

**02/27/13**  
**OVERVIEW:**  
**MINING**  
**INDUSTRY**  
**BRIEFING**

<TARGET><BILL></BILL><SUBJECT>02-27-13 OVERVIEW MINING  
INDUSTRY BRIEFING</SUBJECT><COMM>SRES28</COMM></TARGET>

# Alaska's Mining Industry

The Economic Benefits of



January 2013

## Mining is a growing force in Alaska's economy

Mining is a growing force in Alaska's economy, providing jobs for thousands of Alaskans and millions of dollars of personal income throughout Alaska. Alaska's mining industry includes

exploration, mine development, and mineral production. Alaska's mines produce coal, gold, lead, silver, zinc, as well as construction materials, such as sand, gravel, and rock.

### In 2012, Alaska's mining industry provided:

- ▶ 4,800 direct mining jobs in Alaska.
- ▶ 9,500 total direct and indirect jobs attributed to Alaska mining industry.
- ▶ \$650 million in total direct and indirect payroll.
- ▶ Some of Alaska's highest paying jobs with an estimated average annual wage of \$100,000, over twice the state average for all sectors of the economy.
- ▶ \$21 million in local government revenue through property taxes and payments in lieu of taxes.
- ▶ \$137 million in state government revenue through rents, royalties, fees, and taxes.
- ▶ \$126 million in payments to Alaska Native corporations.
- ▶ Mostly year-round jobs for residents of more than 120 communities throughout Alaska, half of which are found in rural Alaska where few other jobs are available.

### 2012 Economic Benefits *estimated*

#### Exploration

- ▶ \$275 million spent on exploration.
- ▶ \$2.3 billion spent on exploration since 1981.

#### Development

- ▶ \$270 million spent on mine construction and other capital investment.

#### Production

- ▶ \$3 billion in gross mineral production value from Red Dog, Greens Creek, Fort Knox, Pogo, Kensington, Nixon Fork and Usibelli Coal mines, placer mines, and rock, sand, and gravel operations.
- ▶ More than 300 placer mines produced 85,000 ounces of gold.
- ▶ \$80 million in production value from more than 120 active rock quarries, and sand and gravel operations.
- ▶ Export value of \$2 billion, or 38% of Alaska's total exports (2011).

**Largest Producing Mines and Selected Advanced Exploration Projects**  
State and Local Government Tax Obligations

Land Status	Mining License Tax	State Royalty Payments	Local Govt. Tax Payments
<b>Producing Mines</b>			
Fort Knox	State	X	X
Greens Creek	Private	X	X
Kensington	Private/Federal	X	X
Nixon Fork	Federal	X	
Pogo	State	X	X
Red Dog	Private	X	X
Usibelli Coal	State	X	X
<b>Advanced Exploration</b> (Projected Payments)			
Bokan Mountain	Federal	X	
Chuitna Coal Project	State/Mental Health Trust/ Private/Borough	X	X
Donlin Gold	Private	X	
Livengood	State/Mental Health Trust	X	X
Niblack	State/Federal	X	X
Pebble Project	State	X	X
Upper Kobuk	State/Federal/Private	X	X
Wishbone Hill	State/Mental Health Trust/ Private	X	X

## Fort Knox Mine

### Gold

- › Alaska's largest surface gold mine
- › Largest single property taxpayer in the Fairbanks North Star Borough
- › Discovered in 1984, producing since 1996
- › 548 employees in 2012

## Greens Creek Mine

### Silver, zinc, gold, and lead

- › Among the world's top 10 silver producers
- › Largest Southeast Alaska for-profit employer, in terms of payroll
- › Discovered in 1975, producing from 1989 to 1993, and continuously since 1996
- › 390 employees in 2012

## Kensington

### Gold

- › Resumed full production in April 2012
- › Second largest private employer in Southeast Alaska in terms of payroll
- › Largest payer of property tax in the City & Borough of Juneau
- › 300 employees in 2012

## Nixon Fork

### Gold and copper

- › Discovered in 1917, intermittent production since 1920s
- › Production suspended in 2007, re-opened in 2011
- › 90 jobs in 2012

## Pogo Mine

### Gold

- › Discovered in 1994, producing since 2006
- › 220 full-time employees and 200 contractors in 2012
- › Paid more than \$54 million in wages in 2012
- › Capital spending exceeded \$19 million in 2012

## Red Dog

### Zinc, lead, and silver

- › One of the world's largest zinc concentrate producers
- › Only taxpayer (payments in lieu of taxes) in the Northwest Arctic Borough
- › Discovered in 1968, producing since 1989
- › 604 employees (including 137 contractors) in 2012

## Usibelli Coal Mine

### Coal

- › Alaska's only operating coal mine, exporting half of its production in 2012
- › Fuels 40% of Interior Alaska's electricity
- › Founded in 1943
- › 124 employees in 2012



# Mining Activity in Alaska





## Bokan Mountain

### Rare earth elements

- › Drilling program started in 2007
- › Preliminary economic analysis released in late 2012
- › 190 potential production jobs

## Chuitna

### Coal

- › Currently in the permitting process
- › 300-350 potential production jobs

## Donlin Gold

### Gold

- › Discovered in 1988, continued exploration since 1995
- › Permitting process began in 2012
- › Up to 90% Calista shareholder hire at its camp operation
- › Up to 1,400 expected production jobs, depending on the production timeline

## Livengood

### Gold

- › Placer mining began in 1914, lode deposit discovered in 2007
- › Feasibility Study complete in mid-2013
- › Approximately \$200 million invested to date, including \$58 million in 2012
- › Estimated 500 potential production jobs

## Niblack

### Copper, silver, gold, and zinc

- › Ongoing exploration for more than 25 years
- › \$35 million invested since 2009
- › 200 potential production jobs

## Pebble Project

### Copper, gold, and molybdenum

- › Discovered in 1987, ongoing exploration, engineering, and environmental studies since 2002
- › Work program of approximately \$100 million for 2012
- › Over 130 local hires in 2011 and 44 individual scholarships to region residents in 2012
- › Approximately 1,000 potential production jobs

## Upper Kobuk Mineral Projects

### Gold, silver, copper, and zinc

- › Intermittent exploration from 1965 to 1998, renewed efforts starting in 2003
- › Preliminary economic assessment released in 2011; pre-feasibility study now underway
- › Average of 84 employees in 2012

## Wishbone Hill

### Coal

- › First mined in 1916
- › Project feasibility study completed in November 2011
- › 75-125 potential production jobs





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## Strengthening Local Economies and Communities

Mining companies strengthen Alaska's local economies by employing Alaska residents from more than 120 Alaska communities located in 26 out of 29 Alaska boroughs or census areas. The industry also purchases supplies and services from hundreds of Alaska businesses.

These mining companies are also a significant source of stable revenue for local governments, as well as significant state government revenue. In 2012, Alaska's mining industry paid:

An estimated total of \$21 million to local governments, including:

- ▶ \$13.0 million in payment in lieu of taxes (PILT) by Red Dog to the Northwest Arctic Borough.
- ▶ \$5.2 million in property taxes paid by Fort Knox to the Fairbanks North Star Borough.
- ▶ \$1.5 million in property taxes paid by Kensington to the City and Borough of Juneau.
- ▶ \$1.2 million in property taxes paid by Greens Creek to the City and Borough of Juneau.
- ▶ Tax payments to other local governments, including Denali Borough, City of Nome and others.
- ▶ Mining industry employees also pay local property and sales taxes.

An estimated \$80.4 million to state government in royalties, rents, fees, and taxes, including:

- ▶ \$65.4 million in mining license taxes, rents and royalties, and other fees, payments, and taxes.
- ▶ \$15.0 million in corporate income tax, representing 15% of the State's non-petroleum industry corporate tax receipts.

Over \$56.9 million in other state government-related revenues, including:

- ▶ \$28.0 million to the Alaska Railroad Corporation for moving coal, sand and gravel.
- ▶ \$25.5 million to Alaska Industrial Development & Export Authority for the use of state-owned facilities (DeLong Mountain Regional Transportation System and Skagway Ore Terminal).
- ▶ \$3.4 million to the Alaska Mental Health Trust for mining claim and lease rent and royalty payments, and construction material sales.

## Partnering with Alaska Native Corporations

All Alaska Native corporations benefited from mining industry activity – in 7(i) and (j) royalty sharing payments, in jobs for shareholders, or through business partnerships.

- ▶ \$124.7 million in net proceeds from Red Dog Operations to NANA and distributed \$76.4 million to other Alaska Native regional and village corporations.
- ▶ 57% of the 604 year-round jobs at Red Dog are filled by NANA shareholders, including Teck, NANA Lynden and NANA Management Services jobs.
- ▶ Calista Corporation anticipates \$1.2 million in royalties and other revenue for mineral agreements, including lode exploration, placer gold production, and construction material sales.
- ▶ Calista shareholders, descendants and spouses predominantly fill the exploration camp jobs at Donlin Gold.
- ▶ Many Alaska Native corporations have taken the opportunity to develop businesses that serve the mining sector, including: NANA Regional Corporation, Calista Corporation, The Kuskokwim Corporation, Central Council Tlingit & Haida Indian Tribes of Alaska, Goldbelt, Inc., Kake Tribal Corporation, Klukwan, Inc., Prince of Wales Tribal Enterprise Consortium, Iliamna Development Corporation, Pedro Bay Corporation, Alaska Peninsula Corporation, Kijik Corporation, Igiugig Native Corporation, Tenalian Incorporated, and Tyonek Native Corporation.



Special thanks to Usibelli Coal Mine, and Alaska Industrial Development & Export Authority for the use of their photographs in this publication. Sources used in this report include: State of Alaska departments of Commerce, Community and Economic Development, Labor and Workforce Development, Natural Resources, and Revenue, Alaska Railroad Corporation, Alaska Industrial Development & Export Authority, various local and borough governments, and mining companies. Prepared in consultation with McDowell Group, Inc.

# 2012 Exploration Projects Under \$5 Million

Along with the spending by Alaska's producing mines and advanced exploration projects, there was also significant spending in 2012 on other projects in earlier stages of exploration. A selection of exploration projects that spent under \$5 million in 2012 is provided in the table below. Collectively these projects accounted for approximately \$35 million in spending. This spending, which often includes expenditures associated with drilling activity, camp support services, helicopter and other transportation services, as well as wages and salaries, funnels through a variety of sectors in the Alaska economy. The following list excludes exploration projects with 2012 budgets of less than \$100,000.

## Selected Exploration Projects Spending Under \$5 Million in Alaska, 2012

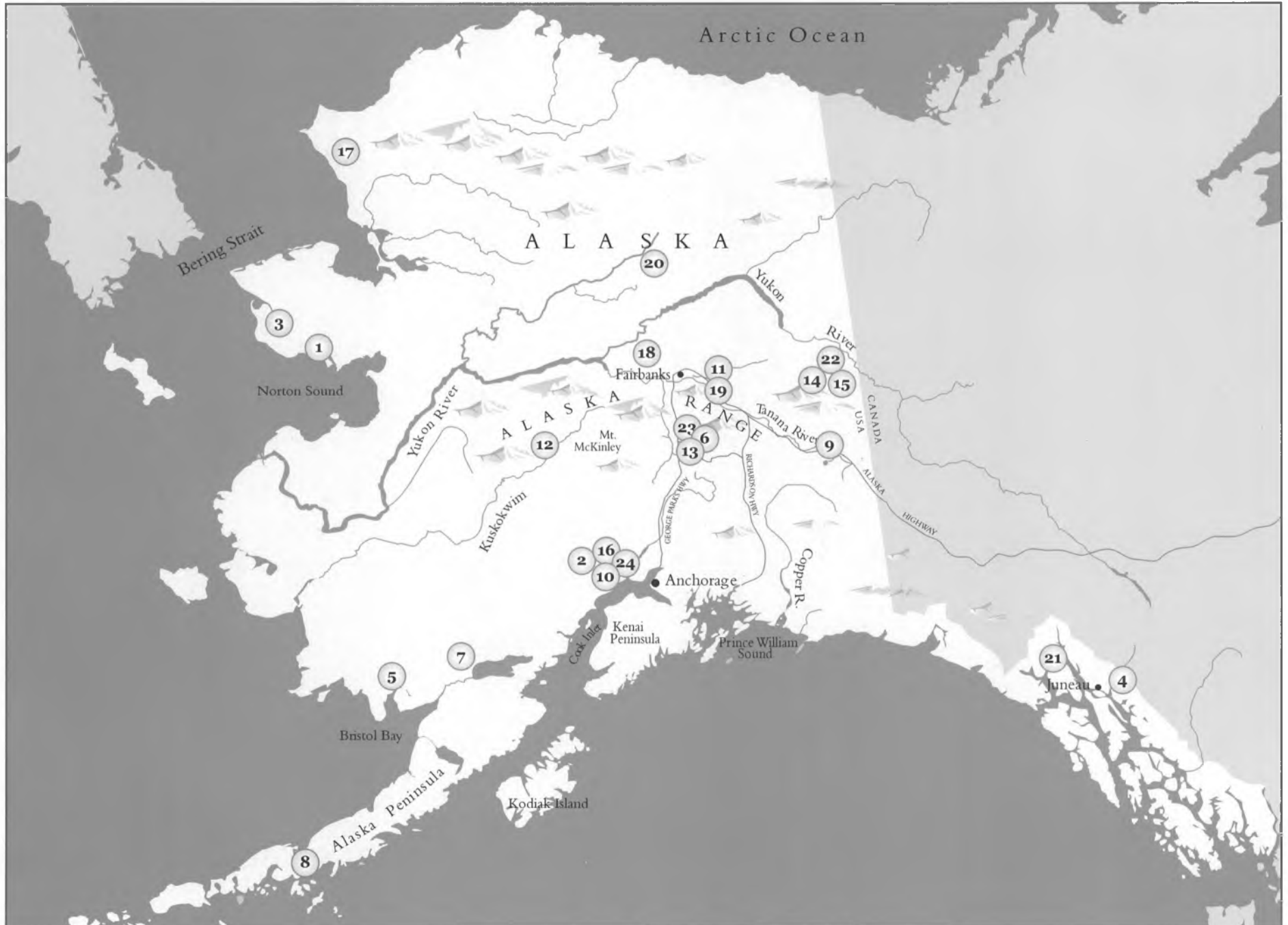
Number on Map (back page)	Project/Deposit	Company	Target	Nature of Work	Peak # of Workers
<b>\$1 Million to \$5 Million</b>					
1	<b>Council</b>	Millrock Resources	Gold	Drilling, geology	14
2	<b>Estelle</b>	Millrock Resources	Polymetallic	Drilling, geology	24
3	<b>Graphite Creek</b>	Cedar Mountain Exploration	Graphite	Airborne geophysical survey, prospecting, geological mapping, sampling and drilling	NA
4	<b>Herbert Gold Project</b>	Grand Portage Resources	Gold	Drilling, mapping, soil sampling	15
5	<b>Humble</b>	Millrock Resources	Copper, Gold	Drilling	16
6	<b>MAN</b>	Pure Nickel	Platinum Group Elements, Nickel, Copper, Lead, Zinc	Drilling, geophysics, IP mapping, ground base IT, soil geochemistry	20
7	<b>Pebble South</b>	Full Metal Minerals	Copper, Gold	Drilling	NA
8	<b>Pyramid</b>	Full Metal Minerals	Copper, Gold	Drilling	20
9	<b>Tetlin</b>	Contango ORE Inc.	Gold	Drilling, surface sampling	NA
10	<b>Terra</b>	Corvus Gold	Gold	Drilling, bulk sample milling	20
11	<b>West Pogo</b>	Corvus Gold	Gold	Drilling, surface mapping, geochemical surveys	10
12	<b>Vinasale/Golden Summit</b>	Freegold Ventures	Gold	Core drilling	54
<b>\$100,000 to \$1 Million</b>					
13	<b>Chisna</b>	Corvus Gold	Gold, Copper	Surface geological mapping, reclamation	6
14	<b>Fortymile</b>	Millrock Resources	Polymetallic	Soil sampling, geochemical	4
15	<b>Fortymile</b>	Full Metal Zinc	Zinc, Lead, Gold, Copper	Soil sampling, mapping, rock sampling	NA
16	<b>Kahiltna</b>	Millrock Resources	Copper, Gold	Prospecting, geologic mapping	4
17	<b>Lik-Su</b>	Zazu Metals Corporation	Base metal	Environmental studies	NA
18	<b>McCord Creek</b>	Endurance Gold Corporation	Gold	Rock sampling, soil anomalies, geology	4
19	<b>Money Rock/West Pogo</b>	Alix Resources Corporation	Gold	Drilling, geologic mapping, and sampling	4
20	<b>Nolan Creek</b>	Silverado/Tricon	Gold	Reclamation	5
21	<b>Palmer</b>	Constantine Metal Resources	Polymetallic	Environmental studies	NA
22	<b>Rolling Thunder</b>	Full Metal Minerals	Gold	Surface mapping, soil sampling	8
23	<b>Stellar</b>	Millrock Resources	Gold, Copper	Mapping	6
24	<b>Whistler</b>	Kiska Metals Corporation	Copper, Gold	Trenching, feasibility study	NA

NA=not available.

Source: Individual exploration company data.

# Selected 2012 Exploration Projects in Alaska

(Spending \$100,000-\$5 million in Alaska)



# Mining Industry Briefing

Alaska Miners Association  
Council of Alaska Producers

Joint House/Senate Resources Committee  
February 27, 2013



Council of  
Alaska Producers



# Mining Works for Alaska

- ▶ Seven producing large mines
- ▶ 60 exploration projects >\$1 M
- ▶ >4,800 direct mining jobs
- ▶ \$100,000 average annual wage



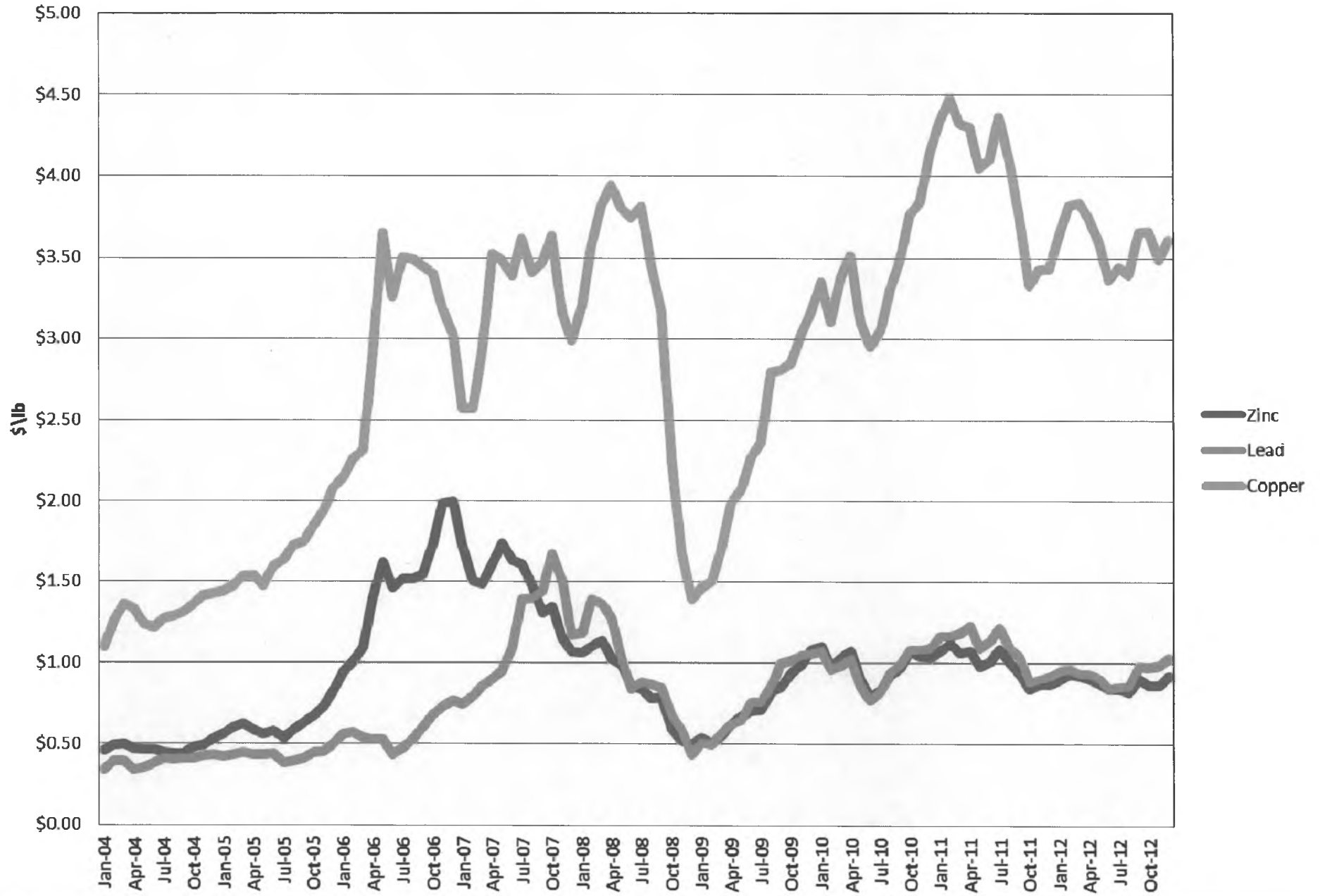
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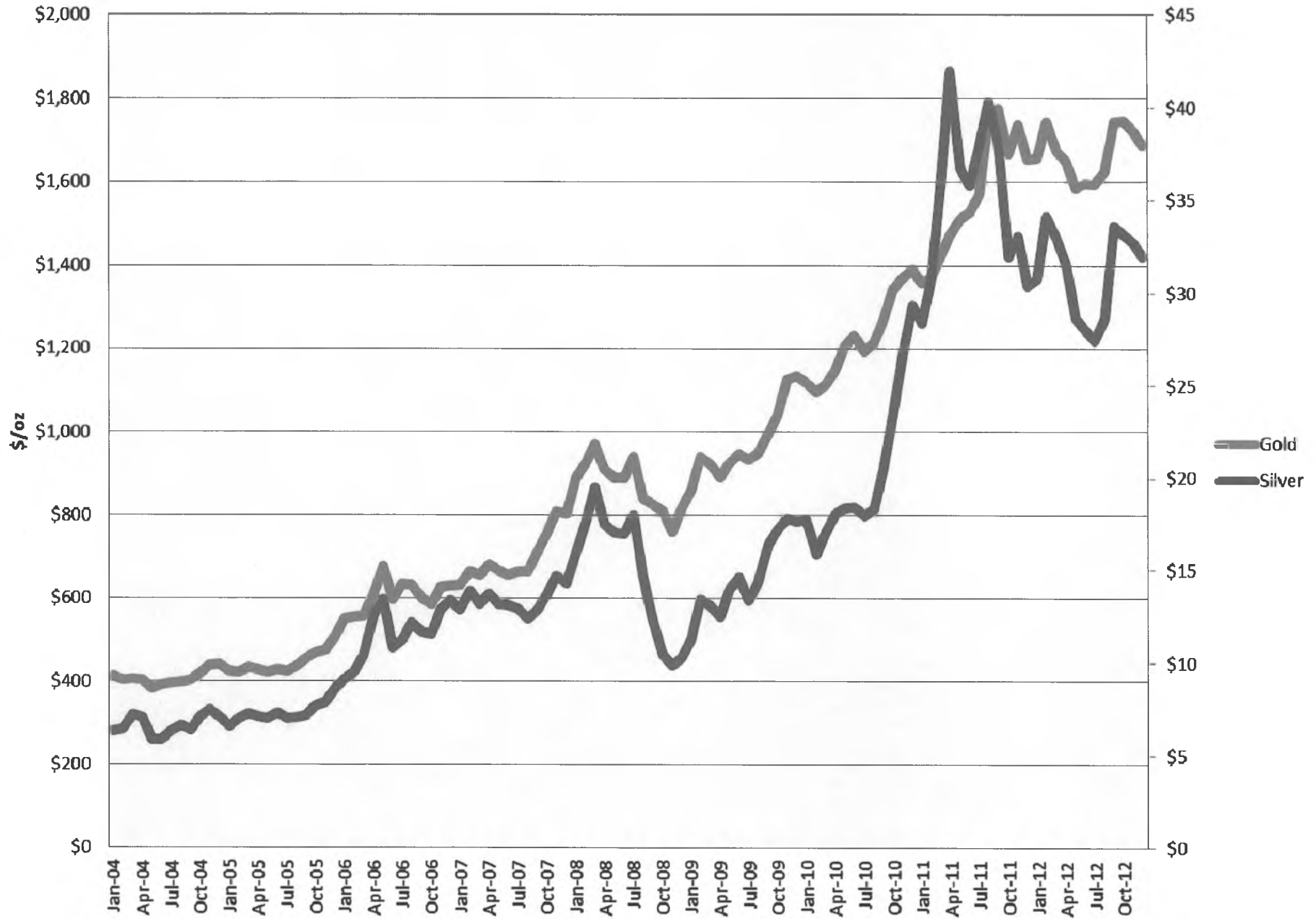
# Mining Activity in Alaska



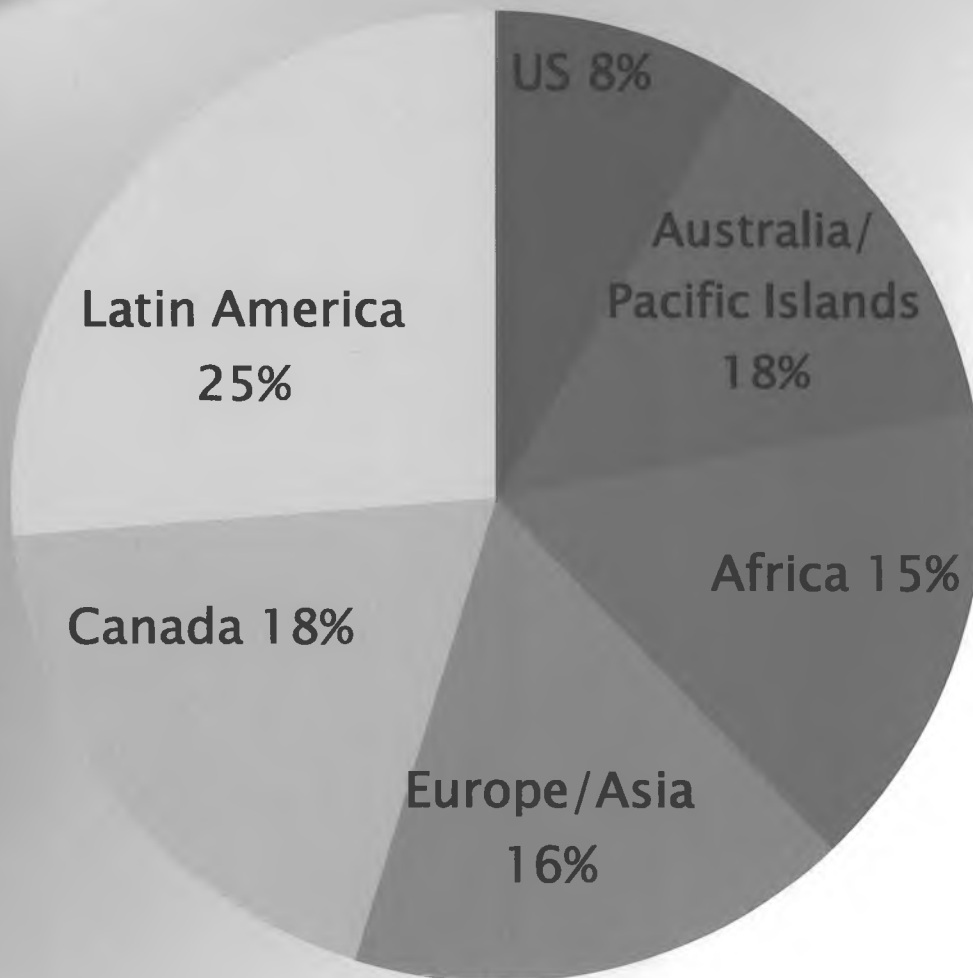
# Monthly Base Metal Prices 2004-2012



# Monthly Precious Metal Prices 2004-2012



# Exploration spending by region



Source: Metals Economics Group, *Global nonferrous exploration budgets by region, 2011*



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# Alaska Permanent Fund

- ▶ 292 investments in metals mining and fabricating
- ▶ \$567 million value
- ▶ Includes shares in Anglo American, Barrick, Coeur d'Alene Mines, Hecla, International Tower Hill Mines, Kinross, Northern Dynasty, NovaGold, Sumitomo, Teck.

Source: [www.apfc.org](http://www.apfc.org), 12/31/2012



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# Alaska's Advantages and Challenges

- ▶ Rich resource potential
- ▶ High costs (energy, labor, transportation)
- ▶ Northern climate
- ▶ Lack of infrastructure (roads, ports, energy)
- ▶ Litigation costs (money and time)



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# Gold – Uses and Production

- ▶ *Historically significant, modern importance*
- ▶ *Computers and cell phones:* microchips, touch tone telephone typically contains 33 gold-plated contacts
- ▶ *Medical:* used in pacemakers and stents; dentistry
- ▶ *Sun-block:* astronauts wear gold-plated visors to protect their eyes from the sun



Production	Ounces
Annual Worldwide	~86 Million
Annual United States	~7.3 Million
Annual Alaska	>900,000
All Alaska 1880–2010	>40 Million



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# Gold – Producers Hardrock

- ▶ Kinross – Fort Knox
- ▶ Sumitomo Metal Mining Pogo
- ▶ Fire River Gold – Nixon Fork
- ▶ Coeur Alaska Kensington Gold Mine
- ▶ Hecla Greens Creek Mine



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# Gold – Placer Mining

- ▶ >300 Placer Mines
- ▶ >85,000 Oz Mined



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# Gold – Developers

- ▶ ITH Mines – Livengood Project
- ▶ Barrick and Novagold – Donlin Gold
- ▶ Heatherdale Resources – Niblack
- ▶ Pebble Partnership – Pebble



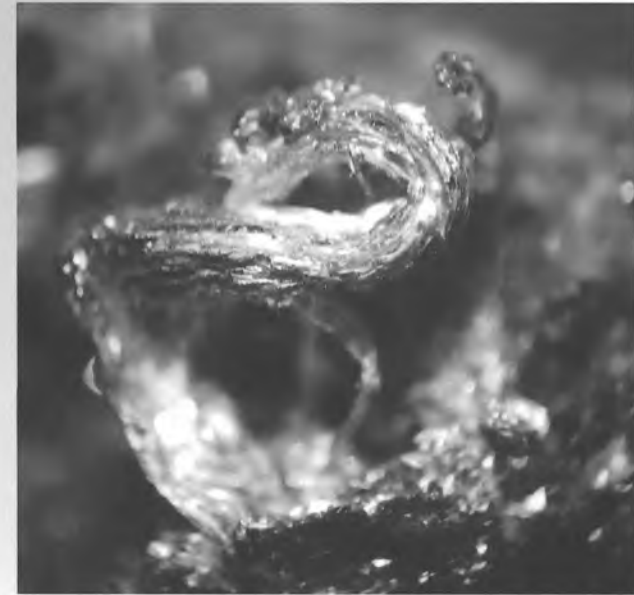
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# Silver – Uses and Production

- ▶ Best thermal and electrical conductor of all the metals
- ▶ *Medical:* most powerful treatment for burns is silvadene (silver sulfadiazine), which is used in every hospital in North America to promote healing and reduce infection
- ▶ *Electronics:* electrical switches
- ▶ *Home:* rear defrost in many cars, button batteries in cameras and watches



Production	Ounces
Annual Worldwide	~771 Million
Annual United States	~34 Million
Annual Alaska	~13 Million
All Alaska 1880–2010	>140 Million



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# Silver – Producers

- ▶ Hecla Greens Creek Mine
- ▶ Teck/NANA Red Dog Mine



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# Lead and Zinc – Uses and Production

## ▶ Zinc

- *Anti-corrosive:* galvanized metal (guard rails on highways, underside of vehicles, roofs)
- *Zinc oxide:* sunscreen
- *Health:* essential for life – growth, development, immune system.

## ▶ Lead

- *Most common use:* lead-acid batteries
- *Hunting:* bullets and shot
- *Health:* radiation shield



Production	Lead Tons	Zinc Tons
Annual Worldwide	~5.7 Million	~14 Million
Annual United States	~380,000	~825,000
Annual Alaska	~155,000	~690,000
All Alaska 1880–2010	>2 Million	>9.7 Million



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# Lead and Zinc

## ▶ Producers

- Teck/NANA Red Dog Mine
- Hecla Greens Creek Mine

## ▶ Developers

- Heatherdale Resources – Niblack



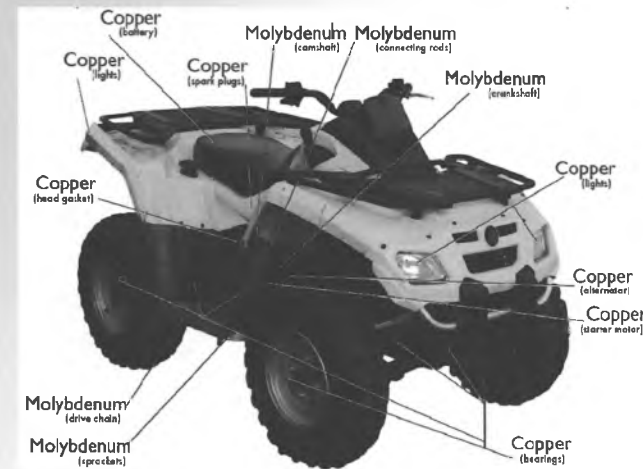
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# Copper– Uses and Production

- ▶ Copper – third most widely consumed metal in the world
- ▶ *Wiring and electrical components:* essential for snowmachines, fishing boats, airplanes, and buildings



Production	Pounds
Annual Worldwide	~37.4 Billion
Annual United States	~2.5 Billion
Annual Alaska	N/A
<i>All Alaska 1880–2010</i>	<i>&gt;1.3 Billion</i>



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# Copper- Developers

- ▶ NovaCopper/NANA – Upper Kobuk Mineral Project
- ▶ Pebble Partnership – Pebble
- ▶ Heatherdale Resources – Niblack



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# Coal

- ▶ Production
  - Usibelli Coal Mine
- ▶ Development
  - Wishbone Hill
  - Chuitna Coal Project



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# Rare Earth Elements

- ▶ Rich resources in Alaska – especially valuable heavy REEs
- ▶ AK could play critical role in domestic supply
- ▶ Used in electronics, radar systems, avionics, satellites



33 lbs of REEs in each hybrid car



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# Alaska Mining Activity in 2012

- ▶ \$275 million Exploration Expenditures
  - >60 exploration projects spending more than \$100,000 annually
- ▶ \$270 million Development Expenditures
  - Mine construction and other capital investments
- ▶ \$3 billion in gross mineral production
  - \$80 million from 120 active RSG operations



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# Employment and Payroll

- ▶ 4,800 direct jobs
- ▶ 9,500 total direct and indirect
- ▶ \$650 million total payroll
- ▶ Average annual wage of \$100,000
- ▶ Residents of 120 communities



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# Payments to Local Governments

- ▶ \$21 million to local governments:
  - \$13 million in PILT to NWAB
  - \$5.2 million to FNSB
  - \$2.7 million to CBJ
  - Denali, City of Nome, etc.



Noatak School



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# Payments to State Government

- ▶ \$80.4 million in royalties, rents, fees, and taxes
- ▶ \$56.9 million in other state-government related revenues, including:
  - \$28 million to Alaska Railroad (moving coal, sand, gravel)
  - \$25.5 million to AIDEA (DeLong Mountain Regional Transportation System, Skagway Ore Terminal )
  - \$3.4 million to Alaska Mental Health Trust



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# Benefits to Alaska Native Corporations

- ▶ Nearly all Alaska Native corporations benefit:
  - 7(i) and 7(j) royalty sharing
  - Jobs for shareholders
  - Business partnerships



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# Benefits to Alaska Native Corporations

- \$124.7 million in net proceeds from Red Dog Operations to NANA – \$76.4 million distributed to other ANCSA regional and village corporations
- 57% of the over 600 jobs at Red Dog held by NANA shareholders
- Donlin Gold camp over 90% Calista shareholder and descendant hire



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# Mining Will Work for Alaska



- Seven producing large mines
  - ... and more to come
- Significant Exploration Potential
- Global importance
- Local benefits



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