Cook Inlet & Alaska Peninsula Areawide Oil & Gas Lease Sales

Spring 2019
Scheduled Oil and Gas Lease Sales

The Spring 2019 sealed bid opening is May 22, 2019 at 9 a.m. at the Atwood Conference Center in Anchorage, Alaska.

Information on lease sale email announcements is available at dog.dnr.alaska.gov/documents/leasing/LeasingAnnouncementSubscription.pdf.
Cook Inlet – Areawide Leases

- Gross Acres – 3.9 M
  - Onshore – 2.2 M acres
  - Offshore – 1.7 M acres

- Leased Acres – Spring 2019
  - 209 State of Alaska Oil and Gas Leases on approximately 461,000 acres
  - Onshore – 319,000 acres
  - Offshore – 141,000 acres

This presentation is available from the Division of Oil and Gas at dog.dnr.alaska.gov.
Cook Inlet – Operators and Owners

- Hilcorp Alaska, LLC
- Bluecrest Energy Inc.
- Cook Inlet Energy, LLC.
- Amaroq Resources, LLC.
- AIX Energy LLC.
- Municipal Light & Power
- Chugach Electrical Assoc.
- Furie Operating Alaska, LLC.
- CINGSA, LLC.
- Aurora Gas, LLC.
- Cornucopia Oil & Gas Co., LLC.

Information on companies holding oil and gas leases in Alaska is available at dog.dnr.alaska.gov/Information/Data.
Cook Inlet – First Commercial Discovery

• First discovery – Jul. 1957 at Swanson River No. 1
• First production – Oct. 1958 at Swanson River Field
• Swanson River Field production – Aug. 2018
  • 235 MMBO
  • 79.5 BCF

February 2019 This presentation is available from the Division of Oil and Gas at dog.dnr.alaska.gov.
Cook Inlet – Largest Producing Fields

<table>
<thead>
<tr>
<th>Field</th>
<th>BCF (Gas)</th>
<th>MBO (Oil)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenai</td>
<td>2,732</td>
<td>14.7</td>
</tr>
<tr>
<td>North Cook Inlet</td>
<td>1,915</td>
<td></td>
</tr>
<tr>
<td>Beluga River</td>
<td>1,364</td>
<td></td>
</tr>
<tr>
<td>McArthur River</td>
<td>1,513</td>
<td>644,711</td>
</tr>
<tr>
<td>Beaver Creek</td>
<td>240</td>
<td>6,499</td>
</tr>
<tr>
<td>Cook Inlet Basin</td>
<td>11,528</td>
<td>1,373</td>
</tr>
</tbody>
</table>

*Cumulative production as of December 2018

From: AOGCC Production Statistics available at aogweb.state.ak.us/DataMiner3/Forms/Production.aspx.
Cook Inlet – A Forearc Basin

- A northeast-trending collisional forearc basin stretching from the Gulf of Alaska into Southcentral Alaska, just east of the Matanuska Valley
- Located in the arc-trench gap between the Alaska-Aleutian Range batholith
- Contains roughly 80,000 cubic miles of sedimentary rocks, mainly derived from Triassic, Jurassic and Cretaceous sediments

Cook Inlet – Tectonics

Cook Inlet – Stratigraphy

**Generalized Stratigraphic Column, Cook Inlet Basin**

<table>
<thead>
<tr>
<th>System</th>
<th>Series</th>
<th>Lithology</th>
<th>Formation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quart.</td>
<td>Holocene</td>
<td>Alluvium</td>
<td>Glacial</td>
</tr>
<tr>
<td>Pliocene</td>
<td>Beluga Pinn. (0-5,000 ft)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miocene</td>
<td>Tyenek Formation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kenai Group</td>
<td>Middle Ground Shale (2,500-5,000 ft)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oligo</td>
<td>Hemlock Pinn.</td>
<td>Forkland Pinn.</td>
<td></td>
</tr>
<tr>
<td>Eocene</td>
<td>forall formations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cretaceous</td>
<td>Jurassic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Triassic</td>
<td>Cretaceous</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mesozoic</td>
<td>Jurassic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Triassic</td>
<td>Cretaceous</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**LEGEND**

- **Conglomerate**
- **Sandstone**
- **Siltstone**
- **Shale**
- **Coal**
- **Volcanics**

**Cook Inlet Tectonic-Stratigraphic Column**

- **Source (Oil)**
- **Producer (Oil)**
- **Thermogenic**
- **Source (Gas)**
- **Producer (Gas)**
- **Biogenic (Coals)**

From: D.P. Shellenbaum et. al. 2010. Top Mesozoic unconformity depth map of the Cook Inlet basin, Alaska. The publication is available at dggs.alaska.gov/publications/.

Geology of Cook Inlet & Alaska Peninsula

2012 Video presentation includes

- Tectonic setting and depositional framework of Southern Alaska
  - Basin overview
  - Petroleum systems and basin analyses
  - Resource potential
- Areawide lease sale facts

Spring 2019 Cook Inlet Data Release

- PENDING Granite Point 3D Seismic
- RELEASED well data from Kenai Loop, Kitchen Lights, Cosmopolitan, North Fork Units
- RELEASED onshore and offshore well data such as Endeavor, West Eagle, Otter
- Data acquired under exploration tax credit projects (AS 43.55.025(f)(5))
- Available through DNR Geologic Materials Center in Anchorage

Cook Inlet – Natural Gas Availability

• 2018 Report
• Quantities of gas recoverable through additional investment and commercial viability of potential supplies
• How long can gas meet existing demand levels and prices necessary to bring about additional production
• Interdisciplinary report with geologic, engineering, and economic perspectives

Cook Inlet – Gas Reserves Study

- 2015 Study
- Historical trends
- Assumptions
  - Decline curve analyses
  - Material balance
  - Oil pools
- Corresponding presentation available at

Cook Inlet – Undiscovered Resources

- 2011 US Geological Survey study
- Geologic setting
- Context
  - Near-term gas supplies in South-Central Alaska
  - Technically recoverable resources
- Collaborative effort of U.S. Geological Survey and Alaska Department of Natural Resources

Cook Inlet – Authorizing Lease Sales

• In-depth descriptions of lease sale area
  • Petroleum potential
  • Habitat, fish, and wildlife
  • Communities

• Best interest finding to offer oil and gas leases on State land

• Issued 2018, good for 10 years

• Review of applicable laws and regulations

• Lease mitigation measures

From: DNR. 2018. Cook Inlet areawide oil and gas lease sale: Written Finding of the Director. The finding is available at dog.dnr.alaska.gov/Documents/Leasing/BIF/Cook_Inlet/2018102_Final_CI_BIF.pdf.
Alaska Peninsula Areawide

- Sale area extends from Nushagak Peninsula south to the vicinity of Cold Bay along the northwesterly side of the Alaska Peninsula
- Gross Acres – 4.0 million
  - Offshore acres – 1.75 million
- All State-owned lands in Areawide are unleased and available for bidding

From: Division of Oil and Gas. 2005. Regional Bouguer Gravity Map: Alaska Peninsula oil and gas field map series. The map is available at dog.dnr.alaska.gov/Information/MapsAndGis.
Alaska Peninsula – Exploration History

- Eleven (11) wells drilled in the Areawide since 1902
  - Another 24 wells drilled in vicinity
- Most recent wells drilled in region
  - 1983 – North Aleutian COST 1 in offshore federal waters
  - 1985 – Amoco BECHAROF 1 on state lands
Alaska Peninsula – Biostratigraphy

• 2005 study underwritten by DOG
• Biostratigraphic study of 11 wells
• Stratigraphy available at dog.dnr.alaska.gov/Information/Studies
Alaska Peninsula – Regional Petroleum Systems

- Technical reports by DNR
  - Finzel et al. 2005
  - Decker et al. 2005
  - Reifenstuhl and Decker 2008


Alaska Peninsula – Authorizing Lease Sales

- In-depth descriptions of lease sale area
  - Petroleum potential
  - Habitat, fish, and wildlife
  - Communities
- Best interest finding to offer oil and gas leases on State land
- Issued 2014, good for 10 years
- Review of applicable laws and regulations
- Description of public process
- Appendix A contains descriptions for formations shown on this page

Alaska Royalty & Investment Incentives

- Royalty Modification
  - AS 38.05.180(j)
- Exploration licensing
  - AS 38.05.131-134
- Lease term extension opportunities
- Cook Inlet Discovery Royalty
  - First well drilled in previously undiscovered oil or gas pool: 5% for 10 years
  - AS 38.05.180(f)(4)

Learn more at [dog.dnr.alaska.gov/Services/Applications](http://dog.dnr.alaska.gov/Services/Applications).
Alaska’s Oil Production Tax & Credits

• Base Tax Rate 35%

• Cook Inlet Permanent Tax Ceiling
  • Average 17.7 cents/thousand cubic feet (mcf)
  • $1 per barrel of oil

• Alaska Peninsula and Exploration License Areas
  • Tax Ceiling: 4% of gross value for first 7 years of production if production begins before 2027
  • Credits for 10% of Qualified Capital Expenditures, 20% of Well Lease Expenditures
  • Exploration tax credits: 30% or 40% for qualifying exploration, expires Jan 1, 2022. Does not apply to seismic

• See Alaska Department of Revenue at tax.alaska.gov for more information
Explore Alaska Oil Gas Conservation Commission

- AOGCC at [doa.alaska.gov/ogc](http://doa.alaska.gov/ogc)
  - Oversees oil and gas drilling, development and production, reservoir depletion and metering operations in Alaska
  - Independent State of Alaska agency
  - Maintains well data
- Searchable and sortable Data Miner 3 at [aogweb.state.ak.us/DataMiner3/Forms/Default.aspx](http://aogweb.state.ak.us/DataMiner3/Forms/Default.aspx)
  - Production data
  - Well data
  - Well histories
- Well histories on fiche at [aogweb.state.ak.us/WebLink/Browse.aspx](http://aogweb.state.ak.us/WebLink/Browse.aspx)
- Public data requests at [doa.alaska.gov/ogc/data/DataReqst.pdf](http://doa.alaska.gov/ogc/data/DataReqst.pdf)
  - Well logs
  - Mud logs
  - Test results
  - Core analyses
- Pool Statistics at [doa.alaska.gov/ogc/poolstatistics/poolStatistics.html](http://doa.alaska.gov/ogc/poolstatistics/poolStatistics.html)
Drilling, Well, and Production Data

- Provided by the Alaska Oil and Gas Conservation Commission
- Data Miner V3 offers
  - Production statistics
  - Injection statistics
  - Pool statistics and descriptions
  - Well records
  - Digital well log files

Information on production and pool statistics are available at doa.alaska.gov/ogc/data.html.

Explore Geologic Materials Center

- GMC at [dggs.alaska.gov](http://dggs.alaska.gov)
  - Central repository for geologic materials collected in Alaska
  - Anchorage location includes viewing space and equipment
  - Online inventory through interactive maps

- Publications and reports

- Physical materials
  - Cores
  - Samples
  - Processed slides

- Digital materials
  - Full seismic data, or purchase pre-stack or post-stack
  - Geophysical well data
  - Online request form

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**GMC Collection Highlights**

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,122</td>
<td>Alaska oil &amp; gas wells</td>
</tr>
<tr>
<td>26,800,000</td>
<td>feet of oil &amp; gas strata drilled</td>
</tr>
<tr>
<td>17,000,000</td>
<td>representative feet of oil &amp; gas core and cuttings</td>
</tr>
<tr>
<td>76,000</td>
<td>linear feet of oil &amp; gas core</td>
</tr>
<tr>
<td>2,200</td>
<td>Alaska mineral boreholes</td>
</tr>
<tr>
<td>767,000</td>
<td>feet of mineral rock drilled</td>
</tr>
<tr>
<td>618,000</td>
<td>representative feet of mineral core and cuttings</td>
</tr>
<tr>
<td>356,000</td>
<td>linear feet of mineral core</td>
</tr>
<tr>
<td>216,000</td>
<td>processed slides and thin sections</td>
</tr>
<tr>
<td>420,000</td>
<td>estimated surface and seismic shot-point samples</td>
</tr>
</tbody>
</table>

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Explore the Division of Oil and Gas

- [dog.dnr.alaska.gov](http://dog.dnr.alaska.gov)
- Why Alaska?
- Newsroom and Information
- Applications and Helpful Links
- Popular Services
  - Maps & spatial data
  - Oil & gas production data
  - Leasing email announcements
    - [dog.dnr.alaska.gov/Documents/Leasing/LeasingAnnouncementSubscription.pdf](http://dog.dnr.alaska.gov/Documents/Leasing/LeasingAnnouncementSubscription.pdf)
Explore Our Neighbors

- Alaska Mental Health Trust Authority at [alaskamentalhealthtrust.org/trust-land-office](http://alaskamentalhealthtrust.org/trust-land-office)

- Cook Inlet Regional Inc. at [www.ciri.com](http://www.ciri.com)

- University of Alaska at [www.ualand.com](http://www.ualand.com)

- Small amount of private land ownership
Explore Alaska Oil & Gas News

- Petroleum News
  - [www.petroleumnews.com](http://www.petroleumnews.com)
  - Search current and archived articles
  - Available online by subscription
  - News bulletin service for Alaska

- Alaska Journal of Commerce
  - [www.alaskajournal.com](http://www.alaskajournal.com)
  - Alaska business climate, including oil & gas

February 2019

This presentation is available from the Division of Oil and Gas at dog.dnr.alaska.gov.
Explore Ownership and Leases

• Alaska has rich sources of online public data
  • Land title
  • Lease status
  • Leasing history
  • Documents recorded by district

• Federal
  • BLM Spatial Data Management System (SDMS) – sdms.ak.blm.gov

• State of Alaska Department of Natural Resources
  • Land Records – dnr.alaska.gov/landrecords
  • Lease Case File Abstracts (LAS) – dnr.alaska.gov/projects/las
  • Alaska Mapper – dnr.alaska.gov/MapAK
  • Recorder’s Office – dnr.alaska.gov/ssd/recoff
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