



Alaska Department of Natural Resources

Division of Oil & Gas

2014 Annual Report



State of Alaska

Division of Oil and Gas

2015 Annual Report

With Reports on
Maximizing Value of Oil and Gas,
Activities,
Accomplishments,
Trends,
and Working Interest Ownership

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TABLE OF CONTENTS

Maximizing the Value of Alaska's Oil and Gas _____	1
How Oil and Gas Resources are Developed on State Lands _____	2
Bringing Oil and Gas to Resources To Market _____	3
Division of Oil and Gas Activities Report _____	5
Historical Oil and Gas Activities on State Owned Lands _____	6
Department of Natural Resources Oil and Gas Activities _____	12
Division Annual Report of Accomplishments _____	16
Oil and Gas Lease, Revenue Royalty and Production Trends _____	20
Division of Oil and Gas Maps Leasing, Exploration, Activities and Working Interest Ownership _____	30
Oil and Gas Unit Fact Sheets _____	37

Cover Photo: The Repsol Exploration Project on the North Slope

Photo by Judy Patrick – Courtesy of Repsol

Maximizing the Value of Alaska's Oil and Gas

– A Team Approach

Alaska's Constitution mandates maximizing the development and value of Alaska's natural resources consistent with the public interests. The Division of Oil and Gas (DO&G) serves Alaskans by applying a carefully balanced approach guided by statutes and regulation to manage the state's oil gas and geothermal resources in the best interest of the state and its residents. Approximately 24.7 million acres of state land is organized into five areas designated for oil and gas exploration, development, and production. Currently, 4.8 million acres, nearly 20 percent of these areas, have active leases, located predominantly on Alaska's North Slope and in and around Cook Inlet. These areas are producing oil and natural gas and providing royalties, rents and taxes the state depends on for 92 percent of Alaska's unrestricted revenues. Outside of these five established lease sale areas, state lands are available for exploration when industry expresses interest during an annual request period. Currently, three companies are exploring areas in Interior and Southcentral Alaska.

To manage valuable state lands and associated resources, DO&G uses a talented, cross disciplinary team of scientists, engineers, land managers, and economists to evaluate resource and land use options and prepare materials to support decisions. Geologists, geophysicists, and petroleum engineers, together with land managers, determine available state lands with hydrocarbon resource potential. Land managers, natural resource specialists and commercial analysts develop terms and conditions for leasing, plan, and permit decisions that serve the state's best interest in bringing value from the lands and associated oil, gas and geothermal resources.

Upon leasing, the entire team works with the oil and gas industry to explore and produce the oil and gas resources. Once produced, accountants and auditors ensure the continued flow of state revenues through monitoring and auditing lease and unit agreement operations. This includes accounting for oil and gas rental and royalty payments received versus payments due. In addition, commercial analysts work with accountants for the sale of royalty oil and gas for in state refining. The work performed by DO&G benefits all residents of Alaska through the availability of oil and gas revenues for education, public safety, revenue sharing to communities, capital improvement projects, the Permanent Fund and other state and local programs.

How Oil and Gas Resources are Developed on State Lands

The DO&G team manages oil and gas resources by determining who, where, when, and how those resources will be used while ensuring consistency with the state's best interest. The entire process is managed in accordance with the Alaska Constitution (Article VIII), the Alaska Lands Act (AS 38.05), and additional statutes and regulations in a fair and open process. Based on these authorities, the Director of the Division of Oil and Gas and the Commissioner of the Department of Natural Resources are authorized to render decisions concerning whether oil and gas development is in the best interest of the state.

Best Interest Findings and Leasing: Alaska's oil and gas resources are developed by leasing the land which holds these resources. Before land is offered for lease, natural resource specialists, geologists and geophysicists research current scientific information and evaluate geologic data to assess an area's potential hydrocarbon resources, the surrounding communities and habitats, advisable mitigation measures (stipulations intended to reduce the potential for environmental effects) and the potential economics of working in the area. This work results in a document called a "best interest finding." The preliminary best interest finding includes the decisions of the Director, Division of Oil and Gas, and the Commissioner of the Department of Natural Resources, as to whether it is in the best interests of the state to lease the subject state lands for oil and gas development. The preliminary document is offered to the public for comment and the ability to offer additional significant information to be considered. After review and comment by the public, if it is determined that it is in the state's best interest, the preliminary best interest finding becomes final and the land is offered for lease through a scheduled, competitive bid process.

Before bidding, commercial analysts draft terms and conditions that establish rent and royalty rates and lease duration. The qualifying bidder who wins the lease becomes the lessee for a period not to exceed 10 years. The lessee also agrees to work within the terms, conditions and any additional measures that protect the state's interest. In 2014, the state received almost \$65 million from its annual lease sales.

Once a lease is awarded, the lessee may develop the lease, assign it to a different lessee, relinquish it based on their business decisions or have it terminated by the state. It can also run for the full term with rental payments, or be retained by the lessee indefinitely, if unitized to increase efficiencies during active production. If

reassigned, the DO&G team analyzes resource availability, the financial health of the proposed assignee, and the revenue potential to the state while protecting the state's interest in regard to risk.

Bringing Oil and Gas Resources to Market

The entire process of locating oil and gas and bringing it to market can be separated into stages: exploration, development and production, and transportation. These stages may occur out of chronological order or simultaneously on any part of the lease or unit. Whether exploration and eventual development will occur depends on several factors; such as the subsurface geology of the area, a company's worldwide resource development strategy, the projected price of oil and gas and their market demand, and other economic, environmental and logistical factors.

Miscellaneous Land Use Permits (MLUP): Whether on leases or unleased state lands, lessees or other parties may apply for a MLUP to conduct geophysical, or seismic, exploration, which provides critical technical information for where to target further exploration activities, such as exploration wells. In 2014, the DO&G issued 9 permits for geophysical exploration.

Plans of Operations: In managing the lease, the DO&G team works with the lessee to develop and approve a plan of operations; generally to begin exploration of leased lands by drilling an exploration well. This plan identifies the surface use requirements, sequence and schedule of operations, projected use requirements directly associated with the proposed operations, and lease mitigation compliance methods. This plan will be reviewed by the team's natural resource specialists and land managers for potential surface impacts, proper application of mitigation measures, and subsequent reporting on activity status and completion. Upon approval, the lessee may begin the proposed work on leased lands. If included in the application, any drilling plans will be reviewed by the team's natural resource specialists, land managers, geologists and geophysicists to ensure the proposed work is in the best interests of the state. However, actual drilling operations are regulated by the Alaska Oil and Gas Conservation Commission. If an exploratory well is drilled and oil or gas is discovered, the lessee may produce from the well, indefinitely extending the term of the lease for as long as they well produces. The lessee also may ask for the well to be certified. Upon approval, the term of the lease becomes indefinite as long as the certified well is capable of producing commercial quantities of oil and gas. Generally at this point, a plan of development is proposed.

Plan of Development: The plan of development is a major step in the life of the lease as it proposes how the discovered resource may be developed. The final project parameters will be described in this plan dependent upon the surface location, size, depth and geology the discovery. Fully developing this prospect may include work on adjacent leases and require agreements with other lessees, which is accomplished through formation of an oil or gas “unit.” Formation of a unit promotes conservation of all natural resources, prevention of economic and physical waste, and the protection of all parties of interest. The unit allows multiple lessees to agree upon resource management and protects owners’ interests, while minimizing the amount of infrastructure required to efficiently developing the resource with a designated production operator by the lessee companies.

Production and Royalties: The state begins receiving its share of royalties when oil or gas comes into production. The Royalty Accounting team tracks the volume and value of the oil and gas produced and determines the royalty due to the state and ensures proper royalty payments are made. In FY 2014, the state received \$2.37 billion in royalty payments. Finally, after multiple years of production, the Royalty Audit team reviews numerous commercial factors and determines the accuracy of the royalty payments received. In FY 2014, audit findings brought in \$17 million in additional revenues to the state.

While working together as a team, DO&G is organized into sections that address the specific aspects of the state’s oil and gas resources. To further understand the accomplishments of our team, along with graphs and tables of activities, resources and royalties, a more detailed breakout of FY 2014 follows in the accomplishments of the Division and the trends and graphs that reflect the value of the oil and gas resources on State of Alaska lands.

Division of Oil and Gas Activities Report (2014)

Introduction

The Division of Oil and Gas (DOG) is one of two divisions within the Alaska Department of Natural Resources (DNR) responsible for managing a portion of oil and gas activities which occur on state lands. DOG develops and manages the state's oil and gas leasing program, which extends to review and approval of exploration permits and licenses, plans of operation, and unit decisions. The other DNR division involved in overseeing oil and gas activities on state lands is the Division of Mining, Land and Water (DMLW) which functions as the primary manager of Alaska's land holdings and water resources, and issues a variety of miscellaneous land use permits for oil and gas related activities.

DOG manages state lands for oil and gas exploration and development, as directed by the legislature through statute. This includes maximizing the economic and physical recovery of the resources; maximizing competition among parties seeking to explore and develop the resources; and maximizing use of Alaska's human resources in the development of the resources. Further, the legislature has directed that it is in the best interests of the state to encourage an assessment of its oil and gas resources and to allow the maximum flexibility in the methods of issuing leases to recognize the many varied geographical regions of the state and the different costs of oil and gas exploration and development in these regions; and to minimize adverse impacts of exploration, development, production, and transportation activity.

To this end, the Division has expanded the annual report to include aggregated information for oil and gas activities within each state lease sale area and exploration license areas. Not only will this enhance public awareness of oil and gas projects on state lands, but the information compiled will assist in crafting policy and rendering decisions for responsible development of oil and gas resources.

Oil and gas activities occurring within each state lease sale evolve continuously, and this report provides a summary of many of these activities. DOG makes no representations as to the comprehensiveness of this report; it is based on best available information as of the date of publication. This report is not intended to be an exhaustive accounting of all oil and gas activities in the state, but rather, provides a broad historical context followed by a summary of significant surface

activities authorized by DNR and completed in the most recent calendar year. For information relevant to subsurface uses, please consult the Alaska Oil and Gas Conservation Commission (AOGCC) <http://doa.alaska.gov/ogc/>.

Historical Oil and Gas Activities on State Owned Lands

North Slope and Beaufort Sea Lease Sale Areas

Following reports of oil seeps along the coast by early traders, the first geologic and topographic studies were conducted on the North Slope in 1901 with the first formal descriptions being recorded by the U.S. Geological Survey (USGS) in 1919. After many years of exploration, full scale oil and gas operations commenced in these areas in the 1960s. In 1968, Atlantic Richfield announced the discovery of commercial oil deposits in Prudhoe Bay. Exploration and development grew dramatically and production began in 1977 with the completion of the Trans-Alaska Pipeline System (TAPS).

Because of the location of oil and gas accumulations and use of directional drilling techniques, the North Slope and Beaufort Sea lease sale areas have historically been explored and developed in concert. Some exploration wells drilled from onshore North Slope state leases have had bottom-hole locations in offshore Beaufort Sea reserves. Before the advent of areawide lease sales, the boundary between the North Slope and Beaufort Sea lease sale areas was fluid.

Since the first North Slope lease sale in December 1964, the state has held 63 oil and gas lease sales involving North Slope and Beaufort Sea acreage. Approximately 5.5 million acres of this area has been under lease at some point during this time. Some of this acreage has been under lease continuously for almost 50 years and some acreage has been leased more than once, as leases expired or were voluntarily surrendered.

As of December 31, 2013, the following activities have occurred on state acreage in the North Slope and Beaufort Sea lease sale areas:

- Nearly 3 million acres were under lease in these combined lease sale areas, which includes 2,250,343 acres onshore and 720,008 acres offshore.
- Approximately 60,000 line miles of 2-D seismic surveys were performed.
- Approximately 9,000 square miles of 3-D seismic surveys were performed.
- A total of 6,848 wells have been drilled in the course of exploration and development activities, of which 1,910 have been plugged and abandoned.
- Commercial production of oil and gas from approximately 621,089 acres in

these combined sale areas, which includes 448,765 acres from the North Slope and 172,324 acres from the Beaufort Sea.

Except for the Northstar Unit, which spans federal and state submerged lands, all of the region's commercially producing fields are on state or Alaska Native lands. Six of these producing fields are offshore; two of which are being produced from directional wells drilled from onshore facilities.

The North Slope hosts an extensive network of petroleum production, development and support facilities, all leading to the TAPS gathering facility, into the pipeline and ultimately the TAPS terminal in Valdez. Prudhoe Bay continues to function as the hub of activity for the existing fields and associated satellite developments on the North Slope and in the Beaufort Sea, extending outward via roads, pipelines, production and processing facilities, gravel mines and docks.

North Slope Foothills Lease Sale Area

The North Slope Foothills on the northern flanks of the Brooks Range was considered prospective for oil and gas exploration as early as the 1920s because of widespread surface expressions being observed to indicate anticlinal structure. Aside from the construction, operation, and maintenance of TAPS and the Dalton Highway, oil and gas operations in the North Slope Foothills sale area have been limited to intermittent exploration activities. No oil or gas resources from this lease sale area are being accessed or transported by existing infrastructure.

Since the first lease sale in the northern region in December 1964, the state has held 17 oil and gas lease sales involving the North Slope Foothills area. Approximately 1.3 million acres have been under lease at some point during this time. Some of this acreage has been leased more than once, as leases expired or were voluntarily surrendered.

The USGS spent the summers of 1923-1926 conducting reconnaissance surface-mapping in this area. From 1944-1953, the U.S. Navy worked in conjunction with USGS to conduct an expansive exploration drilling program which included the northern part of this lease sale area. As a result of this drilling program, many oil and gas accumulations were found, but not within the boundaries of the lease sale area. The closest discoveries were the Umiat oil and Gubik gas accumulations located near the westward bend in the Colville River and adjacent to, but outside the north-central part of the lease sale area.

Building on the exploration drilling efforts of the U.S. Navy, private industry began exploratory drilling in the mid-1960s. In 1964, six wells were drilled by various companies within the lease sale area. Drilling was focused where surface expressions indicated anticlinal structure, and although hydrocarbon shows were present in each of the six wells drilled, no oil fields and only one sub-commercial gas field (East Umiat) were identified as a result of this work. Four wells were completed within the lease sale area in a second pulse of exploratory drilling from 1969-1971, but none led to any further activity. From 1974-1982, 11 additional exploratory wells were drilled in the sale area, one of which resulted in the discovery of the East Kurupa gas accumulation. The last well drilled within the region was the Chandler 1 well (2008-2009) which penetrated the shallow Brookian topset play on the flank of the East Umiat anticline and discovered a deeper gas reservoir in the Brookian turbidite play. The Chandler 1 well was reentered for testing in 2011, which was the most recent downhole exploration activity in this lease sale area.

As of December 31, 2013, the following activities have occurred on state acreage in the North Slope Foothills lease sale area:

- Approximately 271,322 acres were under lease in this sale area.
- Approximately 15,000 line miles of 2-D seismic were performed.
- Approximately 650 square miles of 3-D seismic data were performed.
- A total of 33 wells have been drilled in the course of exploration and development activities, of which 21 are classified as plugged and abandoned.

Although nearly all the wells in the area have had at least modest shows of gas and/or oil, to date there have been no commercial oil or gas discoveries or sustained production from lands in this lease sale area. Thus, no oil and gas development or transportation activities have taken place.

Cook Inlet Lease Sale Area

The Cook Inlet lease sale area is a mature petroleum province, with reconnaissance oil exploration activities first occurring in the late 1800s. Sporadic exploratory drilling occurred near natural oil seeps in the early 1900s, but met with little success. The end of World War II brought increased settlement to the Kenai Peninsula and the development of a road system, and the improved access led to an increase in exploration. In 1955, Richfield Oil Corporation discovered oil in the Swanson River area, and this discovery spurred the drilling of additional wells and increased leasing activity on both sides of Cook Inlet. Both oil and gas fields have been steadily developed since then. Discoveries in the Cook Inlet Basin

extend from Kachemak Bay area north to the mouth of the Susitna River and include offshore and onshore fields from the western shore of the Cook Inlet to the western and southern Kenai Peninsula.

Since 1959, the state has held 56 oil and gas lease sales in the Cook Inlet area. Approximately 2.8 million acres of state land have been under lease at some point during this time. Some acreage has been under lease continuously for almost 55 years and some acreage has been leased more than once, as leases expired or were voluntarily surrendered.

As of December 31, 2013, the following activities have occurred on state acreage in the Cook Inlet lease sale area:

- Approximately 1.1 million acres were under lease in this sale area, which includes 428,884 acres onshore and 696,552 acres offshore.
- Approximately 25,000 line miles of 2-D seismic surveys were performed.
- Approximately 1,300 square miles of 3-D seismic surveys were performed.
- A total of 1,106 wells have been drilled in the course of exploration and development activities, of which 433 are classified as plugged and abandoned.
- Commercial production of oil and gas from approximately 102,903 acres in this sale area.

Oil and gas infrastructure in the Cook Inlet area is well developed relative to other areas of the state, with offshore and onshore pipelines in use since the 1960s. As of the end of 2013, there were approximately 227 miles of undersea pipelines; which includes 78 miles of oil pipelines and 149 miles of gas pipelines. The marine crude oil terminals in Cook Inlet include storage facilities and offshore loading platforms. The Nikiski complex has been in operation since 1963 and includes the Kenai liquefied natural gas (LNG) plant and Tesoro's refinery. The complex receives, stores, and pumps crude oil to the Tesoro refinery. The Drift River marine terminal started operating in 1967. It receives Cook Inlet crude oil via pipeline from production areas on the west side of Cook Inlet and stores the oil until tankers move it across Cook Inlet to the Tesoro refinery. Tanker traffic currently carries oil across the Cook Inlet to be refined. Tankers then deliver refined petroleum products from Nikiski to other parts of Alaska. Natural gas is either transported by pipeline to Anchorage or Girdwood for domestic consumption, or processed at the Kenai LNG plant and exported to Japan.

Alaska Peninsula Lease Sale Area

The Alaska Peninsula was first explored in the early 1900s and the first wells were drilled on the southeast side near active oil and gas seeps. Exploration shifted to the northwest side of the Alaska Peninsula in the late 1950s through early 1980s. Oil and gas operations have been limited to sporadic exploration activities; no infrastructure specific to oil and gas exists in this lease sale area.

In 2005, the state began offering onshore and nearshore acreage for lease in Alaska Peninsula areawide lease sales, and since that time has held nine lease sales in this area. Since the first sale, 607,743 acres of state land were under lease at some point during this time in this sale area. Some acreage has been leased more than once, as leases expired or were voluntarily surrendered. Between 2008 and 2013, no companies bid on acreage and as of December 31, 2013 there were no active leases within the boundaries of this lease sale area.

As of December 31, 2013, the following activities have occurred on state acreage in the Alaska Peninsula lease sale area:

- Approximately 4,000 line miles of 2-D seismic surveys were performed.
- A total of 14 exploration wells have been drilled in the course of exploration activities, of which all are now classified as plugged and abandoned.

Although nearly all the wells in the area have had at least modest shows of oil and/or gas, to date there have been no commercial oil or gas discoveries or sustained production from state lands on the peninsula. Thus, no development or transportation activities have taken place.

Exploration Licensing Areas

The state's exploration licensing program, which was enacted in 1994, compliments the state's oil and gas leasing program and encourages oil and gas exploration outside of the current lease sale areas of the North Slope, Beaufort Sea, North Slope Foothills, Cook Inlet, and Alaska Peninsula. The licensing program encourages exploration in areas far from existing infrastructure, with relatively low or unknown hydrocarbon potential, and where there is a higher investment risk. An exploration license must range from 10,000 to 500,000 acres, may have a term of up to 10 years, and includes a work commitment. If the work commitment is met, the licensee may convert all or a portion of the license area to leases.

Ten exploration licenses have been issued since the program began; of which four were active as of December 2013 and in aggregate span 357,048 acres. Three licenses have been converted to leases. The Copper River Basin exploration license was converted to leases in 2007, covering 33,140 acres; all acreage from those leases has expired. In 2013, the Nenana Basin exploration license was converted to leases covering 393,809 acres, and the Susitna Basin II exploration license was converted to leases covering 167,990 acres, all of which is still under active lease.

Department of Natural Resource Oil and Gas Activities (2014)

Nearly all current oil and gas related activities in Alaska occur within the North Slope and Cook Inlet regions. This section of the report provides a snapshot of significant surface activities approved by the DNR, and completed during 2014. For more detailed information on oil and gas related activities, including those regulated by other state agencies, please see the below-listed references.

- **Leases:** Alaska Division of Oil and Gas Leasing
<http://dog.dnr.alaska.gov/Leasing/LeasingHome.htm>
- **Exploration and Development Permits /Plans:** Alaska Division of Oil and Gas Permitting <http://dog.dnr.alaska.gov/Permitting/Permitting.htm>
- **Units:** Alaska Division of Oil and Gas Units
<http://dog.dnr.alaska.gov/Units/Units.htm>
- **Pipelines:** State Pipeline Coordinator's Office
<http://dnr.alaska.gov/commis/pco/>
- SPCO annual report <http://dnr.alaska.gov/commis/pco/publications.htm>
- **Wells:** Alaska Oil and Gas Conservation Commission)
<http://doa.alaska.gov/ogc/>
Well and production database <http://doa.alaska.gov/ogc/publicdb.html>
- **Air & Water Quality:** Alaska Department of Environmental Conservation
<https://dec.alaska.gov/>
- **Miscellaneous Land Use Permits:** Alaska Division of Mining, Land, and Water
http://dnr.alaska.gov/mlw/permit_lease/index.cfm
- **Exploration Licenses:** Alaska Division of Oil and Gas Leasing
<http://dog.dnr.alaska.gov/Programs/ExplorationLicensing.htm>
- **Activity Mapping:** Alaska Division of Oil and Gas
<http://dog.dnr.alaska.gov/GIS/Maps.htm>

Division of Oil and Gas - North Slope Sale Areas

During 2014, DOG approved one Lease Plan of Operations in the Beaufort Sea, 97 amendments to Lease and Unit Plans of Operations, and six Miscellaneous Land Use Permits within the North Slope, Beaufort Sea and North Slope Foothills lease sale areas.

North Slope Lease Sale Area

Significant oil and gas activities reported to be completed during 2014 within the North Slope Lease sale area took place in the Point Thompson, Duck Island, Milne

Point, Kuparuk and Prudhoe Bay units. This included the construction and installation of additional facilities, equipment, and materials in support of ongoing operations; examples of which include:

- Gravel placement on and off pad for road and pad expansions and drill rig access.
- Building construction such as warehouses, cold storage, work camp facilities, hazardous waste storage, as well as maintenance and fabrication shops.
- Bridge construction including sheet piles, concrete walls and gravel fill.
- Tank installations including containment, associated refueling area and emergency shutdown systems.
- Pig launcher, receiver and corrosion monitoring equipment (pipeline maintenance) installation.
- Communications tower and associated antenna transmission line installation.

Significant activities reported to be in progress for 2014 include building construction and commissioning work including warehouses and maintenance buildings, the installation of steel pipes for tie-down boom, as well as multiple utility corridor, power supply and fiber optic cable installations in progress. Gravel fill is also added to existing roads and pads to accommodate expansions, drilling operations and the placement of new facilities.

Beaufort Sea Lease Sale Area

Aside from geophysical surveys and ongoing commercial oil production from the Oooguruk unit, no significant exploration, development or transportation activities were conducted in this lease sale area in 2014.

North Slope Foothills Lease Sale Area

No significant exploration, development or transportation activities were conducted in this lease sale area in 2014.

Division of Oil and Gas - Cook Inlet

During 2014, DOG approved one Lease Plan of Operations, two Unit Plans of Operations, seven amendments to Lease and Unit Plans of Operations, and one Miscellaneous Land Use Permit within the Cook Inlet lease sale area.

Significant oil and gas activities reported to be completed during 2014 within the Cook Inlet Lease sale area took place in the Ninilchik and North Fork units. These activities include pad expansion, and the installation of compressor and dehydration units to support increased gas production, and the construction of

three new low pressure separators to enhance the gas production rate in the Ninilchik unit. Additionally, in order to mitigate noise from the compressor buildings, ducted air intakes and new vent stacks were also installed. Gas production facilities, including heater/separator skid, dehydration skid, wastewater tank, communications room, and air compressor room were installed in the unit. In addition, a conductor hole was installed and a cellar excavated within the North Fork unit to prepare for drilling operations.

Significant activities reported to be in progress for 2014 include the construction drilling wells from new and existing pads, and drilling wells from established platforms. New piping and flow lines are also being installed for new wells on existing pads. Some of the exploratory well drilling currently being conducted in the Cook Inlet region is occurring on private lands with bottom-hole locations on state lands.

Division of Oil and Gas – Alaska Peninsula

During 2014, DOG did not approve any plans of operations, amendments or miscellaneous land use permits within the Alaska Peninsula lease sale area; nor was there any significant exploration, development or transportation activities conducted.

Division of Oil and Gas – Exploration Licensing

Over the course of 2014, DOG processed exploration license proposals for three additional areas, Houston-Willow, North Nenana and Southwest Cook Inlet. The applications for Houston-Willow and North Nenana are still pending, but DOG has approved the exploration license proposal for the Southwest Cook Inlet area, and issued an exploration license to Cook Inlet Energy, LLC for an area covering 168,581 acres.

In addition, DOG approved one exploration plan of operations in the Healy Basin license area, and issued a miscellaneous land use permit for upcoming seismic work in the Tolsona license area. DOG received an exploration plan of operations in the Susitna Basin IV license area, and that application is currently pending.

Division of Mining, Land, and Water - Statewide

Water Use

During 2014, DMLW issued approximately 101 Temporary Water Use Authorizations (TWUAs) statewide. Sources include well, lake, and river sources, as well as mine site/dewatering activities. A single authorization can include

multiple sources and therefore it is possible that the same company applies one authorization on more than one water use type. Similarly, authorizations are for usage activities and more than one authorization can be applied to the same source. On the North Slope, 68 authorizations include 4 well, 155 lake, 11 river, and 11 mine site/dewatering sources. For the Cook Inlet and the Interior, 33 authorizations include 61 well, 9 lake, 4 river, and 10 mine site/dewatering sources.

State-owned Gravel Pits

According to DMLW, on the North Slope there are five state-owned pits which have been actively used for oil and gas activities in 2014. One additional state-owned pit has been actively used for activities in the Nenana Exploration License Area. There are many more pits which have valid contracts in place, but which have not had reported extraction during the last reporting period. Within the Southcentral Region, no state-owned pits were reportedly used for oil and gas purposes, although DNR did approve one non-state pit reclamation plan for a private pit in support of oil and gas activities.

Ice Roads and Tundra Travel

DMLW reported two ice roads were permitted in 2014, for access to oil and gas projects this year in the Southcentral Region. These ice road approvals include multiple temporary bridges and each provides access to a different drill pad in the Cook Inlet Lease Sale Area.

DMLW reports for the 2013-2014 winter season that winter off-road travel was approved and conducted under nine separate permits on the North Slope. This included five snow road approvals for five different projects totaling 264 miles. Also on the North Slope, DMLW approved and construction was reported for 17 ice roads for seven different projects total 220 miles and ice pads approved and reported constructed to support seven different projects totaling 313 acres. Ice road and pad activities occurred in support of projects in several North Slope units including Colville River, Kuparuk, Point Thomson, Quguruk, Ooguruk and Prudhoe Bay.

Division Annual Report of Accomplishments

Best Interest Findings

The Division prepared a Best Interest Findings in support of proposals to explore the coastal and onshore area of Southwest Cook Inlet encompassing the Iniskin Peninsula and surrounding areas. The decision finding the exploration licenses in the best interest to the state allowed Cook Inlet Energy, LLC to be awarded the Southwest Cook Inlet Exploration License in October 2014.

Resource Evaluation and Leasing staff reviewed exploration activities by Doyon, Ltd and Cook Inlet Energy Alaska, LLC and allowed conversion of exploration licenses to leases for the Nenana Basin and Susitna Basin II exploration license areas respectively.

The Division conducted its annual public request for new substantial information for the Best Interest Findings of the five (5) areawide Lease Sale areas. In response to the request, the Division received no substantial new information and the current Best Interest Findings and associated annual supplements remain as written.

Lease Sales

The Division held the annual spring and fall Lease Sales, offering lease tracts in the Cook Inlet and the Alaska Peninsula on May 7, 2014 and the North Slope, North Slope Foothills and Beaufort Sea on November 19, 2014. The results for each Areawide sale were as follows:

- Alaska Peninsula
 - Tracts Leased: 3
 - Total Acres Leased: 9,561.45
 - Total High Bonus Bids Received: \$47,807.25
- Cook Inlet
 - Tracts Leased: 34
 - Total Acres Leased: 108,443.03
 - Total High Bonus Bids Received: \$5,204,443.17
- North Slope
 - Tracts Leased: 254
 - Total Acres Awarded: 524,387.00
 - Total High Bonus Bids Received: \$54,571,926.04
- North Slope Foothills

- Tracts Leased: 2
- Total Acres Awarded: 10,120.00
- Total High Bonus Bids Received: \$147,014.40
- Beaufort Sea
- Tracts Leased: 42
- Total Acres Awarded: 107,189.31
- Total High Bonus Bids Received: \$4,997,059.62

Units and Participating Areas

Resource Evaluation, Commercial and Units staff developed decision documents for the following Units:

- Unit Formation Applications: Staff worked with lease holders on three (3) applications for unit formation during 2014. The Cook Inlet Otter Unit was approved with modifications after appeal to the Commissioner. The proposed Cook Inlet Angel Unit was denied after remand to the Director. The proposed Telemark Unit after work with the division staff was withdrawn by the operator.
- Unit Expansions and Contractions: Staff worked with unit working interest owners on five (5) unit expansion and contraction requests. Two (2) unit expansions were approved for the Trading Bay Unit in Cook Inlet and the Oooguruk Unit on the North Slope. Three (3) contractions were approved for the North Slope Badami, Dewline, and Prudhoe Bay Units.
- Participating Area (PA) Expansions and Contractions: Staff worked on two (2) decisions with expansion of the Oooguruk Unit Nuiqsut PA and contraction of the Colville River Unit Qannik PA.
- PA Redeterminations: Staff worked on redeterminations of the PA in the Oooguruk Unit Nuiqsut PA and the Colville River Unit Qannik PA.

Asset Transfers

Leasing, Commercial and Units staff researched and developed decision documents for the following Lease assignments and asset transfers:

- Pioneer – Caelus Asset Transfer: Pioneer Natural Resources divested its interest in the North Slope Oooguruk Unit and the Nuna prospect to Caelus Energy Alaska, LLC for \$300 million. Division staff resolved the complex questions with the lease assignment and the asset transfer of a producing unit and future resource potential including evaluating royalty modification proposals for the Oooguruk Unit and the Nuna prospect.
- Brooks Range-Thyssen Asset Transfer: Thyssen Petroleum North Slope Development stepped forward to acquire 90% in Alaska Venture Capital Group

& Ramshorn Investment Inc. Alaskan oil and gas business and complete the ownership of Brooks Range Petroleum Corporation to further development of the Mustang project in the North Slope Southern Miluvealch Unit. Work is progressing forward on the development of the Mustang Operations Center and drilling wells in 2015 with plans for production in 2016.

- CIE-Armstrong: The asset transfer of the North Fork Unit to Cook Inlet Energy, LLC (CIE) in February 2014 increased CIE's production and reserves in Cook Inlet. This transfer continues the expansion in Cook Inlet, with the drilling of the Sword 1 and WMRU08 wells, the rework of the RU-7 oil well and Osprey Platform, and the Tesoro agreement on the Trans-Foreland pipeline.
- Miller Energy -Savant Asset Transfer: Miller Energy's purchase of Savant Alaska has established Miller Energy with a 67.5% working interest ownership of the North Slope Badami Unit. The asset transfer is progressing for approval. Plans are to drill two sidetrack wells expanding the Unit's production.
- BP-Hilcorp Asst Transfer: BP transferred interests in four (4) North Slope fields and associated oil and gas pipelines. Hilcorp acquired 100% of BP's interest in Endicott and Northstar oil fields and 50% interest in the Liberty and Milne Point fields. In the transfer, Hilcorp became the operator for Milne Point, Endicott and Northstar fields already in production.

Overall, in 2014, advances in the Division's process for asset transfer and lease assignment, based on the lessons learned in the Pioneer –Caleus transfer enabled efficient asset transfer with BP – Hilcorp North Slope assets and will bring efficiency to future asset transfers as companies invest and divest in Alaska's oil and gas lands and resources.

Plan Approvals and Amendments

Permitting staff reviewed and approved new Lease, Unit and Exploration License Plans of Operation plus numerous amendments and 9 new seismic programs:

- Furie Alaska, LLC: The Plan of Operation for a new offshore production platform in Cook Inlet's Kitchen Lights Unit was reviewed and approved.
- Hilcorp Alaska, LLC: The Plan of Operation for the Bartolowits Pad in the Ninilchik Unit to perform gas development drilling and gas production was reviewed and approved.
- Hilcorp Alaska, LLC: The Lease Plan of Operations for the Happy Valley C Pad was reviewed and approved for pad construction, drilling and gas production.
- Usibelli Coal Mine: Healy Basin Exploration License Plan of Operations at Healy Creek was reviewed and approved to drill a single vertical coalbed methane exploration well.

- Seismic Programs: 9 seismic s surveys were approved for Cook Inlet (1), Interior Alaska (2) and the North Slope (6).

State Oil and Gas Royalties

Commercial and Royalty Accounting staff worked to maximize royalties due to the state from production.

- Royalty Settlement Agreement: A Royalty Settlement Agreement reopener was negotiated with ConocoPhillips Alaska, Inc. consistent with statutory authority and with changes to royalty oil valuation methodology and redetermination of production allocations.
- Royalty In Kind (RIK) Contracts: A one year extension was negotiated with Tesoro Alaska's refinery for production of fuels in Southcentral Alaska. Commercial analysts focused on the impacts of closing the Flint Hills Refinery at North Pole, Alaska and the impacts on Revenue in Kind (RIK) oil sales associated with refineries along the Trans-Alaska Pipeline System TAPS, including financial aspects of tariffs across the oil lines from TAPS to the Petrostar refinery.

Royalty Accounting and Auditing

Royalty Accounting and Royalty Audit staff maintained detailed records of royalties paid and any additional royalties due.

- Royalty Accounting tracked oil and gas revenues received from royalties, rents, bonus bids, and federal and state NPSL leases that accounted for \$2.51 billion into the state's unrestricted general fund. Of this amount, \$2.37 billion was from state royalties.
- Royalty Audits completed_ten audits over the past fiscal year represented claims of \$15.5 million in royalty and net profit share revenue. Audit collections were \$11.1 million in royalty and net profit share revenue, not including interest. Of this, \$1.6 million was from audits issued before FY2014. Four issued audits remain in appeals pending final resolution, and represents claims of \$19.3 million in royalty revenue.

Oil and Gas Lease, Revenue Royalty and Production Trends

The Division of Oil and Gas (DO&G) continues to track trends of revenue sources received by the state. These trends reflect interest in the state lands including moneys received based on leasing, bonuses, rents, net profit sharing leases and royalties due the state from production. The following figures show the trends in different sources of revenue over time and how revenues are dispersed into the state’s unrestricted revenue sources. Detailed data for each figure is available through the Division of Oil and Gas.

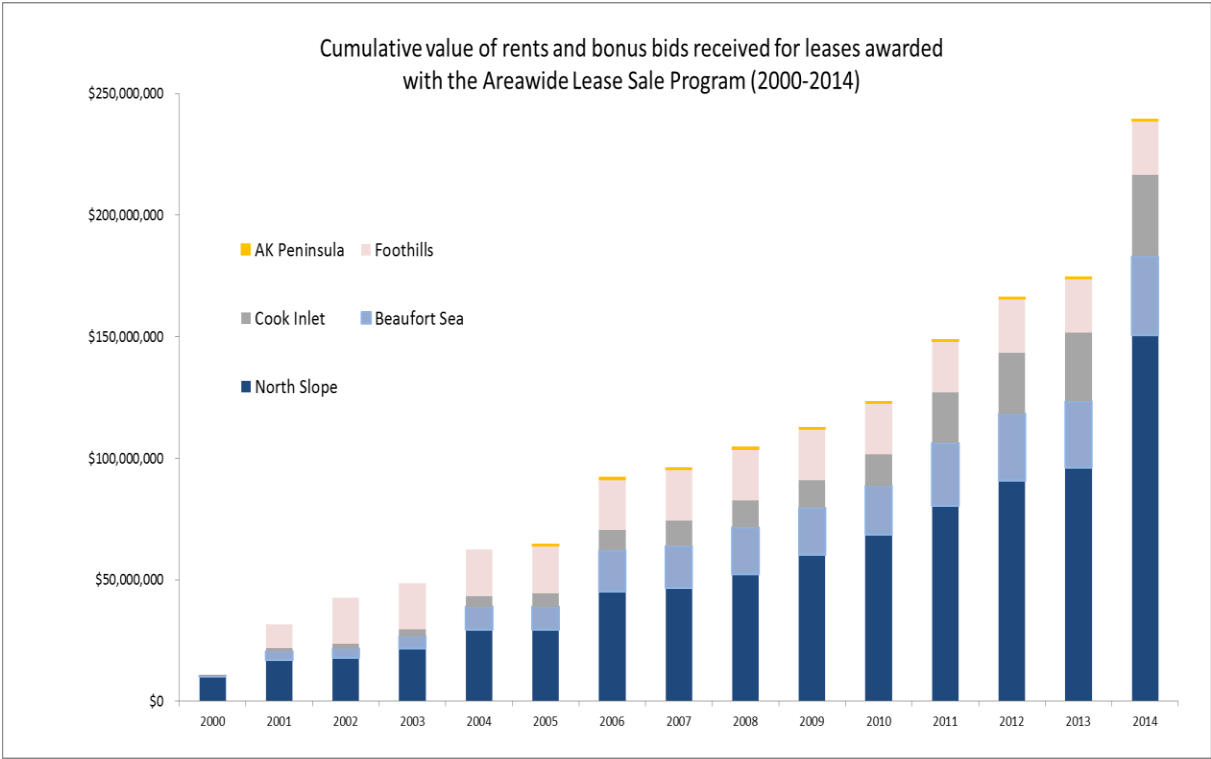
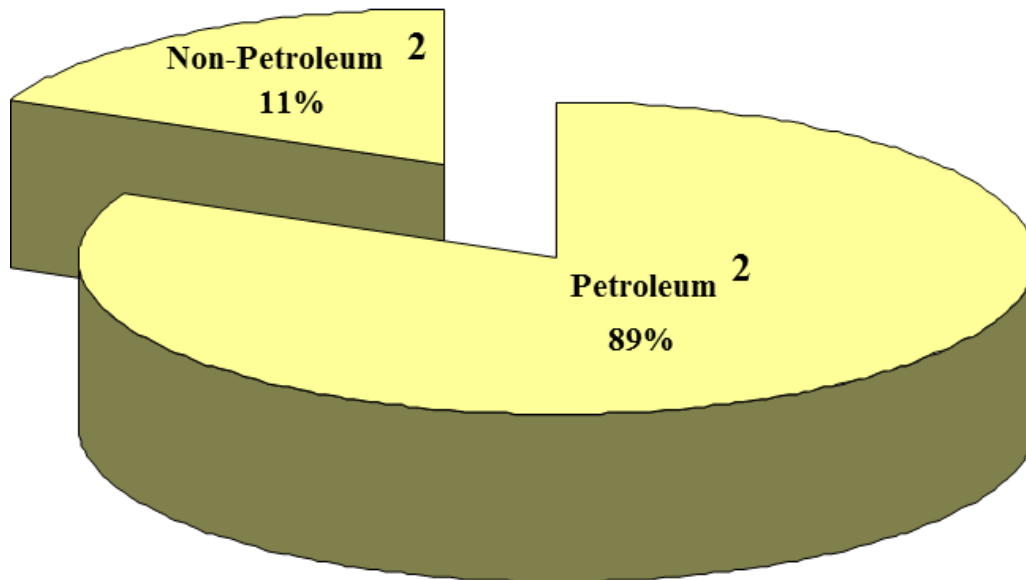


Figure 1. The State of Alaska conducts annual Areawide Lease Sales for the North Slope, Beaufort Sea, Cook Inlet, North Slope Foothills and the Alaska Peninsula. The program was developed to make the lease sale process more efficient and predictable by the oil and gas industry. Over the life of the program, Areawide Lease sales have generated \$239.6 million in lease payments and bonus bids.

As the division in the Department of Natural Resources that is responsible for managing the lands leased with the goal of bringing the oil and gas resources underlying these lands to production, the division’s work is best recognized for the contribution of petroleum royalty and other petroleum related non-tax revenues it brings to the State of Alaska’s unrestricted revenue.

FY 2014 State of Alaska Unrestricted Revenue



Source: DOR Fall 2014 Revenue Sources Book

Figure 2. The State unrestricted revenue in 2014 was 89% petroleum related and 11% non-petroleum related. Petroleum related revenue included production taxes; royalty, bonuses, rents and settlements; and property taxes. The Division of Oil and Gas received and accounted for \$2.5 billion in FY14.

Supporting figures follow that depict the relationship between sources of revenue accounted and received by the division and how they are dispersed into state dedicated funds. Graphs of the trends in royalty revenues and oil and gas production are included to provide a more complete understanding between the production of these resources and the royalties received for any given year in the 2000-2014 periods. It is important to note that the price of oil or gas, less deductible costs, are coupled with production to determine royalty amount at any point in time.¹ While production may decline, increased oil or gas prices may show an increase in royalty value while declining production coupled with decreased oil or gas prices will significantly change the decline curve for royalty value received by the State.

¹ The Royalty amount for each producer is determined by multiplying the producer's gross volume from the unit/field times the composite royalty rate for all leases in the unit/field times the price per barrel of oil (bbl) or thousand cubic feet (mcf) of gas at the time the volume of oil/gas leaves the unit/field.

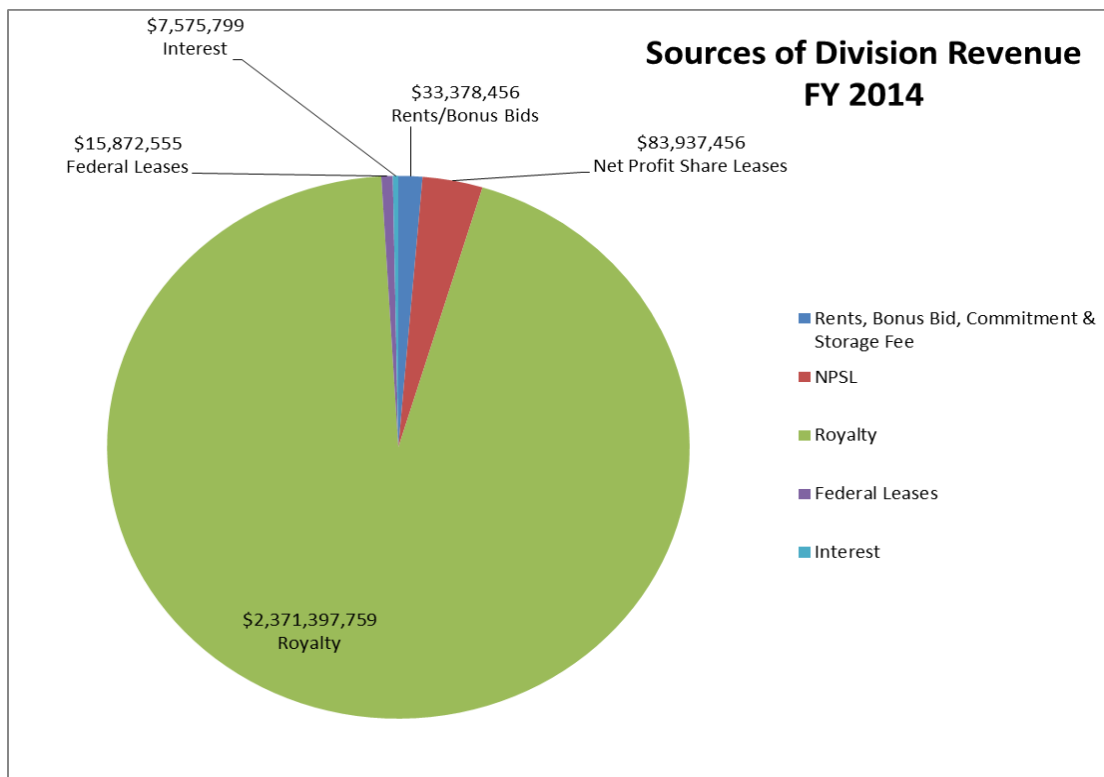


Figure 3. The \$2.5 billion received and accounted for by the Division of Oil and Gas is received from 5 specific sources with Royalty accounting for 94.4% of total revenues.

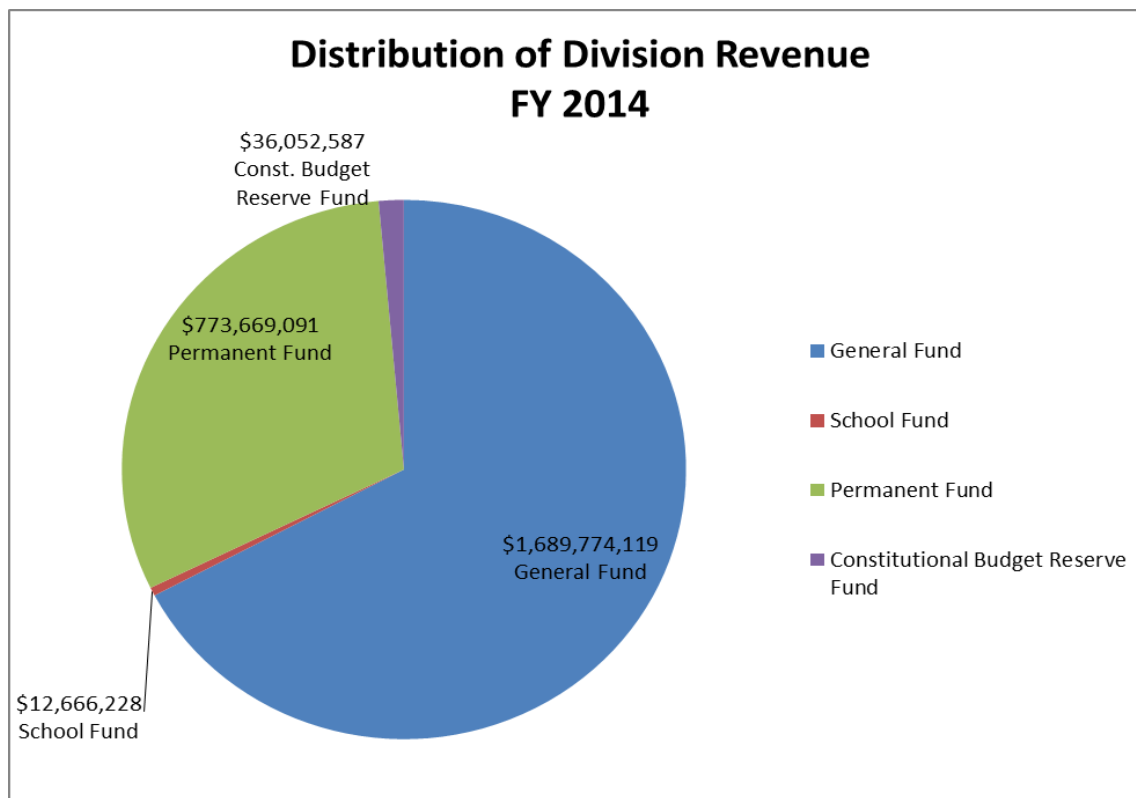


Figure 4. Of the \$2.5 billion received and accounted for by the Division of Oil and Gas, the revenues were distributed to the 4 designated funds as shown.

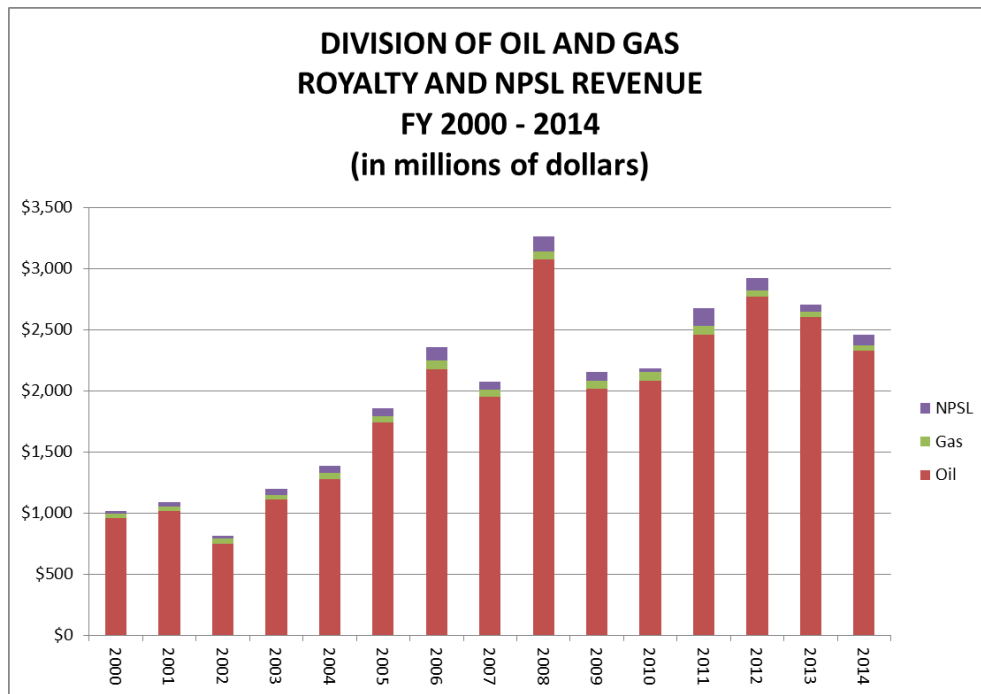


Figure 5. The Division annually accounts for the royalty and net profit share lease revenue for oil and gas produced on state lands.

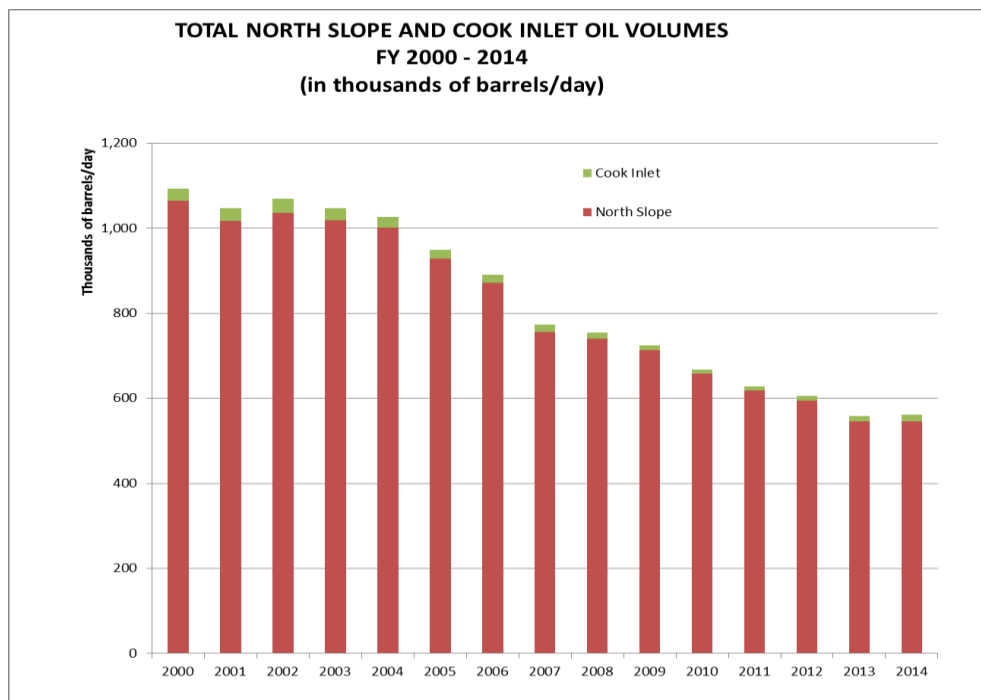


Figure 6. The total production from the North Slope and Cook Inlet from 2000-2014 shows an overall decline for the period. However, the decline slowed in 2013-2014 with Cook Inlet oil increasing for the period and North Slope oil slowing the trend of decline.

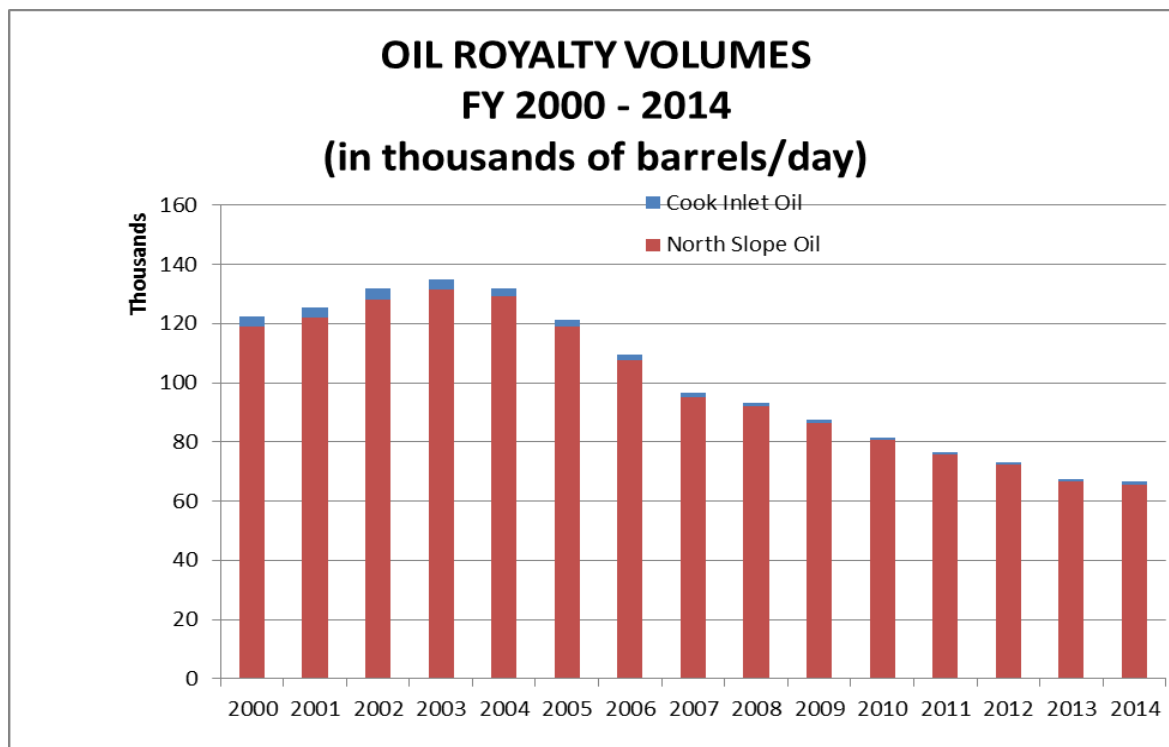


Figure 7. Royalties and revenues are dependent on the production from state lands of the North Slope and Cook Inlet and the price of oil and gas at the time of production. A decline in production may reflect a decrease or increase in revenue as royalty revenue reflects the trend in production accompanied by the trend in cost per barrel oil and cost per mmcf gas.

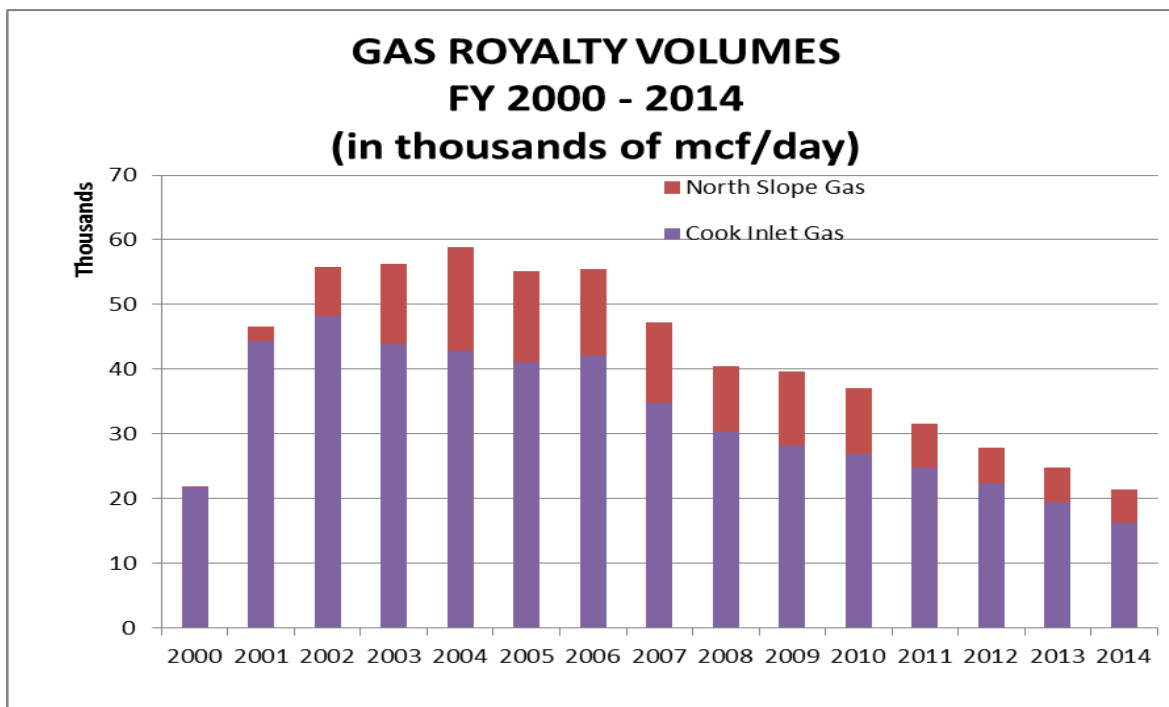


Figure 8. Gas royalty volumes reflect an increase for both North Slope and Cook Inlet, peaking during the 2003-2006 period, with a steady decline into 2014. Market conditions and current activities in Cook Inlet are leading to an increase in gas production for the near future.

Oil and Gas Production:

Resource Trends for North Slope and Cook Inlet production are annually assessed by the division as part of the resource evaluation responsibility. These trends enable an understanding of how the production, measured in daily production of oil and gas varies between years. Cumulative production over time allows for a comparison of the performance of each of the units or fields under production and an understanding of the impacts of declines in production over the life of a unit or field as the resource is produced. The following figures will assist in understanding the importance of legacy and new fields for production and how the development of new fields is important in maintaining production as fields produce and decline in production with age. Specific information on the production of each unit or field is in the Units Details Appendix of this report.

Alaska North Slope Oil and NGL:

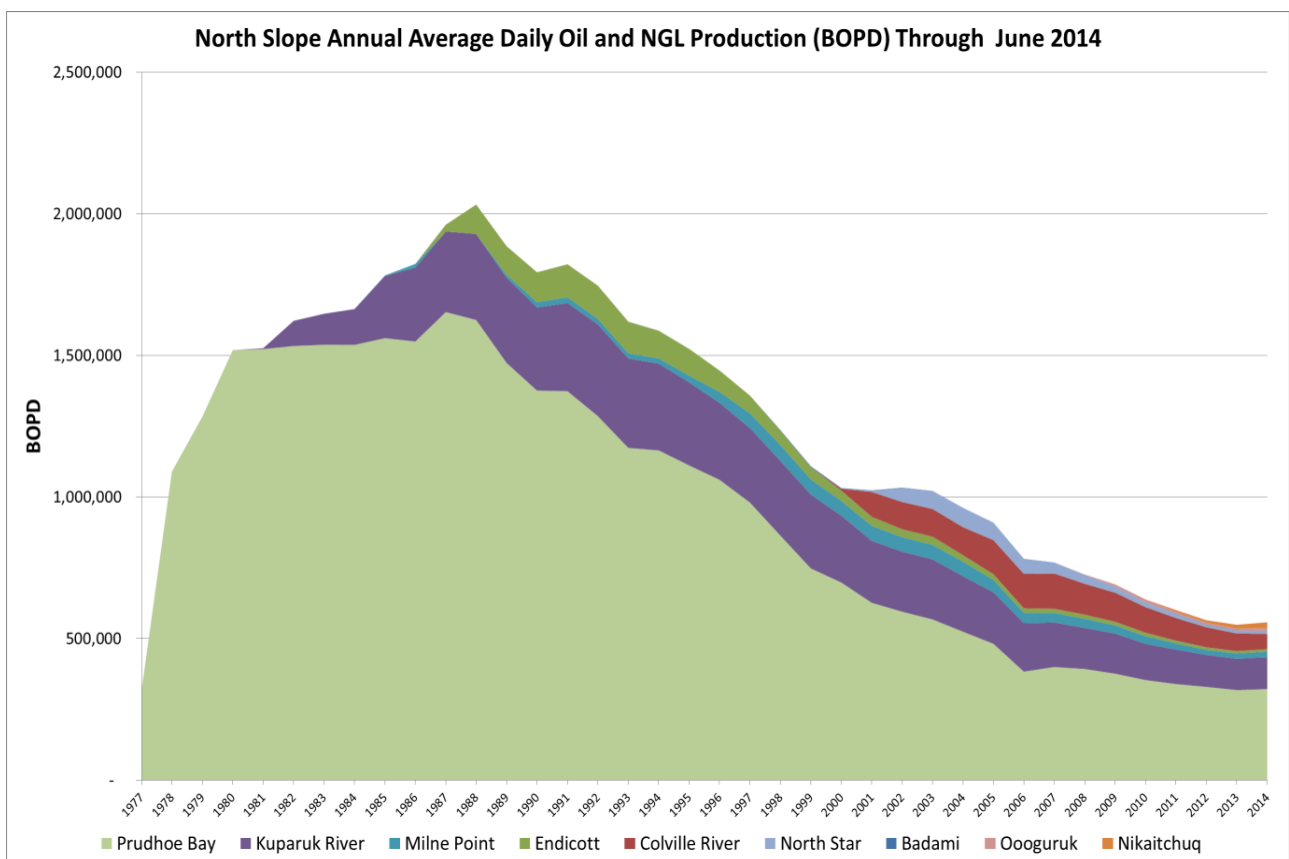


Figure 9. Average annual daily oil and natural gas liquids (NGL) production for the North Slope's nine (9) producing units shows the importance of production from new units in stemming decline over the 37 years of continuous production.

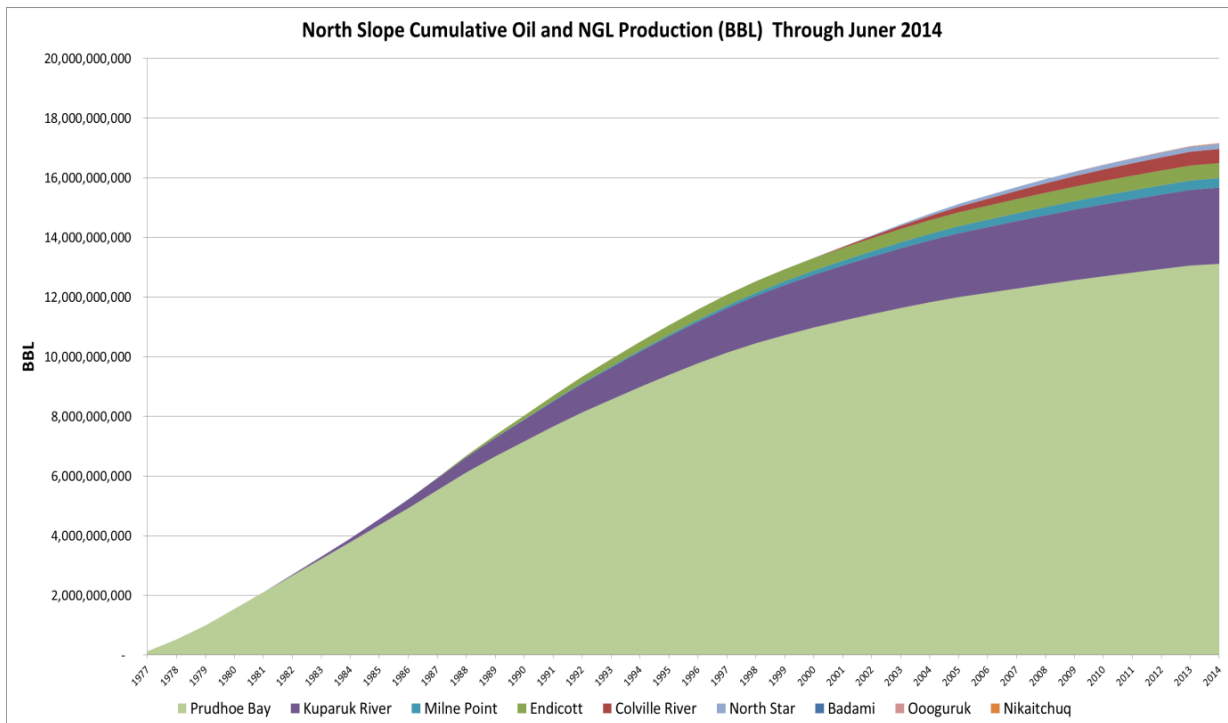


Figure 10. Cumulative North Slope oil and NGL production depicts the 17 Billion BBLS of oil produced to date of which Prudhoe Bay and Kuparuk River Units have produced 15.6 Billion BBLS and the 7 subsequent units have produced approximately 1.5 Billion BBLS.

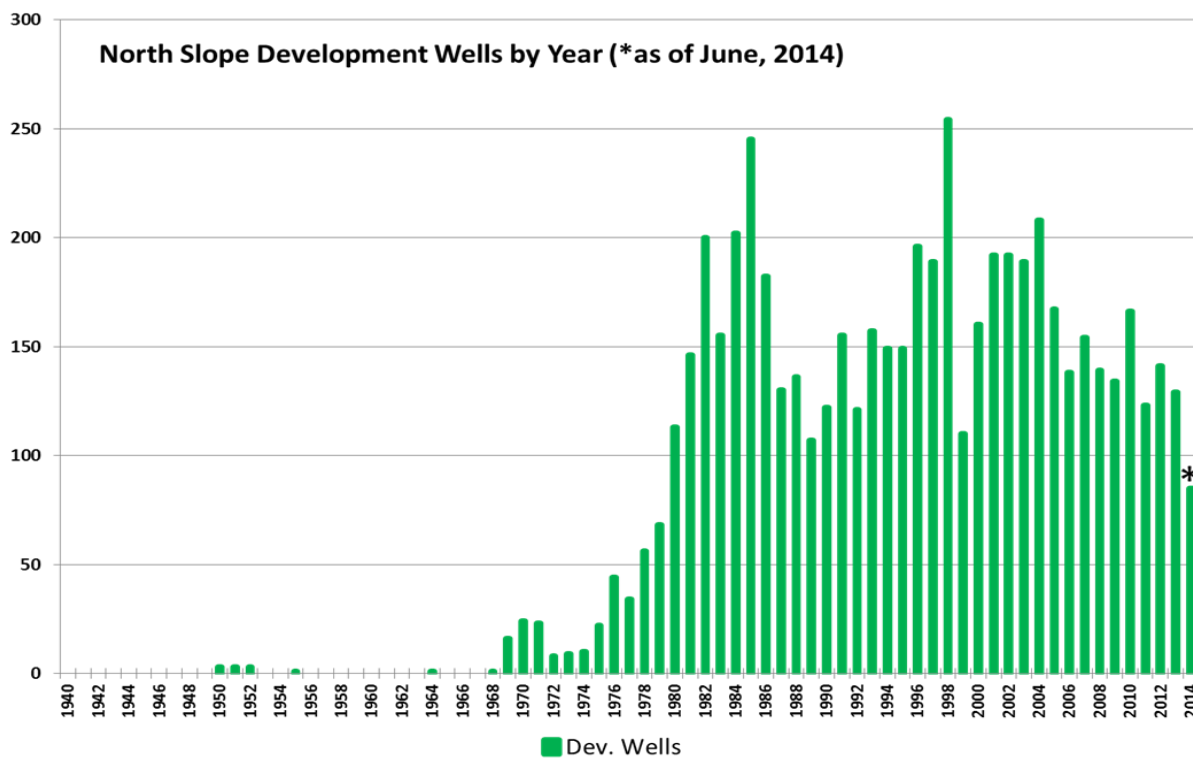


Figure 11. Continued development drilling on the North Slope shows a significant commitment to sustaining production from the North Slope for enhancing recovery from the legacy fields and developing new production as additional Units come online.

Cook Inlet Oil and NGL and Gas:

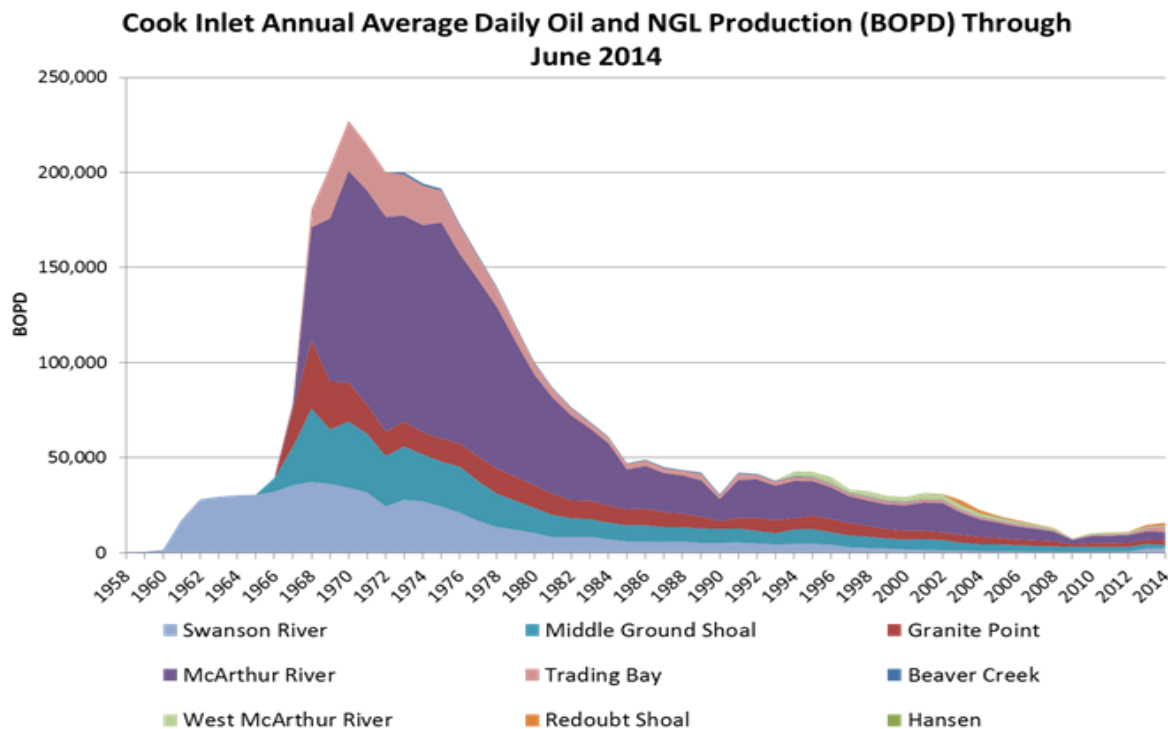


Figure 12. Cook Inlet after many years of declining oil production is continuing to see resurgence with increased interest in reworking of existing fields and drilling of new wells.

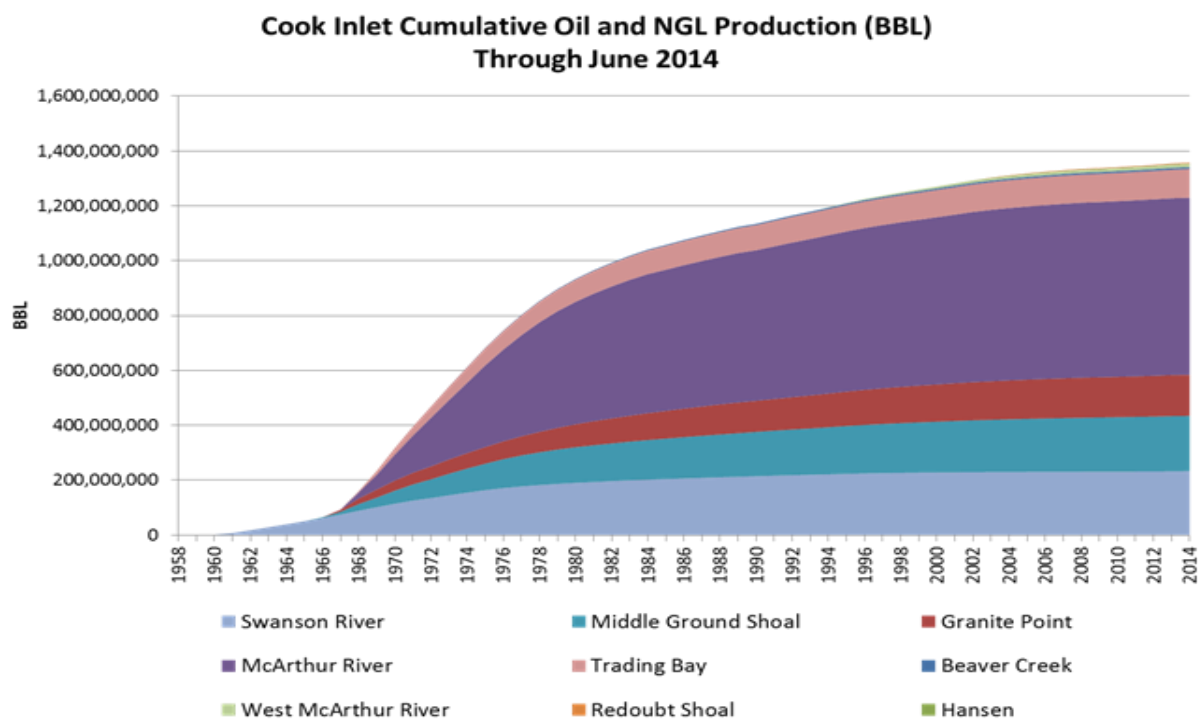


Figure 13. Thanks to production from legacy fields the Cook Inlet Basin has produced over 1.35 Billion BBLS of oil and NGL to date.

Cook Inlet Annual Average Daily Gross Gas Production Through June 2014 (MMCFD)

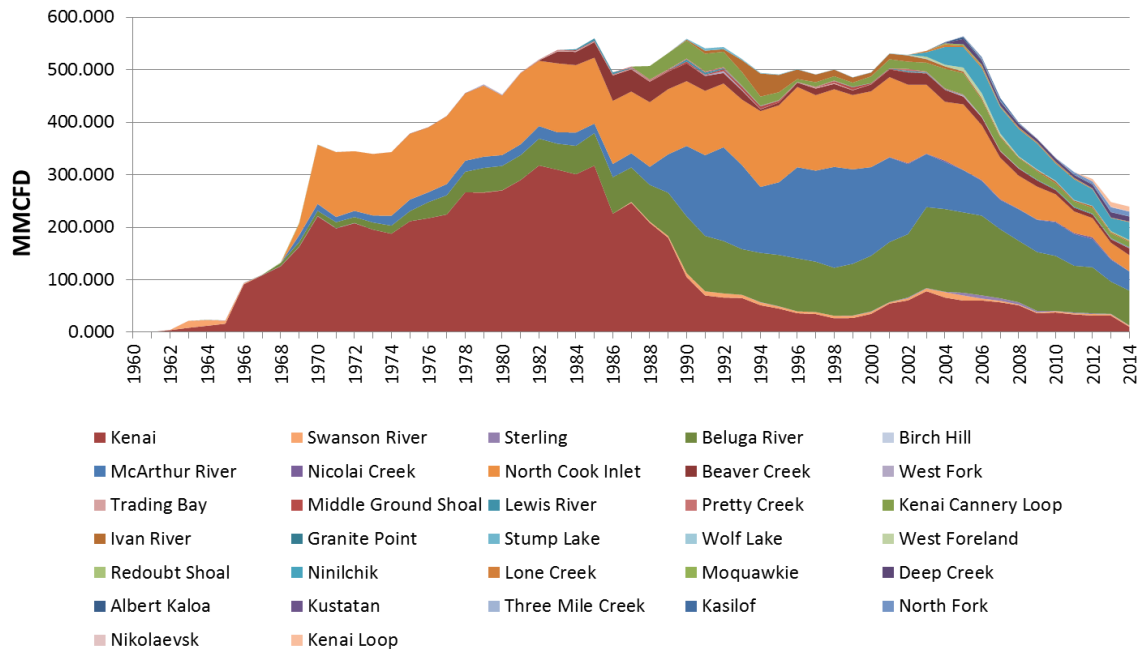


Figure 14. Cook Inlet remains a very active area for gas production with production improving in the last 2 years but limited by local market conditions.

Cook Inlet Cumulative Gross Gas Production Through June 2014 (BCF)

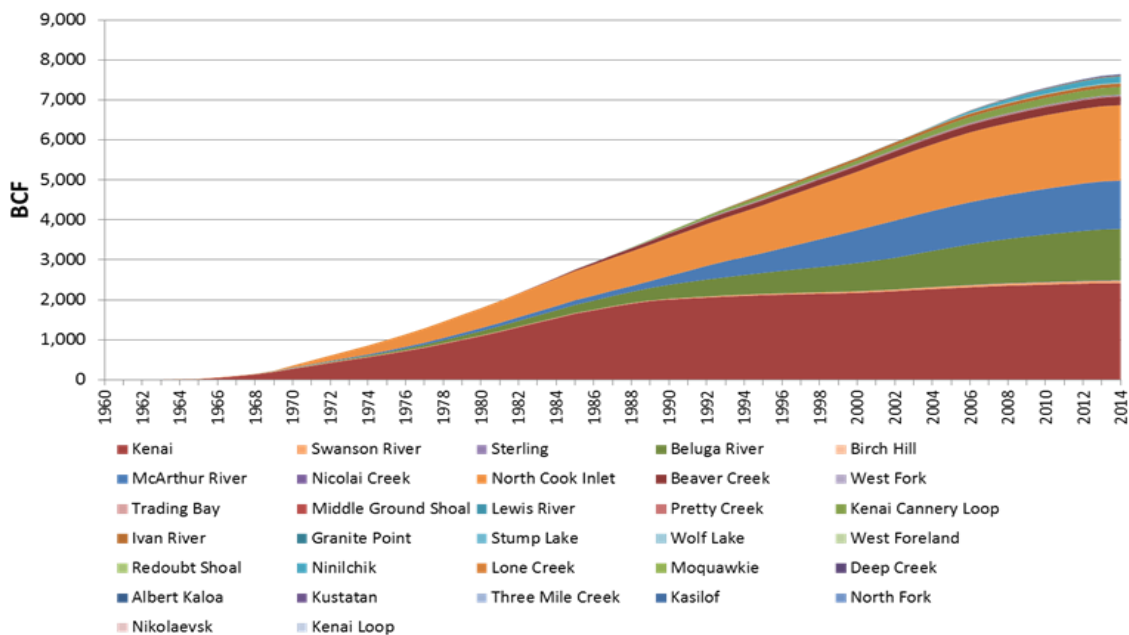


Figure 15. The 32 producing natural gas units have expanded and contracted over time yet continued to meet the local market demand. Cook Inlet has produced over 7.6 Trillion cubic feet of gas to date. Recent expansion with industry investment have created opportunities for restoring historic market demand in LNG.

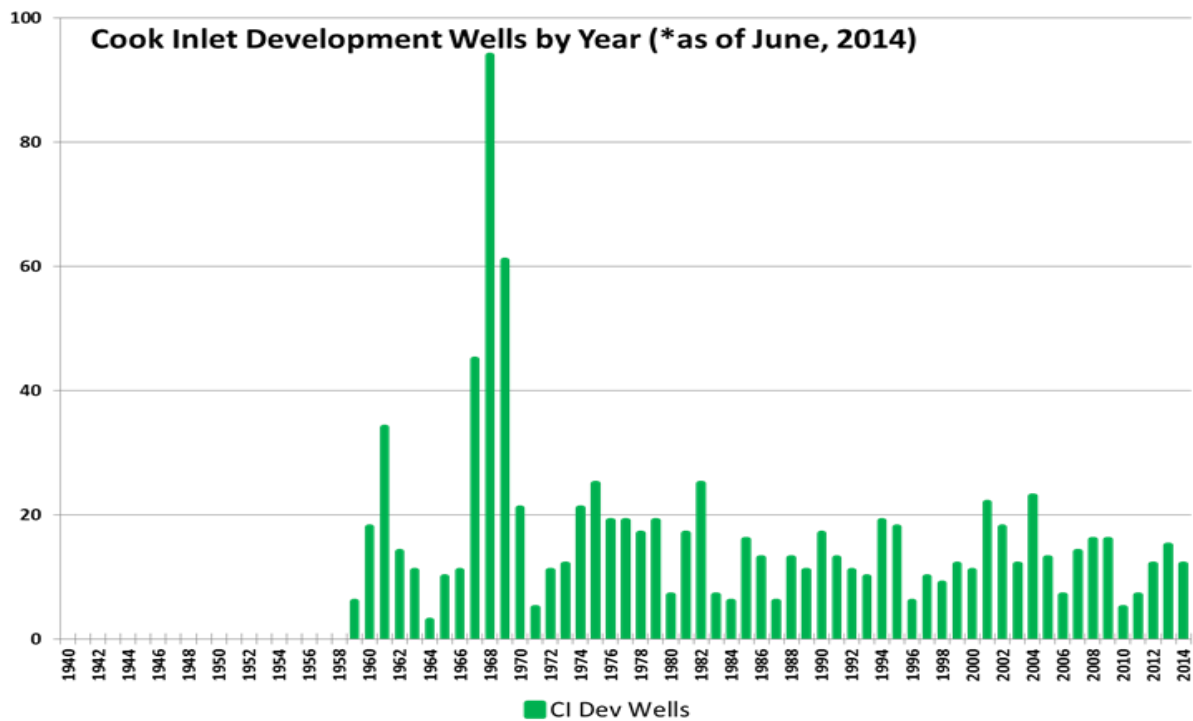


Figure 16. The number of Cook Inlet development wells drilled continues to reflect investment that are leading to increased oil and gas production.

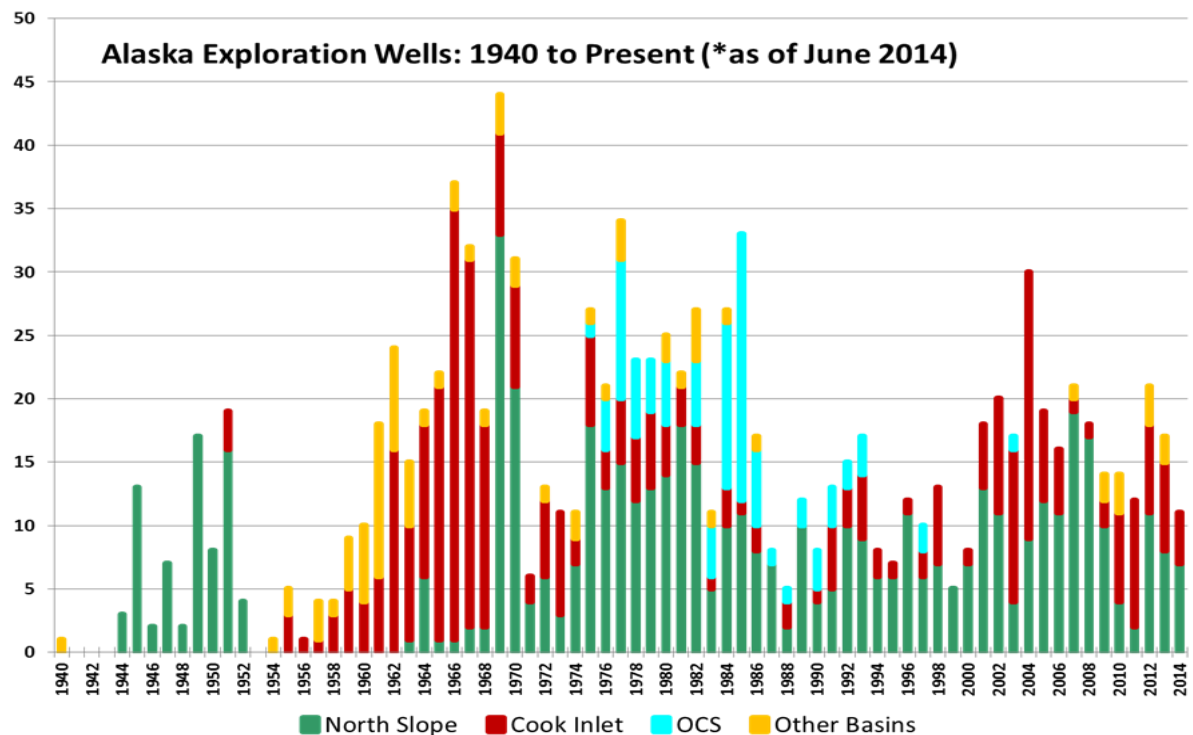


Figure 17. Continued drilling of exploration wells is a good indicator of the future resource potential recognized by industry in Alaska basins. Cook Inlet leases, along with other basins explored under exploration licenses have seen a resurgence of exploration wells over the last decade.

Division of Oil and Gas Maps Leasing, Exploration, Activities and Working Interest Ownership

This section of the Annual report provides the current Division map products distributed publicly, except for those specific to lands available during the annual spring and fall areawide oil and gas lease sales. Current maps of areas available for statewide exploration and under exploration licenses in support of the statewide exploration licensing program provide a perspective of what lands are available and the geologic basins underlying the lands. In support of the leasing and exploration programs, the Division maintains the federally based Alaska Statewide Assessments of Undiscovered, Technically Recoverable Oil and Gas, as included. Once activities begin, the Division prepares regional maps to assist readers in better understanding the current activities and the working interest ownership of state oil and gas lands on the North Slope and Beaufort Sea and the land surrounding and waters of Cook Inlet. The Division maintains a strong GIS and interactive map program along with current and archived map products that can be accessed online at <http://dog.dnr.alaska.gov/>.

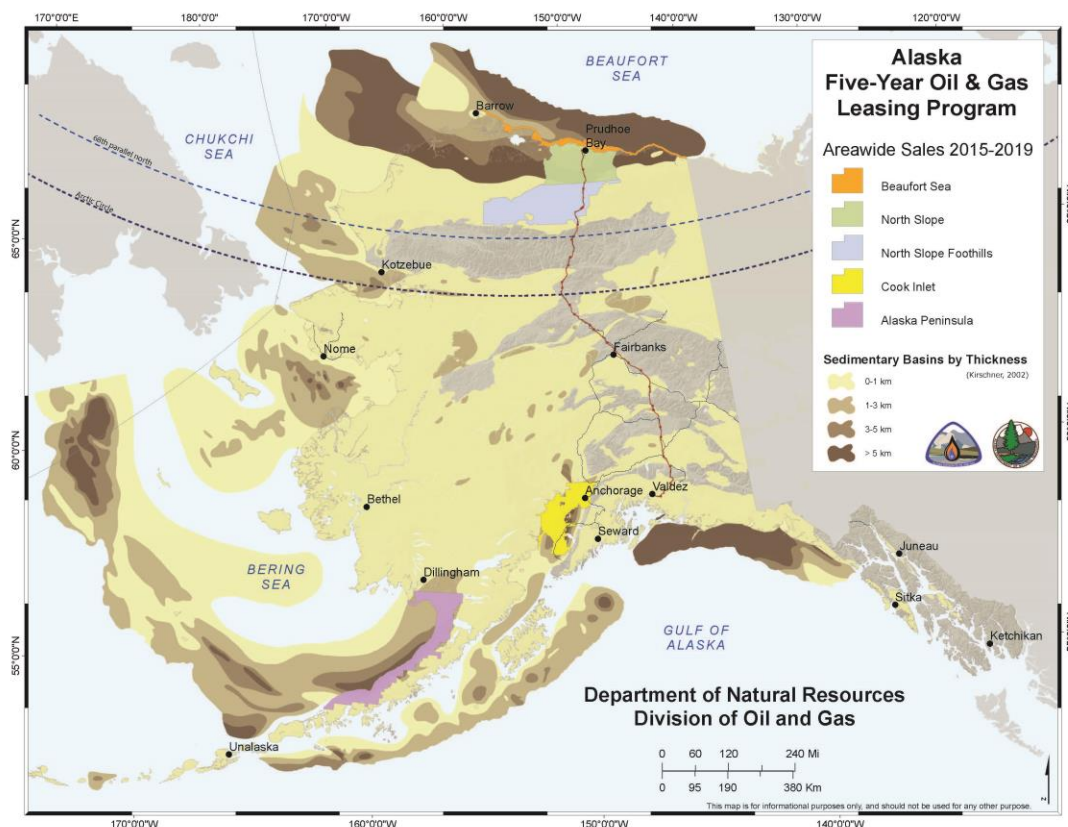


Figure 1. Alaska is known as an oil and gas resource rich province. The Division actively leases lands in 5 areas of known oil and gas potential with the goal of bringing these resources to production.

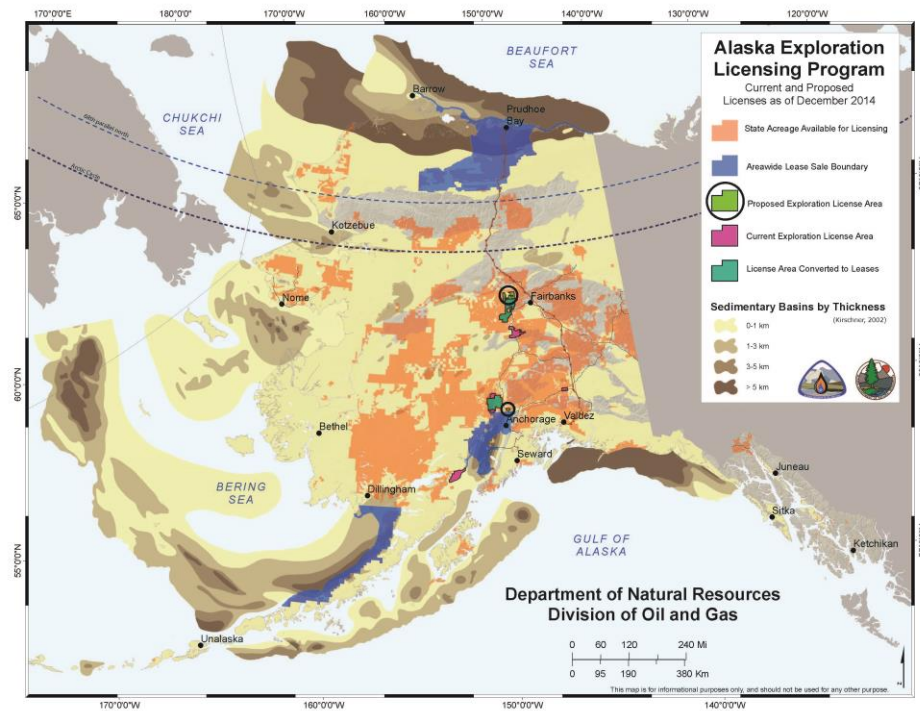


Figure 2. The state owns over 100 million acres of land, much of which is available for oil, gas and geothermal exploration. Currently the state has 5 active exploration licenses or areas where exploration licenses have been converted to leases based on the exploration license work.

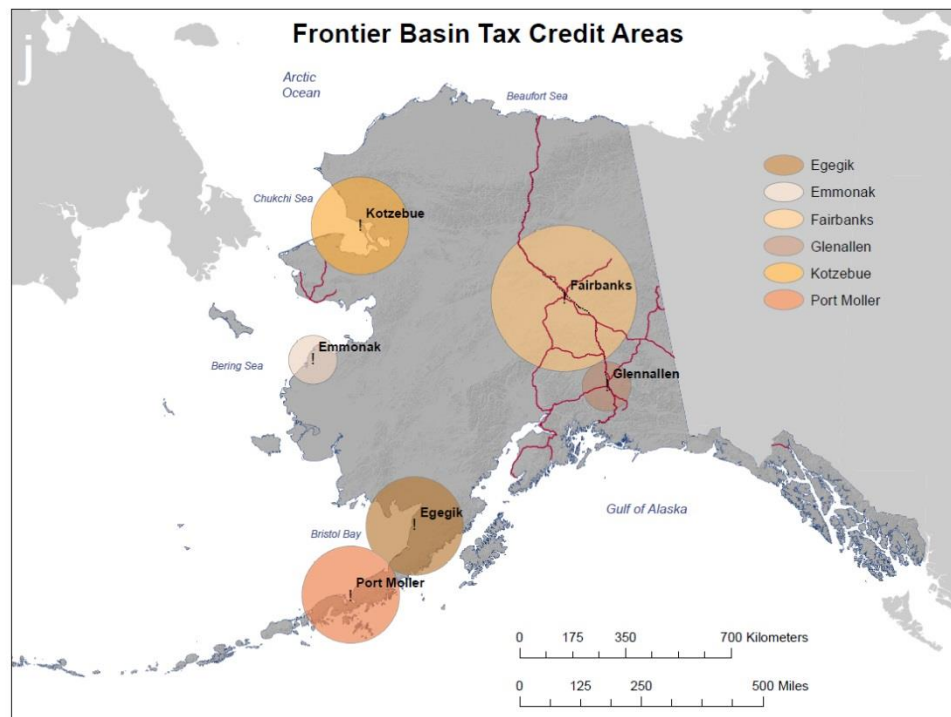


Figure 3. In addition to the exploration license program for state lands, the state supports exploration in state, federal and private lands of interior, southwest and western Alaska with exploration tax credits.

Alaska Statewide Summary of Assessments of Undiscovered, Technically Recoverable Oil and Gas¹

Region and Assessment Segment	Oil, MMSTB (million stock tank barrels)			Gas, BCF (billion cubic feet)			Marginal Probability ⁴	Reference
	Probability Distribution			Probability Distribution				
	F95	Mean	F05	F95	Mean	F05		
North Slope Onshore & State Waters²								
Central North Slope	2,565	3,984	5,854	2,681	4,198	6,092	1.00	USGS, 2005: Open-File Rpt 2005-1182
NGL & Non-associated gas	-- ³	478	-- ³	23,939	33,318	44,873		USGS, 2005: Open-File Rpt 2005-1182
Nat'l Petrol Reserve Alaska	--	896	--	--	--	--	1.00	USGS, 2010: Fact Sheet 2010-3102
NGL & Non-associated gas	-- ³	--	-- ³	--	52,839	--		USGS, 2010: Fact Sheet 2010-3102
ANWR coastal plain ²	5,724	10,360	15,955	--	4,764	--	1.00	USGS, 1999: Open-File Rpt 98-34 (entire assessment area, includes native lands and state waters)
Oil & Associated gas	-- ³	190	-- ³	0	3,841	10,852		USGS, 1999: Open-File Rpt 98-34 (entire assessment area, includes native lands and state waters)
NGL & Non-associated gas	-- ³	--	-- ³	--	--	--		
total - North Slope Onshore	-- ³	15,908	-- ³	-- ³	98,960	-- ³		
Arctic Alaska Outer Continental Shelf (OCS)								
Chukchi Shelf	2,320	15,380	40,080	10,320	76,770	209,530	1.00	BOEM, 2011 National Assessment Factsheet; MMS, 2007 Alaska OCS Assessment
Beaufort Shelf	410	8,220	23,240	650	27,640	72,180	1.00	BOEM, 2011 National Assessment Factsheet; MMS, 2007 Alaska OCS Assessment
Hope Basin	0	150	600	0	3,770	14,980	0.40	BOEM, 2011 National Assessment Factsheet; MMS, 2007 Alaska OCS Assessment
Oil & all gas	--	--	--	--	--	--		
total - Arctic OCS (offshore)	-- ³	23,750	-- ³	-- ³	108,180	-- ³		
TOTAL - Arctic Alaska	-- ³	39,658	-- ³	-- ³	207,140	-- ³		
Interior Alaska (USGS Assessments)								
Yukon Flats Basin ⁵	0	173	592	0	5,463	14,629	0.81	USGS, 2004: Fact Sheet 2004-3121
Oil & all gas	--	--	--	--	--	--		
Central AK -- multiple basins ⁶	--	--	--	--	--	--	--	USGS, 1996: 1995 National Assessment, Digital Data Series DDS-30
Kandik Basin	0	61	312	--	178	--	0.42	USGS, 1996: 1995 National Assessment, Digital Data Series DDS-30
Oil & all gas	--	--	--	--	--	--	0.02	USGS, 1996: 1995 National Assessment, Digital Data Series DDS-30
Copper River Basin ⁷	--	--	--	--	--	--		
Oil & all gas	-- ³	234	-- ³	-- ³	5,641	-- ³		
TOTAL - Interior Alaska	-- ³	234	-- ³	-- ³	5,641	-- ³		
Southern Alaska								
Southern Cook Inlet OCS	60	1,010	2,850	30	1,200	3,480	1.00	BOEM, 2011 National Assessment Factsheet; MMS, 2007 Alaska OCS Assessment
Oil & all gas	108	599	1,359	4,976	19,037	39,737	1.00	USGS, 2011:Fact Sheet 2011-3068; includes unconventional gas plays.
Northern Cook Inlet	0	9	53	--	188	--	0.32	USGS, 1996: 1995 National Assessment, Digital Data Series DDS-30
Alaska Peninsula Onshore	20	750	2,500	400	8,520	23,280	1.00	BOEM, 2011 National Assessment Factsheet; MMS, 2007 Alaska OCS Assessment
Oil & all gas	0	630	2,040	0	4,040	13,870	0.80	BOEM, 2011 National Assessment Factsheet; MMS, 2007 Alaska OCS Assessment
North Aleutian OCS	--	--	--	--	--	--	0.40-0.60	BOEM, 2011 National Assessment Factsheet; MMS, 2007 Alaska OCS Assessment
Other OCS basins ⁸	--	460	--	--	9,410	--		
Oil & all gas	-- ³	3,458	-- ³	-- ³	42,495	-- ³		
TOTAL - Southern Alaska	-- ³	3,458	-- ³	-- ³	42,495	-- ³		
TOTAL STATEWIDE mean undiscover., tech recov		43,350 MMSTB			255,276 BCF			

Notes:

¹ All numbers are probabilistic estimates of undiscovered, technically recoverable resource. Because these estimates include oil and gas resources in small, non-economic accumulations, these mean volumes are unlikely to ever be produced.

² North Slope figures used here include State waters and Native lands within the assessment areas (e.g., ANWR coastal plain includes inholdings, not just Federal 1002 lands).

³ Because only the means of different distributions can be summed, table contains blanks for P95 and P05 totals (except where source provides figures for aggregated distributions).

⁴ Marginal probability is likelihood (0-1) that assessed play or area is capable of producing at least one technically recoverable accumulation (areas with discoveries automatically assigned 1.0). Area is given highest probability of assessed plays.

⁵ Yukon Flats figures include four plays, but are overwhelmingly dominated by the conventional Tertiary sandstone play.

⁶ 1995 assessment of Central AK lumped multiple basins together (Yukon Flats, Minchumina, Nenana, Holtna, Bethel, Innoko, Galena, & Kotzebue basins), but total estimate was less than the more recent 2004 estimate of Yukon Flats Basin alone, so the 1995 results are not tabulated here.

⁷ Copper River Basin resource not volumetrically assessed. Mesozoic oil & Cenozoic biogenic gas plays given only 2% probability of producing at least one technically recoverable accumulation.

⁸ Other OCS includes Navarin Basin, St. George Basin, Norton Basin, Shumagin, and Kodiak planning areas.

compiled by Alaska Division of Oil and Gas (pd), updated November, 2011 BOEM updates)

Figure 4. Alaska Statewide Summary of Assessments of Undiscovered, Technically Recoverable Oil and Gas as estimated by the U.S. Department of Interior, US Geological Survey and the Bureau of Ocean Energy Management.

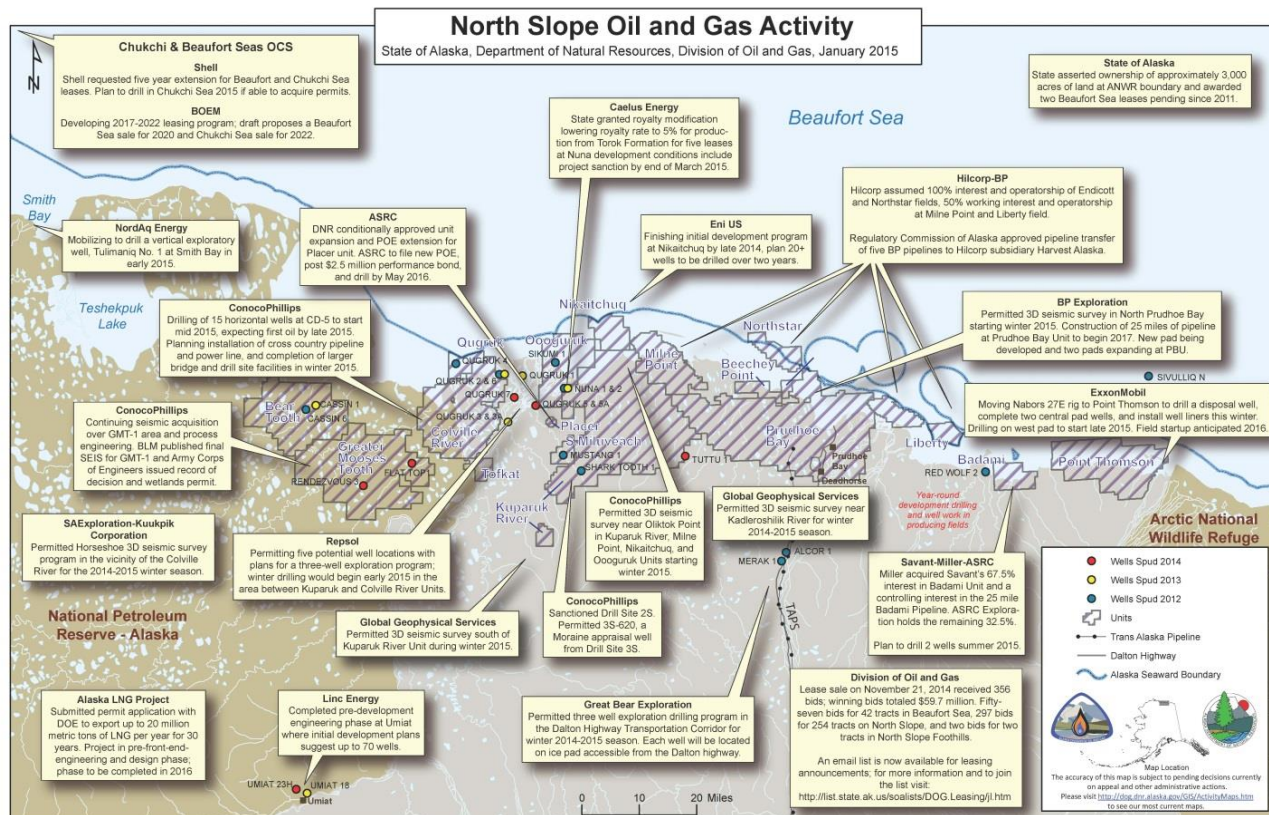


Figure 5. Alaska North Slope Oil and Gas Activities as of January 2015, as determined from contacts with oil and gas companies and multiple public sources.

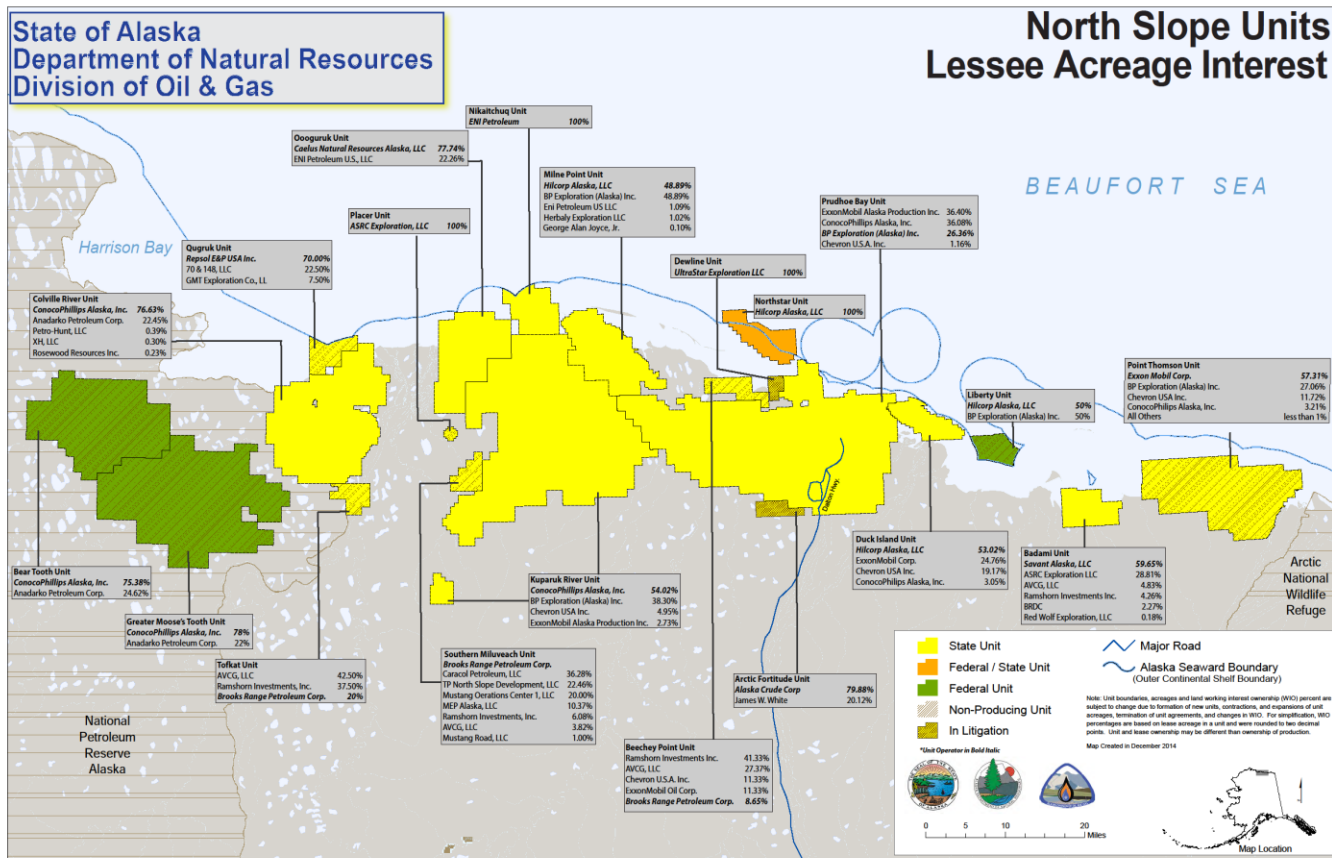


Figure 6. Alaska North Slope Units, Participating Areas and Working Interest Ownership as of January 2015.

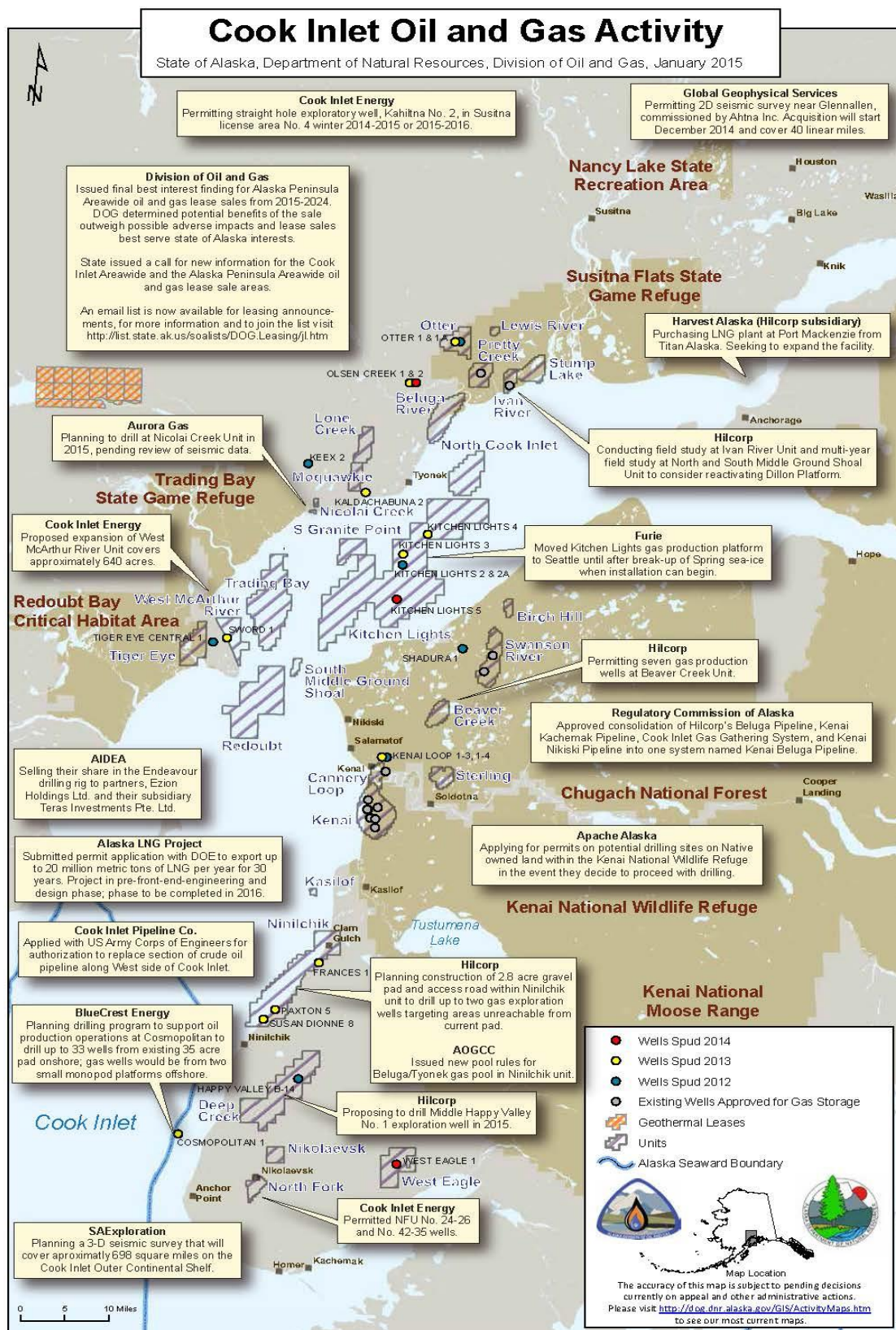


Figure 7. Oil and Gas Activity Map of Cook Inlet and the surrounding lands as of January 2015 as determined by contacts with oil and gas companies and multiple public sources.

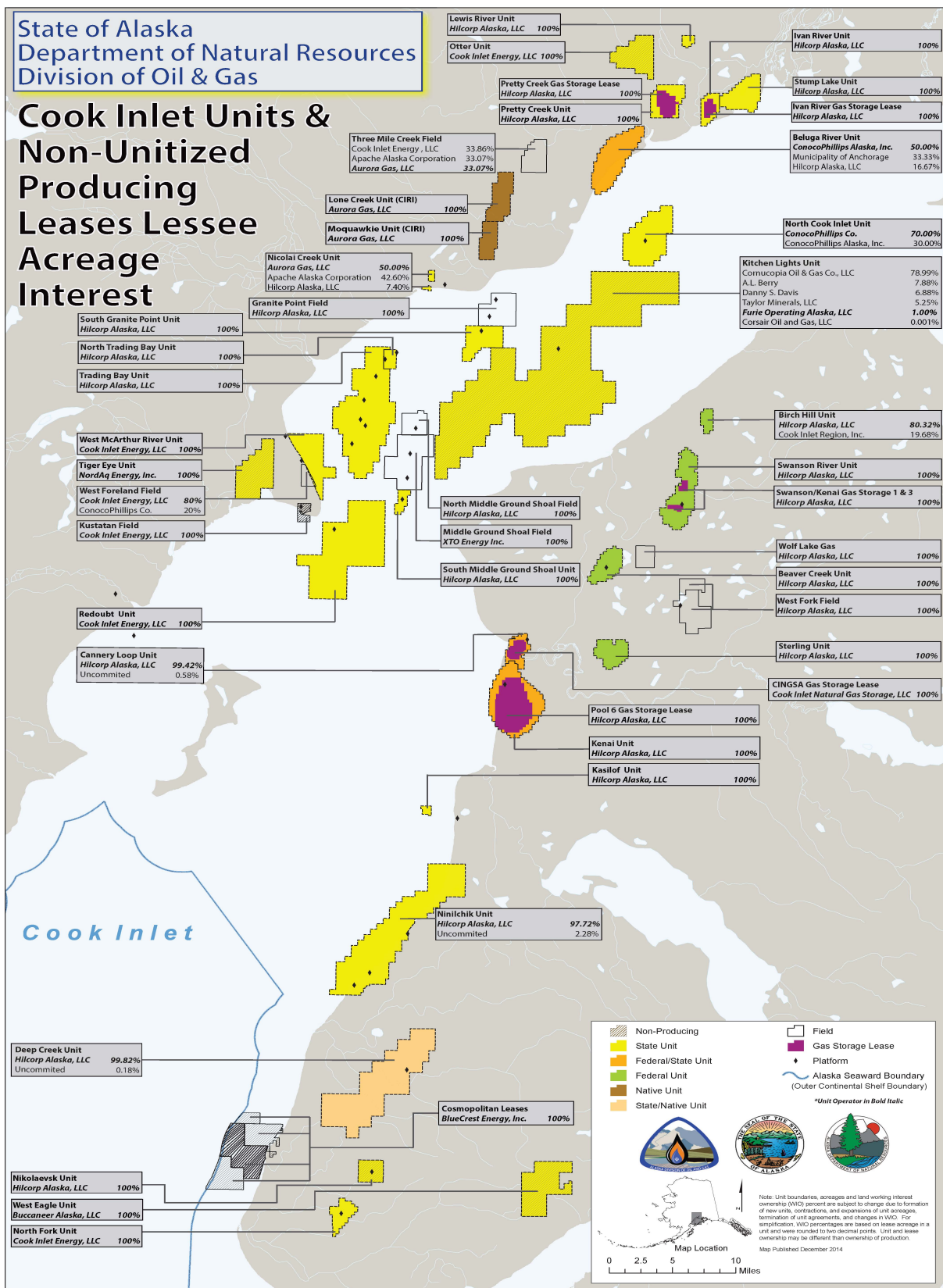


Figure 8. Cook Inlet and surrounding state lands as established in oil and gas Units, Participating Areas and Working Interest Ownership as of January 2015.

Oil and Gas Unit Fact Sheets

Unitization

Unitization is the grouping or pooling of working interest and royalty ownership in oil and gas leases that overlay a common petroleum reservoir. It is a method for developing an oil or gas pool that maximizes ultimate recovery, prevents economic and physical waste, and protects the rights of all parties with an ownership interest in the accumulation. A unit agreement defines a contractual relationship between the state, the royalty owners, and the working interest owners of the oil and gas leases included in the unit area. When leases are unitized, operators can eliminate redundancy and waste by sharing infrastructure and facilities, splitting development costs, and adopting unified reservoir management plans. Without unitization, competitive development can result in overly dense drilling, rapid loss of reservoir pressure, and undesired production of formation fluids. Unitization minimizes impacts to the environment, protects the value of leases, and ensures efficient and equitable recovery of hydrocarbons. Unitization can optimize value from public resources. The unit agreement entrusts the unit operator with duties, responsibilities, and obligations. A unit operator must be qualified to hold a lease and to fulfill the duties and obligations prescribed in the unit agreement. A performance bond is normally required before commencing drilling operations in Alaska.

Unit Formation

The unitization process begins when lessees identify a prospect or pool. The lessees in the proposed unit area select a unit operator. The unit application includes a plan of exploration and other terms for developing the entire unit area safely and responsibly (11 AAC 83.341). All lessees who hold an interest in the reservoir must be invited to join the unit. The commissioner of the Alaska Department of Natural Resources then publishes a Decision and Finding approving or disapproving the unit application. Unitization extends a lease beyond its initial primary term. After delineation drilling and testing, the unit operator may propose a participating area within the boundaries of the unit.

Participating Area

At least 90 days before sustained production from a reservoir, the unit operator must apply to form a participating area. The participating area may include only those lands that are reasonably estimated to be underlain with hydrocarbons in quantities sufficient to pay well costs (11 AAC 83.351). The unit operator and state agree on a tract allocation schedule for the participating area that divides

production shares fairly. An oil and gas unit can have one or more participating areas within its boundaries, depending on the geology of the area. Participating areas are described laterally and limited or defined by depth. The boundaries of the participating area should conform as closely as possible to the boundaries of the oil or gas pool.

Unitization Criteria

The director of the Division of Oil and Gas considers the following criteria when evaluating a unit or participating area application. The application should:

- promote conservation of all natural resources, including all or part of an oil or gas pool, field, or like area;
- promote the prevention of economic and physical waste; and
- provide for the protection of all parties of interest, including the state.

In evaluating the above criteria, the director considers:

- the environmental costs and benefits of unitized exploration or development;
- the geological and engineering characteristics of the potential hydrocarbon accumulation or reservoir proposed for unitization;
- prior exploration activities in the proposed unit area;
- the applicant's plans for exploration or development of the unit area;
- the economic costs and benefits to the state; and
- any other relevant factors, including measures to mitigate impacts identified above, the commissioner determines necessary or advisable to protect the public interest.

Plans of Exploration and Development

The unit operator and state must also agree on an initial unit plan of exploration or development 11 AAC 83. In concert with the unit agreement and plans of exploration, development, and operation, a unit operating agreement is drafted describing how expenses and revenues are distributed or paid among the working interest owners in the unit. Unit operators must submit an annual plan of exploration or development for approval (11 AAC 83.341-.343). Often unit areas are explored and developed at the same time. Failure to meet the goals, objectives, and commitments in the plan of exploration or development can result in default and unit termination.

Alaska has more than 50 units in various stages of exploration, development, production, and post-production field life stages.

**Currently active oil and gas units and fields managed by the Division
of Oil and Gas.**

Cook Inlet Units

Beaver Creek
Beluga River
Birch
Cannery Loop
Cosmopolitan
Deep Creek
Granite Point
Ivan
Kasilof
Lewis-River
Lone Creek
Middle Ground Shoal Field
Moquawkie
Nicolai Creek
Nikolaevsk
Ninilchick
North Fork
North Trading Bay
Petty Creek
Redoubt
South Granite
South Middle Ground Shoal
Sterling
Stump Lake
Swanson River
Trading Bay
West Eagle
West Foreland
West McArthur
Wolf Lake Gas

North Slope Units

Badami
Beechey Point
Colville River
Dewline
Duck Island
Kachemach
Kaparuk
Liberty
Milne
Nikaitchuq
Northstar
Oooguruk
Placer
Point Thompson
Prudhoe
Qugruk
Southern Miluveach
Tofkat