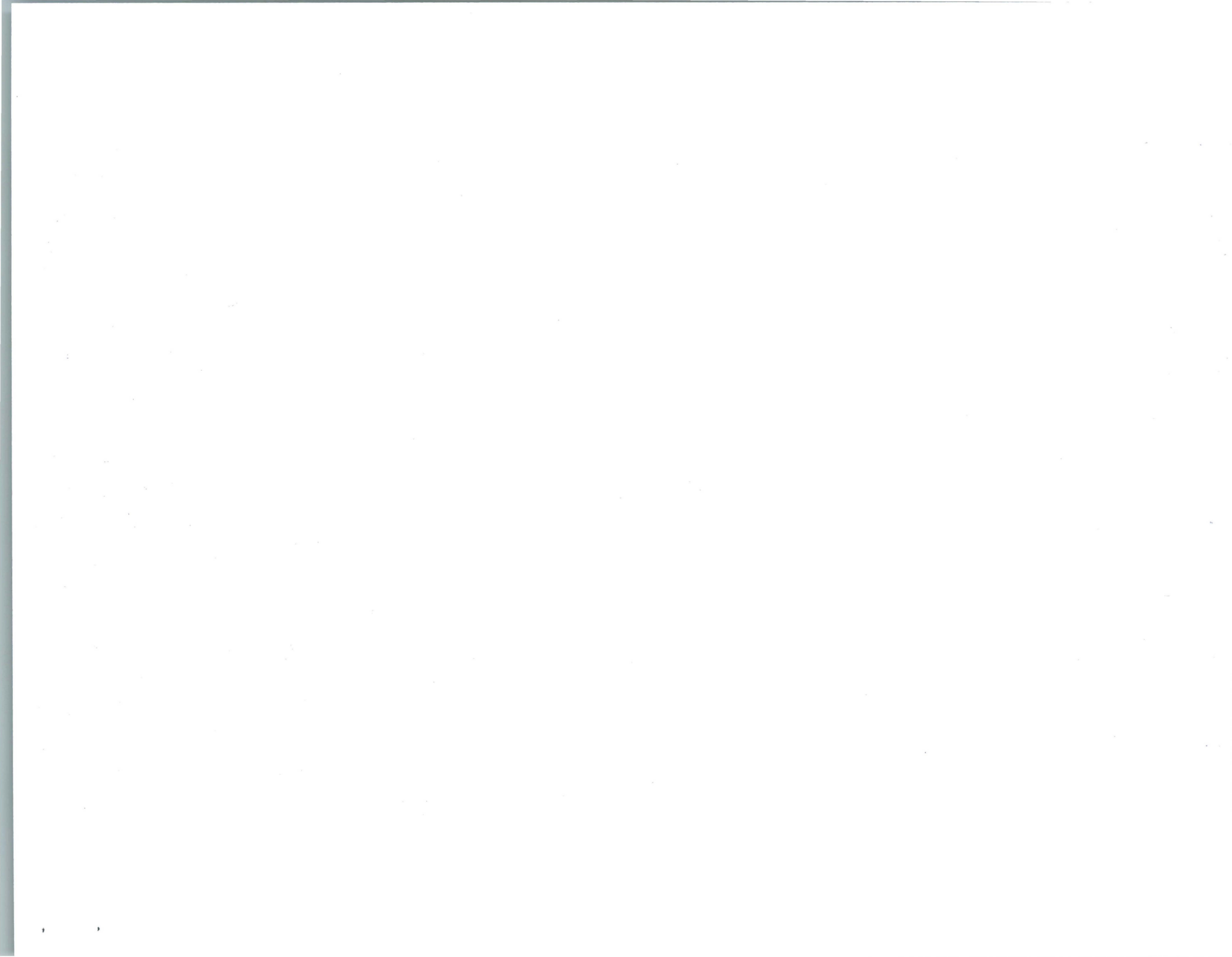
19 trillion cubic feet of natural gas

600 million barrels of oil

46 million barrels of natural gas liquids

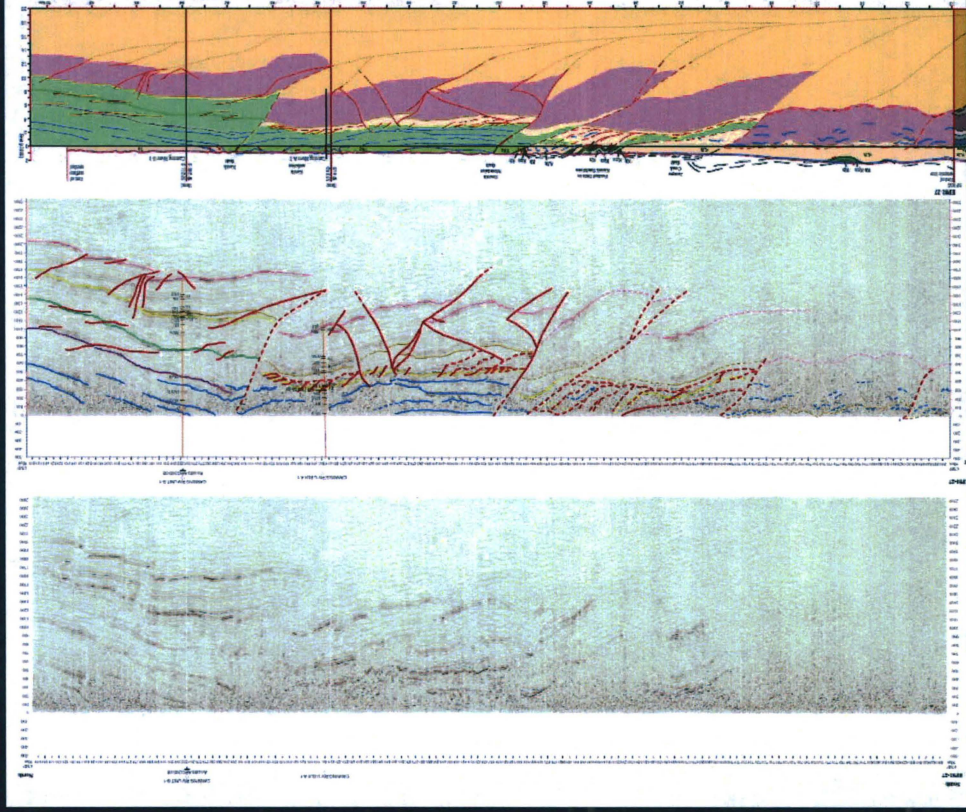
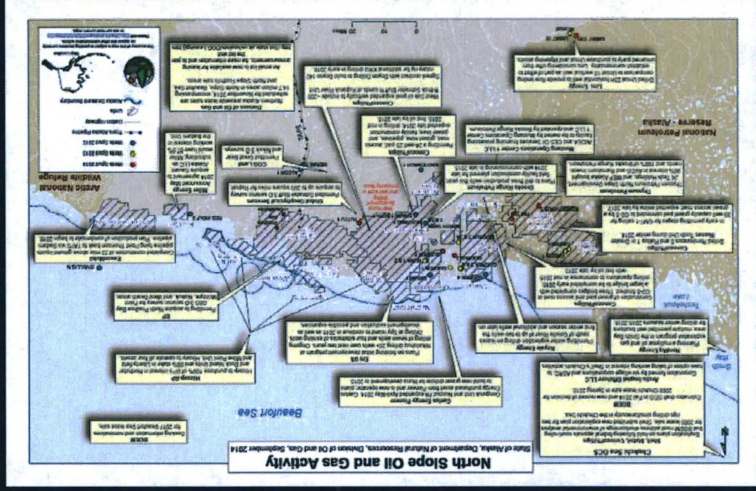
The State has held four successful lease sales in the Inlet since 2011 that have cumulatively generated approximately \$25 million in bonus bids





# North Slope Objectives

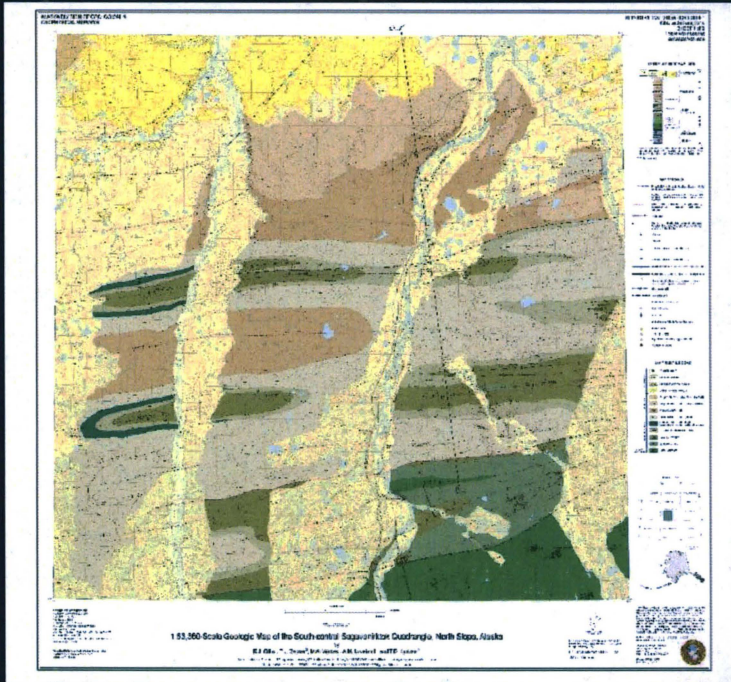
- Stimulate exploration
- Complete surface geologic mapping
- Petrochemistry and petrophysics of unconventional plays
- Stratigraphic studies to identify oil traps
- Structural investigations for oil traps and basin evolution
- Lower quality reservoirs



Focus on oil



# North Slope Projects



## Recently Completed

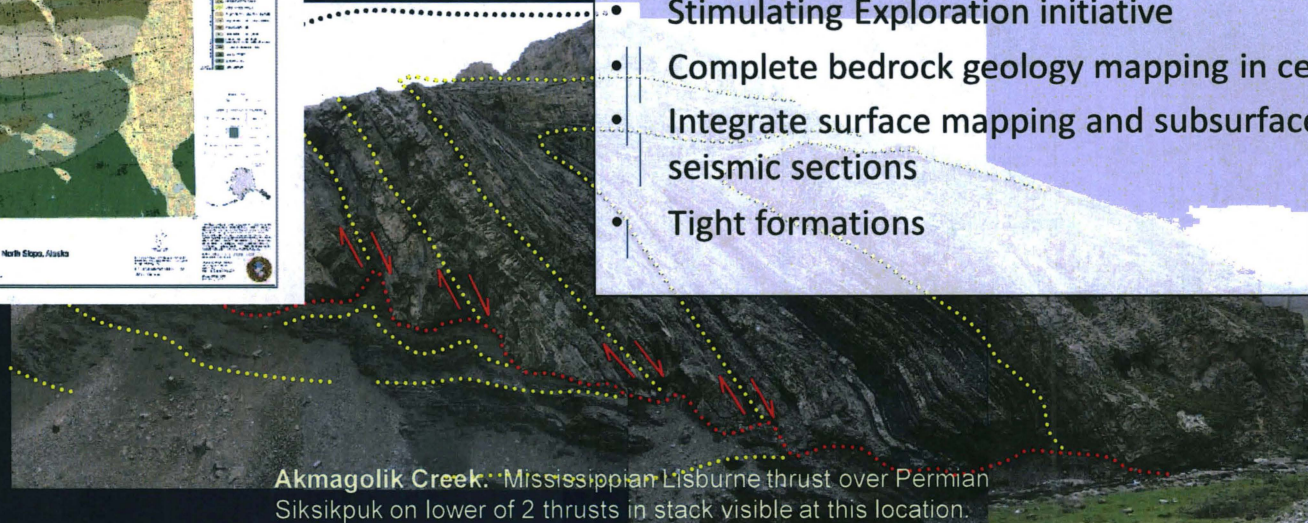
- Sagavanirktok bedrock geology map and report
- Kavik seismic section interpretations
- Completed helicopter-supported field work on the central North Slope for shale oil evaluations.

## Current Projects

- Geologic maps of Gilead Creek and Umiat areas
- Shale oil potential of the Shublik Formation
- Stratigraphy and geochronology of the Hue Shale

## Planned Work

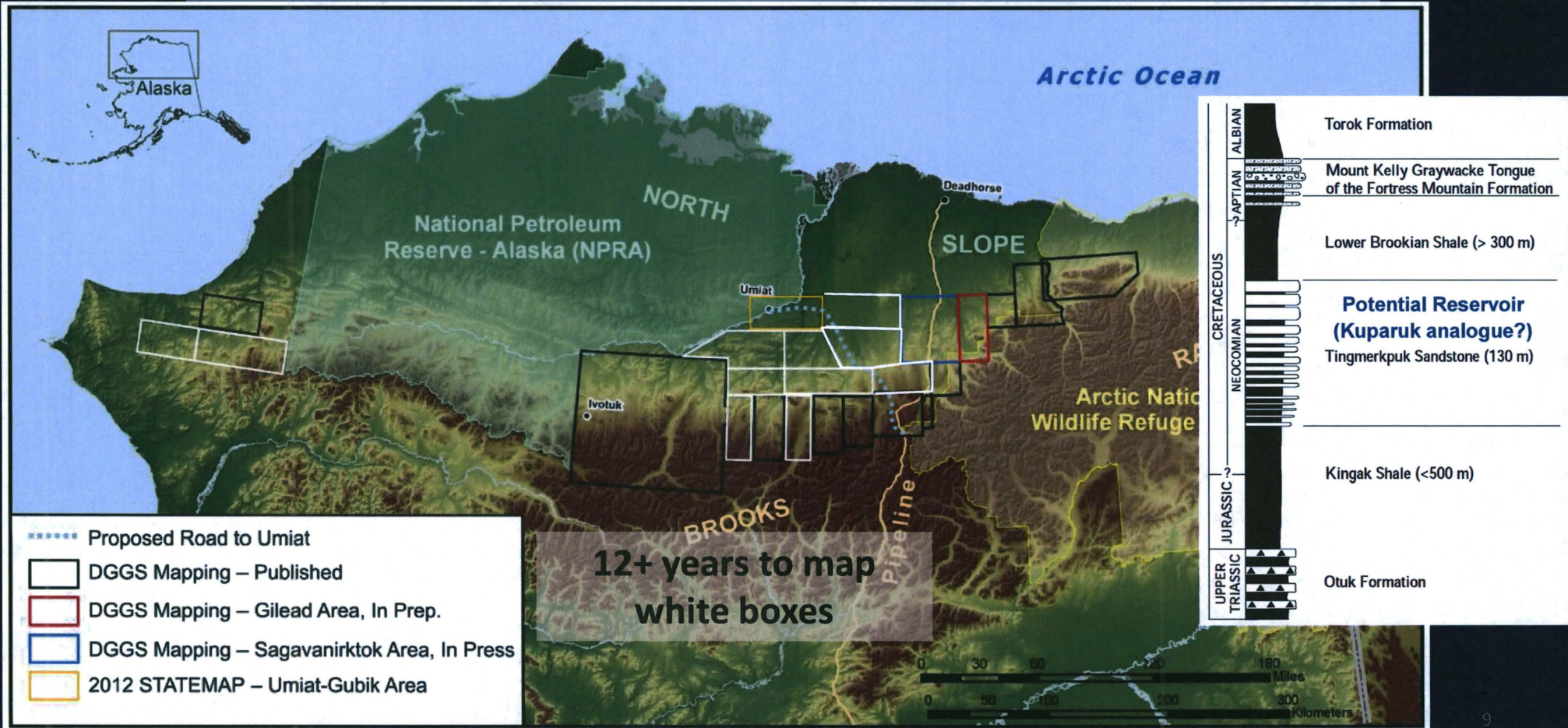
- Stimulating Exploration initiative
- Complete bedrock geology mapping in central Foothills
- Integrate surface mapping and subsurface data via seismic sections
- Tight formations



Akmagolik Creek: Mississippian Lisburne thrust over Permian Siksikuk on lower of 2 thrusts in stack visible at this location.



# North Slope & Brooks Range Foothills





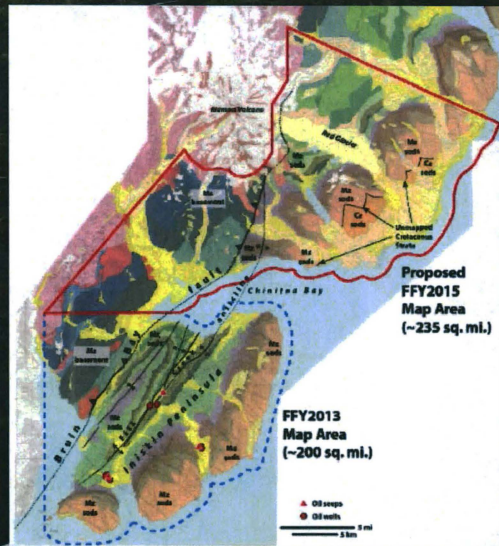
# Cook Inlet Objectives

## Gas – Ensuring a Stable Supply

- Increased production demands (LNG, Agrium, Donlin, Fairbanks)
- Increased state dependence on Cook Inlet gas until North Slope gas is available
- Understanding the stratigraphy and basin evolution is crucial to discovery
- Determining whether there are viable Mesozoic gas plays

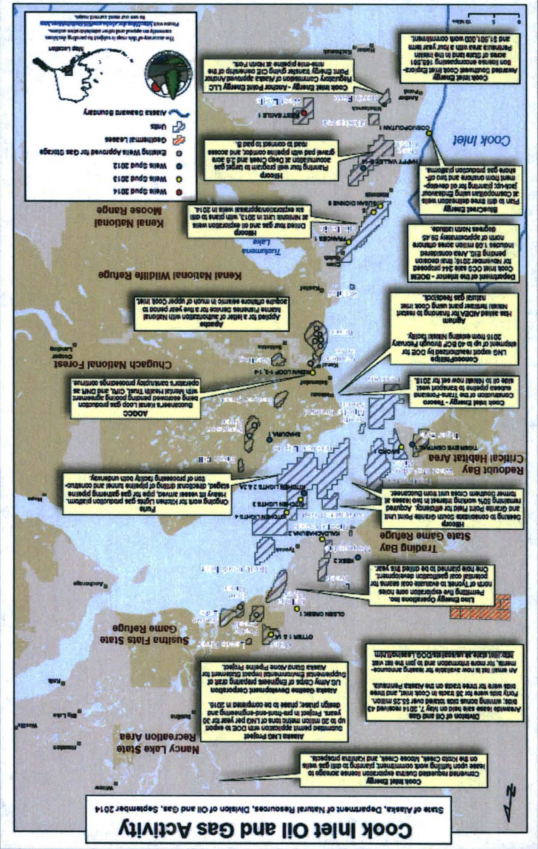
## Oil - Increasing production

- Understanding timing of oil formation and cementation
- Petrophysics and distribution of source and reservoir rocks
- Mesozoic stratigraphy and basin evolution
- Basin structural evolution
- Potential for unconventional oil and gas plays in the basin





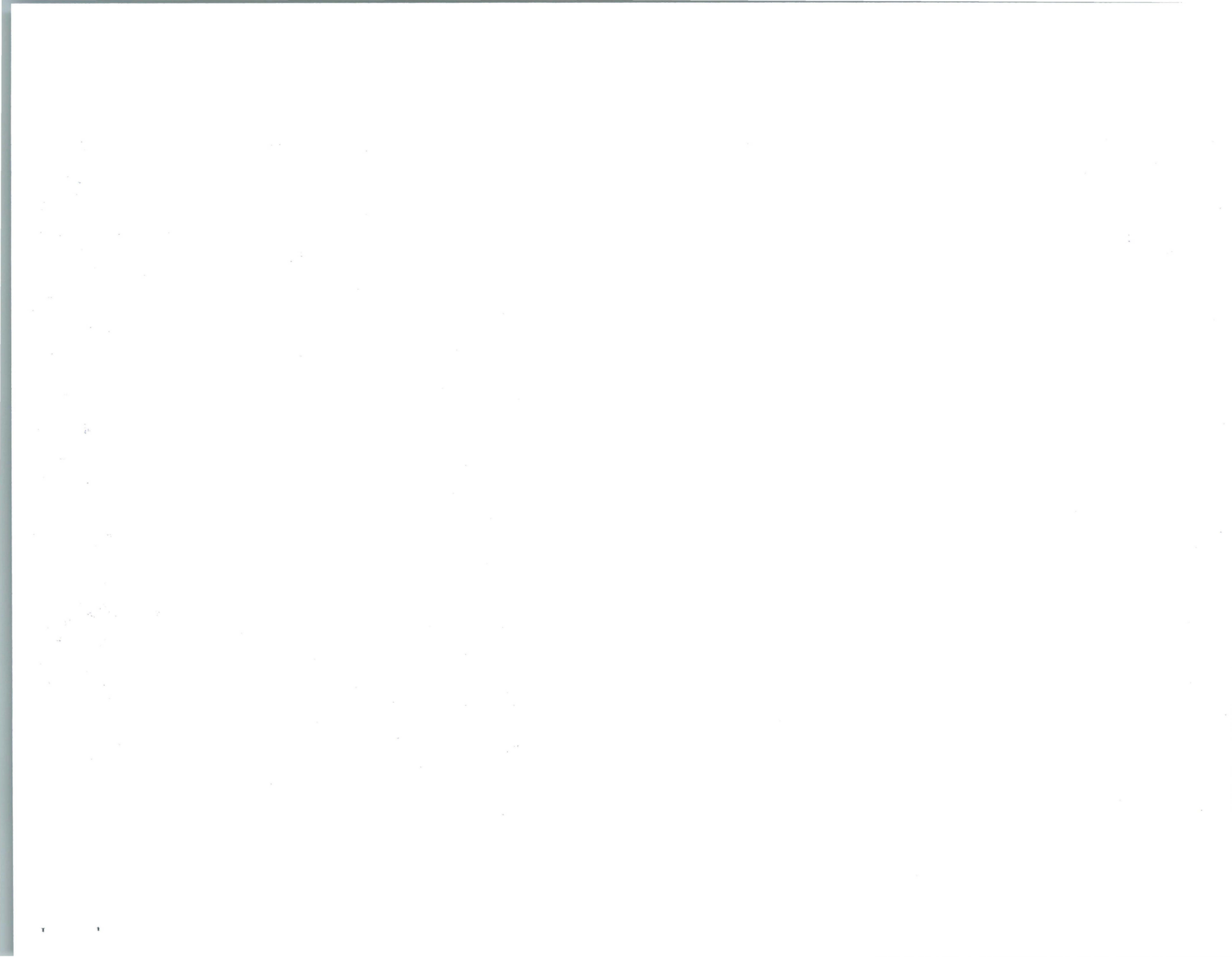
# Cook Inlet Projects



- Draft geological map of the Iniskin Peninsula
- Published data for two newly discovered oil-stained Jurassic outcrops in Cook Inlet
- Published chapter in AAPG Memoir 104 on the geology of the Cook Inlet basin
- 2013 and 2014 field mapping programs in Western Cook Inlet and Sustina Basin for oil and gas potential
- **Current Projects**
- Geologic maps of Iniskin Peninsula and Tyonek Quad and accompanying reports
- Mapping in west Cook Inlet summer 2015
- Petroleum source and reservoir potential of Mesozoic and Cenozoic units
- Geology of the Bruin Bay fault zone and its role in the evolution of Cook Inlet
- Mesozoic subcrop map for Cook Inlet with DOG staff
- **Planned work**
- Complete geologic mapping and petroleum system studies of western Cook Inlet and the upper Alaska Peninsula
- Relative timing of zeolite cementation and petroleum generation
- Recognizing sand body geometries on reflection seismic data: integrating rock physics data and detailed outcrop sedimentology to create synthetic seismic sections
- Integrating borehole data and geophysics to take surface geology into subsurface

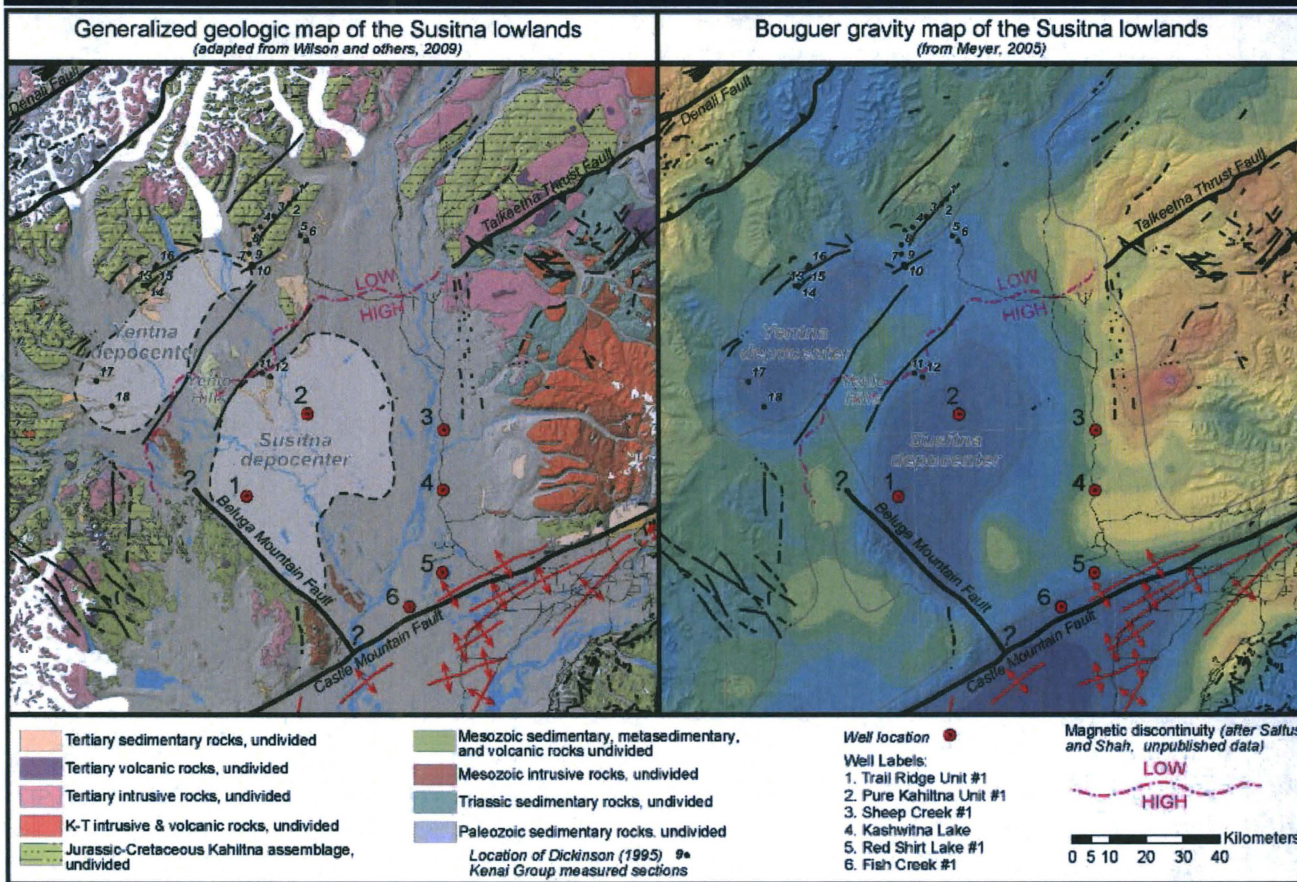






# Susitna Basin

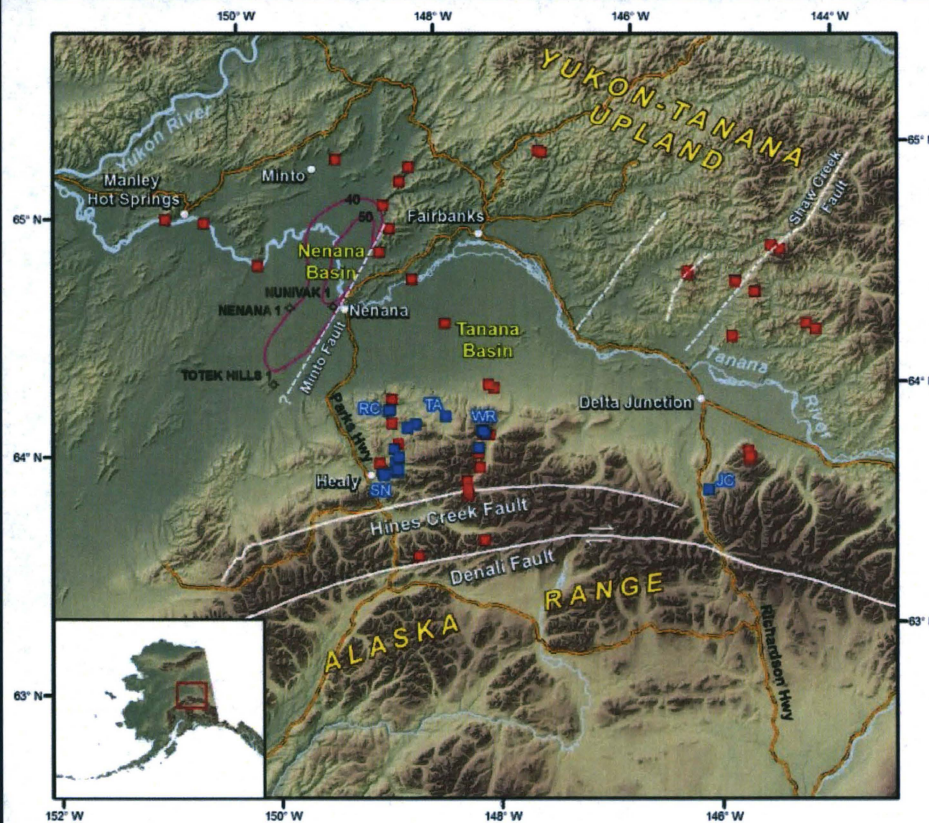
- Petroleum source rock potential of Tertiary coals
- Structural evolution of Beluga Mountain and Canyon Creek areas, western Susitna Basin
- Underground coal gasification and CBM studies





# Nenana Basin

- Petroleum source and reservoir potential of Tertiary sedimentary rocks
- Structural evolution of the Nenana basin
- Mapping basin margins
- Seismic approach to understand basin evolution and structure



■ 2012 Stations	■ 2012 Thermochronology Stations
RC Rex Creek Area	◇ Exploration Well
SN Suntrana Creek Type Section	— Bouguer Gravity Contour
TA Tatlanika River Area	— Major Roads
JC Jarvis Creek Area	
WR Wood River/Coal Creek Area	

Division of Geological & Geophysical Surveys  
**PRELIMINARY INTERPRETIVE REPORT 2013-2**  
**SUMMARY OF 2012 RECONNAISSANCE FIELD STUDIES RELATED TO THE PETROLEUM GEOLOGY OF THE NENANA BASIN, INTERIOR ALASKA**  
 by  
 Marcus A. Warten, Robert J. Gillis, Trystra M. Herron, Richard G. Stanley,  
 Kenneth P. Helmold, C. Shaun Peterson, and Jeffrey A. Demowitz



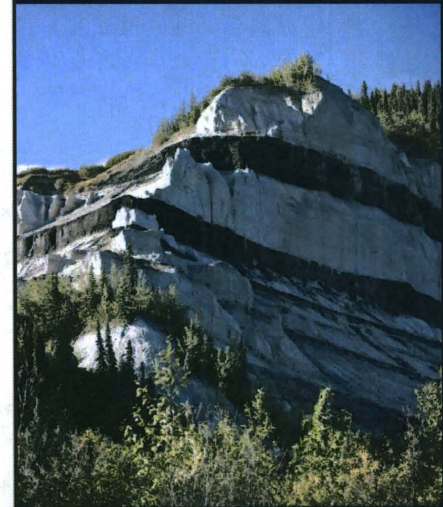
*Oblique aerial view northward of east-trending Eklow Group strata in the hangers of Coal Creek, a Wood River tributary, approximately 40 miles south of Fairbanks, Alaska. The middle Suntrana Formation comprises the package of light gray, to which gray weathering sandstone and carbonaceous coal, which is overlain by a light gray-brecciated, calcareous section of middle- to fine-grained Eklow Group strata. A gently northward dipping zone of Pleistocene glacial till lies along the background slope. Our current work is directed toward better understanding the geologic framework of the Eklow Group, and thus shed light on the potential oil and gas resources in the Nenana basin west of Fairbanks. See page 10 of this report for further information about the Coal Creek area exposures. Two geologic (for scale) are included in shadow in the right of photo center. Photograph by Trystra Herron.*

February 2013

Revised by

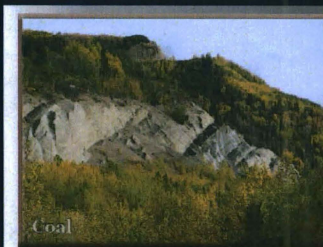
STATE OF ALASKA  
 DEPARTMENT OF NATURAL RESOURCES  
 Division of Geological & Geophysical Surveys  
 3354 College Rd.  
 Fairbanks, Alaska 99709-3707

\$2.00





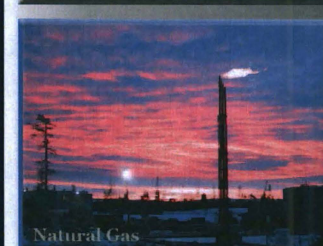
# Energy Sources for Local Use



Coal



Geothermal



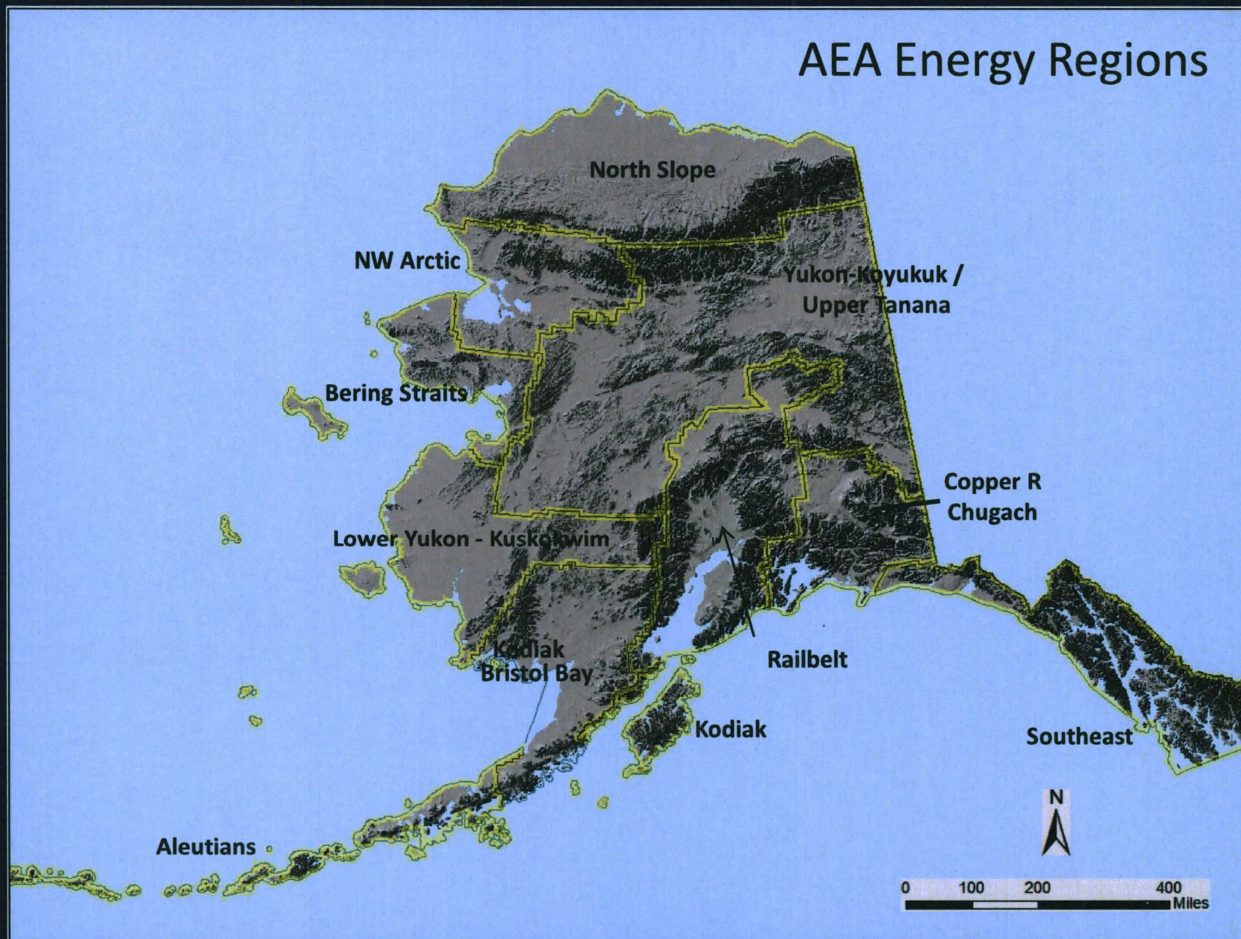
Natural Gas

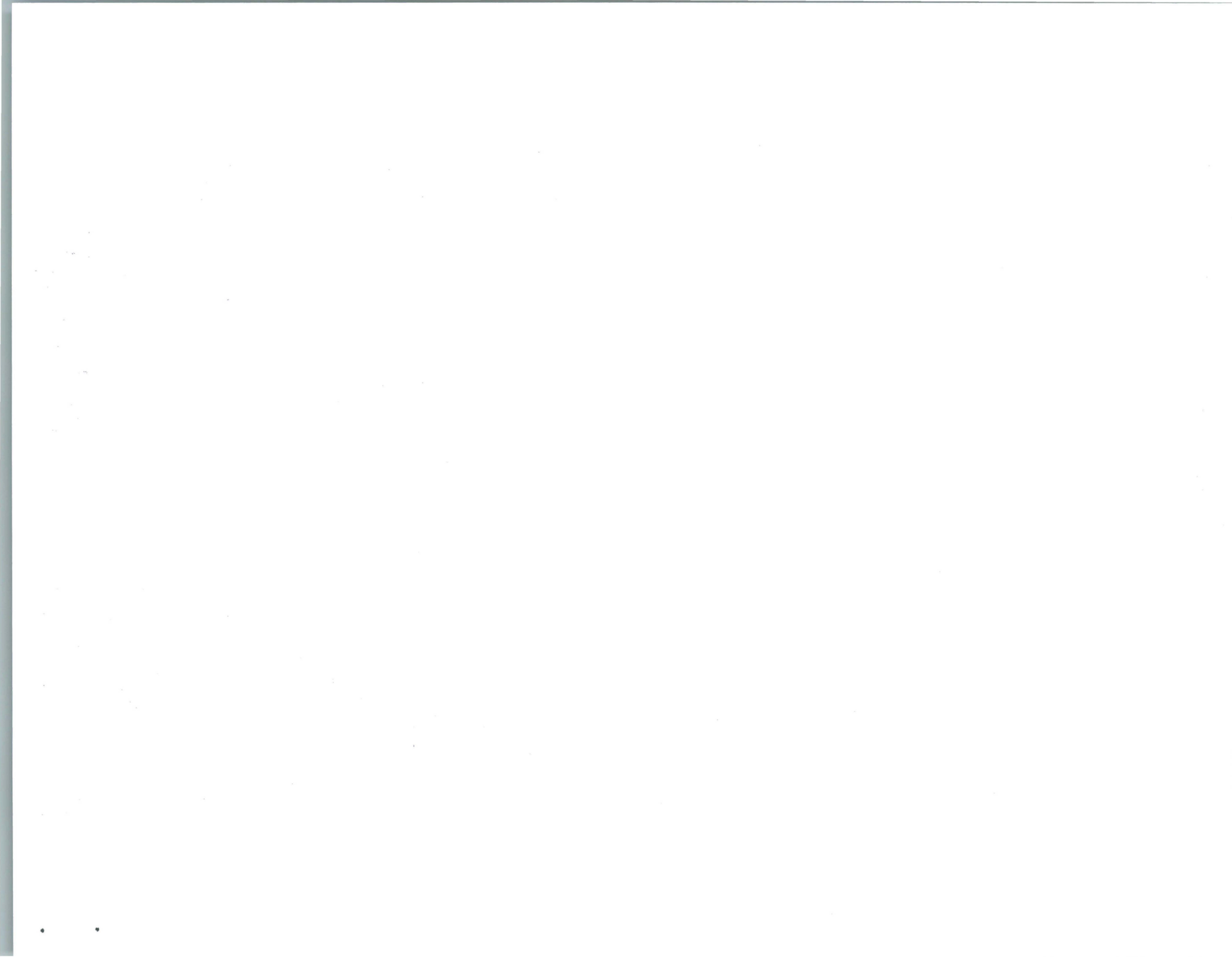
## FOSSIL FUEL AND GEOTHERMAL ENERGY SOURCES FOR LOCAL USE IN ALASKA: Summary of Available Information

edited by  
Robert F. Swenson  
Marwan A. Wartes  
David L. LePain  
James G. Clough

Special Report 66

Published by  
STATE OF ALASKA  
DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS  
2012





## Potential Local Energy Resources

AEA Region	Coal	Conventional Oil and Gas	Tight Gas	Coalbed Methane	Gas Hydrates	Geothermal
Aleutians	FW?	FW	FW	NFW	NFW	ID
Bristol Bay and Kodiak	NFW	FW	FW	NFW	NFW	NFW
Lower Kuskokwim	FW	FW	NFW	NFW	NFW	NFW
Bering Straits	FW?	FW	FW	NFW	NFW	ID
Northwest Arctic	ID	FW	ID	FW?	NFW	NFW
North Slope	ID	ID	ID	ID	ID	NFW
Yukon - Koyukuk	ID	FW	NFW	FW	NFW	ID
Railbelt	ID	ID	FW	FW	NFW	FW
Copper – Chugach	FW	FW	FW	NFW	NFW	NFW
Southeast	FW	FW	FW	NFW	NFW	ID

ID – Identified resource close to one or more communities

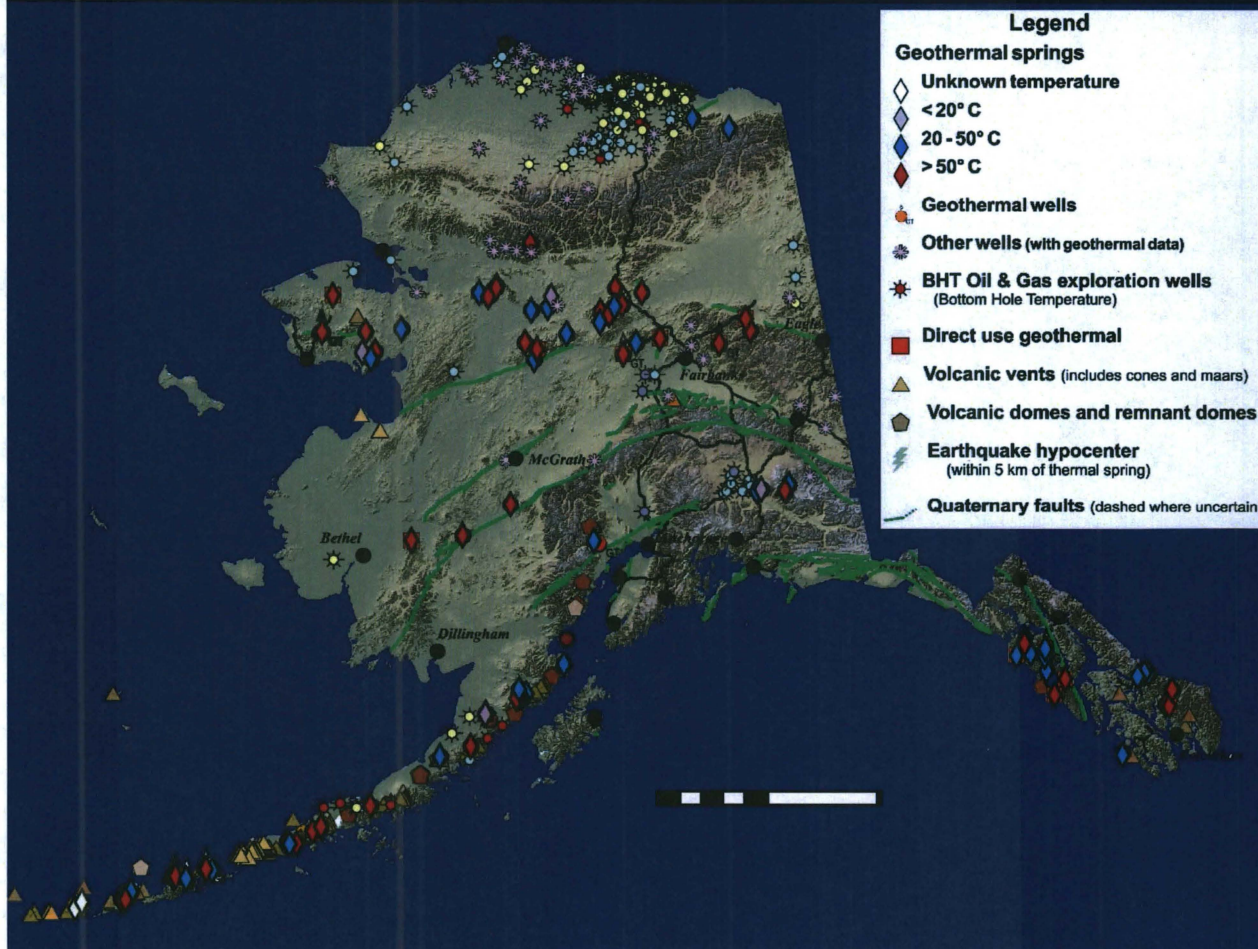
FW – Further work warranted locally

NFW – No further work warranted at this time





# Other Energy Section Projects



- Geothermal
- Coal Resources in Alaska GIS Dataset and Map
- Energy database



## Energy Resources - Direction

- Increase availability of public data
- Focus on oil on North Slope, gas in Cook Inlet
- Complete mapping of North Slope and Cook Inlet basins
- Integrate surface and subsurface data for oil and gas basins
- Database for energy analyses
- Initiate work on energy solutions for rural communities
- Baseline groundwater data acquisition for potential fracking
- Increase number of explorers on the North Slope



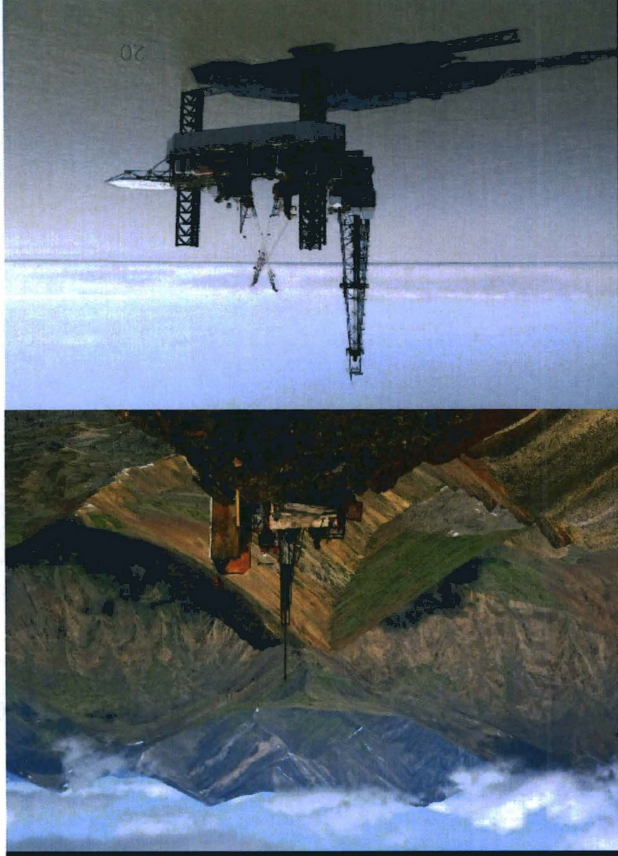
# Energy Section Outlook

- Discovery of a single 100 million barrel field will return ~\$3.5 billion in revenue to the state over the life of the field
- With current staff and funding levels, current projects will take 30+ years to complete
- To stimulate discovery, production and future state revenue we need to speed up data acquisition and release, which requires additional staff and funds
- **Of all activities, none are arguably more critical to the state than those resulting in new oil and gas production**



# Public Geology Data is Increasingly Important

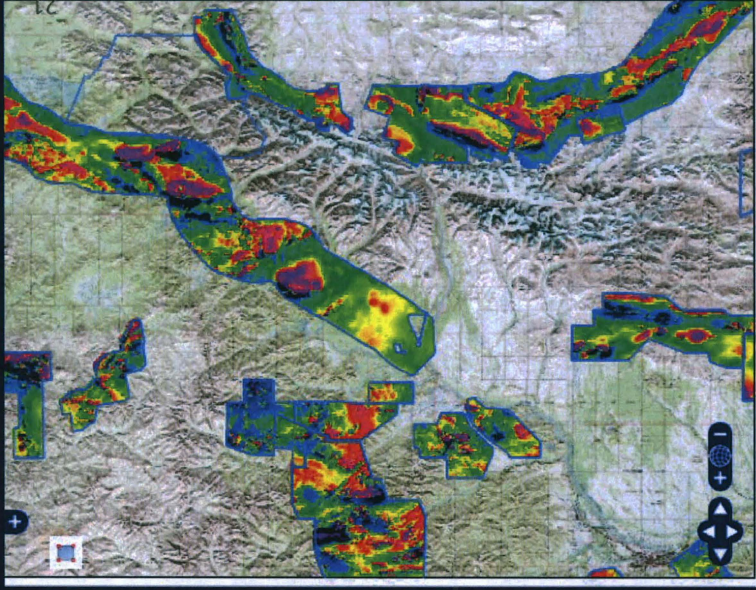
- Larger companies are selling assets to smaller companies
- Smaller companies do not have the staff and resources to do the regional geologic work
- Smaller companies place a greater reliance on public information
- Public data encourages exploration by reducing the cost of exploration, making Alaskan projects more competitive
- Public data removes barriers to exploration
- Smaller companies make a disproportionate number of discoveries, especially in minerals





# Mineral Resources Section

- Airborne geophysical surveys
- Geochemical data
- Detailed geological mapping
- Mineral deposit investigations
- Geologic Materials Center



The Mineral Resources Section conducts geologic investigations on mineral occurrences, and provides geological, geochemical and geophysical data to assist and stimulate exploration



Alaska's Mineral Industry 2013  
Special Report 69

*Determine potential of Alaskan  
land for production of metals  
and minerals*

*Permanent Staff - 6*



# Alaska as a Storehouse of Minerals

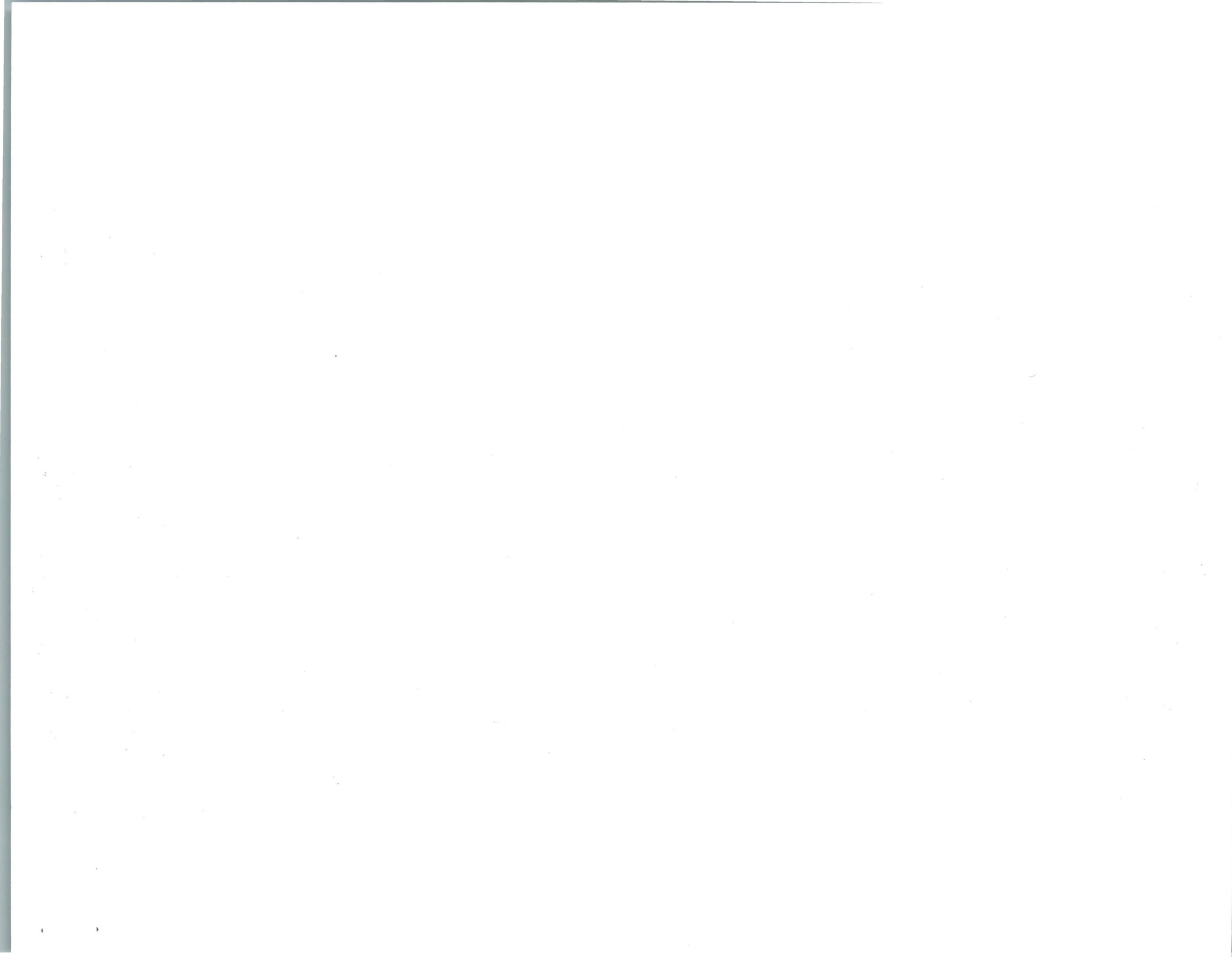
As a country of its own, the State of Alaska would rank in the top ten in the world for important minerals, including:

- **Coal:** 17% of the world's coal; 2nd most in the world
- **Copper:** 4% of the world's copper; 9th most in the world
- **Lead:** 3% of the world's lead; 7th most in the world
- **Gold:** 8% of the world's gold; 4th most in the world
- **Zinc:** 5% of the world's zinc; 5th most in the world
- **Silver:** 2% of the world's silver; Not in world top 10

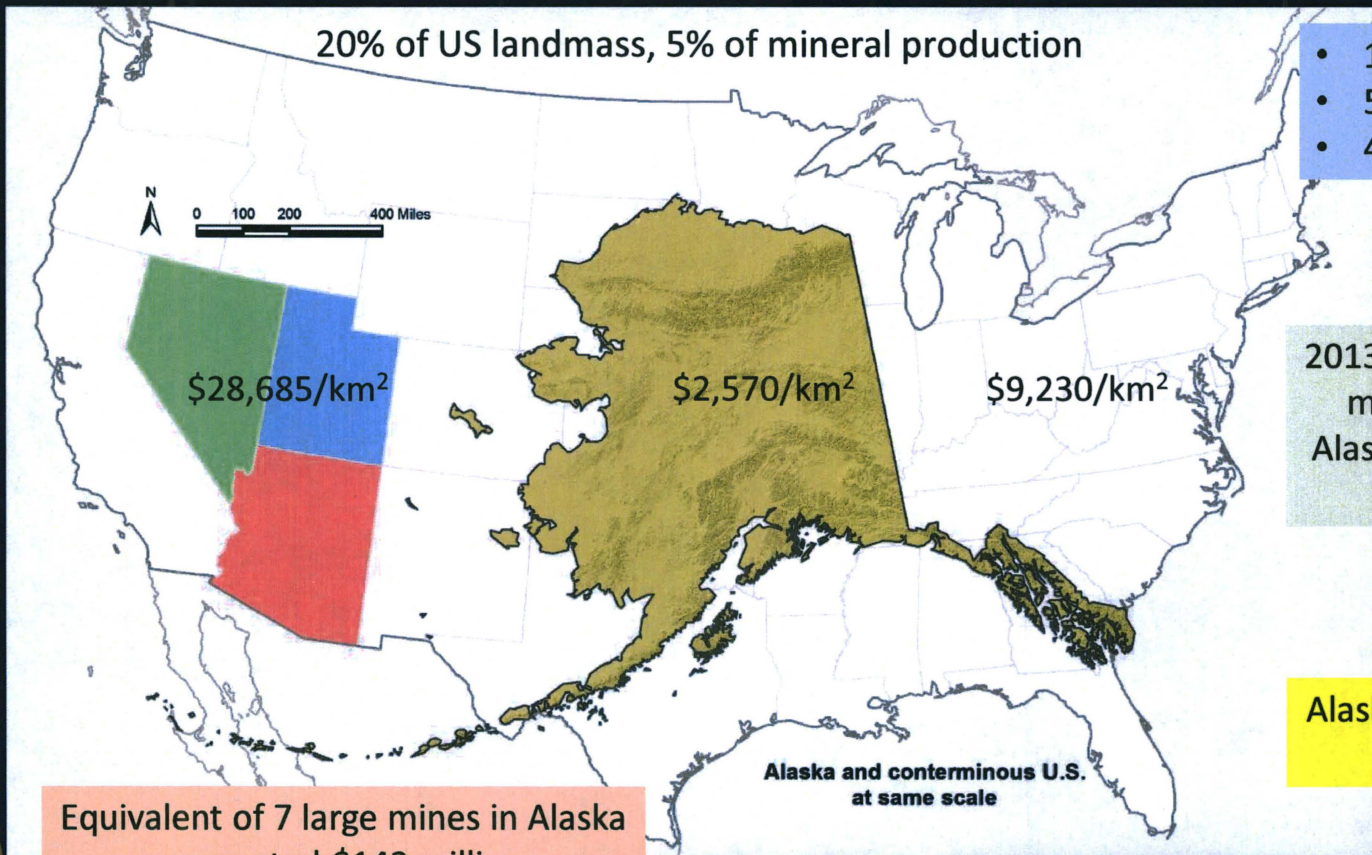
*USGS estimates*

According to the USGS, Alaska has over 70 occurrences of Rare Earth Elements (REE) and multiple occurrences of Strategic and Critical Minerals





# Mineral Production / km<sup>2</sup>



- 1<sup>st</sup> in per capita production
- 5<sup>th</sup> in total production
- 43<sup>rd</sup> in per area production



2013 Frasier Institute Survey of mining companies ranked Alaska as the most prospective of all 129 areas ranked

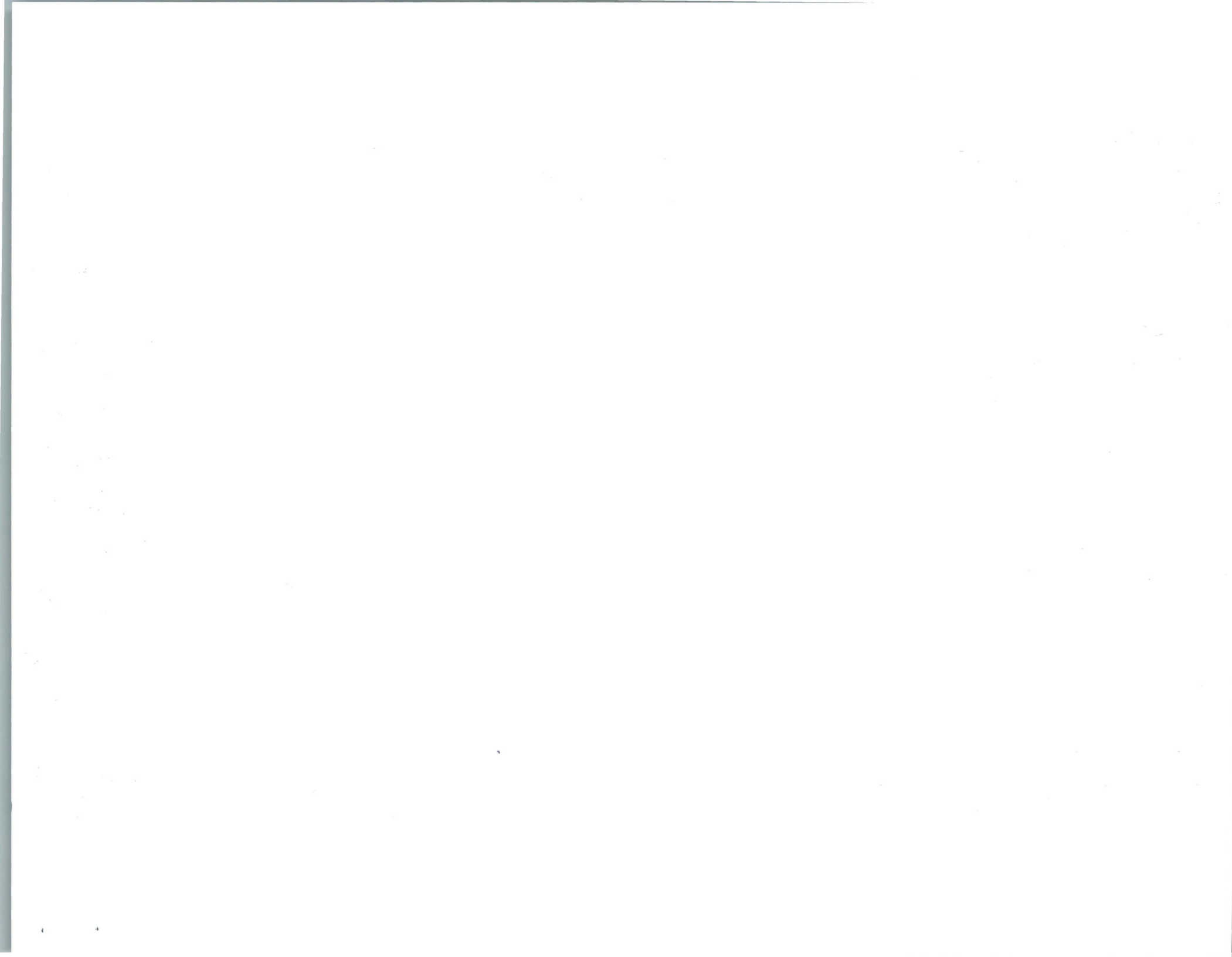


Alaska should have many more large mines

Equivalent of 7 large mines in Alaska generated \$142 million in government revenue in 2013

Data from the 2011 USGS Minerals Yearbook



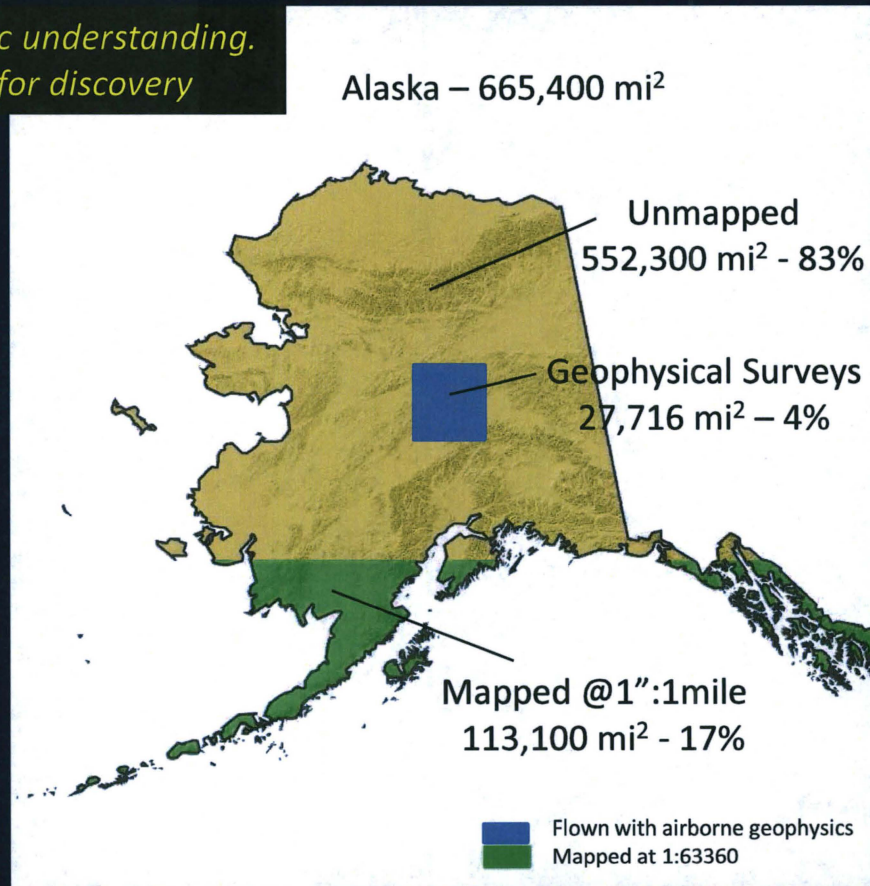


# Alaska – How much is known?

*Geologic mapping is the foundation of geologic understanding.  
Geologic understanding is a pre-requisite for discovery*

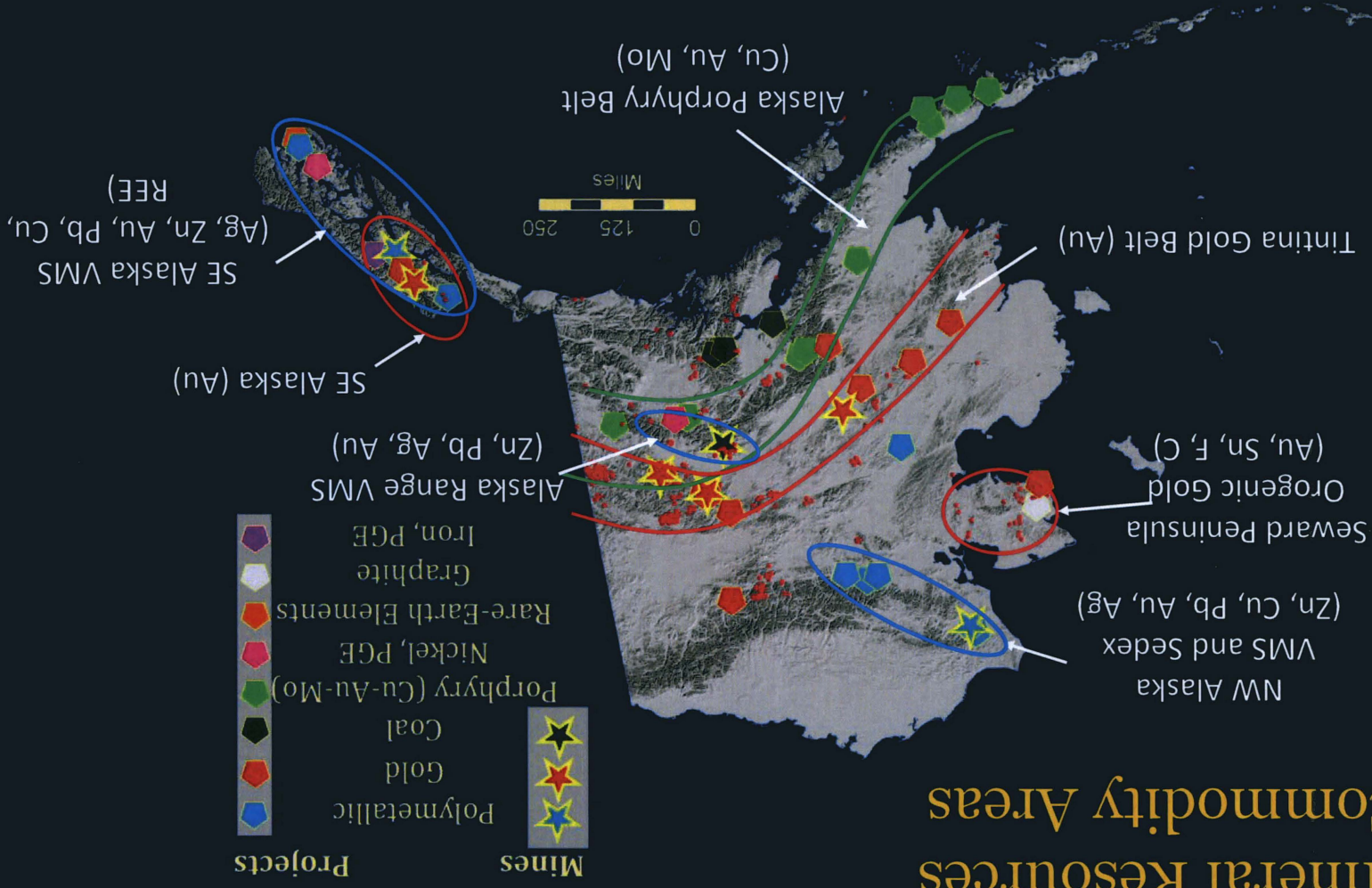
Unmapped area equal  
to Ca, Nv, Ut Az

~400 years to  
complete at current  
rates





# Mineral Resources Commodity Areas



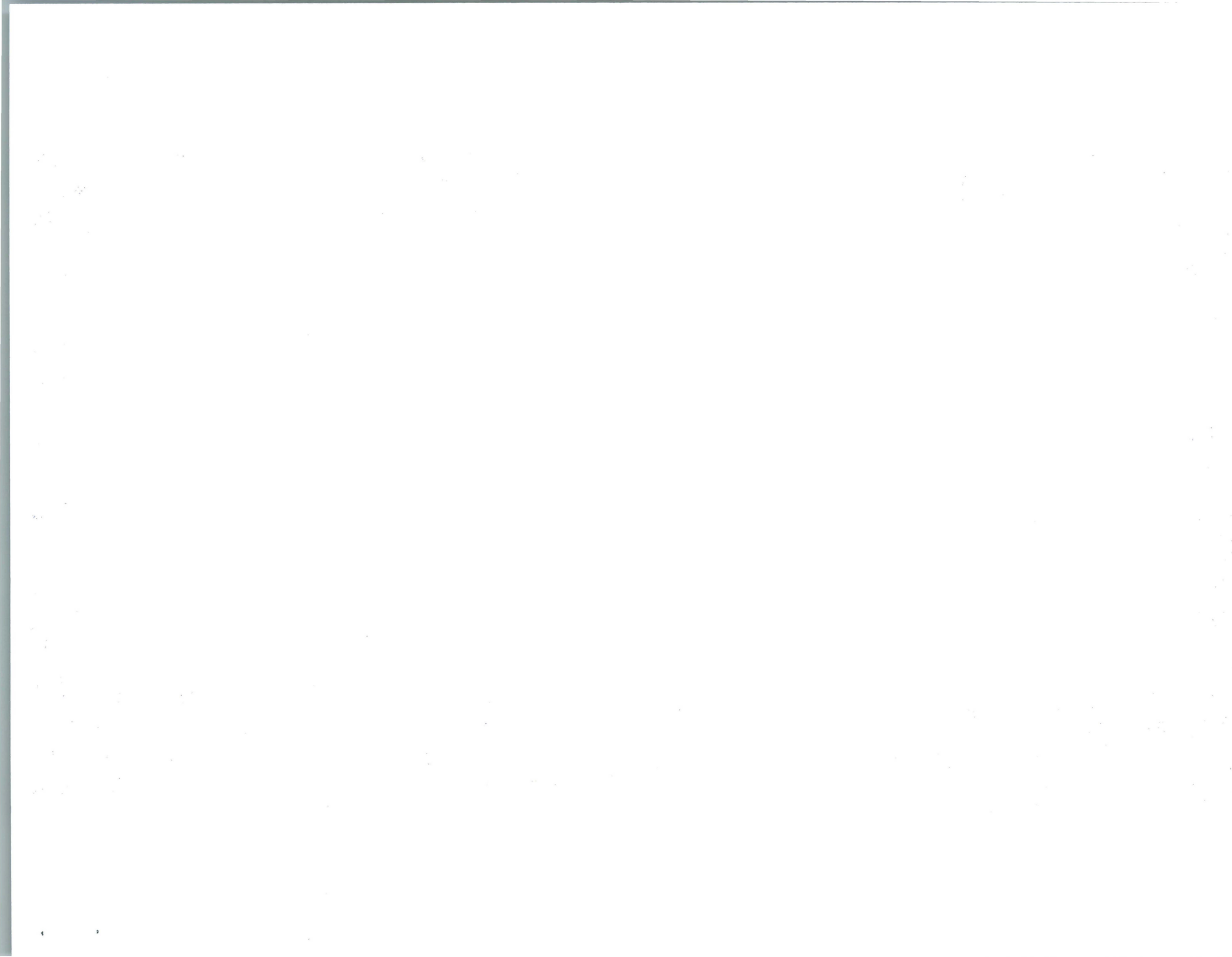


# Alaska's Mineral Production

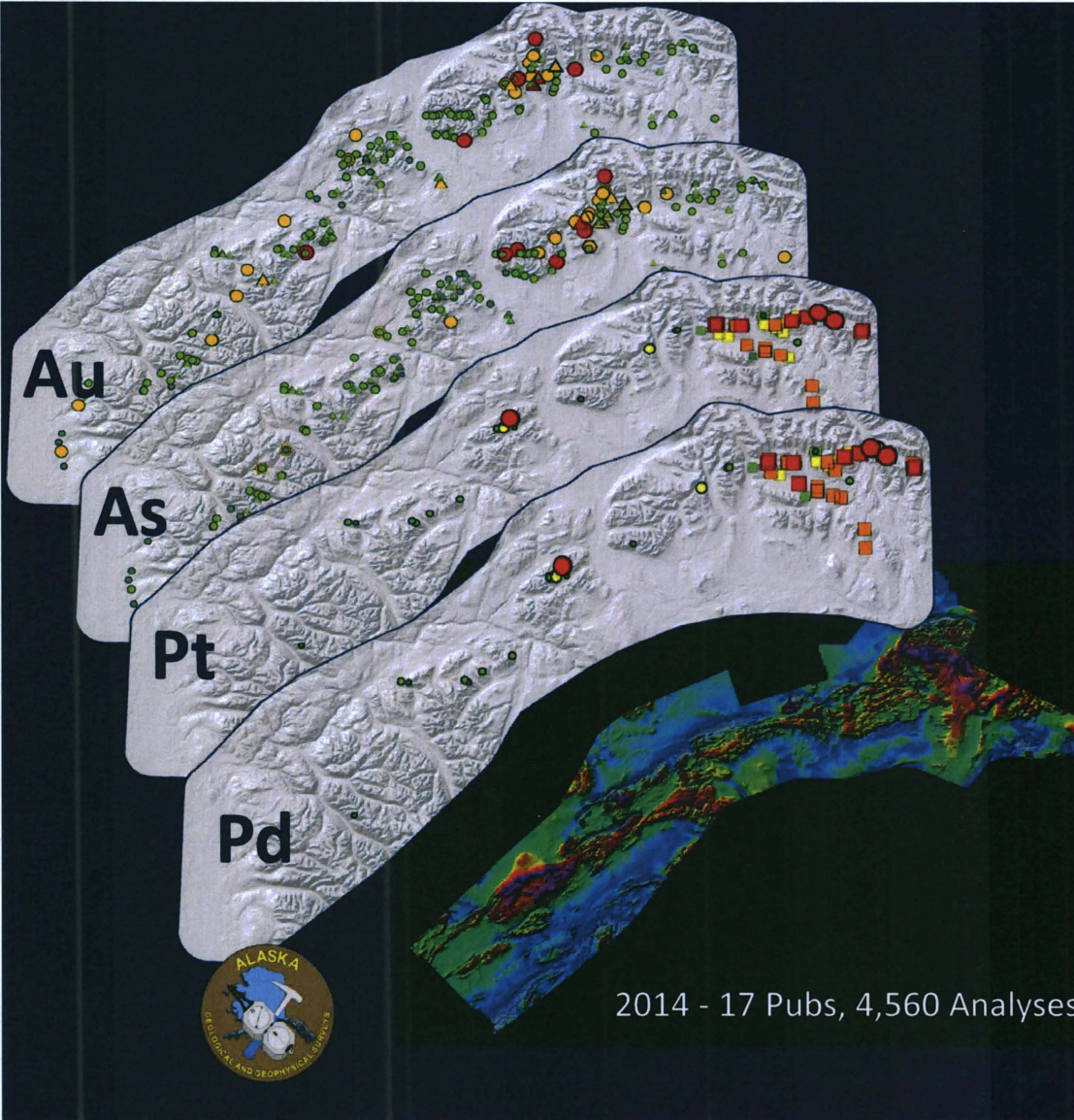
Commodity	2013 Global Production (t)*	2013 Alaska Production (t)#	Alaska's Share of Global Production	Alaska Share of Global Resources
Coal	7,822,800,000	1,600,000	0.02%	12-17%
Gold	2,770	31.8	1.1%	8%
Zinc	13,500,000	665,318	4.9%	5%
Lead	5,400,000	126,707	2.3%	3%
Copper	17,900,000	37	0.0%	4%
Silver	26,000	418.3	1.6%	2%

\* - worldcoal.org & USGS Mineral Yearbook # - Alaska's Mineral Industry, SR69 DGGS

Alaska contains 1% of global landmass



# Geochemistry



## Publications Search Results

Bookmark your results! Found 17 publications that matched ALL of the following criteria:

Title: **geochemical**, Year: 2014, Publishing Agency: DGGS.

Couldn't find it? [New Search](#) [Help](#)

Sort publication list by: [Publication Number](#) [Sort](#)

### DDS 8

Cameron, C.E., Snedigar, S.F., and Nye, C.J., 2014, Alaska Volcano Observatory geochemical database: Alaska Division of Geological & Geophysical Surveys Digital Data Series 8, <http://www.avo.alaska.edu/geochem/index.php>. doi:10.14509/29120

### Twelker, Evan and Burns, L.E., 2014

Twelker, Evan, and Burns, L.E., 2014, New geochemical and geophysical data from the western Wrangellia minerals assessment area (presentation): Alaska Miners Association 24th Biennial Mining Conference, Fairbanks, Alaska April 7-13, 2014: Alaska Division of Geological & Geophysical Surveys, 34 p. doi:10.14509/27284

### RDF 2014-3

Twelker, Evan, Bachmann, E.N., Freeman, L.K., Newberry, R.J., Reiox, D.A., Sicard, K.R., Tuzzolino, A.L., Wright, T.C., and Wypych, Alicja, 2014, Major-oxide, minor-oxide, and trace-element geochemical data from rocks and stream sediments in the Wrangellia mineral assessment area, Gulkana, Healy, Mount Hayes, and Talkeetna Mountains quadrangles, Alaska: Alaska Division of Geological & Geophysical Surveys Raw Data File 2014-3, 6 p. doi:10.14509/27181

### RDF 2014-4

Werdon, M.B., Freeman, L.K., Szumigala, D.J., Newberry, R.J., Andrew, J.E., Speeter, G.G., Solie, D.N., Hubbard, T.D., Griesel, G.A., and Elliott, B.A., 2014, Major-oxide, minor-oxide, and trace-element geochemical data from rocks collected in the Alaska Highway corridor, Mount Hayes, Tanacross, and Nabesna quadrangles, Alaska, in 2006, 2008, 2009, and 2010: Alaska Division of Geological & Geophysical Surveys Raw Data File 2014-4, 3 p. doi:10.14509/27201

### RDF 2014-5

Werdon, M.B., Azain, J.S., and Granitto, Matthew, 2014, Reanalysis of historical U.S. Geological Survey sediment samples for geochemical data from the western part of the Wrangellia terrane, Anchorage, Gulkana, Healy, Mt. Hayes, Nabesna, and Talkeetna Mountains quadrangles, Alaska: Alaska Division of Geological & Geophysical Surveys Raw Data File 2014-5, 6 p. doi:10.14509/27287

### RDF 2014-6

Sicard, K.R., Wypych, Alicja, Twelker, Evan, Bachmann, E.N., Freeman, L.K., Newberry, R.J., Reiox, D.A., Tuzzolino, A.L., and Wright, T.C., 2014, Major-oxide, minor-oxide, and trace-element geochemical data from rocks in the Styx River area, Lime Hills C-1 Quadrangle, Lime Hills, McGrath, Talkeetna, and Tyonek quadrangles, Alaska: Alaska Division of Geological & Geophysical Surveys Raw Data File 2014-6, 4 p. doi:10.14509/27289

### RDF 2014-7

Werdon, M.B., and Blessington, M.J., 2014, Analyses of historic U.S. Bureau of Mines samples for geochemical trace-element and rare-earth-element data from the Circle mining district, western Crazy Mountains, and the Lime Peak area of the White Mountains, Circle Quadrangle, east-central Alaska: Alaska Division of Geological & Geophysical Surveys Raw Data File 2014-7, 4 p. doi:10.14509/27292

### RDF 2014-8

Werdon, M.B., and Blessington, M.J., 2014, Analyses of historic U.S. Bureau of Mines samples for geochemical trace-element and rare-earth-element data from tin occurrences associated with the Ohio Creek pluton, south-central Alaska: Alaska Division of Geological & Geophysical Surveys Raw Data File 2014-8, 4 p. doi:10.14509/27293

These icons indicate the available components of each publication.

- = Report
- = CD/DVD
- = Maps
- = Geospatial data
- = Outside Link
- = Interactive



# Airborne Geophysics

State of Alaska myAlaska My Government Resident Business in Alaska Visiting Alaska State Employees

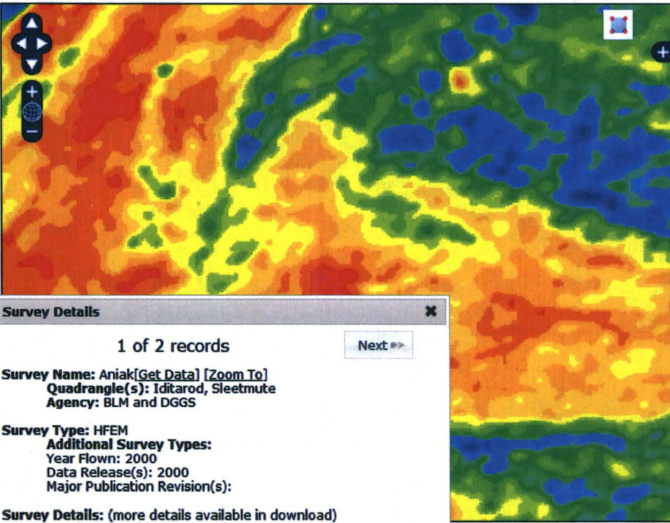
Alaska Department of Natural Resources  
Division of Geological & Geophysical Surveys

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## Airborne GeophysWeb

[ Download CSV ] [ Help ]

Enter survey name, type, or other  Search Info



**Border Image Layer**

- Current Surveys
- H-Mag (Helicopter Magnetics)
- FW-Mag (since 1993) (Fixed-Wing Magnetics)
- H-FDEM Apparent Resistivity (Helicopter Frequency-Domain Electromagnetics)
- H-Rad (Helicopter Radiometrics)

**Survey Name:**

**Year(s) Flown:** From:  To:

**Nominal AGL (feet):** From:  To:

**Line spacing (feet):** Any

**Agency:**

**Quadrangle(s):**

Sort by: Best Match

**Survey Details** 1 of 2 records Next >>

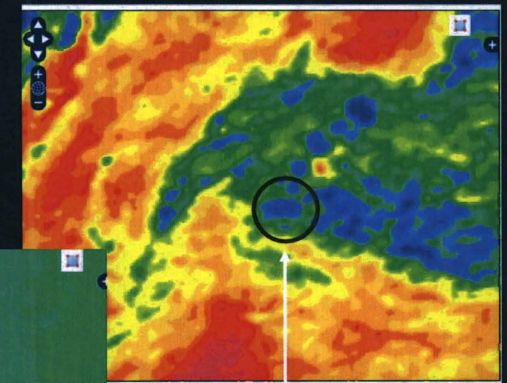
**Survey Name:** Aniak[Get Data] [Zoom To]  
**Quadrangle(s):** Iditarod, Sleetmute  
**Agency:** BLM and DGGS

**Survey Type:** HFEM  
**Additional Survey Types:**  
 Year Flown: 2000  
 Data Release(s): 2000  
 Major Publication Revision(s):

**Survey Details:** (more details available in download)  
 Nominal AGL (ft): 200  
 Line Spacing (mi): 1/4  
 Line-mi Flown: 5708.3489657000009  
 Area (sq mi): 1240  
 Operator: Fugro Airborne Surveys  
 EM Equipment: DIGHEM V

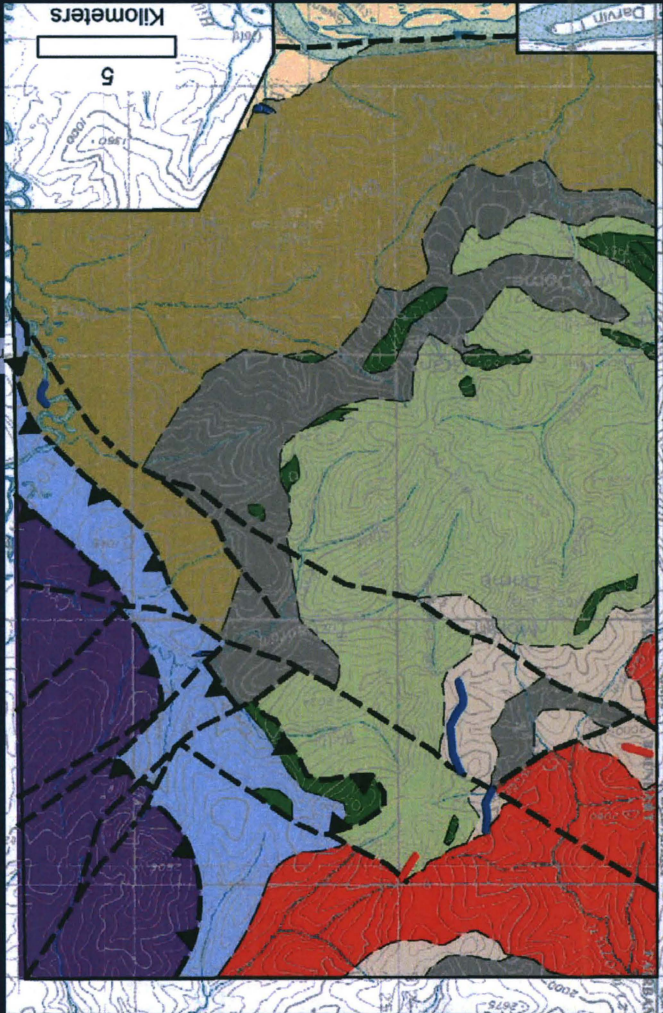
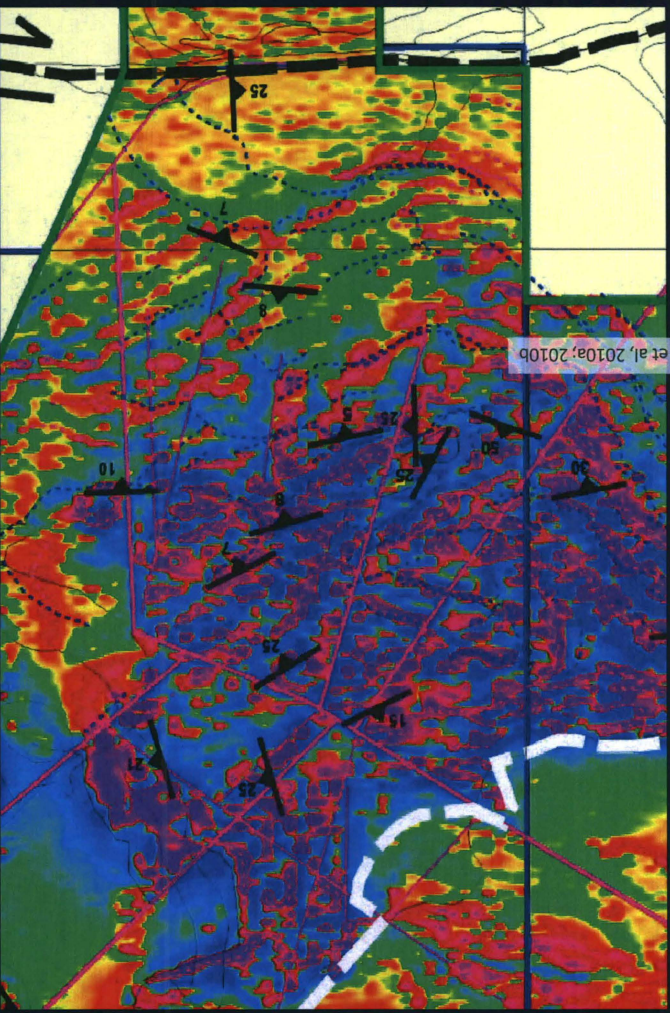
Department of Natural Resources, Division of Geological & Geophysical Surveys  
 3354 College Road, Fairbanks  
 Phone: (907) 451-5000 Fax: (907) 451-5050

- Released 5 new airborne surveys
  - Iditarod area
  - Farewell
  - Wrangellia
  - East Styx
  - Tonsina
- Released Iron Creek Digitally



Donlin Gold





ms, et al, 2010a, 2010b

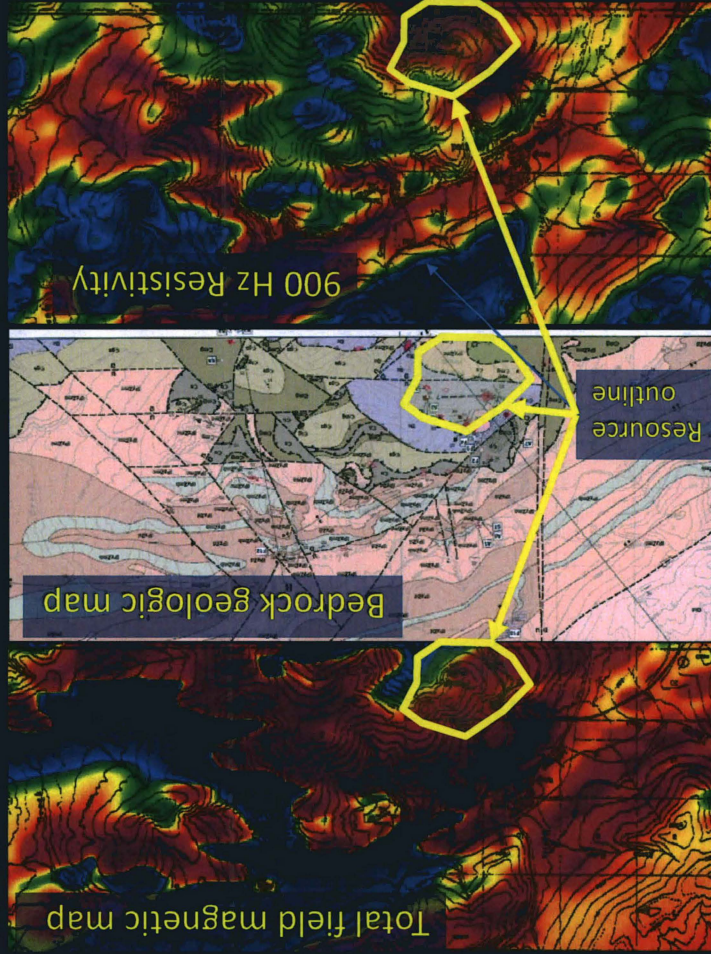
Moran Mapping and Geophysical Survey



# Airborne Geophysics

- Airborne geophysical data is the most frequently downloaded geologic data.
- Geophysical surveys allow geologists to see below soil and vegetation which affords then a better geologic understanding.
- DGS geophysical surveys and geologic mapping are credited with assisting gold discovery at Money Knob in Livengood and at the Pogo mine.
- Exploration activity follows release of geophysical data, eg. western Alaska Range, Talkeetna Mountains and the Iditarod / Aniak area.
- Geophysical data is credited with attracting new exploration companies.
- Public, high quality airborne geophysical data is a cost-effective means to stimulate mineral development and job creation in rural Alaska.





Russell Myers, ITH V.P. Exploration, 2008

"It was the combination of structural and stratigraphic ideas that came out of the state mapping program that first led to our exploration through the Cambrian thrust sheet and eventually the discovery of the main body of mineralization. There is no question that the data was instrumental to the discovery. The state geophysical data over Livengood continues to aid us in our evaluation of the mineral system."

- 2013 Resource total – 20.1 million ounces gold:
  - Measured & Indicated – 802 million tonnes, 0.61 g/mt, 15.7 million ounces gold
  - Inferred – 266 million tonnes, 0.52 g/mt, 4.4 million ounces gold

## Livengood – Airborne Geophysics -1998 Geologic Mapping - 2004

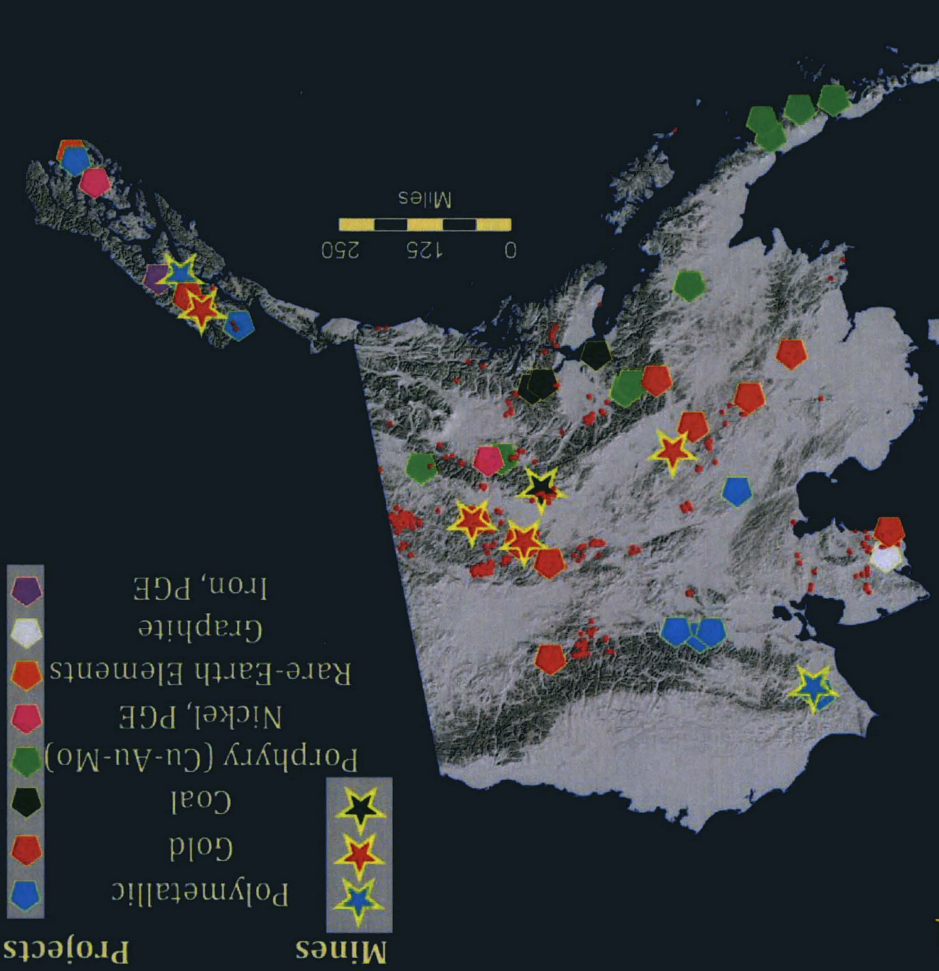




# Mineral Resources Section

*Determine potential of Alaskan land for production of metal and mineral resources.*

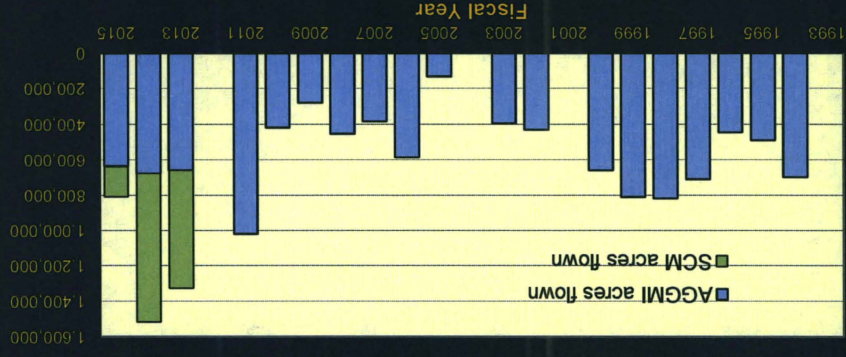
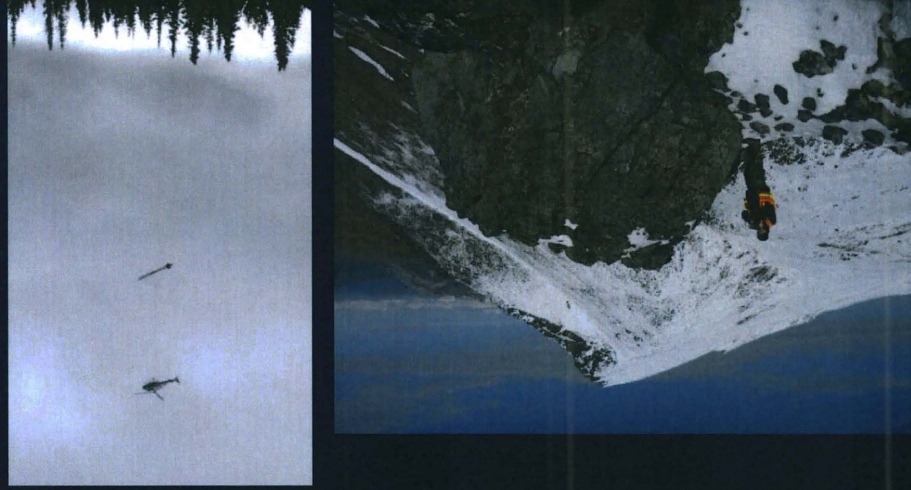
- Provides information to stimulate exploration and development in Alaska
- Recent focus on Strategic and Critical Minerals
- Refocus on Alaska's resource endowment – Au, Zn, Ag, Cu, Pb, Sn
- 2013 government revenue from mining - \$142 million





# Mineral Resources - Current Projects

- Strategic and Critical Minerals
- Publish 3,600 additional re-analyses of old samples
- Publish geology maps for:
  - Tolovana
  - Styx
  - Talkeetna Mountains
  - Alaska Highway Corridor
- Release airborne geophysics for Tonsina and Tok surveys
- Re-release old geophysical surveys via website (Iron Creek released)
- USGS Airborne survey





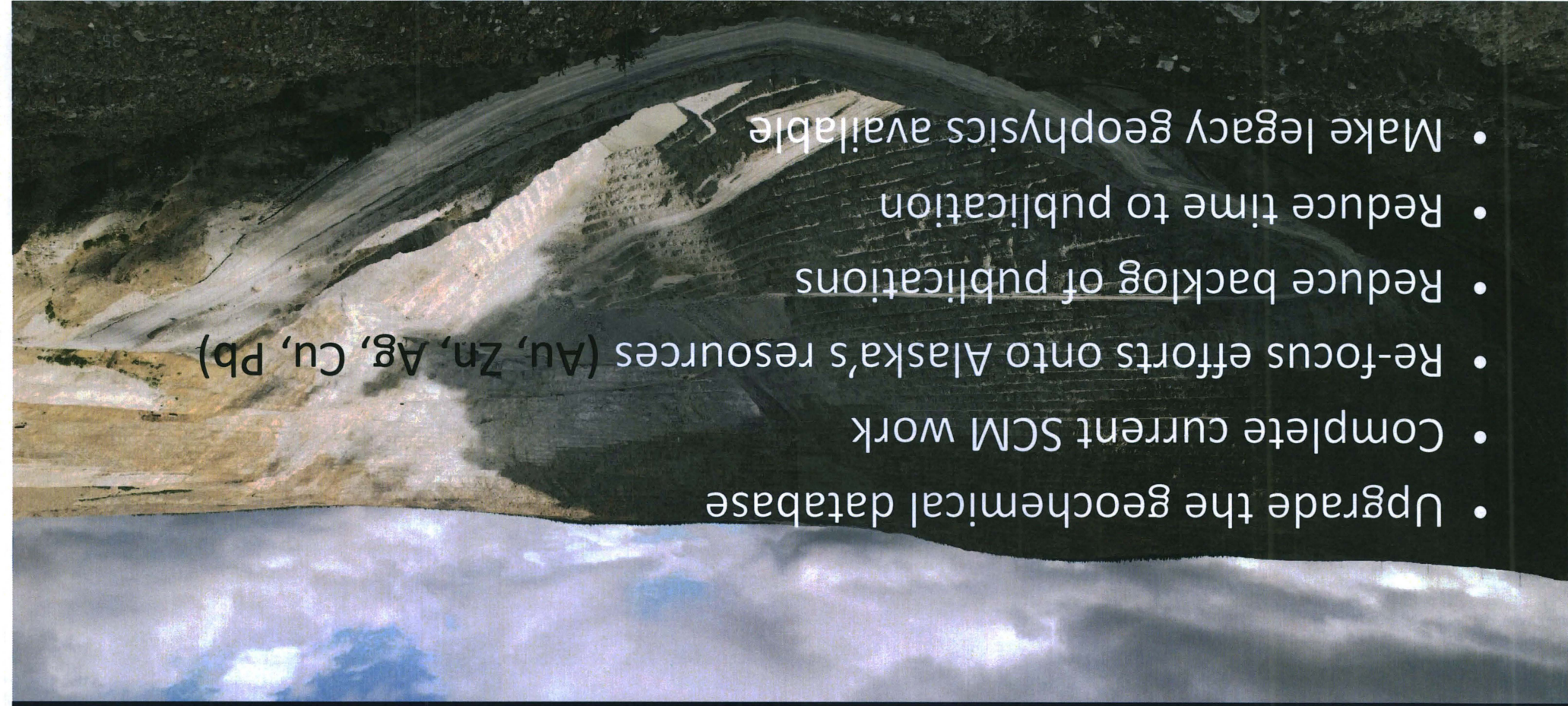
# Finishing the SCM Project

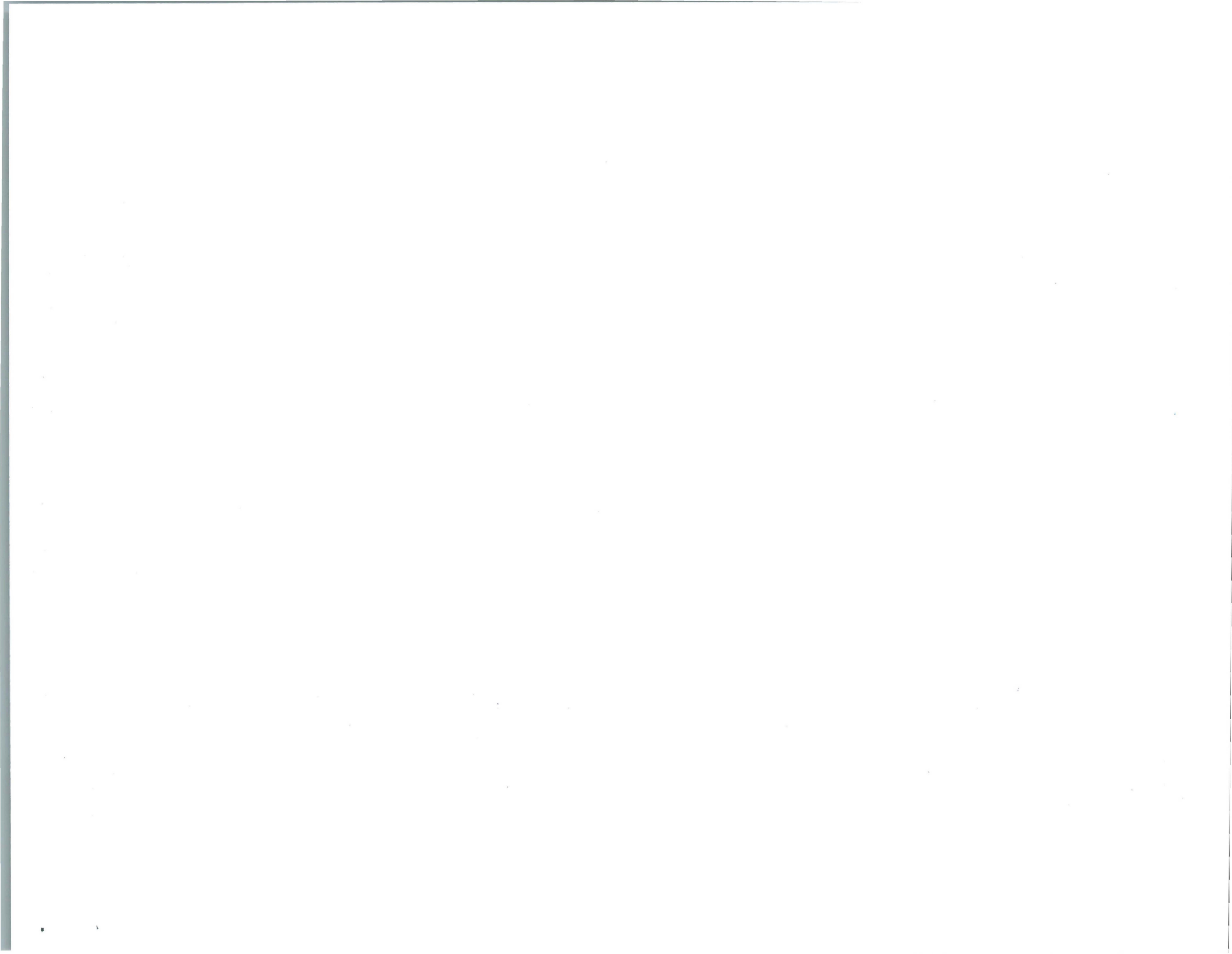
Priority	Commodity	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	Likely Mine in AK	Original Cost Estimate	Only likely Producers (limited GP)
1	Rare Earth Elements, Yttrium										Y	15,000	15,000
1	Platinum Group Elements										Y	340,000	340,000
2	Niobium, Tantalum, [Tin], Indium, Fluorite										Y	1,430,000	530,000
2	Graphite										Y	435,000	35,000
2	Barite										Y	80,000	80,000
2	Antimony										Y	1,130,000	330,000
3	Rhenium										by-product	680,000	10,000
3	Cobalt [Cu, ±Ni]										by-product	1,915,000	10,000
3	Chromium, Titanium										?	445,000	10,000
3	Tungsten										?	80,000	10,000
											<b>Total</b>	<b>6,550,000</b>	<b>1,360,000</b>



# Mineral Resources - Direction

- Upgrade the geochemical database
- Complete current SCM work
- Re-focus efforts onto Alaska's resources (Au, Zn, Ag, Cu, Pb)
- Reduce backlog of publications
- Reduce time to publication
- Make legacy geophysics available





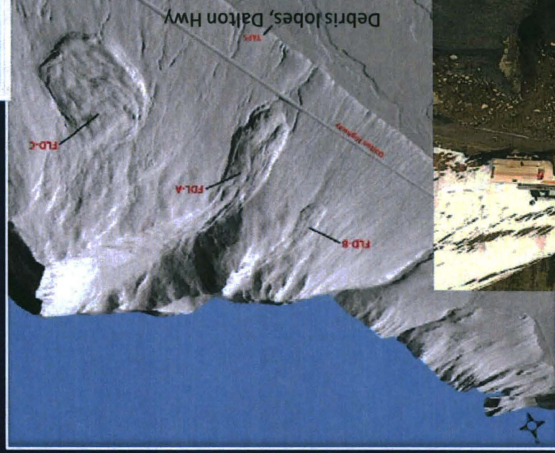
# Engineering Geology Section

*Determine the locations and supplies of groundwater and construction material; and the potential geologic hazards to buildings, roads, bridges and other installations and structures*

*Permanent Staff – 6*

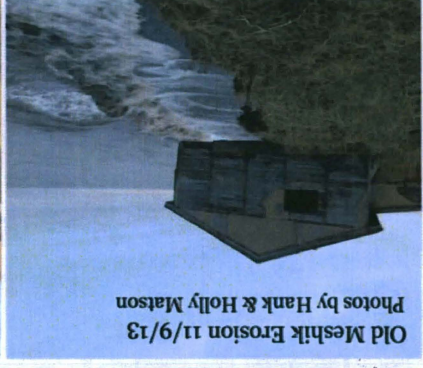


Earthquake damage Tok Cutoff Nov 2002



The Engineering Geology Section conducts geologic investigations relating to geological hazards, hydrogeology and construction materials across Alaska to aid community and industrial development

- collects, analyzes, and compiles geologic data for engineering and hazard mitigation
- hydrogeologic studies for managing groundwater in resource areas
- Surficial-geologic mapping to provide information on engineering properties and construction-materials sources



Old Meshik Erosion 11/9/13  
Photos by Hank & Holly Matson



11/10/13



# Engineering Geology - Program Areas

Coastal Geology and Hazards

Geologic Hazards

Climate and Cryosphere Hazards

Hydrogeology

Geologic Mapping

Construction Materials

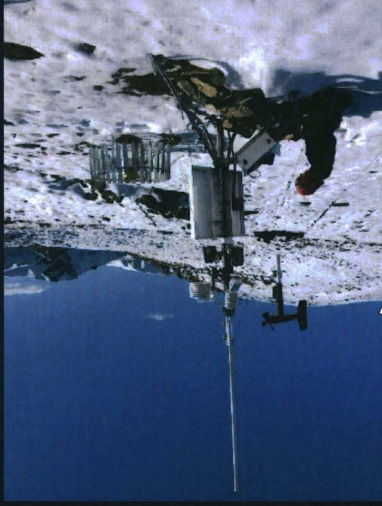
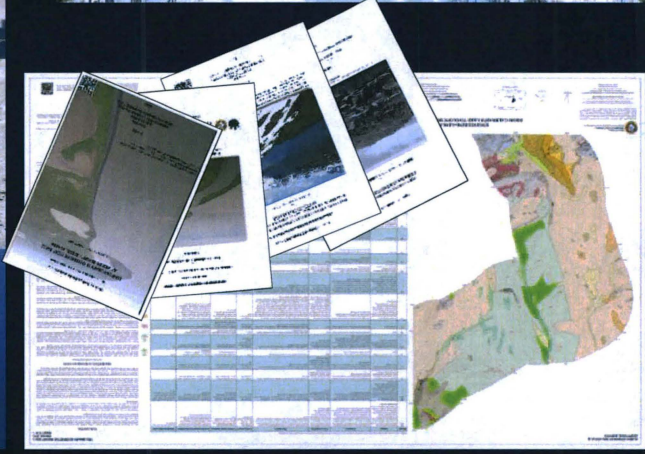




# Engineering Geology Section - Major Accomplishments

## Publications

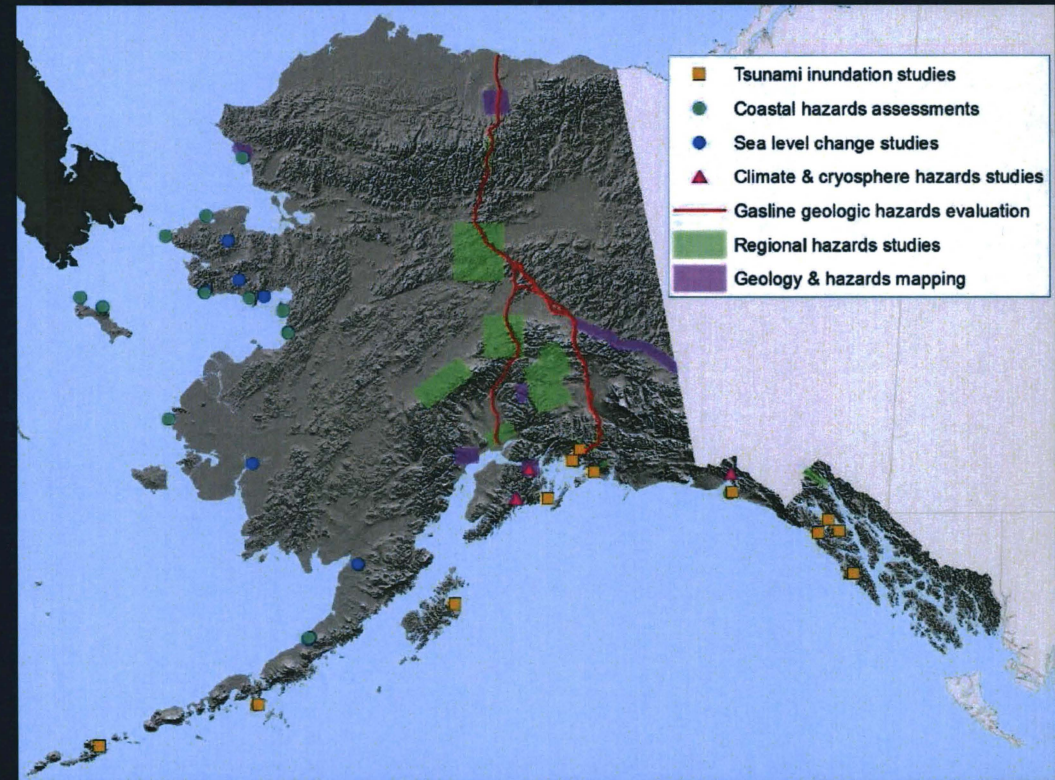
- Tsunami inundation maps for Port Valdez, Sitka and Cordova
- Geologic hazard assessments of Yukon River bridge and Whittier
- Fault investigations along the gasoline routes
- High-resolution lidar for Whittier and Unalakleet
- Engineering-geologic map of Galbraith Lake area
- Coastal erosion at Port Heiden
- *Natural Gas Pipeline - Fault Trenching Studies*
- Castle Mountain fault near Houston
- Healy Creek fault near Healy
- *Sustina-Watana Hydroelectric Project*
- Data collection for glacier hydrology modeling of climate change effects on projected water flow, geodatabase
- *Coastal Geology*
- Coastal hazard surveys in 5 west coast communities
- Alaska Tidal Datum
- Community Elevation Maps





# Engineering Geology Section- Current Projects

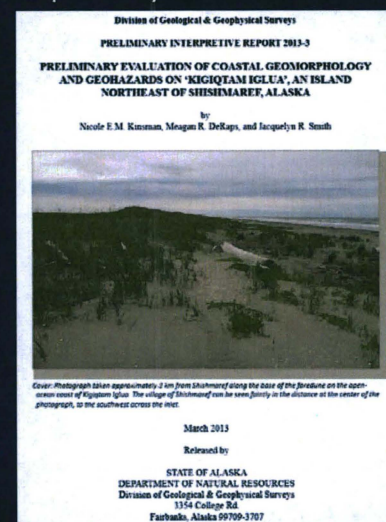
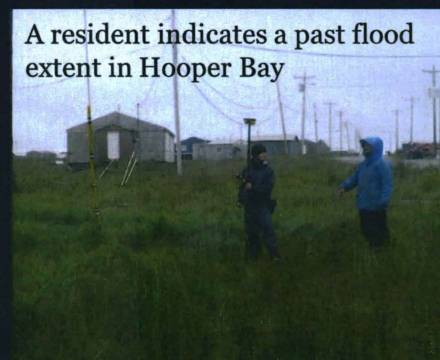
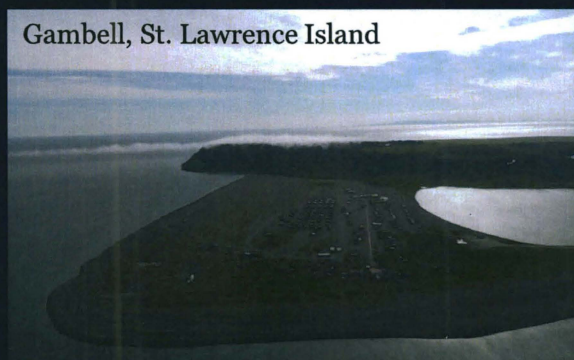
- Surficial geology mapping, Talkeetna Mountains
- Avalanche hazards, Dalton and Richardson Highways
- Debris flow hazards, Haines
- Geologic hazards, AGDC line Fairbanks south
- Geologic hazards, greater Yukon River crossing region
- Hydrogeology of North Slope
- Frozen debris lobes
- Statewide Asbestos maps (DOT)
- Tidal elevations, elevation maps and inundation mapping



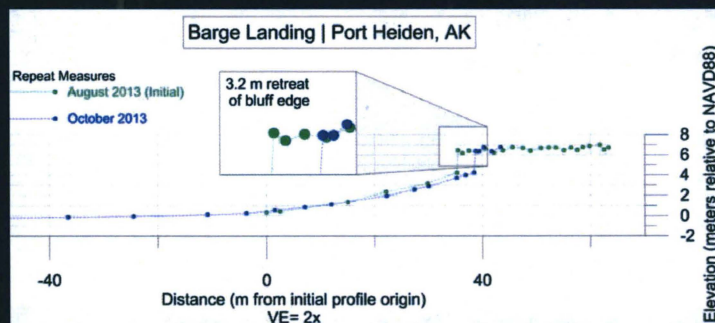


## 2013/2014 Coastal Hazards

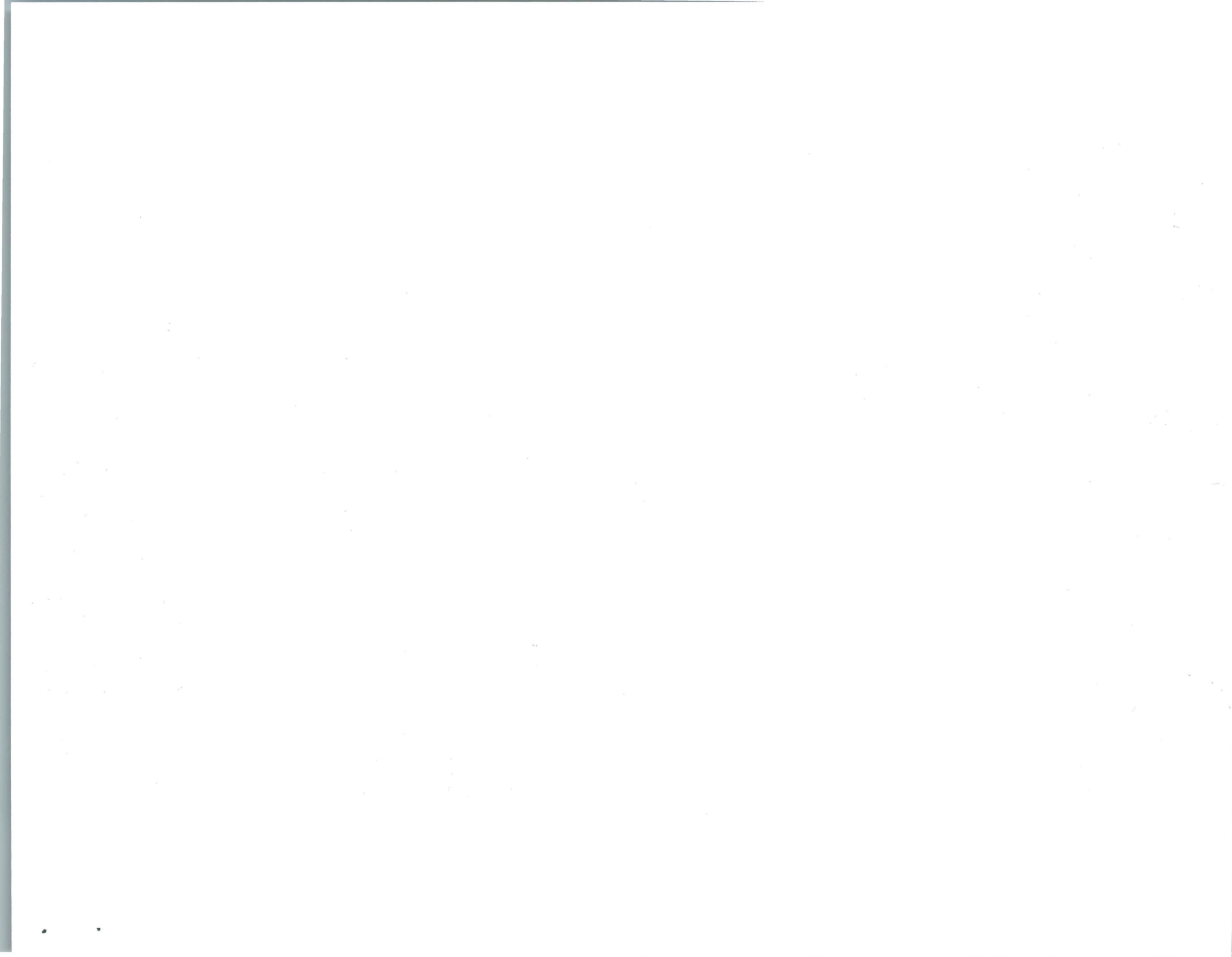
- Collected field data on St. Lawrence Island and in Port Heiden and Hooper Bay
- Increased interactions with local observer networks
- Released online tidal datum conversion tool for Alaska
- Published first preliminary coastal geohazard report



## 2014/2015 Activities

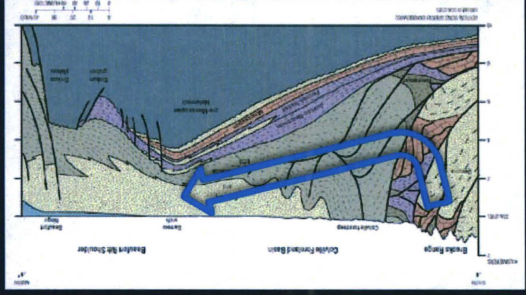


- Field work in Yakutat, on Y-K delta, and along coastal segments of the Sterling Highway
- Interactive coastal elevation map (online) & improved access to legacy coastal data
- Storm surge recurrence modeling with USGS
- Publication of new shoreline change reports, vulnerability maps, Shaktoolik surficial geologic map, coastal LiDAR, and bathymetry

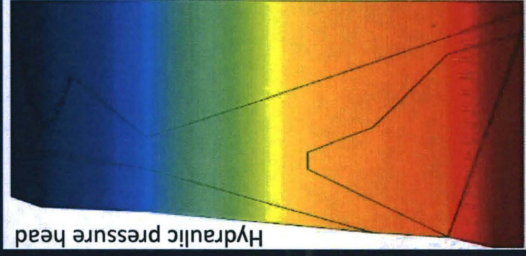


# North Slope and Cook Inlet Hydrogeology

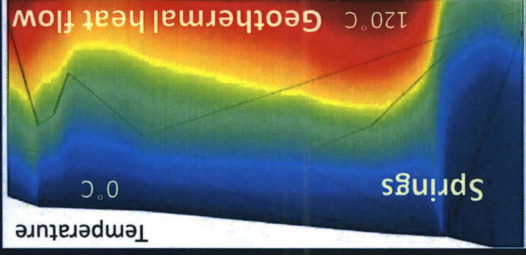
- Understanding groundwater systems is an essential component in oil and gas development and management
- Water supplies are critical for exploration and development activities
- The Brooks Range is the source of groundwater on the North Slope
- Springs on the North Slope:
  - Release groundwater pressure through faults (A, B)
  - Affect ground temperatures (C)



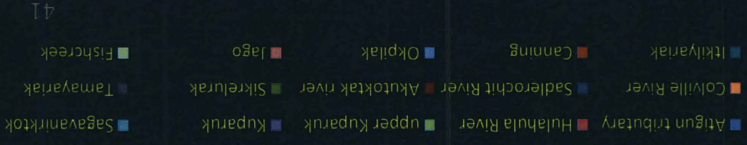
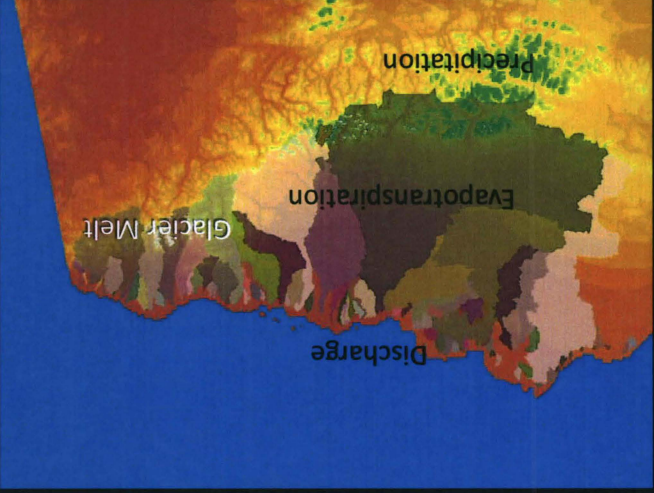
A

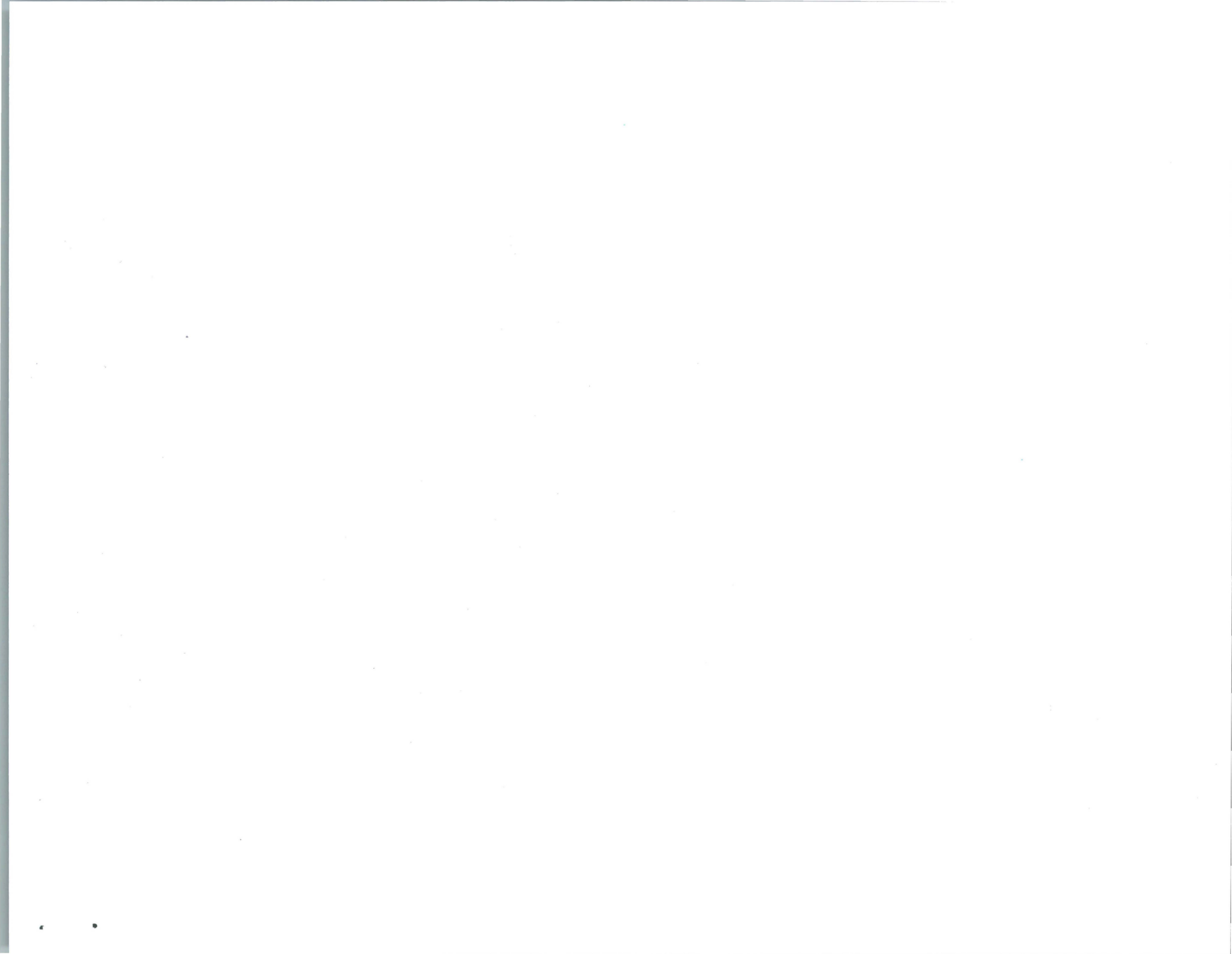


B



C





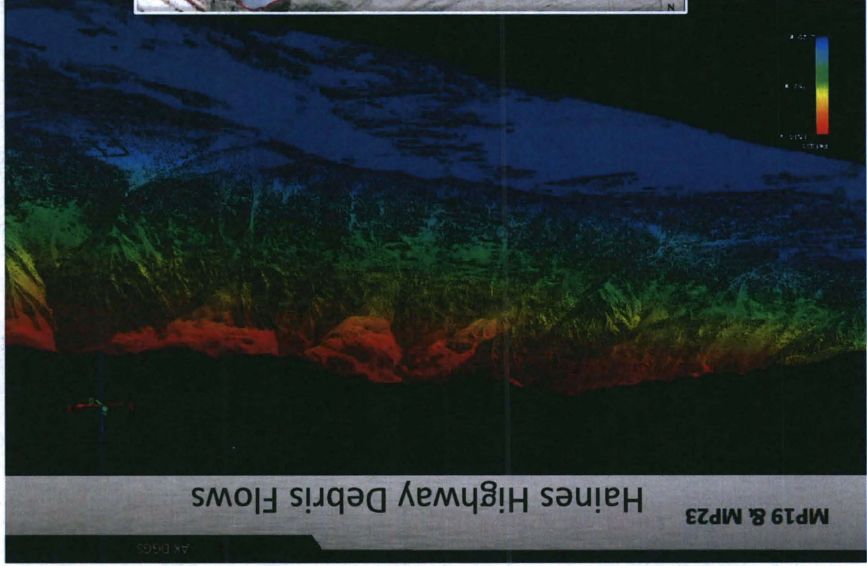
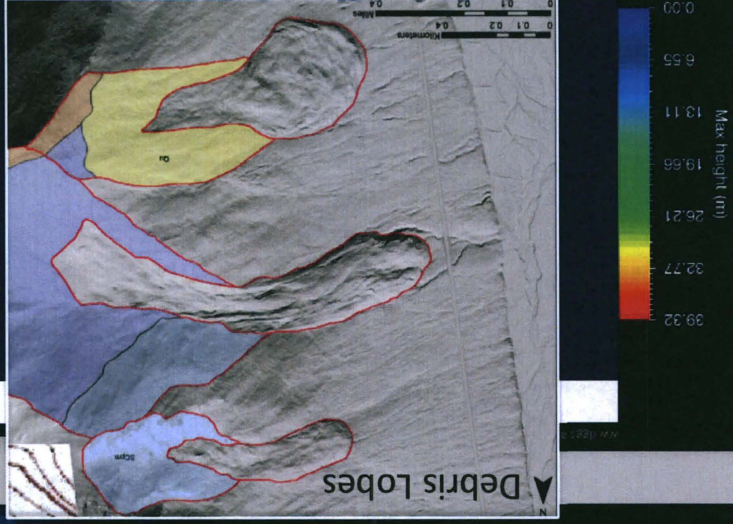
# Geologic Hazards

## *Climate and Cryosphere:*

- Regional SWE mapping
- Valdez flood hazards and runoff projection
- High-elevation climate monitoring
- Hubbard Glacier flow dynamics monitoring
- Glacier and runoff changes in the upper Susitna basin

## *Infrastructure*

- Haines Highway Debris flows
- Gas Pipeline Studies
- Frozen Debris Lobes – collaboration with UAF
- Keystone Canyon and Atigun Pass avalanche susceptibility
- NOA maps for DOT



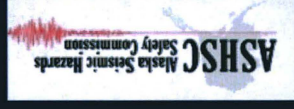


# Neotectonics and Active Faulting

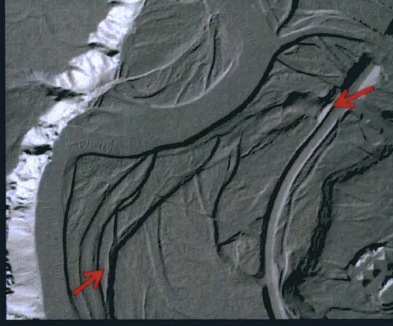
- Earthquake hazards research
  - Multiple collaborative projects:
  - Aleutian subduction zone - Umnak Island (USGS)
  - Tsunami inundation maps – Valdez & Sitka; Cordova (UAF)
  - Paleoseismic studies - Denali fault

- Characterization of tectonic hazards for infrastructure
  - ASAP natural gas pipeline - geologic hazards assessment and fault rupture parameters
  - Sustna-Watana Hydroelectric project - field review of potential fault lineaments (Fugro)
  - Salcha seismic zone – trenching studies (Alyeska)
  - Yukon River Bridge CIP

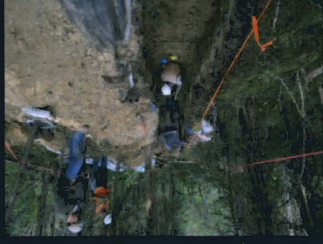
Alaska Seismic Hazards Safety Commission



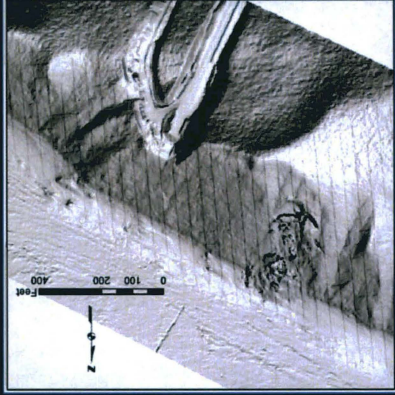
Denali fault surveying



Park Road fault LIDAR



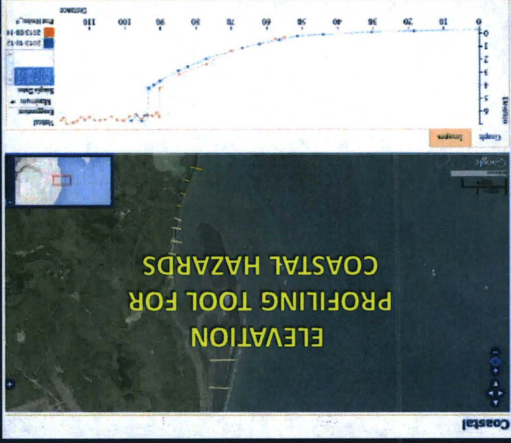
Trench, Salcha seismic zone



Yukon River bridge landslide



# Engineering Geology Section - Future Projects



- Coastal lidar data acquisition in western Alaska
- Coastal inundation mapping
- Geologic hazards mapping
- Construction material resources
- Groundwater in North Slope and Cook Inlet basins
- Yukon River crossing geologic mapping & hazards assessment
- Online tools and map resources for coastal hazard response & mitigation
- Collaborations with DOT&PF to address geologic considerations relating to road construction and maintenance





# Direction

- Statewide geologic hazard mapping for communities, transportation corridors and industrial development areas
- Statewide inventory of construction materials, identifying materials in areas with shortages.
- Coastal inundation, water level and elevation mapping, characterize and model hydrogeologic systems for Cook Inlet and North Slope basins
- Complete analysis of recent and active fault and folds, including the Yukon River Crossing



# Volcanology

The Volcanology program of DGGS is part of the Alaska Volcano Observatory (AVO), an interagency consortium that monitors, evaluates, and mitigates hazards from Alaska volcanoes.

Permanent Staff – 3

- Communicated Fisher volcano hazard report to communities

- Published geochemical database

- Issued volcanic alert to FAA, military and communities during November eruption of Pavlof volcano

- 36.7 million web page views





# Volcanology Section - Major Accomplishments

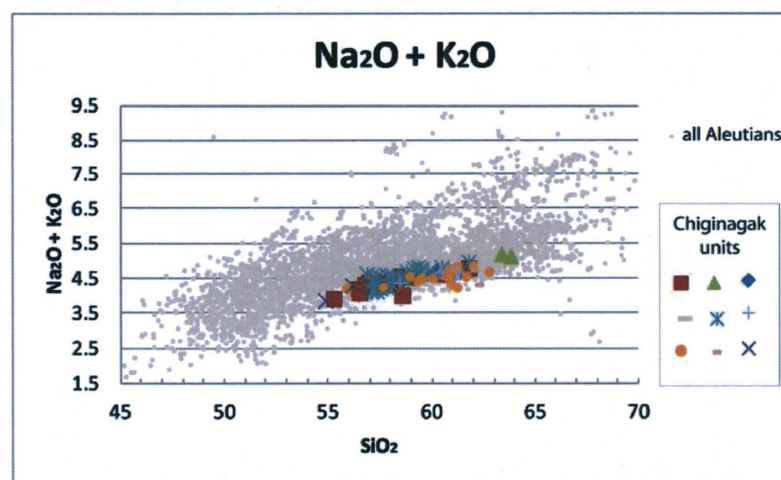
## Volcanic Eruption/Unrest Response

- web-based monitoring and information dissemination via [www.avo.alaska.edu](http://www.avo.alaska.edu)
- volcanic eruptions and response to unrest in 2013-14: *Semisopchnoi, Cleveland, Pavlof, Veniaminof, Shishaldin, Semisopchnoi*



## Publications

- Published web-accessible, searchable geochemical database of over 7,000 volcanic rock samples
- Volcanic Vents of Alaska maps and tables





# Volcanology Section Ongoing Projects

## Alaska Tephra Database

- Tephra (volcanic ash) studies are crucial in understanding the magnitude and frequency of volcanic eruptions and help improve ashfall hazard assessments.
- The database will be a multi-disciplinary research tool for volcano-hazard, paleoclimate, and archeological studies.
- Creation, population, and web portals to the tephra data will open Alaska tephra data to geoscientists around the world.
- The DGGs team consists of a geologist specializing in tephra studies, a database manager with strong background in volcanology, and an analyst/programmer.

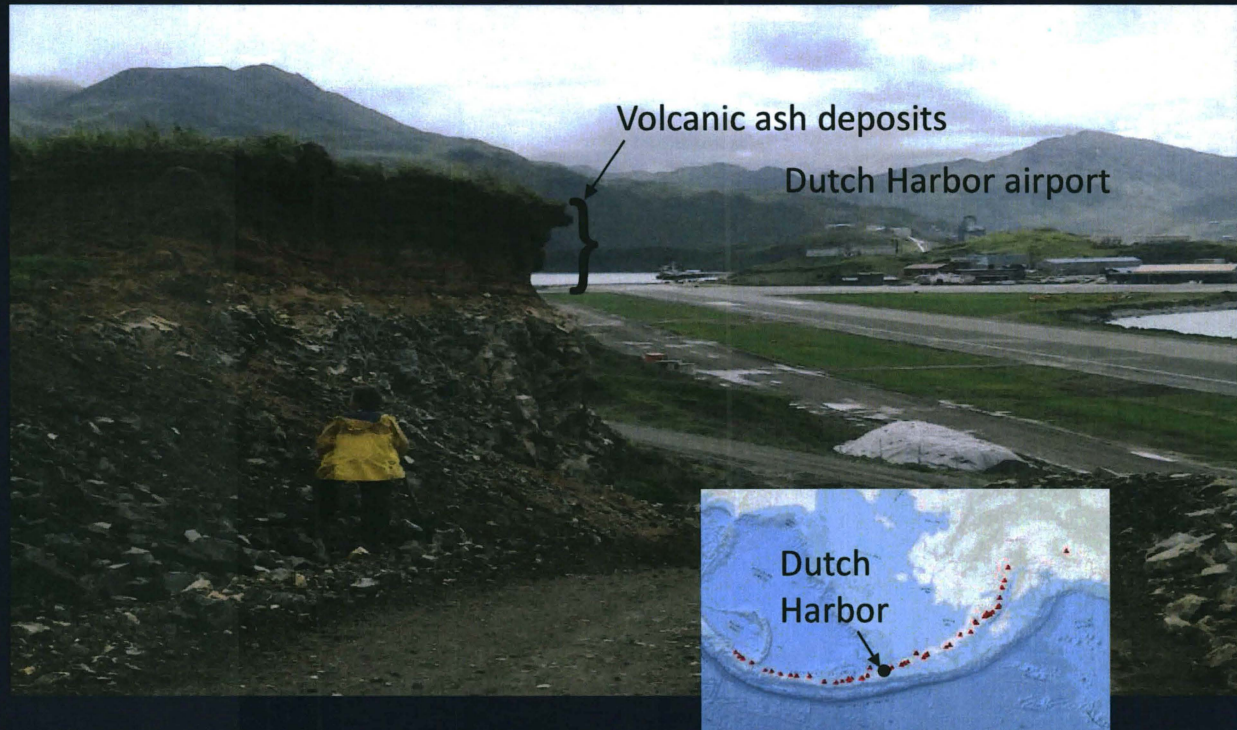


DGGs volcanologist inspects layers of tephra (volcanic ash) erupted from Chiginagak volcano on the Alaska Peninsula.



## Volcano Hazard Assessments – Port of Dutch Harbor/Unalaska

- Volcanic ash deposits near the Dutch Harbor Airport preserve evidence of multiple explosive eruptions from nearby Makushin Volcano, a **very high-threat volcano\*** in the Aleutians.
- DGGs and AVO/USGS geologists are refining the recent history of explosive eruptions and ash fall to better serve the volcano-hazard mitigation needs of the Dutch Harbor community, the largest fisheries port in the U.S.



\*The USGS Volcano Hazard Program identifies Makushin volcano as one of the U.S.'s very high threat volcanoes based on its proximity to populated areas and transportation infrastructure as well as potential for disrupting air travel.

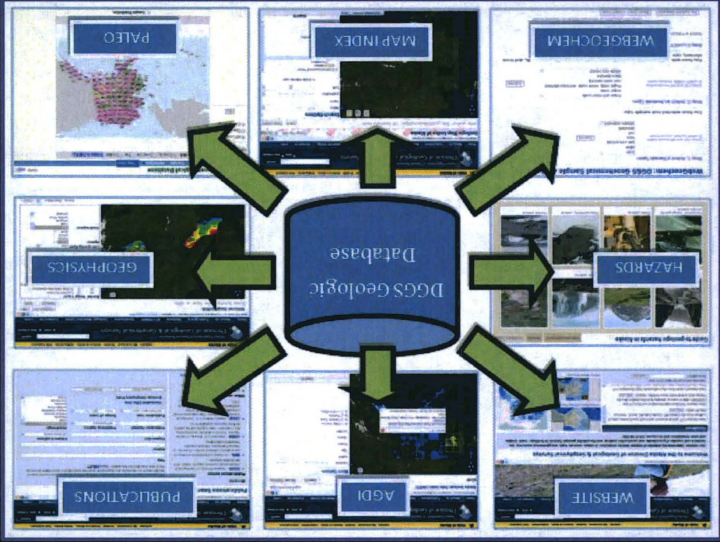
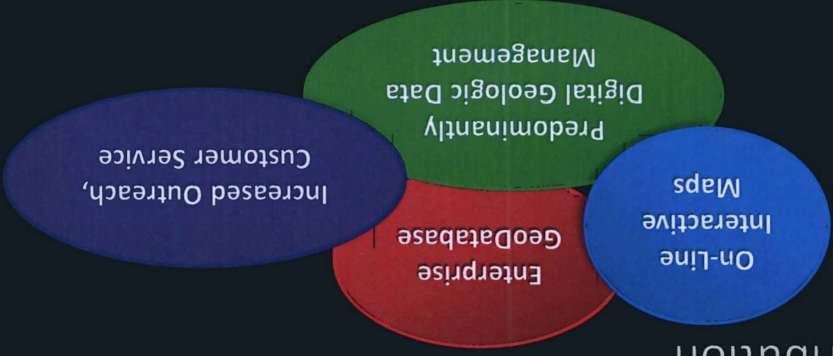


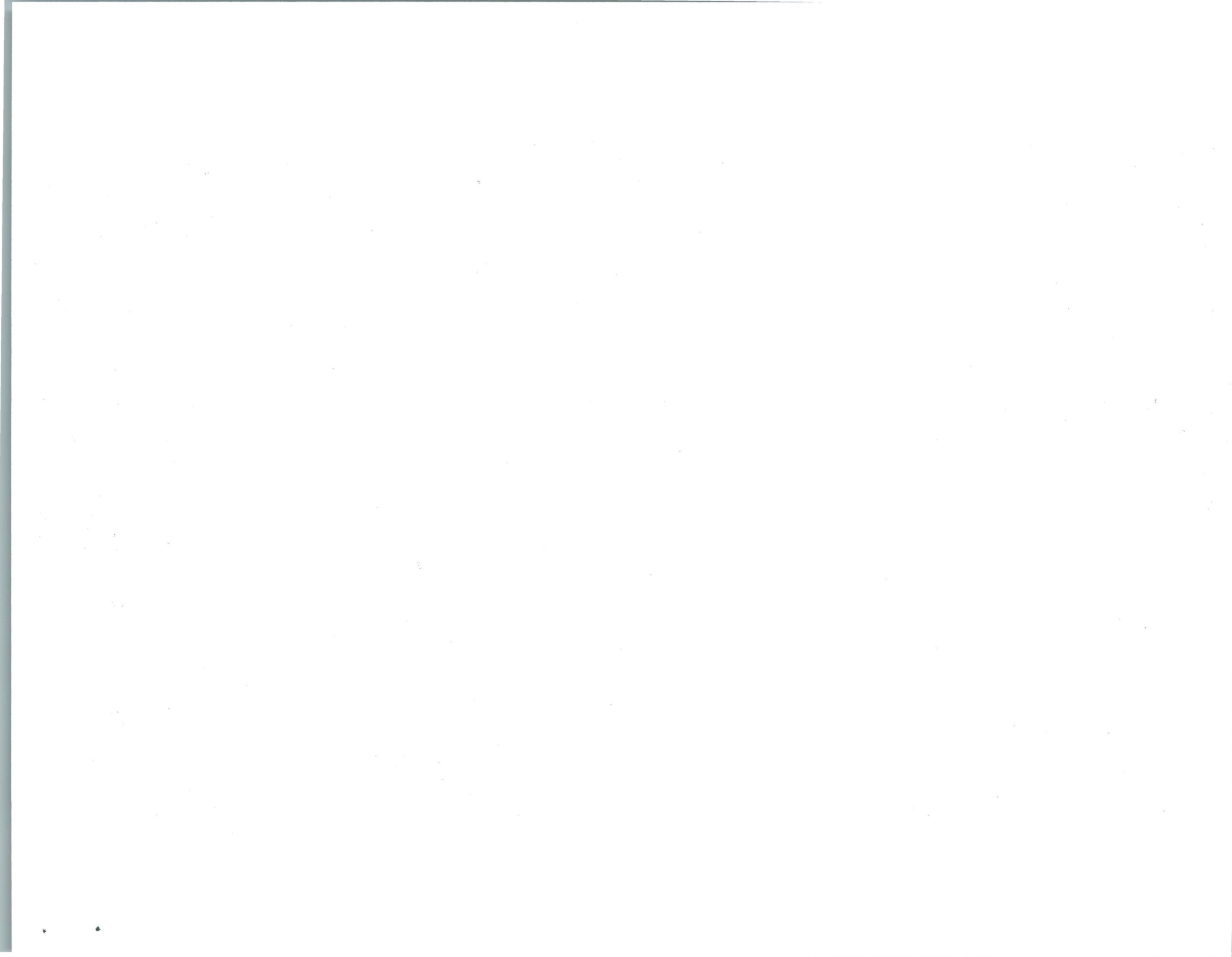
# Geo-communications

*Maintaining and increase public awareness of, and access to information about Alaska's geology and resources.*

*Permanent Staff – 10*

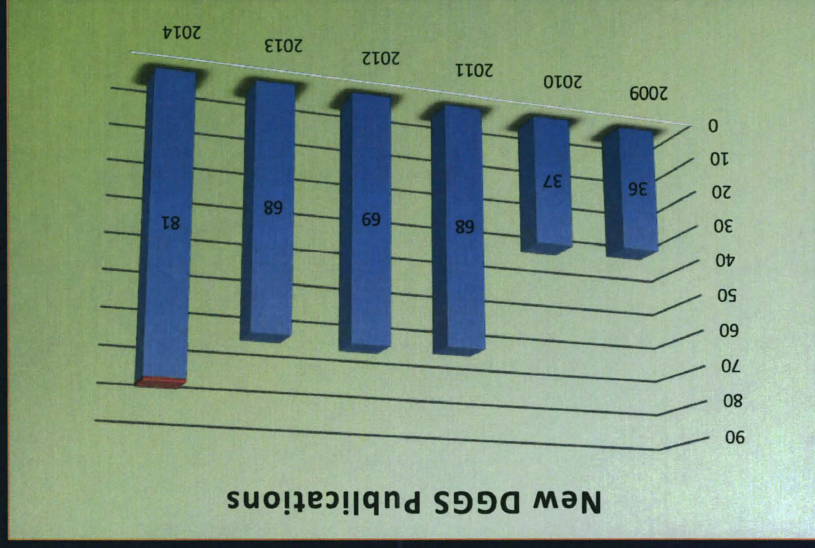
- Maintains website
- Database upgrades and maintenance
- Programming to maintain and enhance data distribution
- Publication editing, production and distribution
- Data and report archiving and library services
- Web hosting live data



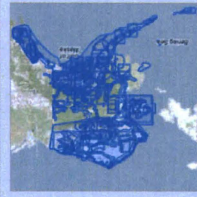
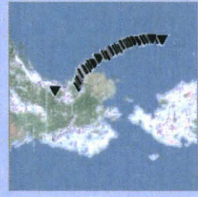
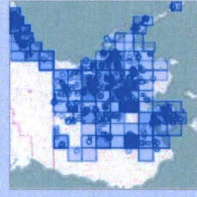



# Geologic Communications Major Accomplishments

- Published 81 publications in 2014
- Published 4 new interactive maps
- Geologic Map Index
- Volcanic vents
- Geophysical data downloading
- Coastal Profiler
- Tidal datum portal
- GMC Database



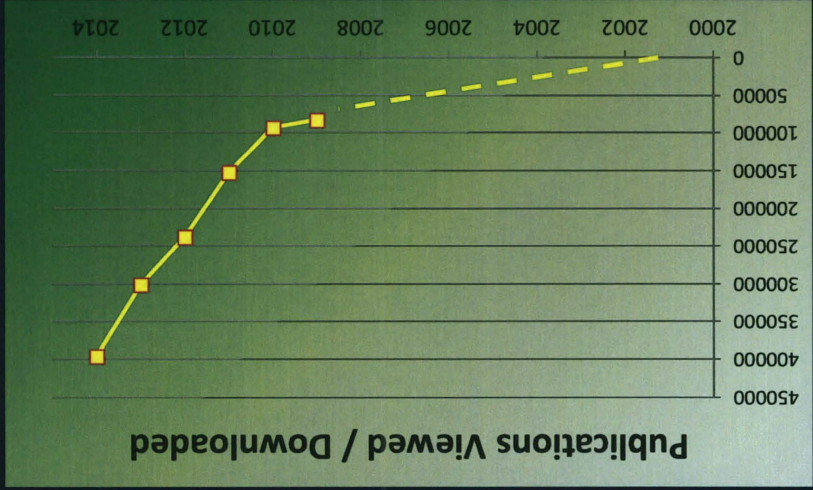
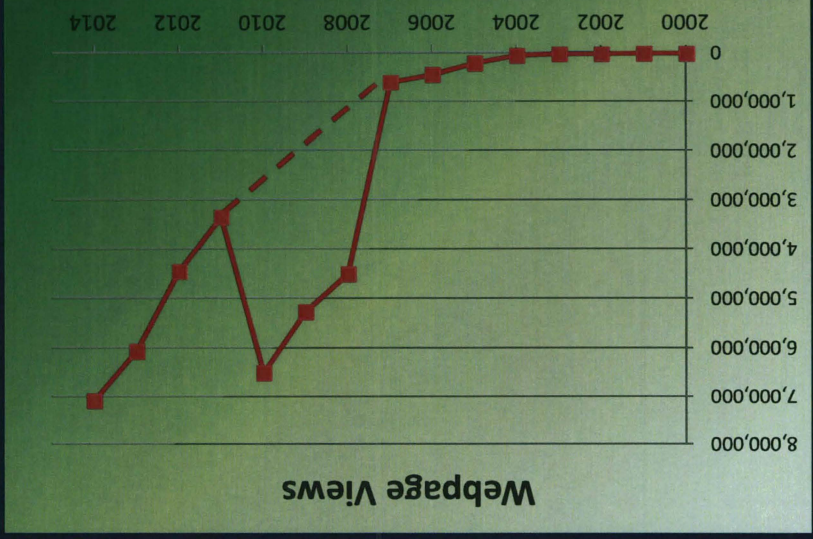
### Interactive Maps

 <p><b>Geologic Map Index of Alaska</b> Map Index provides outlines of DGGS and USGS geology-related maps of Alaska. See citation details for Geologic Map Index of Alaska</p>	 <p><b>Historically Active Volcanoes of Alaska</b> This interactive map displays the location of historically active volcanoes of Alaska. See citation details for Historically Active Volcanoes of Alaska</p>
 <p><b>Alaska Geologic Data Index (AGDI)</b> AGDI includes information about industry reports and maps, field notes, drill logs, and other unpublished geology-related data. See citation details for Alaska Geologic Data Index (AGDI)</p>	 <p><b>Airkone Geophysics</b> This interactive map is a compilation of publicly available airborne geophysical surveys conducted in Alaska since 1983 by DGGS and other cooperating agencies. See citation details for Airkone Geophysics</p>
 <p><b>Alaska Coastal Profile Tool</b> This interactive tool enables access to beach elevation profile measurements collected throughout Alaska since the 1900s. See citation details for Alaska Coastal Profile Tool</p>	 <p><b>LIDAR Datasets of Alaska</b> This interactive map displays known public-domain LIDAR datasets of Alaska. See citation details for LIDAR Datasets of Alaska</p>



# Making Data Available

- Upcoming datasets
- Geothermal sites of Alaska map page
- Oil and gas database
- DGS & USGS geochemical data





# Making Data Available

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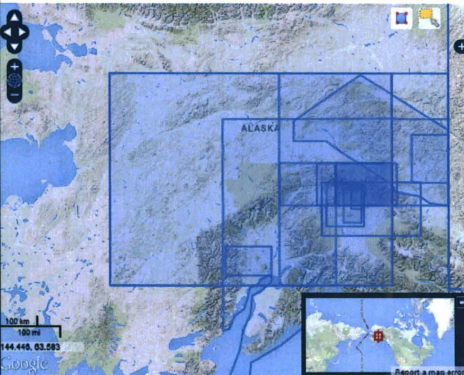
Alaska Department of Natural Resources  
Division of Geological & Geophysical Surveys

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Natural Resources > Geological & Geophysical Surveys > Interactive Maps > Geologic Map Index of Alaska

## Geologic Map Index of Alaska

Enter author, title, publication number, OR keyword here Search Fewer Options



**More Options**

Agency: USGS

Year(s): 1990 2014

Quadrangle (s): Mount Hayes

Scale: From: To:

Include statewide maps?

**Themes:**

- Geology
- Geophysics
- Hazards
- Other
- Resources

Search

**Search Results**

Showing 25 | Displaying 1 - 25 of 34 | 12 | Next | Sort by: Best Match | Export | Clear Selected | Reset

- OF 92-594

Nokleberg, W.J., Alshikoff, J.N., Langa, I.M., Silva, S.R., Miyake, R.T., Schwab, C.E., and Zehner, R.E. 1992. Preliminary geologic map of the Mount Hayes Quadrangle, eastern Alaska Range, Alaska. U.S. Geological Survey Open-File Report 92-594, 39 p., 1 sheet, scale 1:250,000. [Show Keywords](#) | [Zoom In](#)
- OF 97-260

Campbell, D.L. and Nokleberg, W.J. 1997. Interpretation of aeromagnetic map and related geophysical data for Mount Hayes 1? 3? Quadrangle, Alaska. U.S. Geological Survey Open-File Report 97-260, 64 p., 2 sheets, scale 1:250,000. Please note that some areas within the outline may not be mapped. [Show Keywords](#) | [Zoom In](#)

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Natural Resources > Geological & Geophysical Surveys > Interactive Maps

## Interactive Maps

**Geologic Map Index of Alaska**

Map Index provides outlines of DGGS and USGS geology-related maps of Alaska. See citation details for Geologic Map Index of Alaska



**Quaternary Faults and Folds (QFF)**

This interactive map displays locations and relative activity of Alaska's faults and folds. See citation details for Quaternary Faults and Folds (QFF)



**Alaska Geologic Data Index (AGDI)**

AGDI includes information about industry reports and maps, field notes, drill logs, and other unpublished geology-related data. See citation details for Alaska Geologic Data Index (AGDI)



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Natural Resources Geological & Geophysical Surveys Alaska Geologic Data Index (AGDI)

## Alaska Geologic Data Index (AGDI)

Enter author, title, keyword or other here Search Fewer Options

**More Options**

Keyword: tin

Author:

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Project:

Year(s): From: To:

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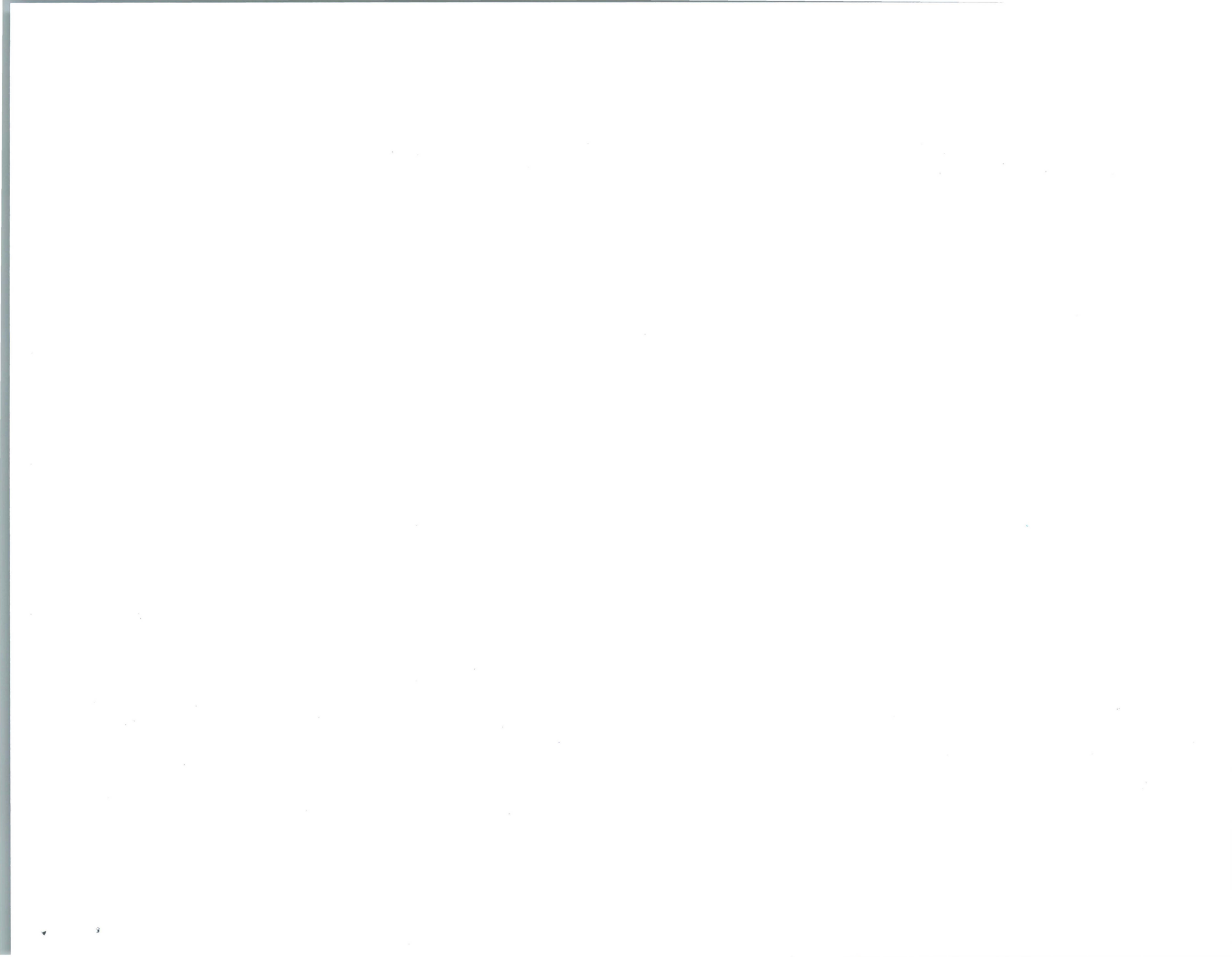
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- Themes
- Commodities

Search

**Search Results**

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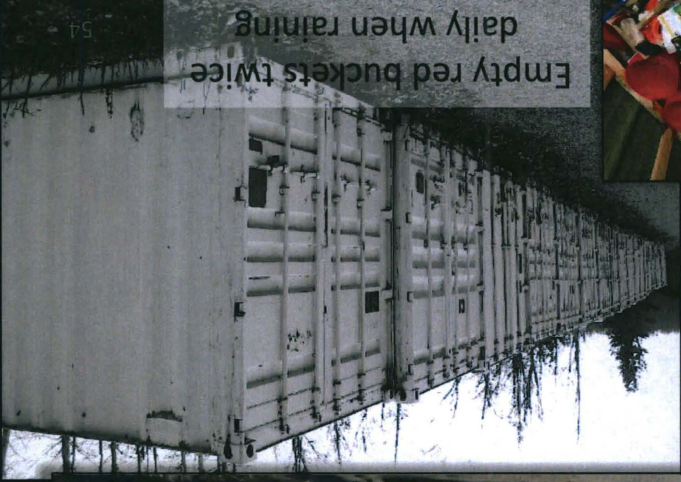
Title / Author(s)	Year	Dataset Type	Places
Zenda Gold Mining Company, Tin City, Seward Peninsula, Alaska King, Rowland; Lomen, Ralph; Stines, Norman C; Richelien, W.A.; Sunshine Mining Company; Zenda Gold Mining Co.	1957	Administrative	Cape Creek, Tin City
Engineering Report on Properties at Tin City, Alaska, for American Tinfields, Inc. Campen, F.R.; Sunshine Mining Company; American Tinfields, Inc.	1939	Administrative	Tin City
Lost River Tin, Seward Peninsula Tin Lomen, Ralph; Sunshine Mining Company	1965	Administrative, Geologic Interpretations	York
Cape Creek Gold-Tin Prospect King, Rowland; Gravens, Axel B; Sunshine Mining Company	1976	Administrative	Tin City
Tin and Primary Dispersion Patterns at the Kougarok Tin Prospect, Seward Peninsula Reid, J.C.; Anaconda Minerals Company	1983	Geologic Interpretations	Kougarok
Tin Concentration and Processing Studies on Lost River Alaskan Ore Colorado School of Mines; Anaconda Minerals Company	1973		
Tin Cup Sample Locations, Geochemistry, Claim Boundaries Anaconda Minerals Company		Analytical Lab Results, Geologic Interpretations	Kougarok
Figure 4C: Banddanna/Snowstorm Tin Soil Geochemistry Anaconda Minerals Company		Analytical Lab Results	Banddanna Creek
Snow-Snag Submillial: Snag prospect Tin and Silver, Snow Prospect Tin Heathole, David A.; Anaconda Minerals Company	1981	Administrative	
DDM 20, Kougarok Tin Geochemistry		Geologic Interpretations	Kougarok



# Geologic Materials Center (GMC)

Curate, conserve and grow the State's collection of geologic materials, and make them available to the public for industry, academic and educational uses.

Permanent Staff – 4



Empty red buckets twice daily when raining





# Alaska GMC - Major Accomplishments



55



- 340 visits from industry and academia
- DONATIONS - BLM, Redstar Gold, Kinross Gold, IRF Group, Calista Corp., ExxonMobil, and the Penn. State Univ. Earth & Mineral Sciences Library, Linc Energy...
- Database redesign, greater online access to the collection
- Implemented a new sample inventory database and sample-tracking system
- Prepared for relocation (Spring 2015)



## GMC Fees

- Institute fees at the new GMC:
  - Reduce dependence on general funds
  - Fund improvements to facility
  - Fund equipment to provide additional services
  - Pay for future shelving to house growing collection
  - Fund part time staff to process invoices
- Estimate \$100.0 - \$200.0 /yr from fees



# DGGS FY 16 Capital Budget

- 31% of FTP staff salaries is soft money, which will be exhausted end FY16.
- Energy Resources funds to match Federal STATEMAP and other funding
- Mineral Resources funding to complete the SCM project

	Proposed CIP	Federal Match
Energy Resources	\$400.0	\$400.0*
Volcanology	-	\$500.0
TOTAL	\$400.0	\$900.0

\* - \$300.0 STATEMAP, \$75.0 NCRDS, \$25.0 NGDPP



# DGGS FY 16 Operating Budget

- FY16 GF budget of \$4,631.7
- \$1,000.0 Reduction in GF (18%) from FY15
- What the cut means:
  - Loss of four filled positions (10% of staff)
  - Virtual elimination of airborne geophysics program and geologic mapping of mineral resource areas



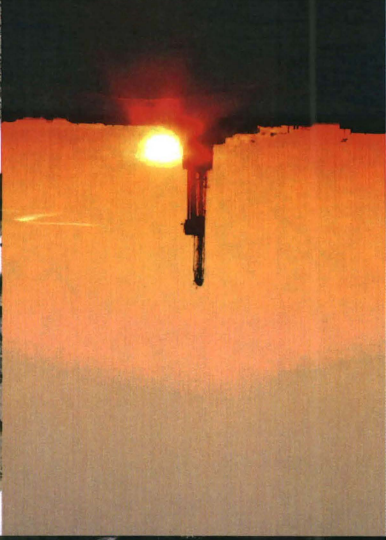
## Where DGGs can do more

- Construction materials availability in rural and northern Alaska
- Geologic hazards mapping of all types, statewide
- Assisting rural communities understand local energy options
- Stimulating energy and mineral exploration
- Much more geological mapping
- Broader collaborations with others



# DGGS will:

- Continue providing data to foster energy and mineral development and future state revenues,
- Maintain production of information that reduces the cost and risks of constructing and maintaining facilities in Alaska, and
- Increase public availability of geologic information and reduce the time between field and publishing.





# Questions?

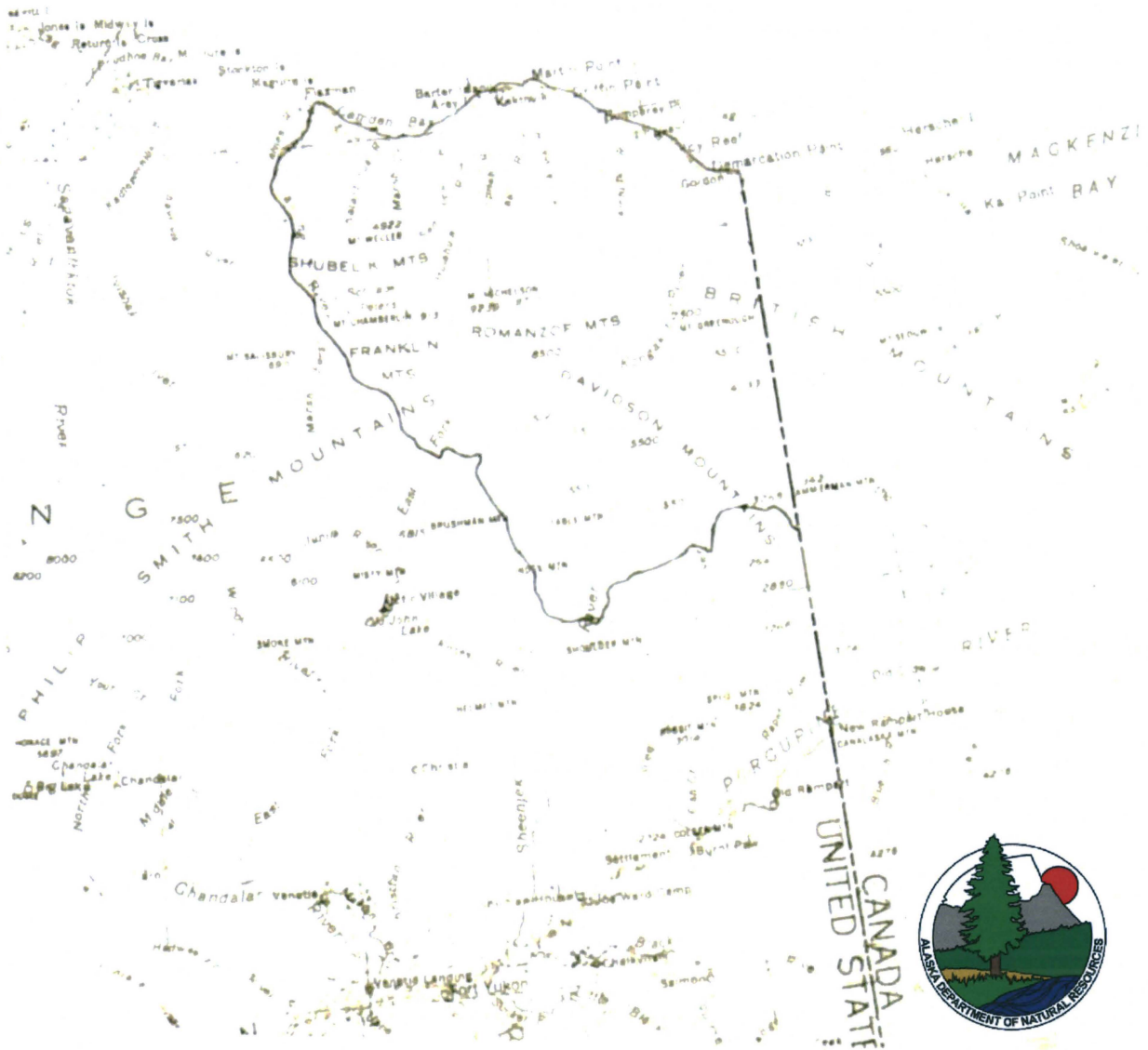
Applied Geoscience for Alaska





# Briefing Packet

## Request for Priority Conveyance of State Land Selections at ANWR Boundary



Alaska Department of Natural Resources  
October 16, 2014







**Joe Balash**

*Commissioner*

550 W. 7th Ave., Ste 1400

Anchorage, AK 99501

[dnr.alaska.gov](http://dnr.alaska.gov)



**Elizabeth Bluemink**

*Communications*

*Coordinator*

907.269.8434

[elizabeth.bluemink@alaska.gov](mailto:elizabeth.bluemink@alaska.gov)

FOR IMMEDIATE RELEASE

October 17, 2014

## **State asserts land claims at ANWR boundary**

(Anchorage, AK) – The State of Alaska is seeking priority conveyance of nearly 20,000 acres of uplands at the western boundary of the Arctic National Wildlife Refuge (ANWR).

The State previously requested these lands, located between the Staines and Canning rivers, under the Alaska Statehood Act and Alaska National Interest Lands Conservation Act.

Lands within the refuge are not available for state ownership, but, for many years, the western boundary of ANWR has been improperly mapped by the U.S. Fish & Wildlife Service. The State contends the federal agency's map includes land that is not within ANWR.

"My administration began a thorough review of the boundary dispute after the Department of Natural Resources received bids in 2011 for oil and gas tracts on tidal and submerged lands at the state-federal boundary," said Governor Sean Parnell.

The Parnell administration's work built upon earlier work by the State and federal agencies on the boundary dispute. This renewed effort began in 2012 and included historical and legal research as well as a field inspection by DNR and the Department of Law in July 2014.

"I'm pleased that we've developed a solid case for priority conveyance of lands the State of Alaska originally selected in 1964," Parnell said.

State ownership of these lands has implications for the future of oil and gas activity on the eastern North Slope. "Just a few miles away, we are seeing billions of dollars of investment at the Point Thomson field," Parnell said.

"Alaskans have suffered from many roadblocks to resource development on federal lands," said Natural Resources Commissioner Joe Balash. "Our hope is that the BLM will move quickly to convey lands that we can offer for oil and gas leasing and development," Balash said.



DNR filed the State's request for priority conveyance for uplands along the western boundary of ANWR with the U.S. Bureau of Land Management, the federal agency charged with conveying lands to the State to fulfill its land entitlement.

For briefing materials related to the State's request for priority conveyance, go to [http://www.dnr.alaska.gov/commis/priorities/ANWR\\_boundary.pdf](http://www.dnr.alaska.gov/commis/priorities/ANWR_boundary.pdf).

**CONTACT:** Elizabeth Bluemink, 269-8434, [elizabeth.bluemink@alaska.gov](mailto:elizabeth.bluemink@alaska.gov)

###

**STAY CONNECTED:**

DNR Newsroom: [http://dnr.alaska.gov/commis/dnr\\_newsroom.htm](http://dnr.alaska.gov/commis/dnr_newsroom.htm)

DNR on Social Media: [http://dnr.alaska.gov/commis/social\\_media.htm](http://dnr.alaska.gov/commis/social_media.htm)

DNR Public Information Center: <http://dnr.alaska.gov/commis/pic/>



## **Backgrounder on State Land Selections**

The State of Alaska Department of Natural Resources (DNR) is seeking the priority conveyance of nearly 20,000 acres of uplands located between the Canning and Staines rivers on the eastern North Slope. The State asserts that this land should be conveyed to the State as part of its land entitlement because the land is not contained within the Arctic National Wildlife Refuge (ANWR).

This backgrounder provides an overview of the history of these state land selections and the correct interpretation of the western ANWR boundary.

### **Basis for State Land Selections**

Under the Alaska Statehood Act of 1959, the State of Alaska was afforded in excess of 100 million acres of land entitlement to provide for the economic well-being of the State and its residents.

Lands available to the state for selection were those lands designated as “vacant, unappropriated or unreserved,” meaning those lands that were not segregated by Executive Orders (EO), Public Land Orders (PLO) or other federal actions that would cause title to remain with the federal government.

The nearly 20,000 acres of uplands that lie between the Canning and Staines rivers, adjacent to ANWR, were selected by the State to fulfill its land entitlement. The U.S. Fish and Wildlife Service (FWS) currently administers them as if they are part of ANWR.

### **Timeline of Actions Affecting State Land Selections**

- 1957 – Filing of application for the creation of Arctic National Wildlife Range (see appendix for map of original boundary)
- 1959 - Alaska Statehood Act signed
- 1960 - PLO 2214 establishing Arctic National Wildlife Range published in the Federal Register
- 1964 - State of Alaska files General Grant Selection for lands adjacent to range
- 1964 – U.S. Bureau of Land Management provides Tentative Approval (TA) to lands adjacent to range. Land west of the Canning River included in TA
- 1965 – State requests clarification of range boundary from the federal government; BLM amends TA, reducing the acres conveyed to the state
- 1974 – State receives patent to land west of the Staines River
- 1978 – State reasserts selection for land west of the Canning River
- 1980 – Passage of Alaska National Interest Lands Conservation Act and creation of Arctic National Wildlife Refuge
- 1981 – State “top files” for land west of the Canning River under Section 906(e) of ANILCA
- 1983 – FWS publishes legal descriptions for ANILCA Conservation System Units
- 1992 – State relinquishes selection of “those lands within the Arctic National Wildlife Refuge”
- 1993 – State reasserts “top filing” on land west of the Canning River
- 2000 – State again reasserts selection for land west of the Canning River



- 2003 – State/U.S. Fish & Wildlife Service conduct joint field inspection of ANWR boundary; DNR report highlights errors in the federal description of the ANWR boundary
- 2005-2012 – Administrative/legal dispute between State and ExxonMobil over state lands adjacent to disputed ANWR boundary
- 2011 – DNR Division of Oil and Gas (DOG) receives bids on tracts near disputed boundary and begins working with Division of Mining, Land & Water (DMLW) to obtain acreage calculations
- 2012 – DOG and DMLW staff determines that the boundary issue needs more clarification and conducts further research
- 2013 – DNR begins work to support priority conveyance of uplands and state assertions regarding state/federal land ownership at ANWR boundary
- July 2014 – DNR and Department of Law conducts field inspection at ANWR boundary
- August-September 2014 – DNR conducts additional review utilizing information gathered during field inspection
- October 2014 – DNR requests priority conveyance of lands west of the Canning River

### **Conflicting Legal Descriptions for ANWR Western Boundary**

The State's reassertion of land selections west of the Canning River is based on the original legal description of the lands to be withdrawn under PLO 2214. The pertinent portion of PLO 2214 regarding these lands reads as follows:

*thence westerly along the said line of extreme low water, including all offshore bars, reefs, and islands to a point of land on the Arctic Seacoast know as Brownlow Point, at approximate longitude 145 51' W., and latitude 70 10' N.;*

*thence in a southwesterly direction approximately three (3) miles to the mean high water mark of the extreme west bank of the Canning River;*

*thence southerly up the said west bank of the Canning River along the mean high water mark approximately seventy (70) miles to the mouth of Marsh Fork of Canning River...*

Three points are critical in this legal description:

- The precise location of Brownlow Point both by description and coordinate pair of latitude/longitude
- The relative direction and distance to the subsequent point of land and along the Canning River marking the western boundary of the Range
- The identification of the Canning River, not the Staines

This description matches the 1957 map that accompanied the application for PLO 2214. Thus, at the time the Refuge lands were originally withdrawn, the written legal description and the map depicting the boundary of the Range were in agreement, and excluded land west of the Canning River.

However, in the federal government's subsequent iterations, the legal description and the accompanying maps diverge. In 1983, FWS published an updated legal description in the Federal Register that still references the Canning River, but is a geographic impossibility:



*Thence northerly, along the mean high water line of the left bank of the Canning River, approximately 60 miles to the intersection of the extreme left bank with the mean high tide of the Arctic Ocean in section 15, T. 9 N, R. 24 E., Umiat Meridian;*

*Thence on an approximate forward bearing of N. 56 ½ degree E., approximately 3 ¼ miles to the line of extreme low water of the most westerly tip of the most northwesterly island, westerly of Brownlow Point, section 6, T. 9 N., R. 25 E., Umiat Meridian;*

*Thence easterly, along the line of extreme low water of the Arctic Ocean, including all offshore bars, reefs, and islands, to the intersection of the International Boundary line between Alaska and the Yukon Territory, Canada...*

If one attempts to map this description, it becomes clear that the locations described are inconsistent and provide no identifiable boundary. The written description identifies the “*mean high water line of the left bank of the Canning River*” while the township, range, and section identifies a location at the mouth of the Staines River, several miles west of and not physically connected to the Canning.

### **Summary of State’s Technical Review**

The state conducted fieldwork in 2003 and 2014 to identify the geographical feature of Brownlow Point and to determine if the Staines River can be distinguished from the west bank of the Canning River.

The 2003 work included staff from the DNR Survey section, FWS and BLM. DNR’s report was provided to the federal agencies, but to date, no federal report has been made available from either federal agency.

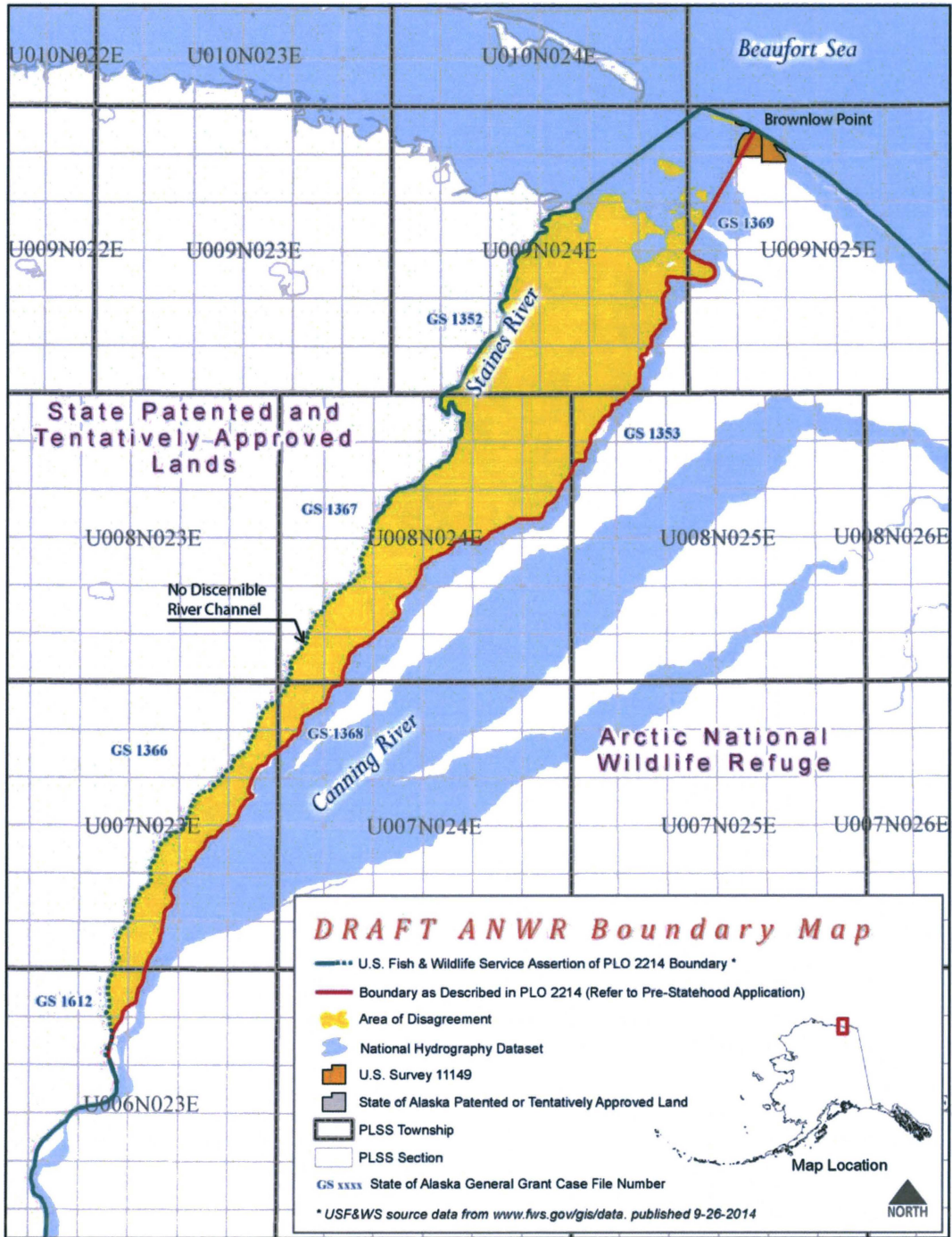
In July 2014, DNR and Department of Law staff accompanied by DOL-contracted geographers and geomorphologists conducted another field inspection.

Field work and review of area maps and place names dating back to the 1930s indicates that the ANWR boundary is the Canning River, as marked on current maps, and that the Staines River is neither the west bank of the Canning nor the extreme west bank of the Canning.

The technical research conducted by the State of Alaska supports its assertion that the lands located west of the Canning River are not contained within the original lands described in the 1957 ANWR application and were not withdrawn. As such, they can be conveyed to fulfill the State’s land entitlement.



## Draft ANWR Boundary Map



Map prepared by DNR Division of Mining Land & Water, October 2014. Clarifying note: Dotted line represents no discernible river channel.





THE STATE  
of **ALASKA**  
GOVERNOR SEAN PARNELL

**Department of Natural Resources**

Division of Mining, Land & Water  
Director's Office

550 West 7th Avenue, Suite 1070  
Anchorage, Alaska 99501-3579  
Main: 907.269.8600  
TDD: 907.269.8411  
Fax: 907.269.8904

October 17, 2014

Bureau of Land Management  
Alaska State Office  
Branch of Land Transfer Services (944)  
Attn: Earle Williams  
222 W. 7<sup>th</sup> Avenue, #13  
Anchorage, AK 99513-7599

Subject: Request for Priority Conveyance  
F-31832\*

Mr. Williams,

The State of Alaska requests a priority conveyance of certain lands west of the Arctic National Wildlife Refuge (ANWR), near Brownlow Point, Alaska. Based on the legal description defined in Public Land Order No. 2214, the lands listed on the attached Exhibit A are not within the ANWR boundary and are available for selection by the State of Alaska. The State of Alaska currently holds valid selections filed under the provisions of the Alaska Statehood Act of July 7, 1958, section 6(b), as amended, as well as topfilings created under section 906(e) of ANILCA for these townships. The State has issued several relinquishments for portions of the townships containing these selections; however they were specific as to relinquishing only "those lands within the Arctic National Wildlife Refuge." Since these lands are not within the ANWR boundary, the State of Alaska requests a proposed conveyance document be drafted for the lands listed on the attached Exhibit A.

Thank you for your attention regarding this matter.

Sincerely,

A handwritten signature in blue ink, appearing to read "Martin Parsons".

Martin Parsons  
Operations Manager, Division of Mining, Land and Water  
State of Alaska, Department of Natural Resources

Attached: Exhibit A

---

\*F-31832, F-31833, F-31845, F-31847, F-31848 and F-31849  
GS-1352, GS-1353, GS-1366, GS-1367, GS-1368 and GS-1369



## Exhibit A

### Umiat Meridian

T. 7 N., R. 23 E.,

Those portions of Tract B west of the mean high water mark of the extreme west bank of the Canning River.

Containing approximately 2,493 acres.

T. 7 N., R. 24 E.,

Those portions of Tract B west of the mean high water mark of the extreme west bank of the Canning River.

Containing approximately 564 acres.

T. 8 N., R. 24 E.,

Those portions of Tract B west of the mean high water mark of the extreme west bank of the Canning River.

Containing approximately 7,813 acres.

T. 8 N., R. 25 E.,

Those portions west of the mean high water mark of the extreme west bank of the Canning River.

Containing approximately 536 acres.

T. 9 N., R. 24 E.,

Those upland portions of Tract B west of the boundary line between Brownlow Point and the mean high water mark of the extreme west bank of the Canning River per PLO 2214 including all islands, islets and rocks, lying above the line of mean high tide; and

Those portions of Tract B west of the mean high water mark of the extreme west bank of the Canning River.

Containing approximately 7,676 acres.

T. 9 N., R. 25 E.,

Those upland portions of Tract A west of the boundary line between Brownlow Point and the mean high water mark of the extreme west bank of the Canning River per PLO 2214, including all islands, islets and rocks, lying above the line of mean high tide, excluding USS 11149; and

Those portions of Tract A west of the mean high water mark of the extreme west bank of the Canning River.

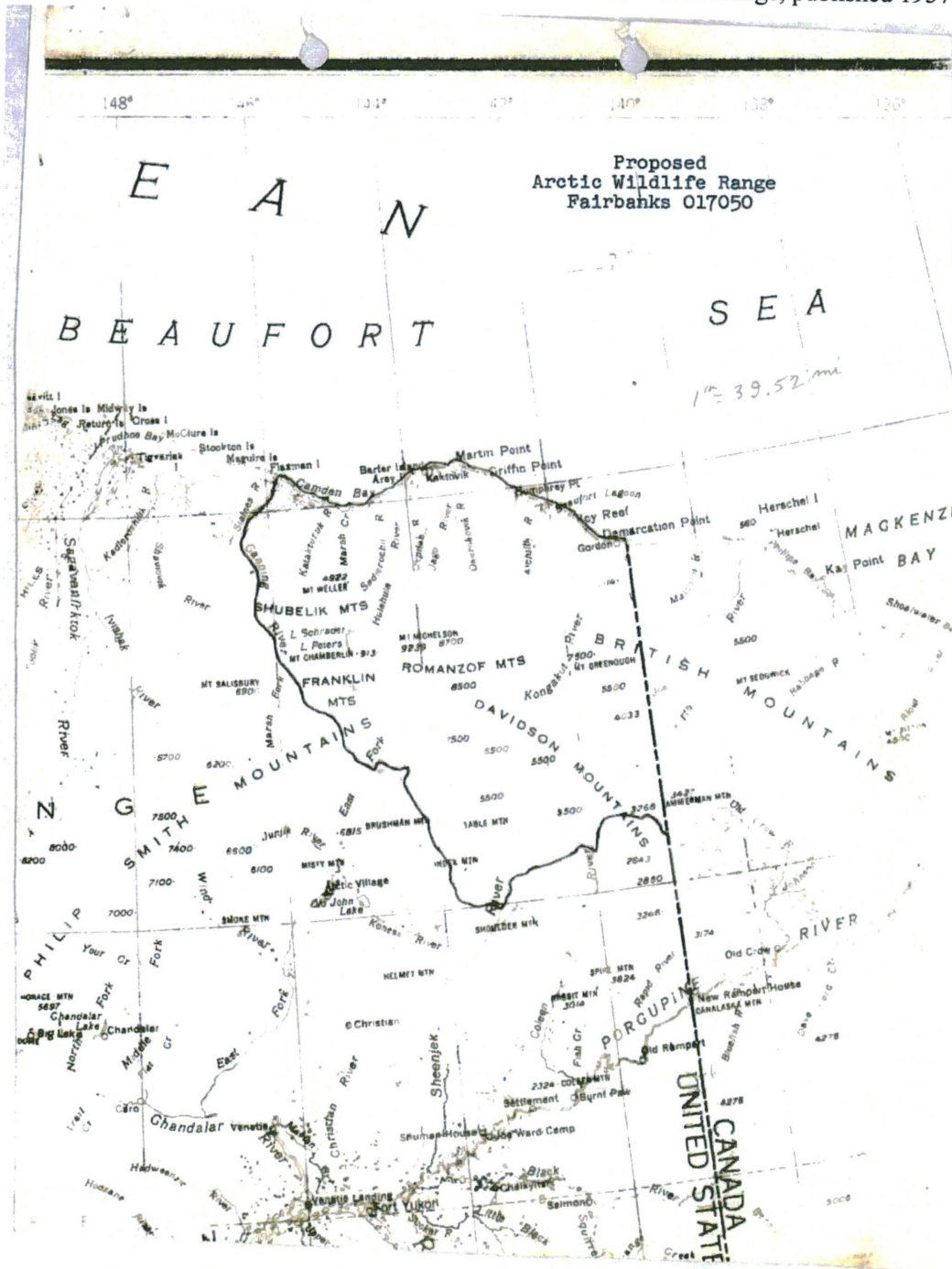
Containing approximately 240 acres.

Aggregating approximately 19,322 acres.



# Appendix

Original proposed boundary map for the Arctic National Wildlife Range, published 1957





**E. The Coastal Boundary of the Arctic National Wildlife Refuge**

The coastal boundary of the Arctic National Wildlife Refuge is a continuous line, as described in Public Land Order No. 2214, 25 Fed. Reg. 12,598 (1960), that begins at the intersection of the International Boundary line between the State of Alaska and Yukon Territory, Canada, with the line of extreme low water of the Arctic Ocean in the vicinity of Monument 1 of said International Boundary line, and follows the line of extreme low water westerly, extending across the entrances of lagoons such that all offshore bars, reefs and islands, and lagoons that separate them from the mainland, are part of the Refuge, to Brownlow Point, at approximately 70° 10' N., 145° 51' W.





U.S. Fish & Wildlife Service

# Arctic National Wildlife Refuge Map

