



Alaska Oil and Gas Conservation Commission (AOGCC)

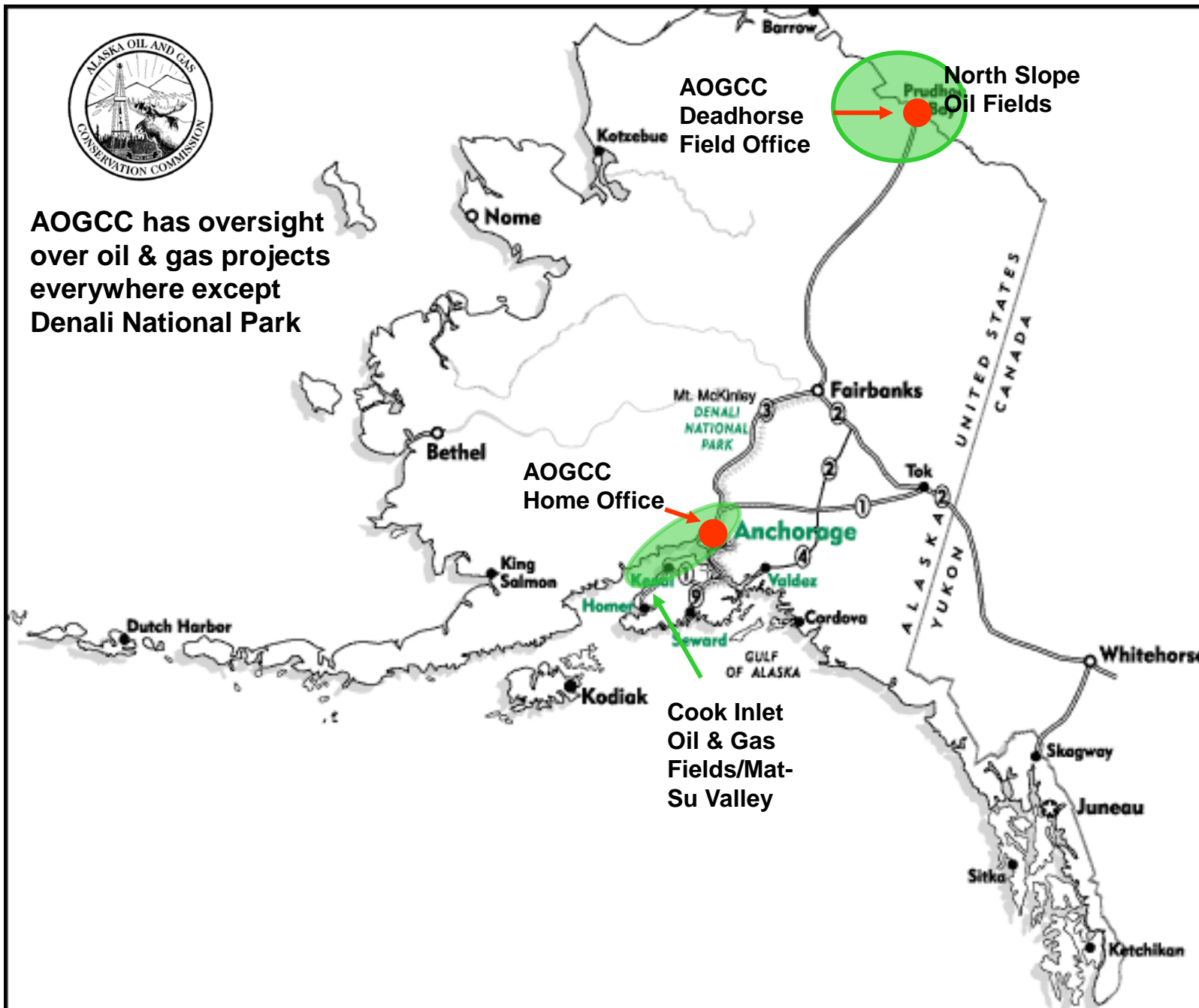
333 W. 7th Ave., Ste. 100
Anchorage, AK 99501



House Resources
February 25, 2019



**AOGCC has oversight
over oil & gas projects
everywhere except
Denali National Park**



Quasi-judicial State regulatory agency - Mainly Sub-surface

To protect the public interest in exploration and development of Alaska's valuable oil, gas, and geothermal resources through the application of conservation practices designed to ensure greater ultimate recovery and the protection of health, safety, fresh ground waters and the rights of all owners to recover their share of the resource.

Exception to sub-surface oversight is the proving of metering so allocation of production is fairly distributed

Funded by Industry receipts \$7,468,600 (FY19).

Small amount from EPA for managing UIC program \$119,000 (FY19)

Extremely Technical – Arbitrary interpretation of law regarding AOGCC decisions difficult.

Statute (title 31), regulations, and science very tight

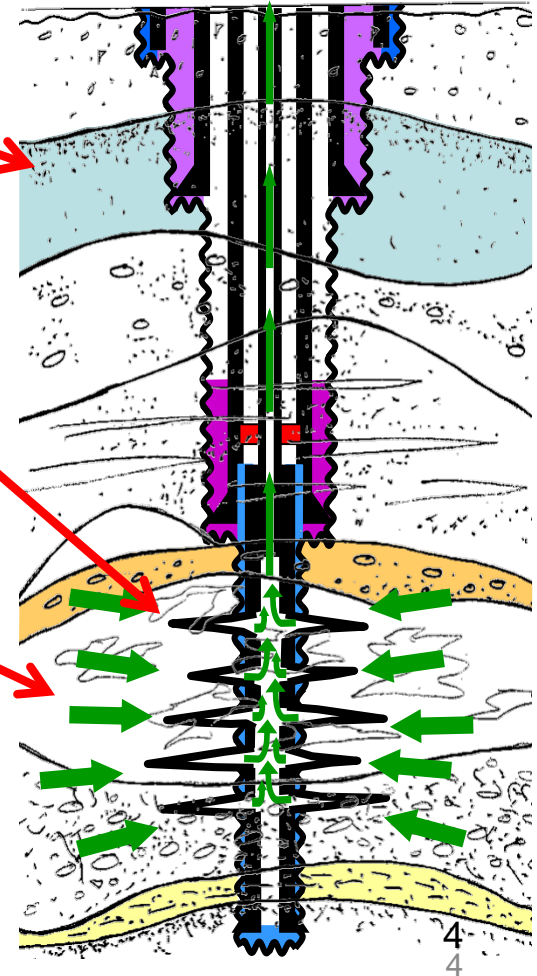
Jurisdiction over private and public lands

Adjudicate disputes between resource owners

32 Total Staff includes positions for 3 commissioners, 2 geologists, 6 engineers, 9 field inspectors, 2 statisticians, 2 IT, 8 administrative

Quasi-judicial State regulatory agency - Mainly Sub-surface

- Protect human safety
- Protect fresh water (down to $\frac{1}{4}$ mile)
 - Manage Class II UIC program
- Prevent physical waste of energy Resources (1/2 to 5.5 miles drilled depth, 3 miles vertical depth deep)
- Promote greater ultimate recovery - (1/2 to 5.5 miles drilled depth, 3 miles vertical depth deep)
- Protect correlative rights
- Intense Inspection and Enforcement



AOGCC PRIMARY SERVICES

Regulate, monitor and inspect all subsurface activities directly related to oil and gas exploration and production including the design and integrity of wells, well control procedures and equipment, reservoir management plans and proposed underground injection programs.

- **Hold Hearings**
- **Issue pool rules and other conservation orders.**
- **Approve and monitor plans for reservoir development and enhanced oil recovery.**
- **Approve permits for initial drilling, re-drill, sidetrack, and remedial well operations. This includes the evaluation and approval of proposed designs for drilling fluids, well control, casing, cementing and well completion operations.**
- **Inspect drill rigs and wells to insure compliance with AOGCC regulations.**
- **Witness safety valve, mechanical integrity, and blowout preventer tests.**
- **Witness meter-proving, calibration, and oil quality tests.**
- **Enforce well spacing rules**
- **Monitor production rates, injection well pattern, gas/oil/water ratios, and pressure maintenance efforts.**
- **Monitor and evaluate gas flaring.**
- **Collect and maintain all oil and gas production records.**
- **Collect and maintain all well history files and well log records.**
- **Administer Alaska's Underground Injection Control (UIC) program and the annular waste disposal program (protection of drinking water).**

AOGCC Permits and Decisions / Orders

2009 – 2018

- Permits to Drill – 1,605
- Drilling Completed – 1,658 wells / branches
- Well Work Activity Reports – 8,401
- Orders and Decisions – 717
 - Aquifer Exemption, Area Injection, Disposal, Enhanced Recovery, Metering, Pool Rules, Production, and Other Topics
 - Major Orders – 59
 - Amendments – 539
 - Well Spacing Exceptions – 119
- Special Development Considerations – many

Major Issues of 2018

- Growing inventory of old and idle wells
 - Ensuring mechanical integrity
 - Plugging wells with no future utility
- Operator bankruptcies --> orphan wells
- Well bonding adequacy
- BLM Legacy (aka Travesty) wells
- New operators

Likely Issues of 2019

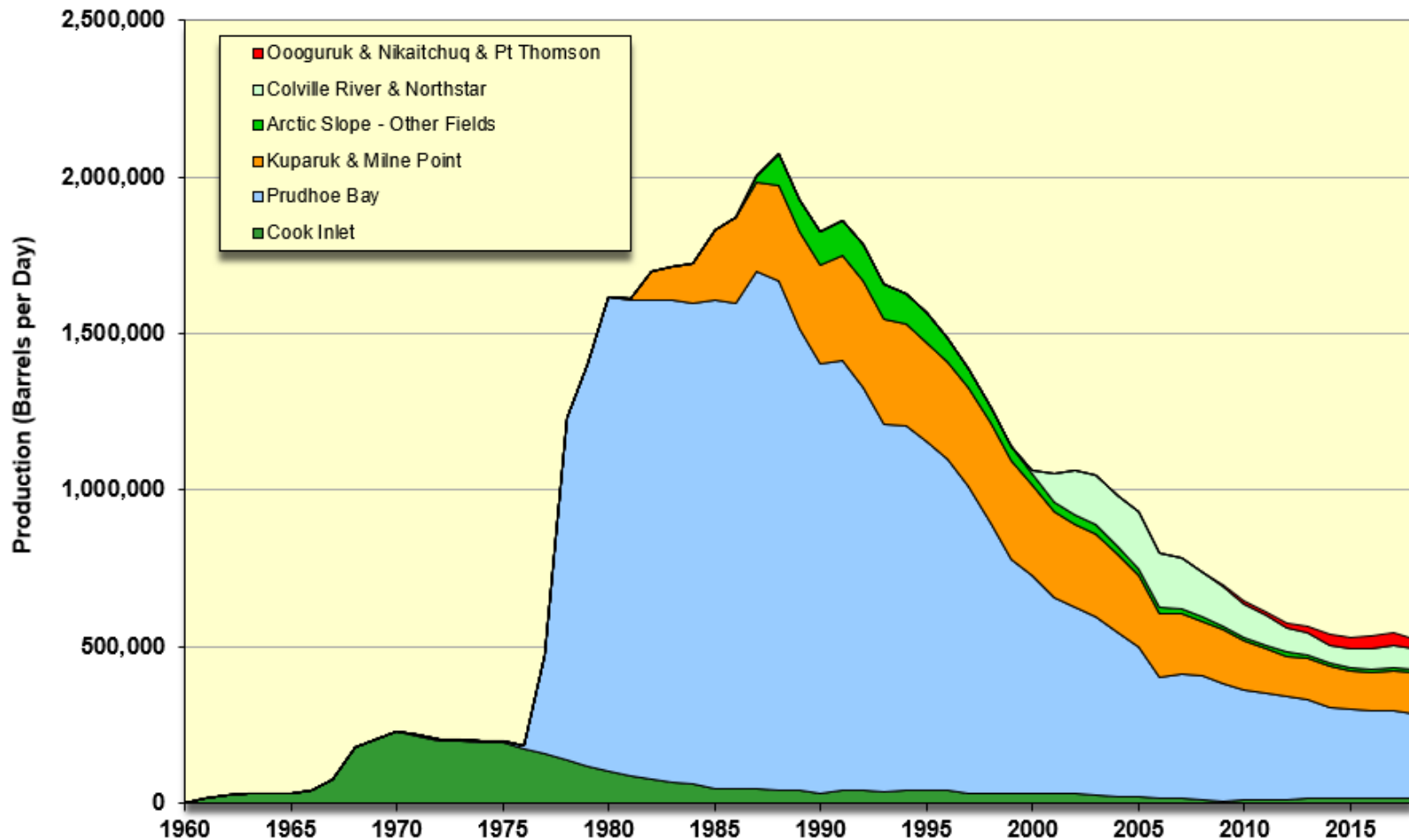
- All the 2018 issues
- Aggressive exploration season
 - 12 Conoco wells
 - 1 ENI extended reach well
 - 1 Great Bear well
 - 4 Oil Search wells
- Conoco development work at Willow and Greater Moose's Tooth
- Unanticipated crises and challenges

Offtake Allowables for North Slope Major Gas Sales

- PBU offtake: 3.6 BCF/D (including fuel usage)
 - CO2 utilization study
 - Oil acceleration study
- Pt Thomson offtake: 1.1 BCF/D (including fuel usage)
 - 5 years of pilot performance demonstrating full scale cycling not viable
- Both offtakes were granted assuming a defined window of opportunity for MGS
- Oil losses will occur. Later is better. Less is better.

Alaska Oil Activity and Production

Alaska's Average Daily Oil & NGL Production Rate 1960 - 2018



AOGCC

January 9, 2019

Decline from 2,200,000 BOPD to 526,000 BOPD. Recent activity may have stabilized production. Latest discoveries may increase production substantially.

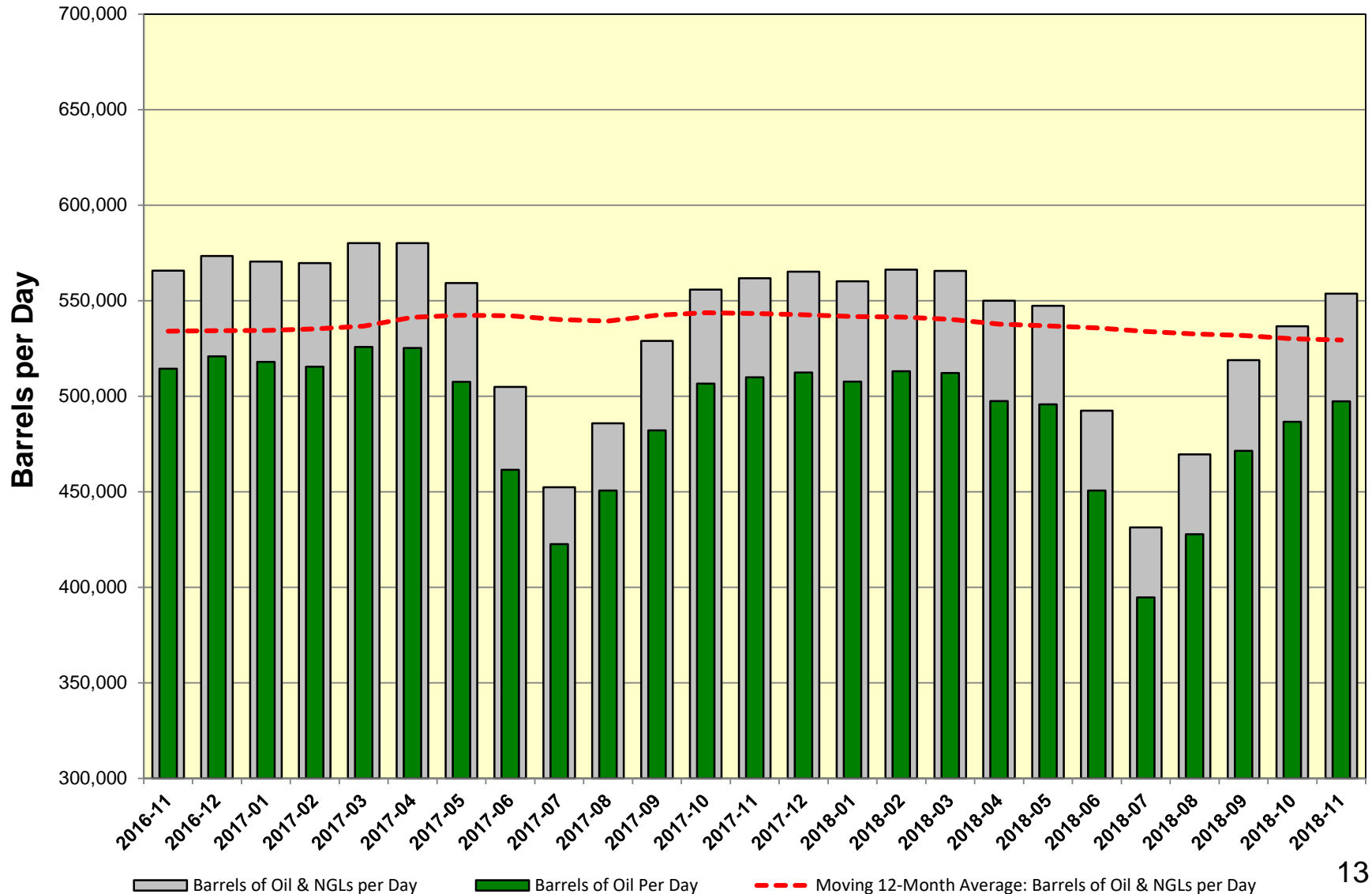
Alaska's Statistics

Permits to Drill since 1901	9,302
Wells with Completion Dates	8,614
Hydraulically Fractured Wells	
Number	2,026
Percent	23.5%
Oil + NGL Production for Nov 2018 (barrels/day)	553,670
Cumulative Production Totals since 1901	
Oil (barrels)	18,630,391,970
NGL (barrels)	<u>766,342,357</u>
Total (barrels)	19,396,734,327
Gas (cubic ft)	111,273,536,534,000*

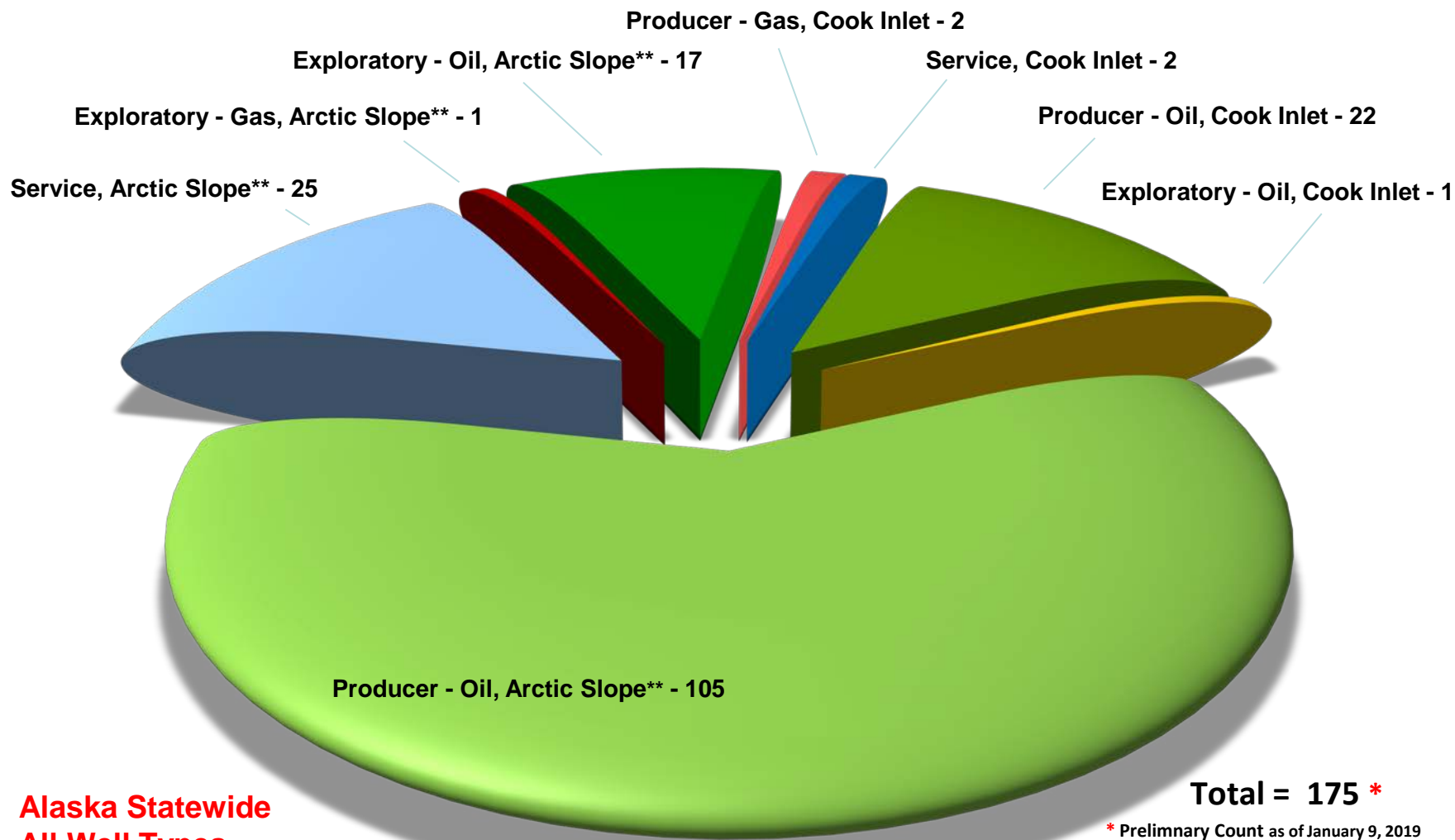
**Includes re-injected and miscible injection gas*

Alaska's Statistics

ALASKA OIL and NGL PRODUCTION November 2016 to November 2018



Alaska 2018: Permits to Drill Approved by AOGCC

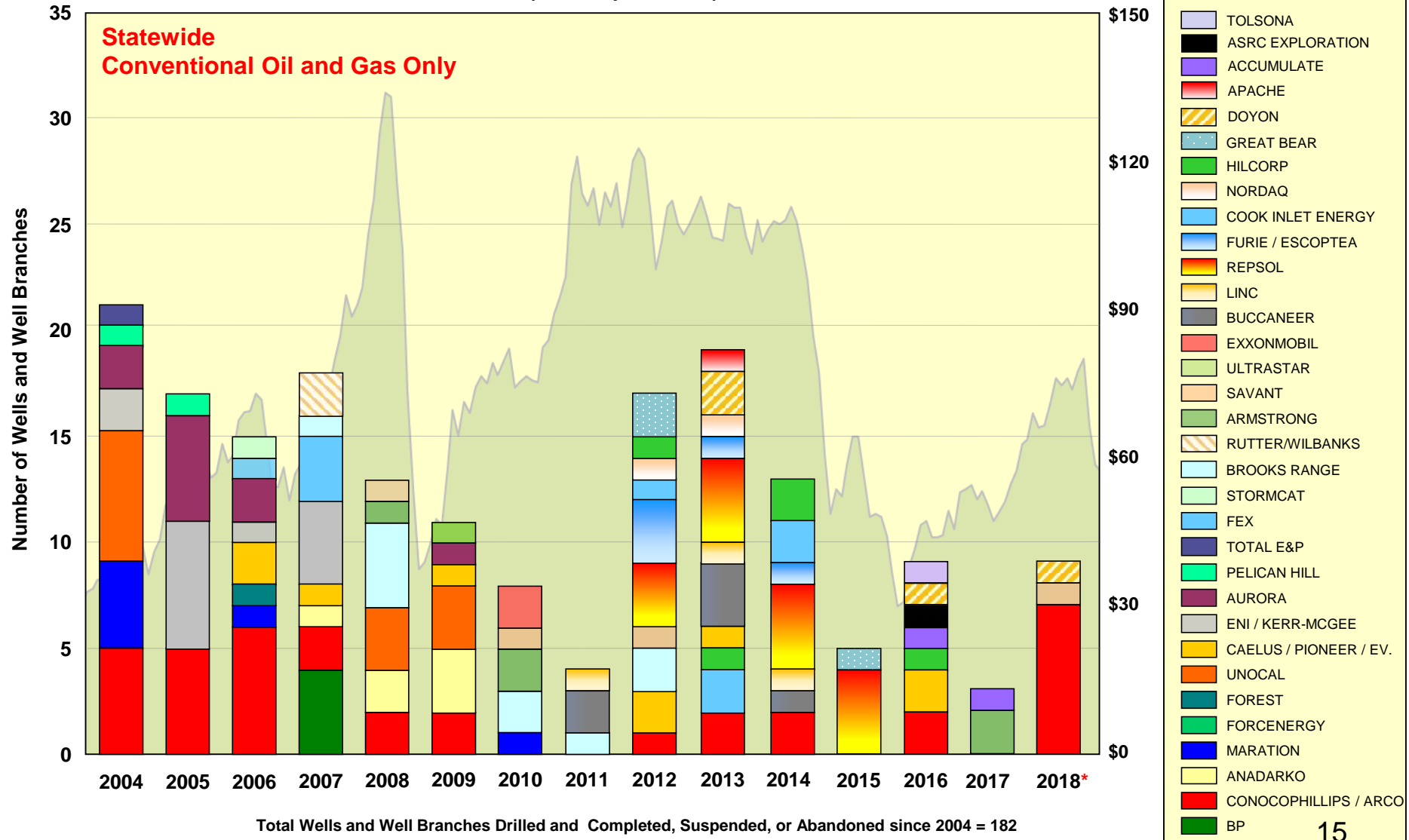


** Arctic Slope totals include wells and wellbores on state and private lands and in state waters within the Beaufort Sea

EXPLORATORY (WILDCAT / DELINEATION) WELLS AND WELL BRANCHES

Statewide, Oil and Gas: Completed, Suspended or Abandoned (2004 – 2018*)

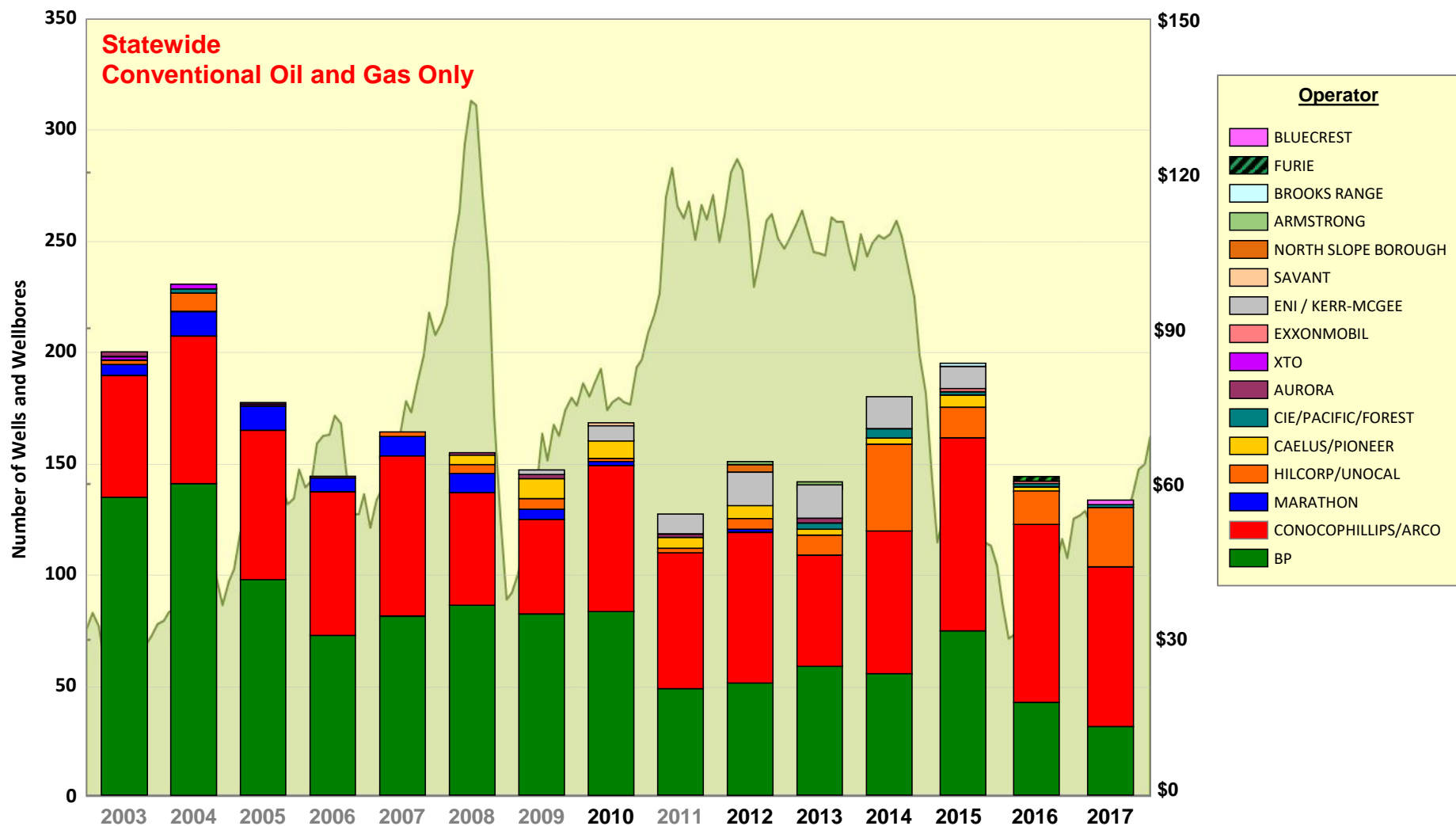
Background: West Coast Monthly Average Spot Price for Alaska North Slope Crude Oil
(Dollars per Barrel)



DEVELOPMENT AND SERVICE WELLS AND WELL BRANCHES

Statewide, Oil and Gas: Completed, Suspended or Abandoned (2003 – 2017)

Background: West Coast Monthly Average Spot Price for Alaska North Slope Crude Oil (Dollars per Barrel)



Total Wells and Well Branches Drilled then Completed, Suspended or Abandoned During 2017 = 133*

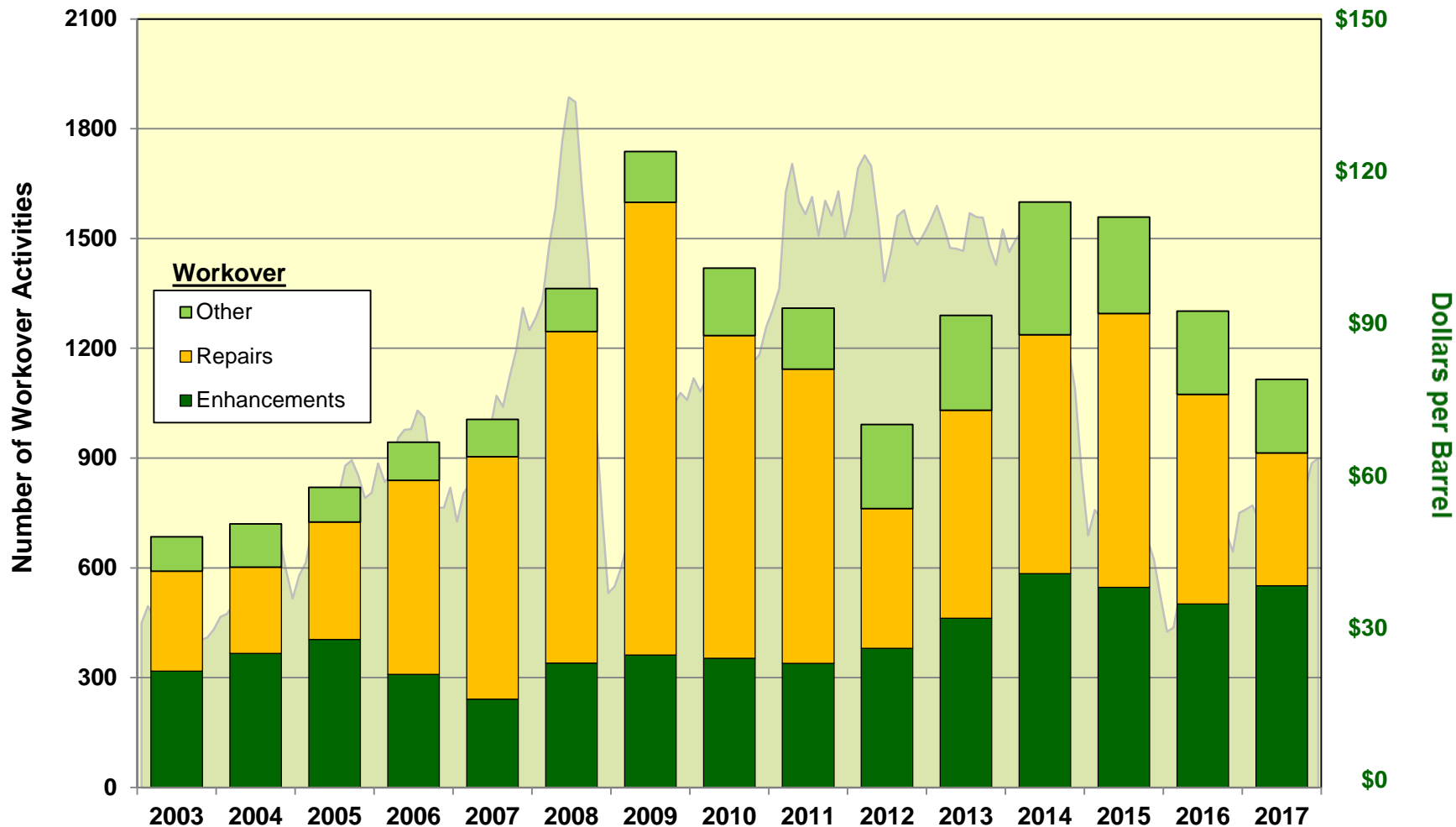
Total Wells and Well Branches Drilled then Completed, Suspended or Abandoned Since 2003 = 2,468*

*Does not include coal- or shale-bed gas, underground coal gasification, gas storage, or geothermal

Workover Activities (2003 – 2017)

Statewide: Conventional Oil and Gas Only

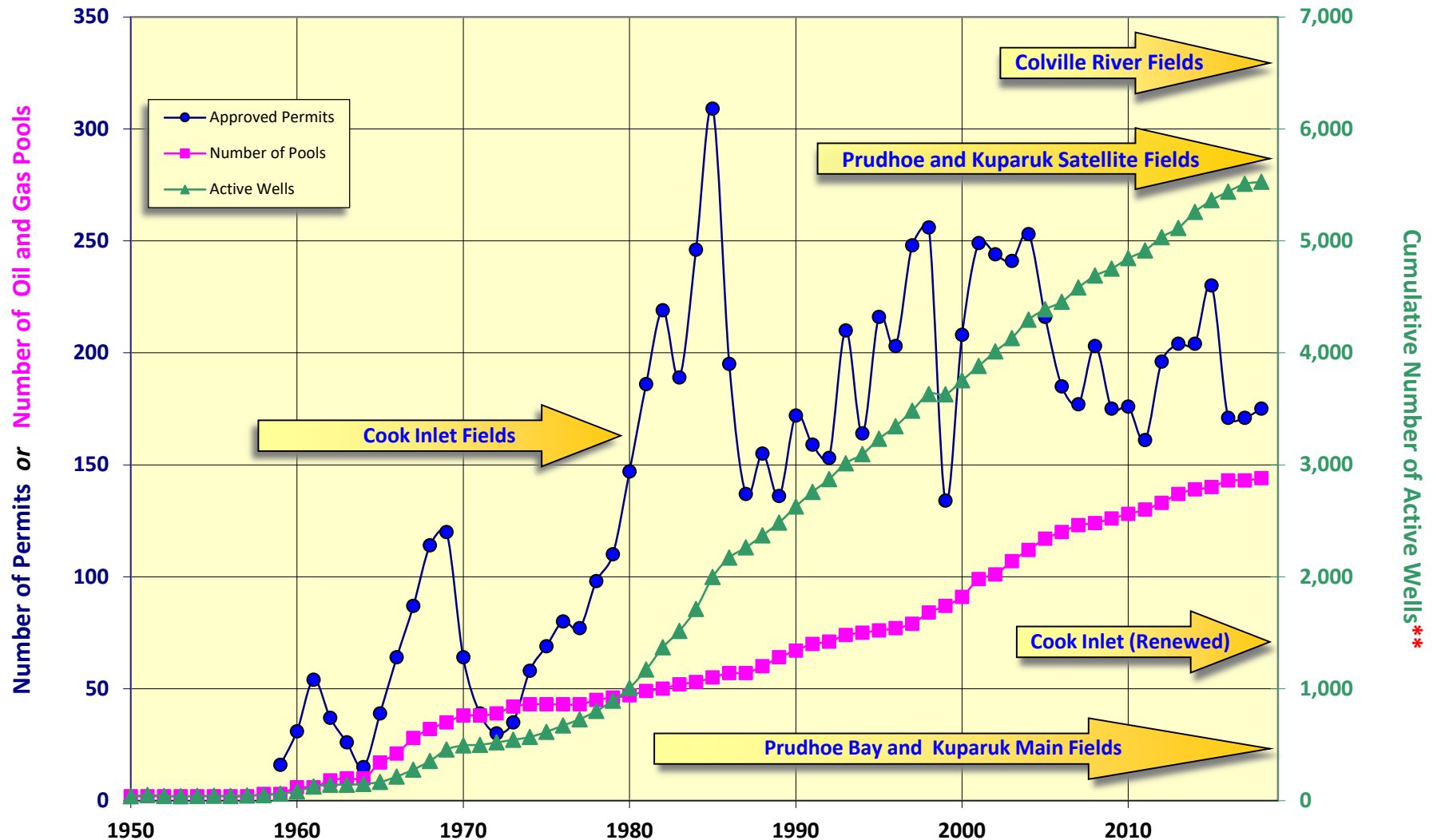
Background: West Coast Monthly Average Spot Price for Alaska North Slope Crude Oil (Dollars per Barrel)



Total Activities since 2003 = 17,917

Alaska Oil and Gas Activity

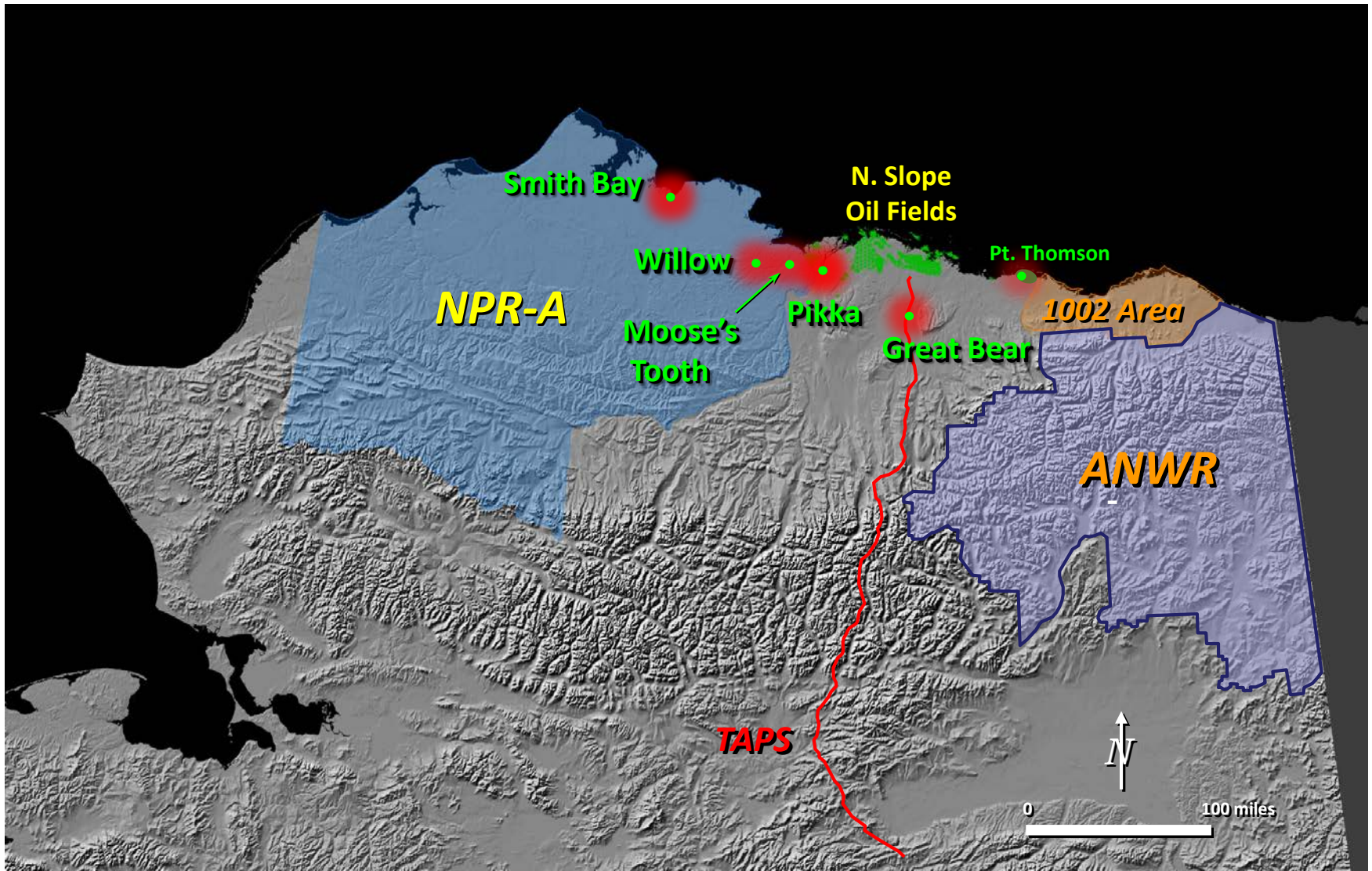
AOGCC Oversight (1958 - 2018*)



** For this chart, active wells are defined as drilled wells that have not been plugged and abandoned.

* Preliminary Count, January 10, 2019

Announced Alaska North Slope “Discoveries”



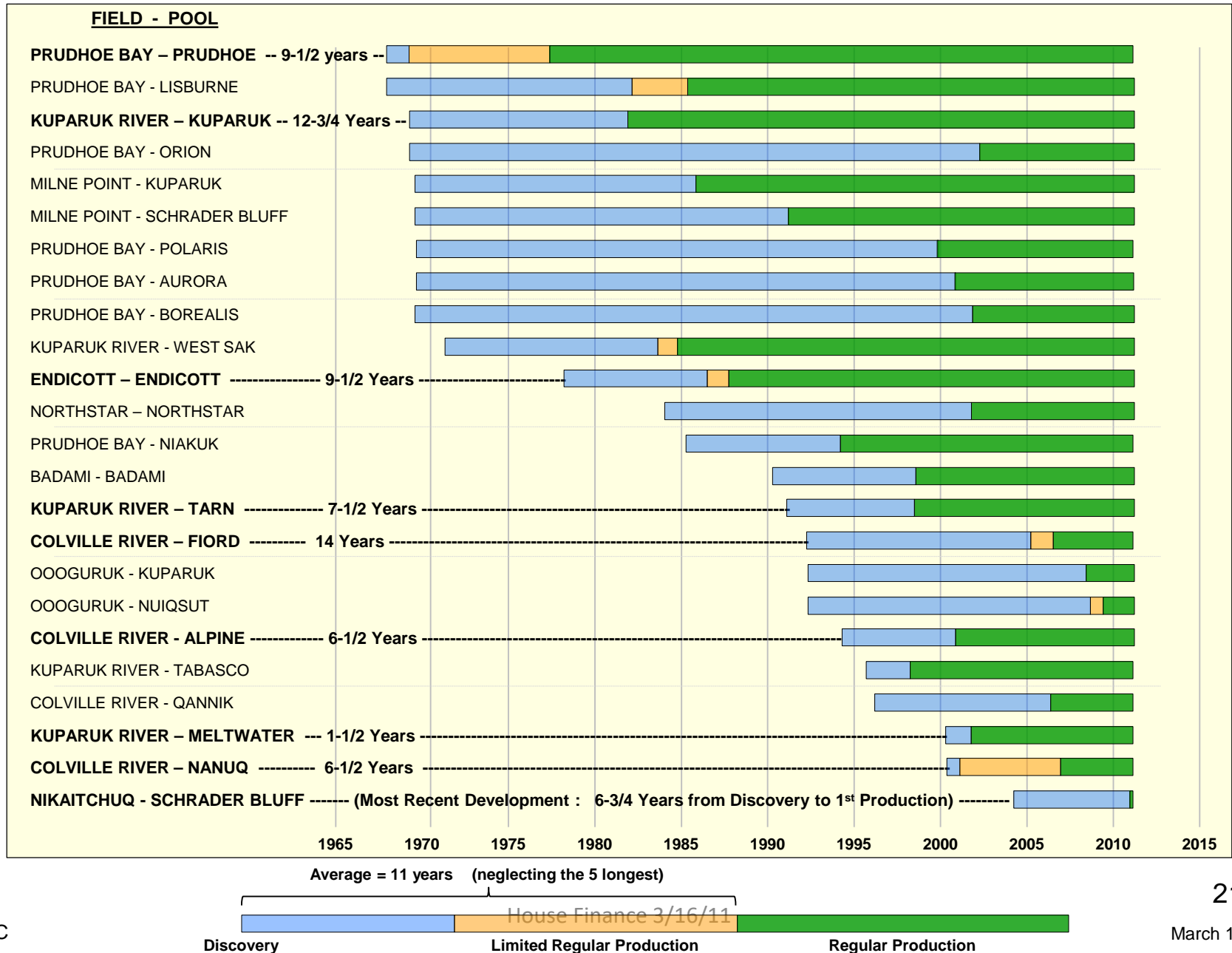
MAJOR RECENT BROOKIAN DISCOVERIES

	Smith Bay	Willow	Pikka/Horseshoe
Operator(s)	Caelus	ConocoPhillips	Oil Search/ConocoPhillips
Reservoir Formation	Torok Fm	Nanushuk Fm	Nanushuk Fm
Penetrations to date	2	7	12
Location	State Waters Offshore of NPRA	Federal Onshore Northeast NPRA	Onshore Colville Delta
Road/Pipeline Tie-in	~ 125 miles	~ 28 miles	~ 20 miles
Trap type	Turbidite Stratigraphic	Topset Stratigraphic	Topset Stratigraphic
Net Pay	183-223 ft	42-72 ft	< 225 ft
Oil Gravity	40-45 degree API (calc)	44 degree API	30 degree API
Test Rate	No Flow Tests	< 3,200 bopd vertical	~ 2,100 bopd vertical; 4,600 bopd horizontal
Contingent Recoverable Resource	1.8-2.4 BBO (est)	300 MMBO	1.2 BBO
Expected Production (Operator Releases)	< 200,000 bopd	40,000-100,000 bopd	< 120,000 bopd

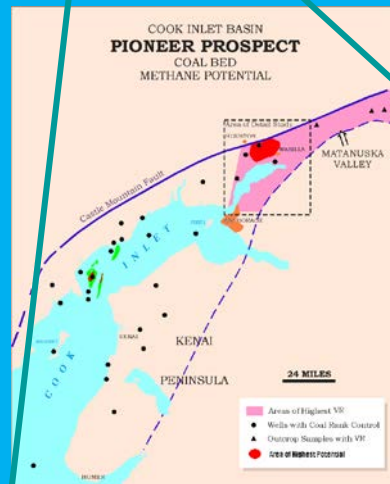
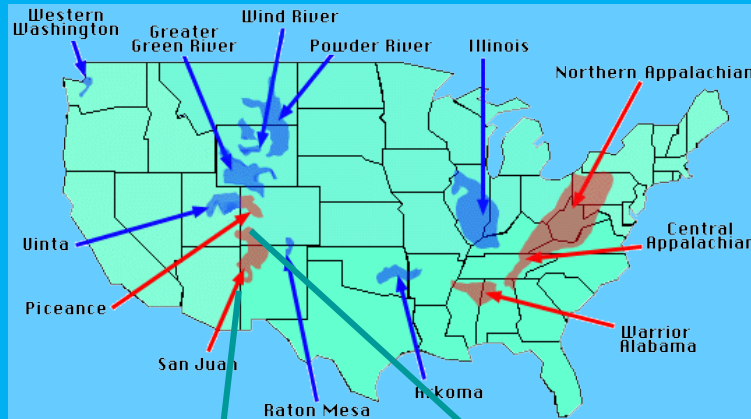
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From Paul Decker DOG

Development Timeline for North Slope Oil Fields



Cook Inlet Exploration



Exploration Immaturity

- Cook Inlet is similar in size to lower 48 basins
- 14,000 square mile area is same as San Juan Basin
- <400 exploratory wells & <1400 total wells

vs

28,000+ wells in San Juan Basin

Cook Inlet Basin: No 1980s Drilling Boom

Alaska Oil and Gas Conservation Commission (AOGCC)

Contact Information

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www.aogcc.alaska.gov