# Safety and Environmental Performance Data for Industry Benchmarking – Calendar Year 2020 Charts

**Office of Offshore Regulatory Programs**

Offshore Safety Improvement Branch

OCS Performance Measures Program

***December 16, 2021***

*BSEE Mission:*

*"To promote safety, protect the environment and conserve resources offshore through vigorous regulatory oversight and enforcement."*

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# About the Data in This Presentation

- Primary data source:  BSEE-0131 form, required to be submitted annually to BSEE by Oil & Gas (O&G) operators with Outer Continental Shelf (OCS) activities during the prior year (30 CFR 250.1929)

- Self-reported data collected on the BSEE-0131 form includes:
  - Company and contact information
  - Illnesses and injuries:  DART (Days Away, Restricted, Transfer) and non-DART recordables, company vs contractor, production vs drilling vs construction, by quarter
  - Hours worked:  company vs contractor, production vs drilling vs construction, by quarter
  - Number of EPA NPDES (Environmental Protection Agency, National Pollutant Discharge Elimination System) non-compliances
  - Number and volume of oil spills less than one barrel each

- Other data used in this analysis and presentation are from the BSEE Technical Information Management System (TIMS) and National Consolidated Information System (NCIS) databases:
  - Oil spills in two additional categories:  1) between 1 and 50 barrels each, and 2) over 50 barrels each (per 30 CFR 254.46, spills greater than 50 barrels volume have additional reporting requirements)
  - O&G production
  - Platform count
  - Number of rigs and number of non-rig activities involved in drilling and related well operations
  - Wells spud
  - Losses of well control
  - Fires
  - Fatalities
  - Incidents of non-compliance (INCs)
  - Inspection metrics: numbers of inspectors, inspection visits, types of inspections performed, components inspected

- Industry may use this data to compare their individual performance to the averages for all OCS O&G work.

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# Overview of Calendar Year (CY) 2020 Data Set

- The graphs in this presentation illustrate trends in data collected for the years 2010 through 2020. Data extracted from the TIMS database are valid as of the date of extraction. Because TIMS and NCIS data is updated whenever new information becomes available, the 2020 data presented here (extracted April – June 2021) should be considered reasonable estimates. Data for the years 2010 – 2019 similarly reflect what was available in the database when they were extracted from TIMS.

- Data from calendar year 2010 forward may be considered more complete than pre-2010 data, as 2010 was the first year that BSEE-0131 form submission was required (30 CFR 250.1929). Thus, these charts use 2010 as the base year for comparison and depiction of post-2010 trends.

- 46 operating companies* recorded production in 2020. An additional 6 companies also recorded work hours involving facility closures and / or well operations, giving a total of 52 companies required to submit the BSEE-0131 form by March 31, 2021. BSEE received 55 forms including from 3 companies that had no operations or facilities during 2020. This satisfies our 100% participation rate goal.

- The downward trend in number of companies active in Oil and Gas operations on the Outer Continental Shelf (OCS) leveled off in 2020…. In both 2019 and 2020, there were 52 such companies, compared to 2018 when there were 58 companies with OCS activities.

* An operating company and all its subsidiaries are counted as 1 company in this analysis

# Highlights of 2020 Data

- **COVID-19 was the main story for 2020, impacting both production levels by reducing demand for oil, and safety statistics by increasing the number of reportable illnesses**.
  - **Production** decreased by 11% (slide 7) and **total work hours** decreased by 29% (slide 8) compared to 2019.
  - **Contractor work hours** decreased by 31%, but **operator-employee work hours** decreased by only 15% during the year (slide 8).
  - Because work hours decreased more than production, the **Barrels of Oil Equivalent** (BOE) produced per production work-hour increased to its highest level in the past 10 years (slide 10). BOE converts natural gas production values to an oil volume equivalent.
- **Safety statistics**
  - The rate of **occupational fatalities** where BSEE has primary investigation authority continued to increase in 2020 (slide 12); for past 2 years the rate has remained above the national average of approximately 0.9 fatalities per 25,000 full time equivalent workers per year.
  - The **Total Recordable Injury/Illness Rate** (TRIR) for all O&G activities on the OCS increased by 46% during 2020, largely because of COVID-19 work-related DART illnesses that were reported to BSEE. If the COVID-19 illnesses are excluded, the TRIR would have only increased by 4%, and remained very near historical low levels (Slides 6 and 13).
  - Production operations reported the most COVID-19 illnesses, with the largest impact on Production TRIR (Slides 6 and 15).
  - If COVID-19 illnesses are excluded from the TRIR calculation for Drilling and other Well Operations, they would have recorded a decline in both Total and DART Injury/Illness rates (Slides 6 and 16).
- **Other Incident statistics**
  - The fire incident rate continued to increase (slide 18). NTL 2019-05 clarified that evidence of a reportable fire can include soot, charring, melting, and smell, which may have contributed to the increased rate of fire reports, as summarized on slide 18.
  - One 479 BBL oil spill reversed the prior years' decline in volume of oil spilled as a percent of production volumes (slides 25 and 26).
- **BSEE enforcement**
  - Though COVID-19 impacts led to a 32% reduction in production work hours and a 24% reduction in drilling work hours, BSEE maintained its inspection presence with only a 3% drop in production inspections and an 18% reduction in well operation inspections.
  - INC issuance decreased by 58%, leading to declines in both INC to component and INC per inspection ratios (Slides 28 – 31).

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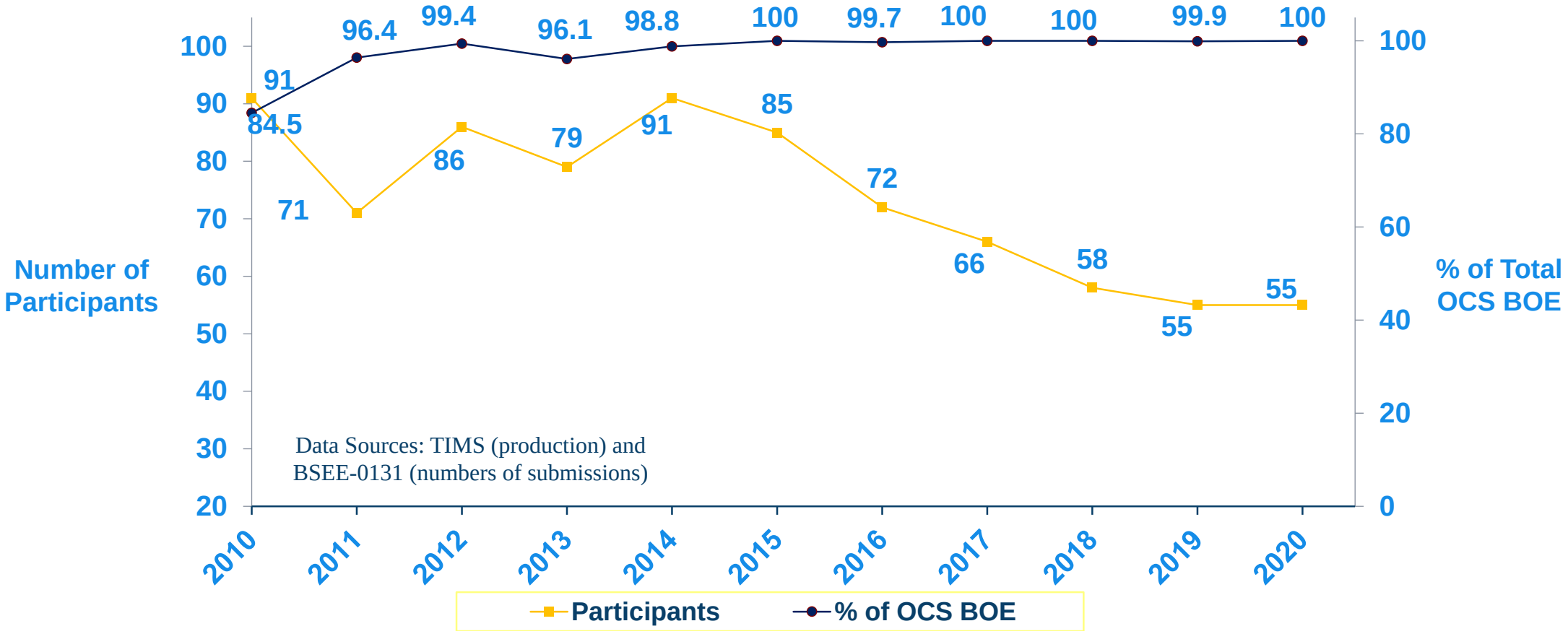
# OCS Performance Data
# Survey Participation*




*2010 was the first year that OCS Performance Measure Data were required by BSEE regulation (30 CFR 250.1929).

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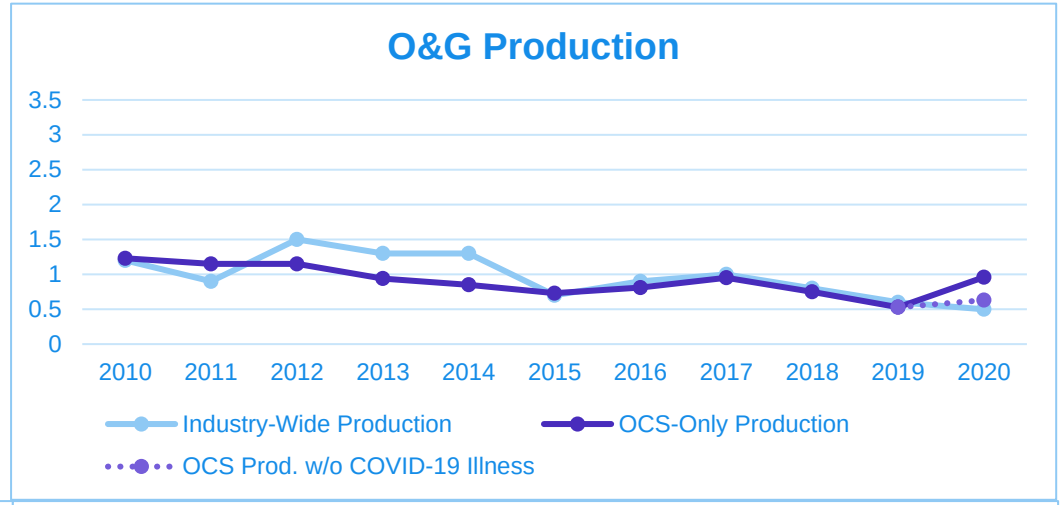
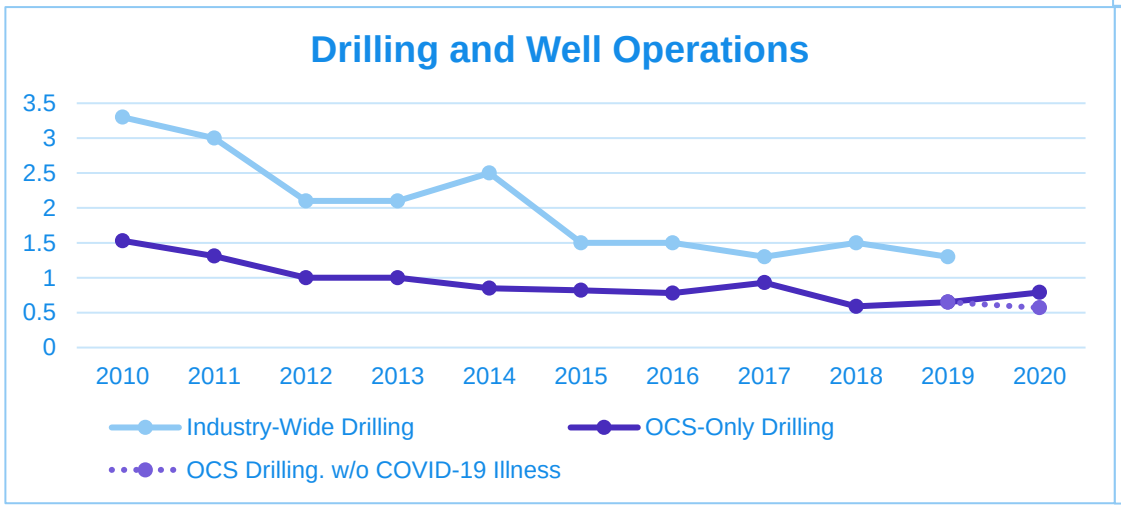
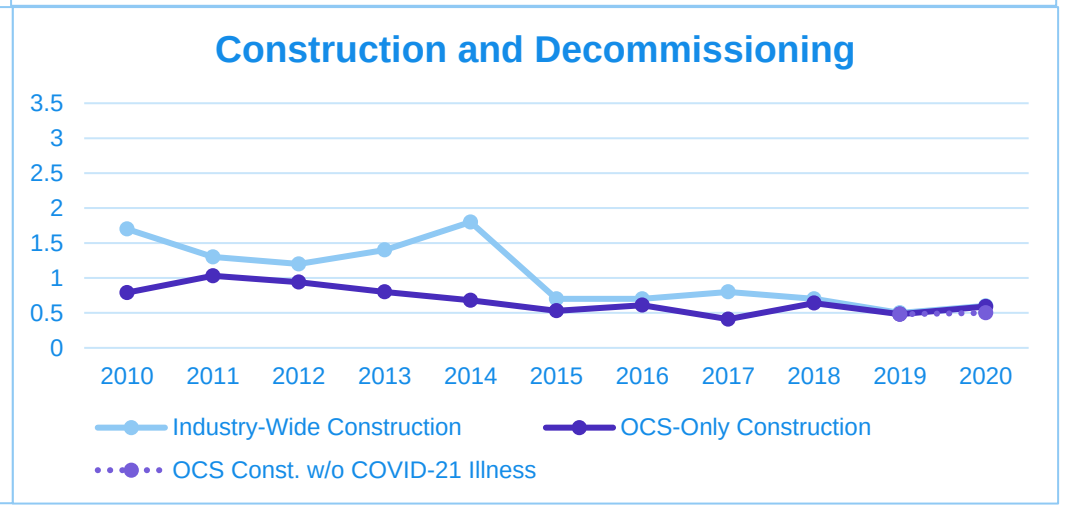
# OCS vs Industry-Wide Injury/Illness Rates

- The total injury/illness rates* for all oil and gas (O&G) categories (production, drilling and construction) **on the OCS** have historically been lower than the rates for the United States O&G industry overall.
- COVID-19 illnesses contributed to a 2020 uptick.

(*Sources of data: BSEE-0131 for OCS Total Recordables; Bureau of Labor Statistics (BLS) tables for Industry-Wide Total Recordables. BLS released industry-wide 2020 data in Nov. 2021, but no data was reported for NAICS code 213111*)




* The industry-wide illness/injury rates are from the Bureau of Labor Statistics table: "TABLE 1. Incidence rates of nonfatal occupational injuries and illnesses by industry and case types, (various years)". Industry-wide equivalents: O&G Production - NAICS Code 211; Drilling and Well Operations - NAICS code 213111; Construction and Decommissioning - NAICS code 23712.. These rates use the same formula that BSEE uses, which is [DART + non-DART recordables] / [total number of work hours] * 200,000. Each set combines both DART and non-DART recordables (DART = Days Away from work, job Restricted, and job Transfer).

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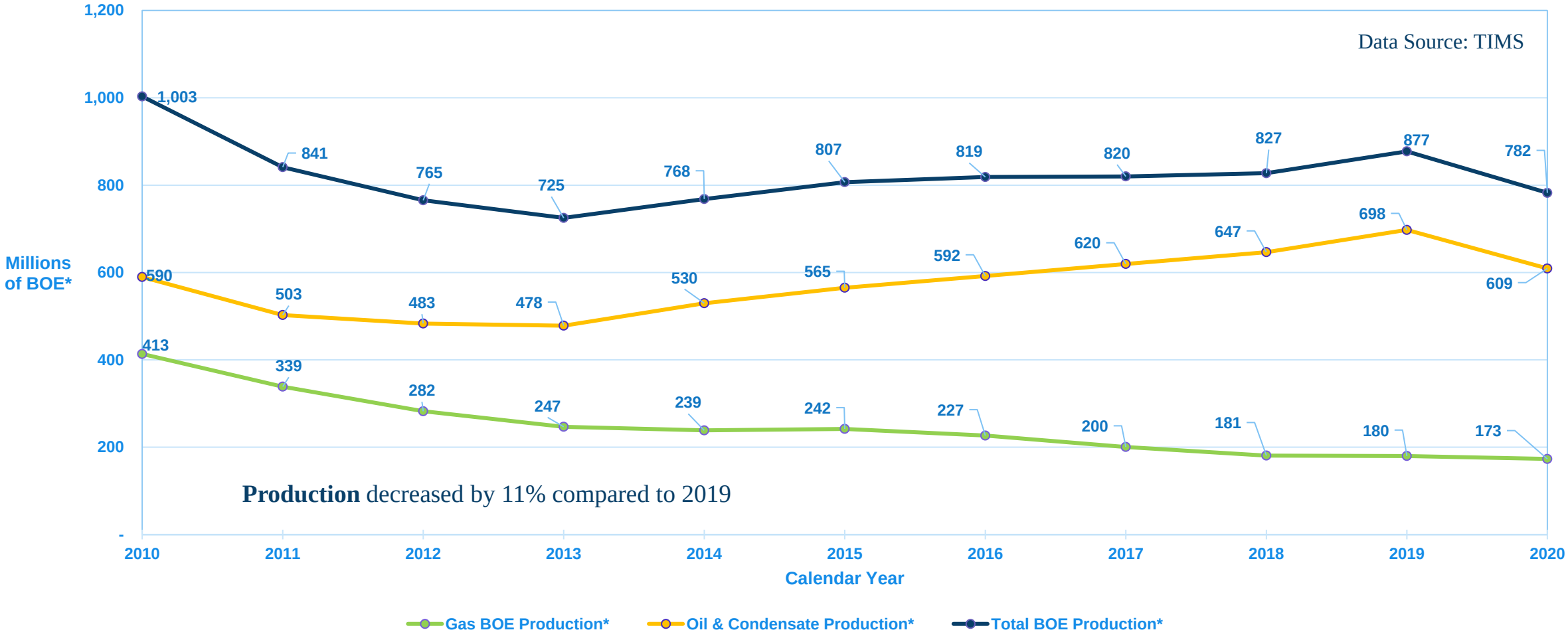
# Total OCS Oil and Gas Production




*** BOE = Barrels of Oil Equivalent. Gas production is converted into BOE so that it can be compared to actual barrels of oil. In 2019 and 2020, the conversion factor used was 5.8 MCF per BOE.**

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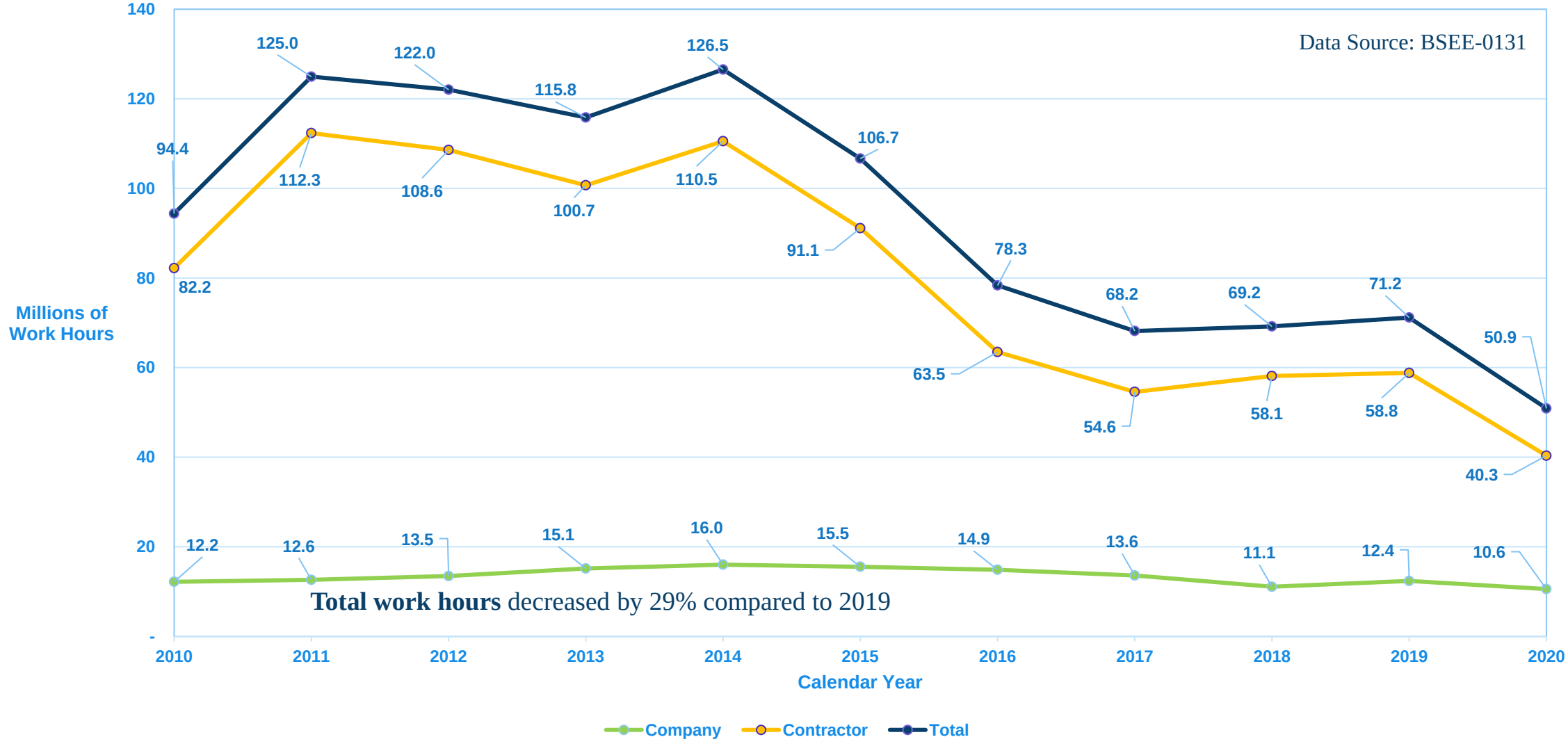
# Total OCS Work Hours




**Total work hours** decreased by 29% compared to 2019

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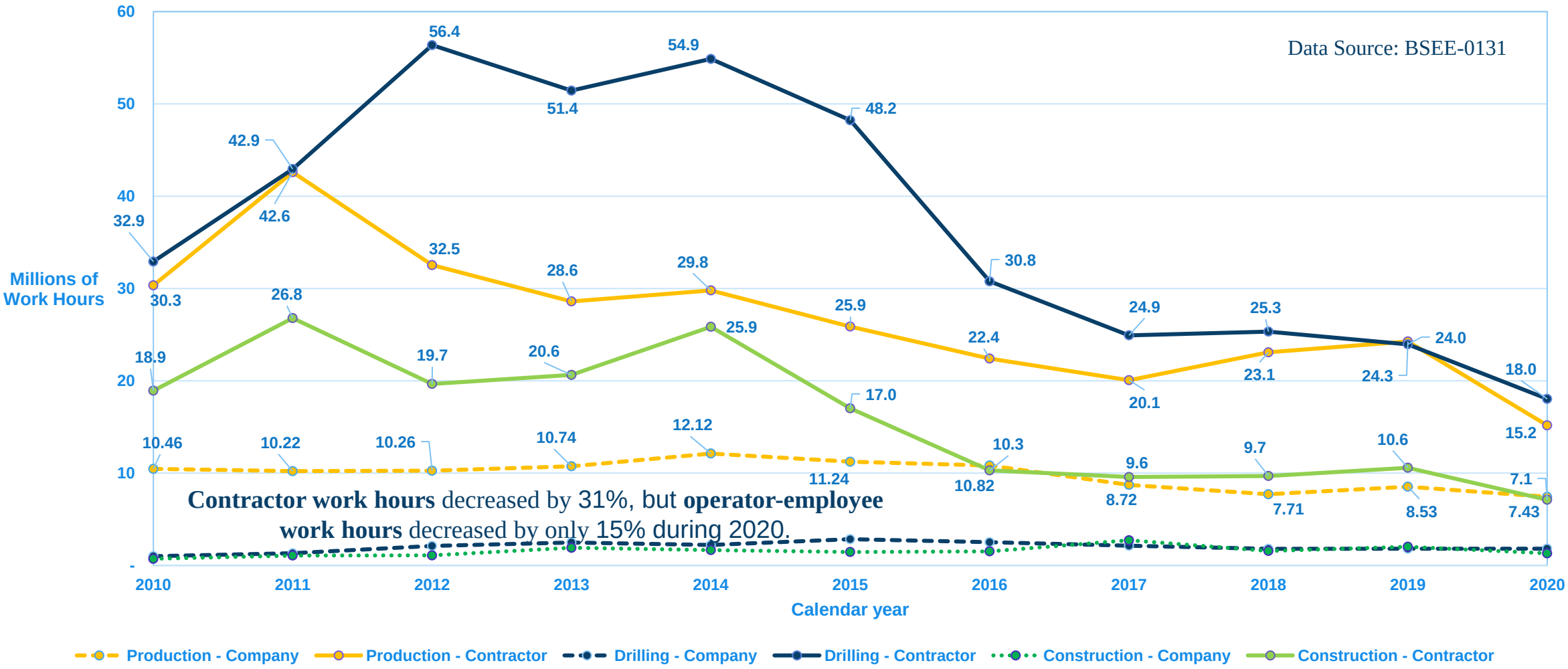
# Total OCS Work Hours

## Category, Company vs Contractor




**Contractor work hours** decreased by 31%, but **operator-employee work hours** decreased by only 15% during 2020.

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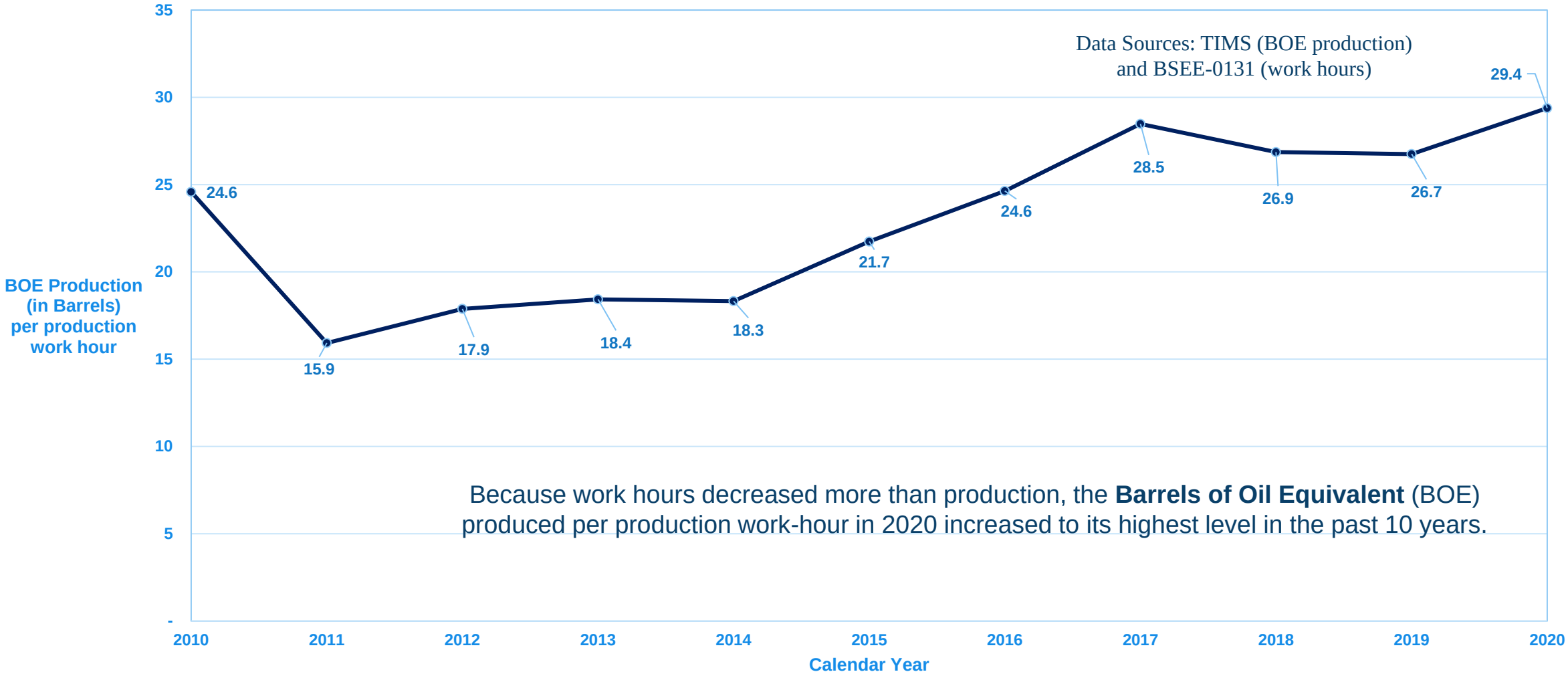
# BOE Production Per Production Work Hour




Because work hours decreased more than production, the **Barrels of Oil Equivalent** (BOE) produced per production work-hour in 2020 increased to its highest level in the past 10 years.

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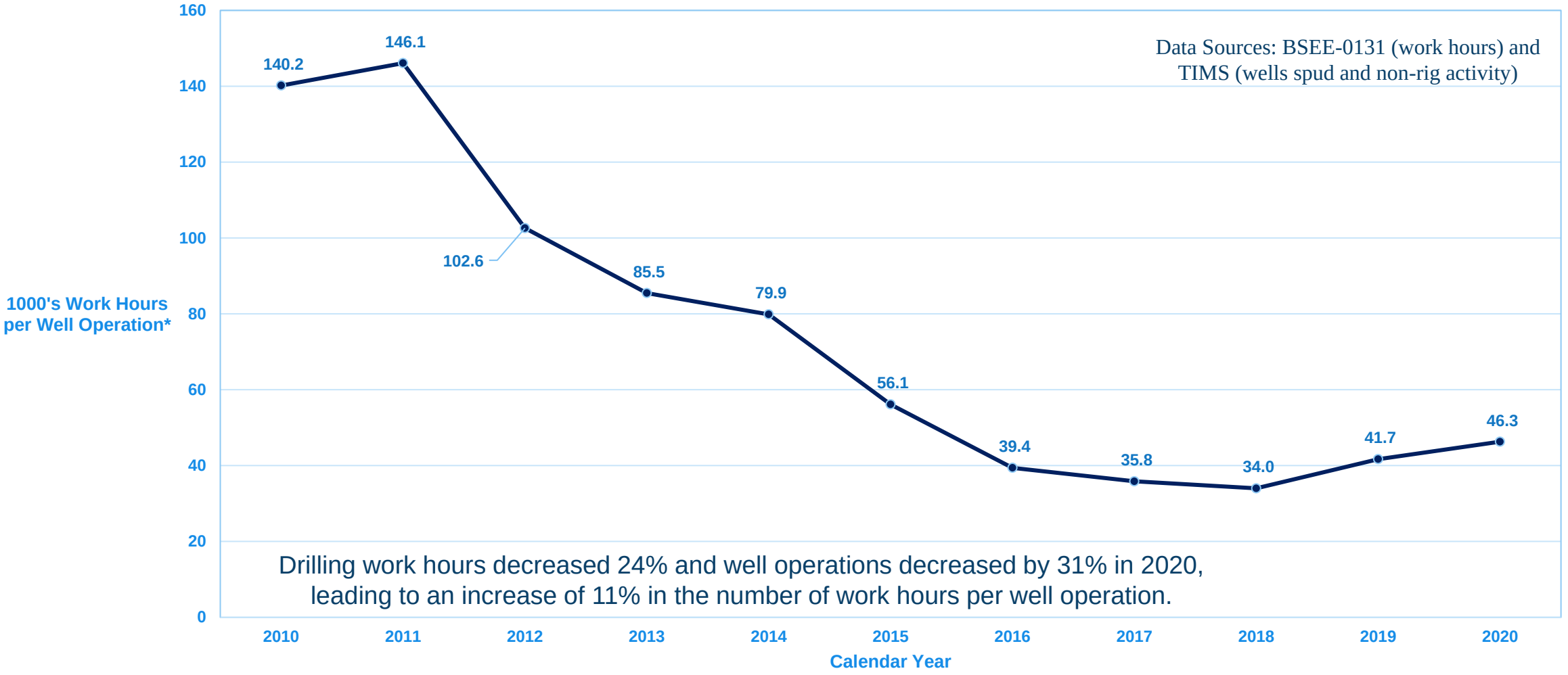
# Work Hours per Well Operation*




*** Work Hours reported for drilling and related well activities, divided by (# Participant Wells Spud + # Non-rig activities)**

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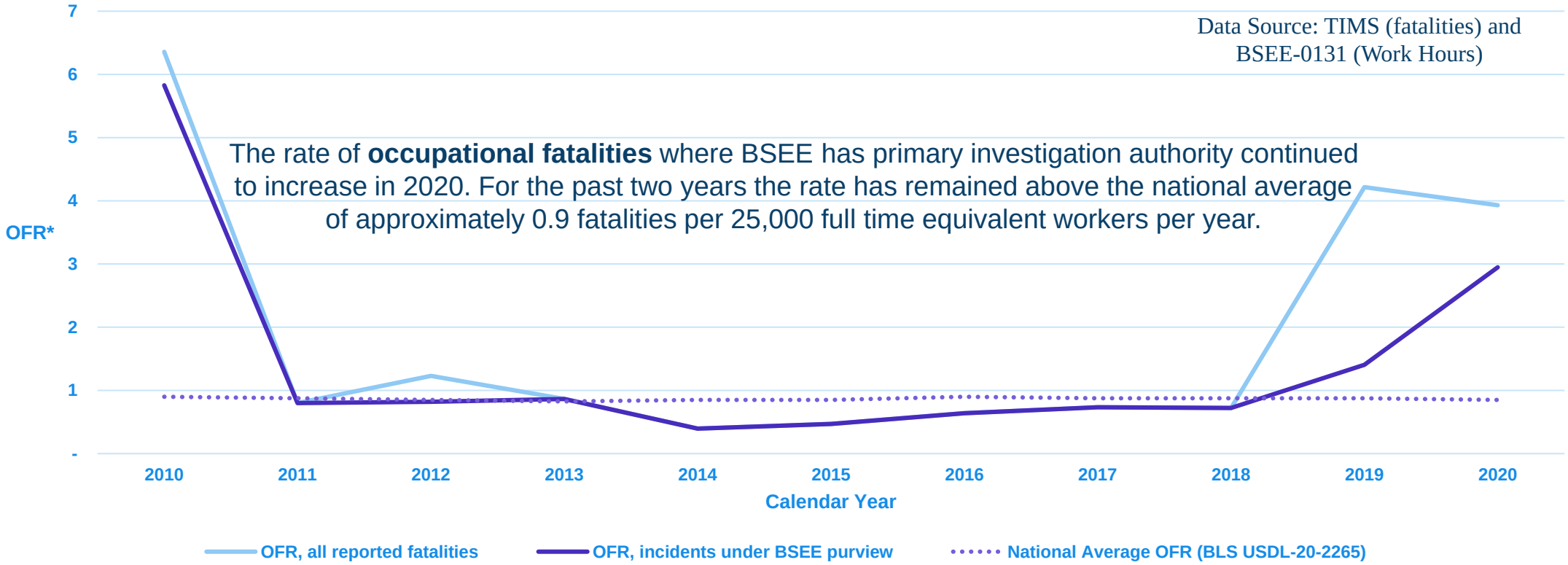
# Occupational Fatality Rate (OFR)*,**




| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Operational Fatalities under BSEE purview: | 11 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | 3 |
| Additional Occupational Fatalities in OCS operations: | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 |

***Reported Occupational Fatalities per 25,000 FTE workers (or 50,000,000 work hours).**

**** All occupational fatalities that are reported to BSEE are reflected in the "All Reported Fatalities" line. Fatalities associated with diving, helicopter, and lifeboat incidents are investigated by other federal agencies and therefore excluded from "incidents under BSEE purview." This chart excludes non-occupational fatalities reported to BSEE, such as from activities conducted during non-work shift times or from chronic, preexisting conditions.**

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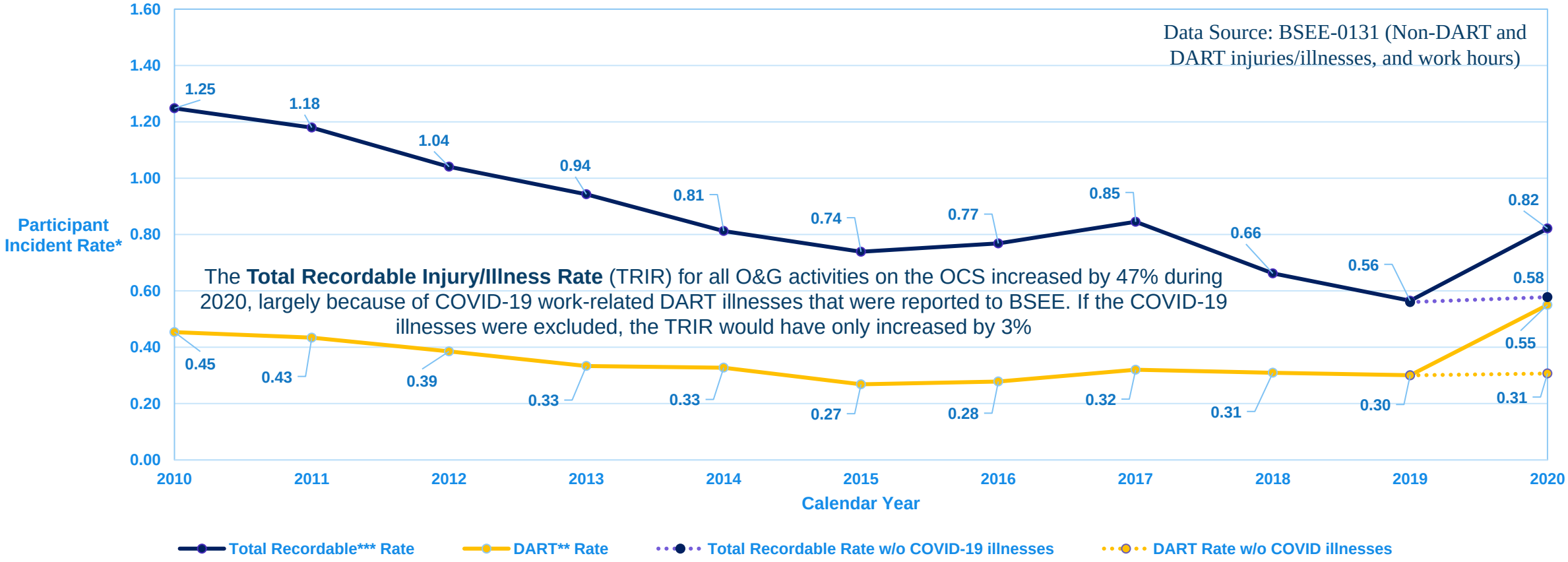
# Combined OCS Operations: Total and DART Recordable Incident Rates




*** Number of injury/illness incidents per 200,000 man-hours worked for operators that submitted BSEE-0131 forms.**
**** DART = injury or illness leading to Days Away, Restricted duty or job Transfer**
***** Total Recordable Incidents = the sum of DART and non-DART recordable injuries/illnesses. Beginning 2018 and finalized with a revised form in 2019, BSEE clarified that non-DART recordable injuries should be reported separately from DART recordable injuries. In the past some operators interpreted the "Recordables" line on BSEE-0131 as a request for "Total Recordables" and some interpreted it as a request for "Non-DART Recordables" since there was already a separate line for DART Recordable data (the form never specified which to enter).**

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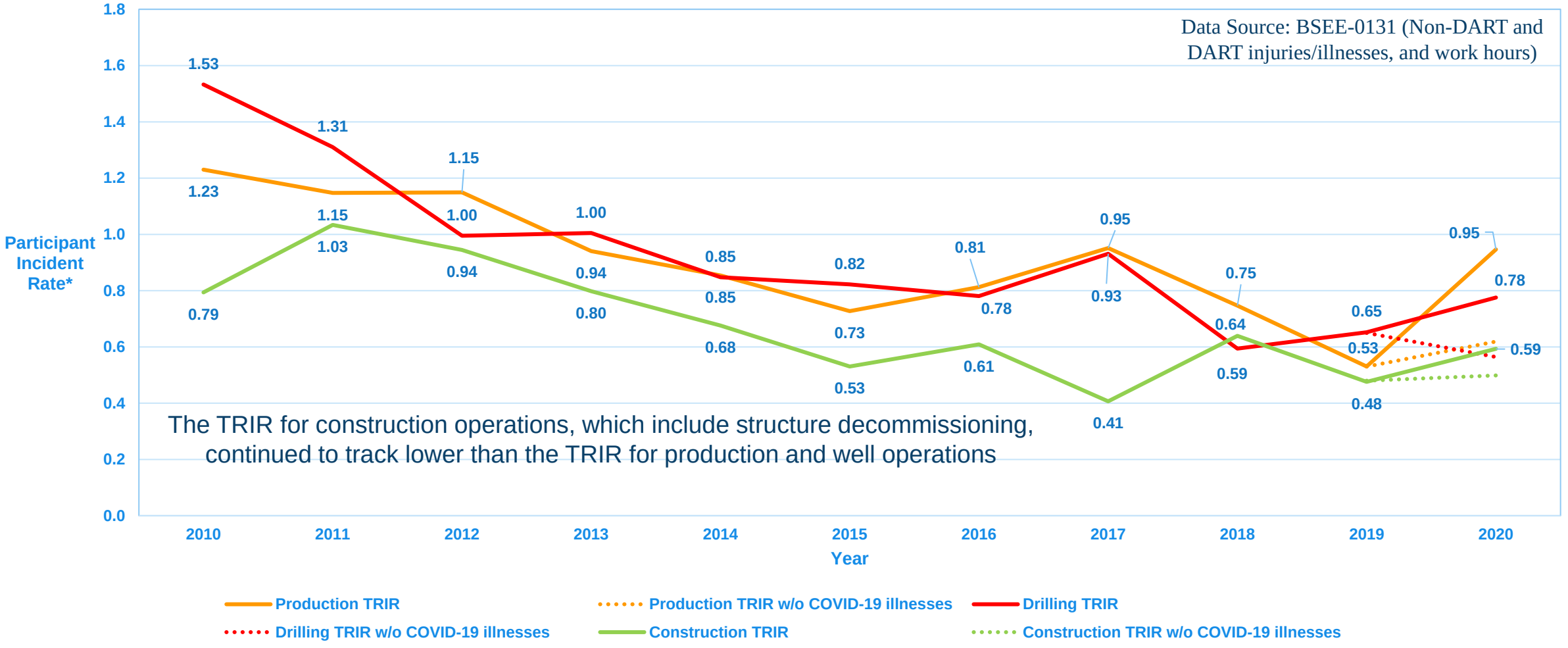
# Total Recordable Incident Rates (TRIRs) by OCS Operation

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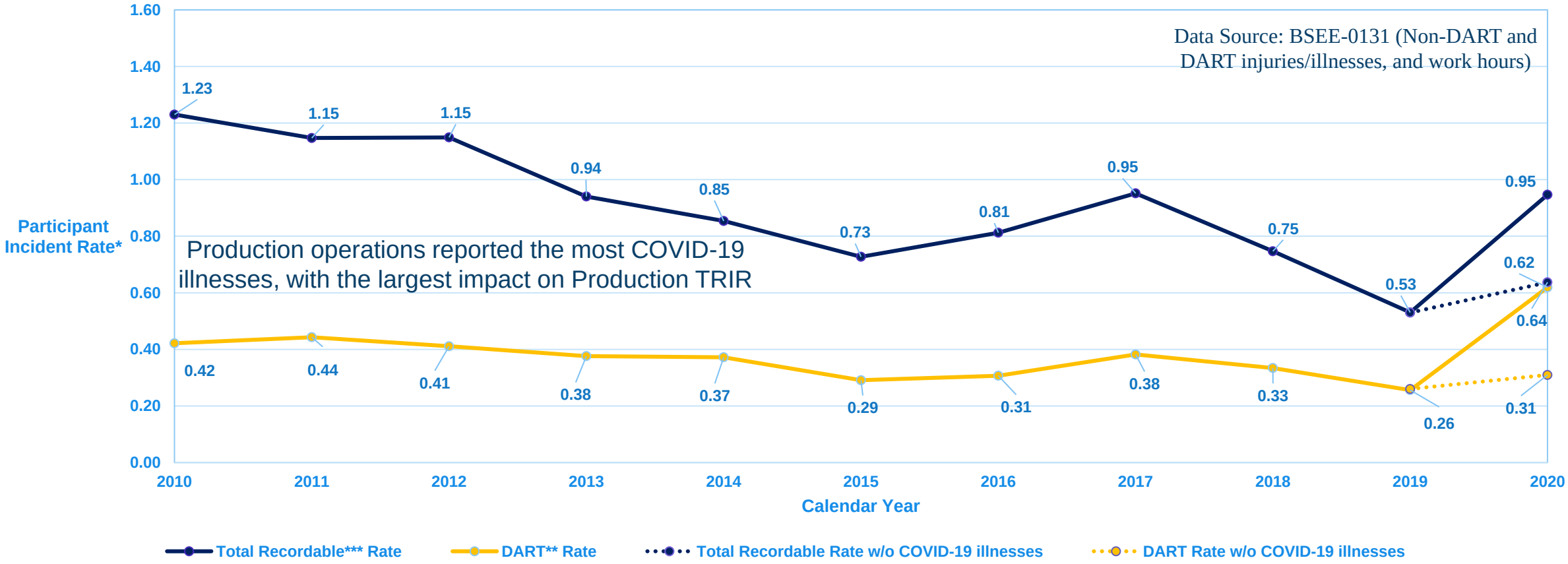
# Production Operations:
# Total and DART Recordable Incident Rates

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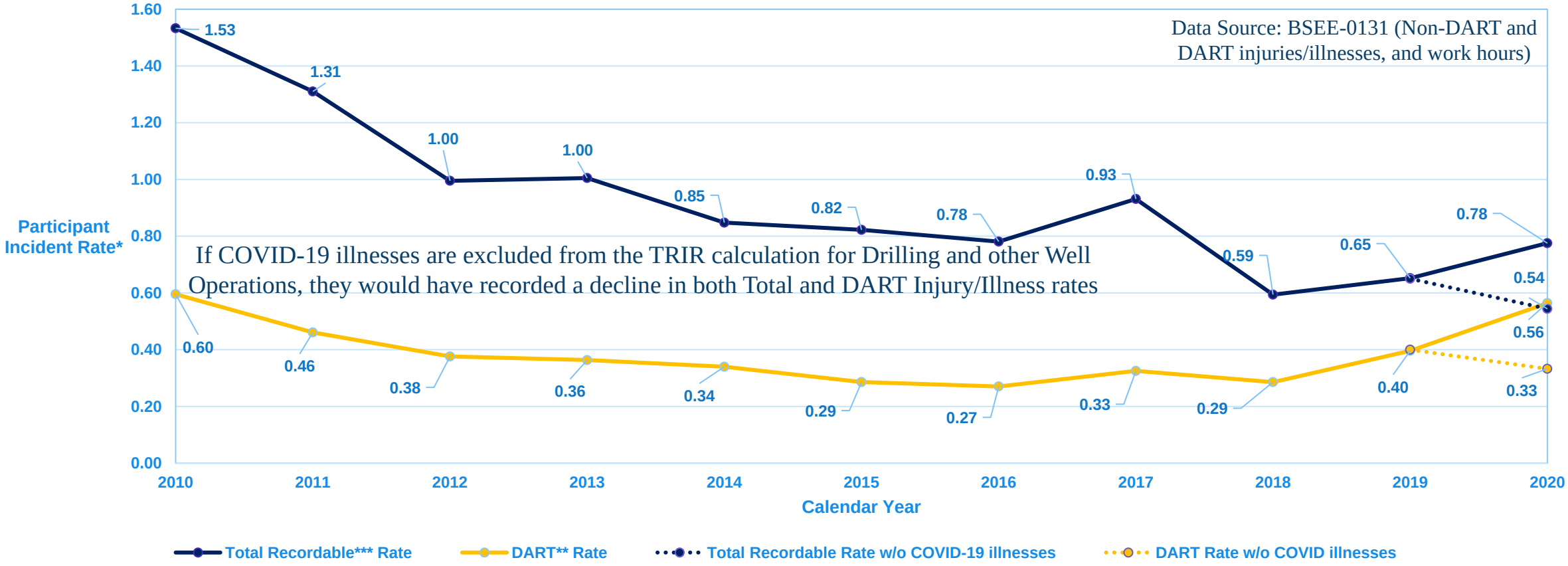
# Drilling and Well Operations: Total and DART Recordable Incident Rates




*** Number of injury/illness incidents per 200,000 man-hours worked for operators that submitted BSEE-0131 forms.**
**** DART = injury or illness leading to Days Away, Restricted duty or job Transfer**
***** Total Recordable Incidents = the sum of DART and non-DART recordable injuries/illnesses. Beginning 2018 and finalized with a revised form in 2019, BSEE clarified that non-DART recordable injuries should be reported separately from DART recordable injuries. In the past some operators interpreted the "Recordables" line on BSEE-0131 as a request for "Total Recordables" and some interpreted it as a request for "Non-DART Recordables" since there was already a separate line for DART Recordable data (the form never specified which to enter).**

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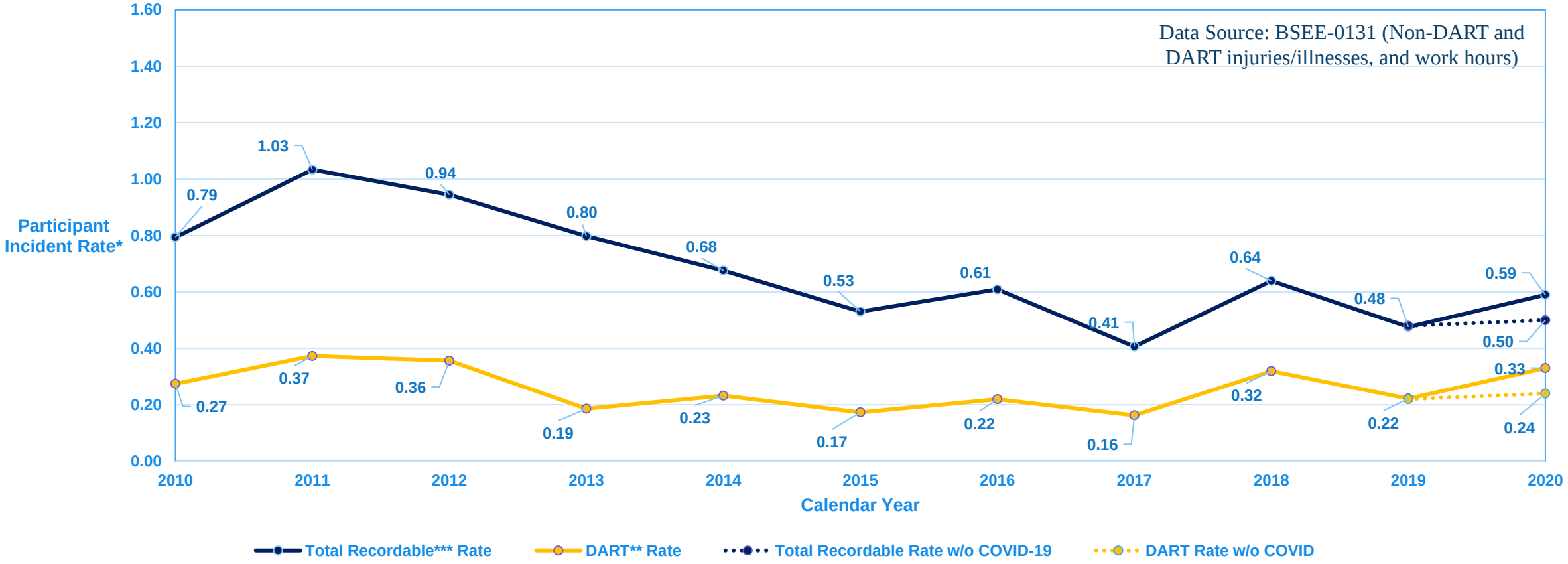
# Construction and Decommissioning Operations: Total and DART Recordable Incident Rates




*** Number of injury/illness incidents per 200,000 man-hours worked for operators that submitted BSEE-0131 forms.**
**** DART = injury or illness leading to Days Away, Restricted duty or job Transfer**
***** Total Recordable Incidents = the sum of DART and non-DART recordable injuries/illnesses. Beginning 2018 and finalized with a revised form in 2019, BSEE clarified that non-DART recordable injuries should be reported separately from DART recordable injuries. In the past some operators interpreted the "Recordables" line on BSEE-0131 as a request for "Total Recordables" and some interpreted it as a request for "Non-DART Recordables" since there was already a separate line for DART Recordable data (the form never specified which to enter).**

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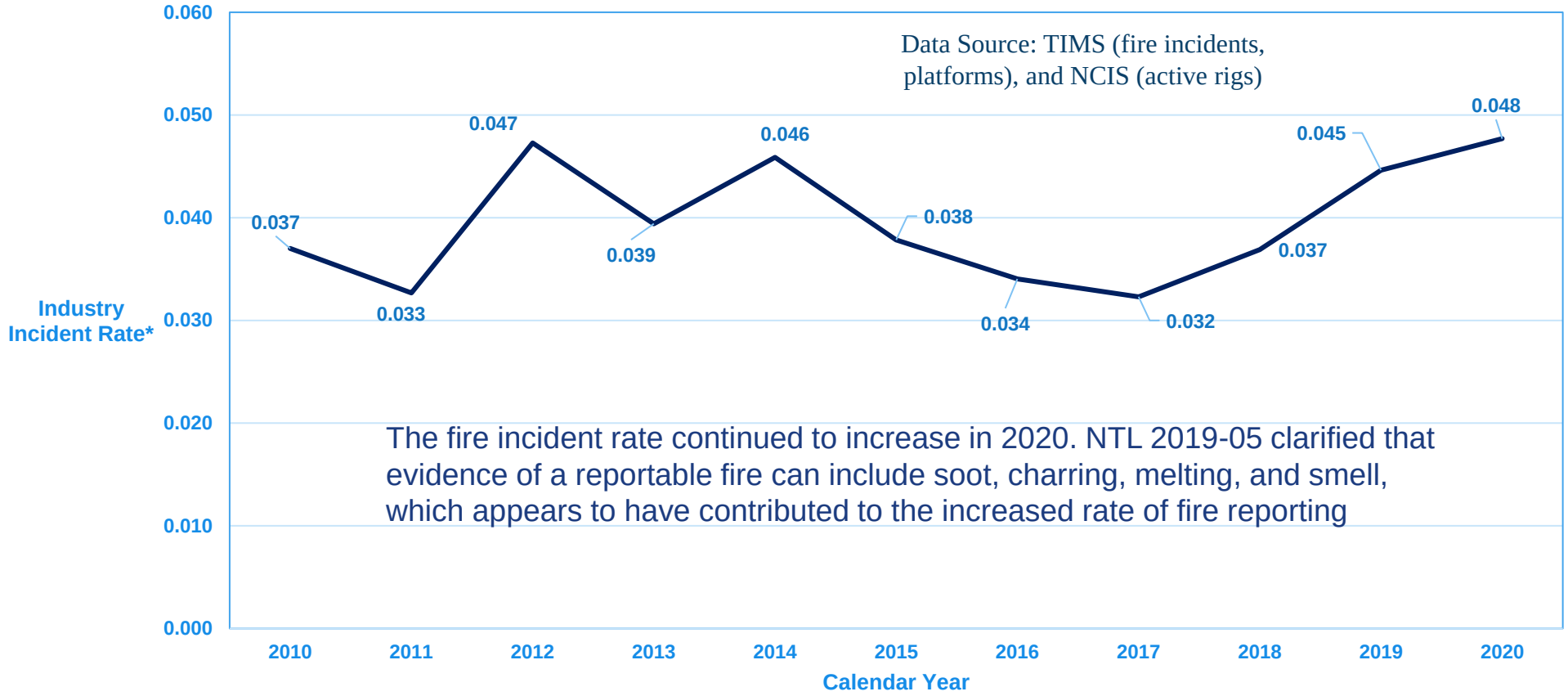
# Fire Incident Rate

| Percentage of Reported Fires on drillships and well operation vessels | |
|---|---|
| 2018 Fires | 12% |
| 2019 Fires | 11% |
| 2020 Fires | 20% |

| Median Age of Platforms (years) when fire was reported | |
|---|---|
| 2018 Fires | 19.1 |
| 2019 Fires | 22.4 |
| 2020 Fires | 21.3 |

| Percentage of Reported Fires with no obvious flame or arc flash | |
|---|---|
| 2018 Fires | 34% |
| 2019 Fires | 43% |
| 2020 Fires | 48% |




***Ratio of fires to number of platforms and active drill rigs for entire OCS. All fire incidents are counted independent of their impacts.**

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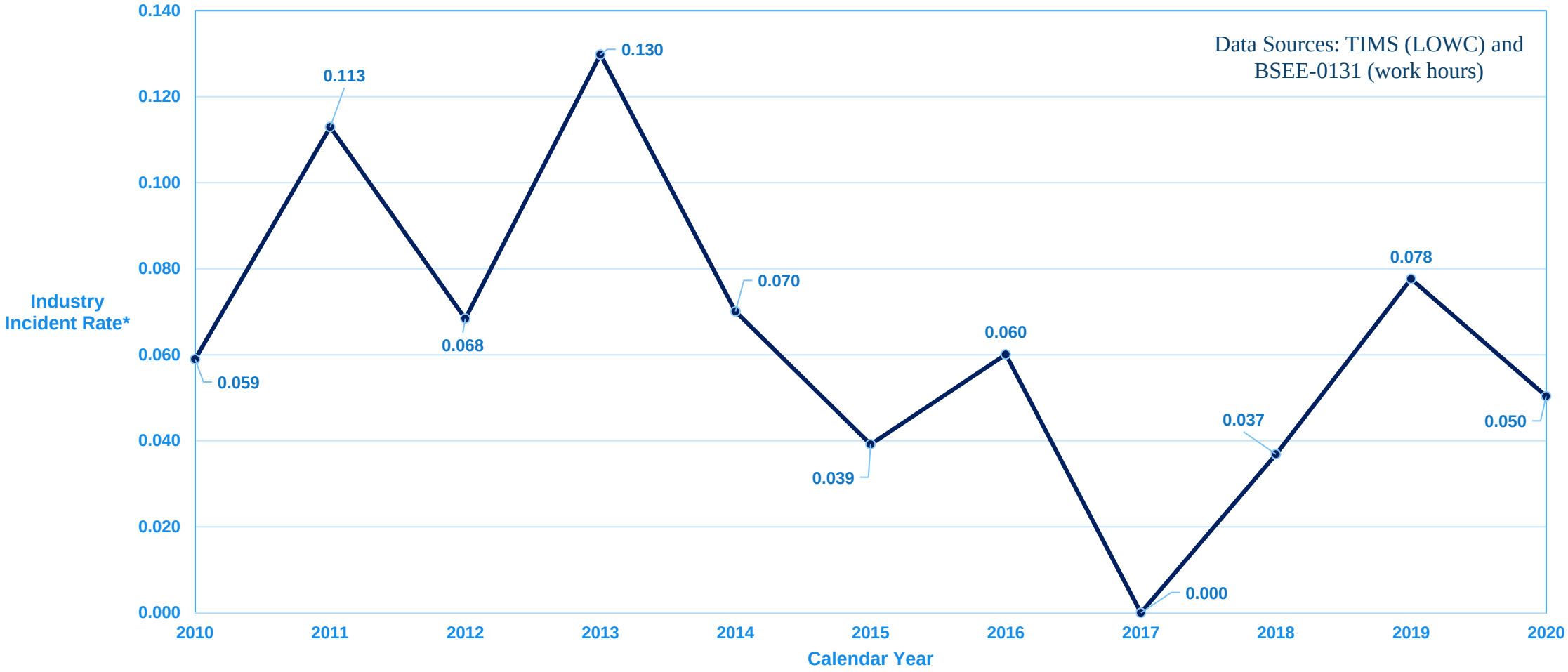
# Loss of Well Control (LOWC) Incident Rate




***Number of LOWC incidents per million work hours recorded for Drilling and Well Operations for entire OCS. The above data reflects all reported losses of well control; this was formerly called "Blowout Rate".**

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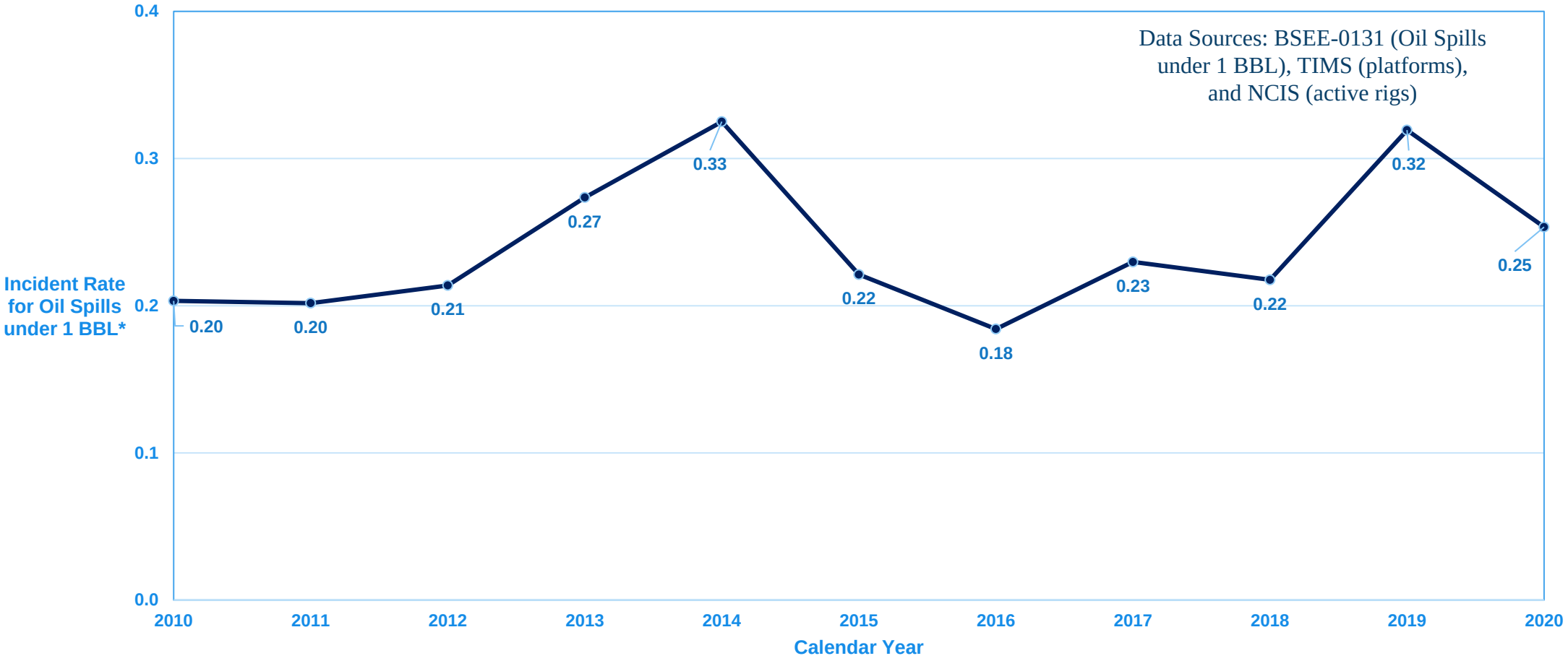
# Incident Rate for Oil Spills < 1 BBL




***Ratio of number of spills < 1 BBL to number of platforms for operators that submitted BSEE-0131 forms plus the number of active drill rigs. Data does not distinguish between the types of operations from which the oil was spilled.**

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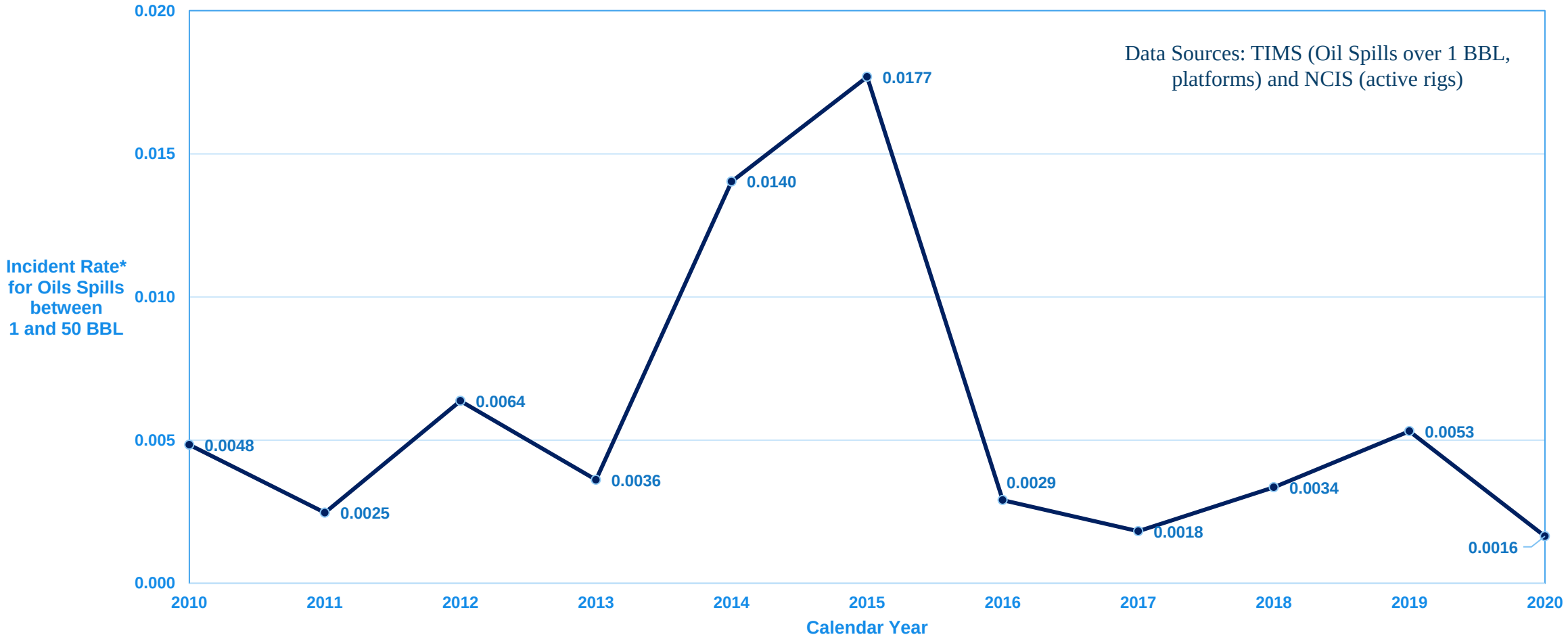
# Incident Rate for Oil Spills ≥ 1 BBL and < 50 BBL




***Ratio of number of spills between 1 and 49.99 BBL to number of platforms and active drill rigs for entire OCS. Data does not distinguish between the types of operations from which the oil was spilled.**

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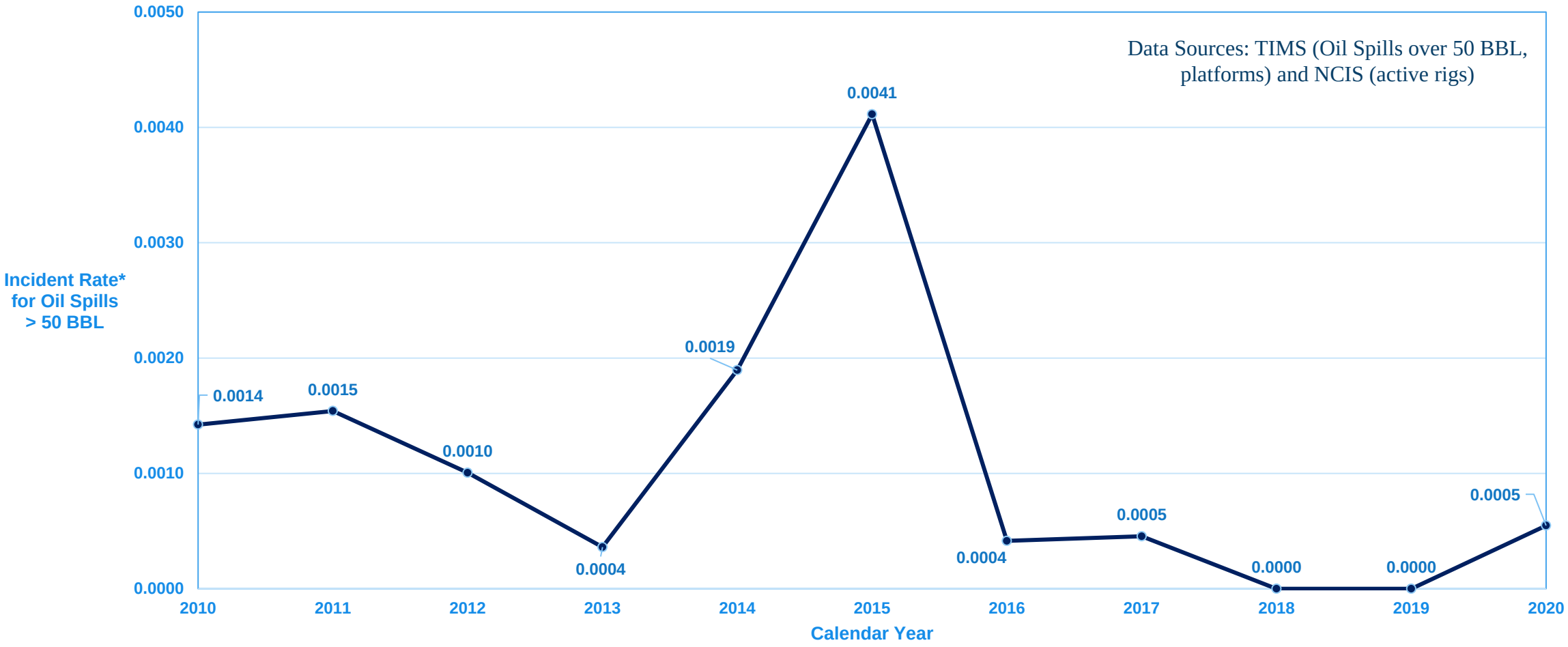
# Incident Rate for Oil Spills ≥ 50 BBL




***Ratio of number of spills of 50 BBL or more to number of platforms and active drill rigs for entire OCS. Data does not distinguish between the types of operations from which the oil was spilled. The reason for a separate chart for oil spills > 50 BBL is that per 30 CFR 254.46, they have additional reporting requirements**

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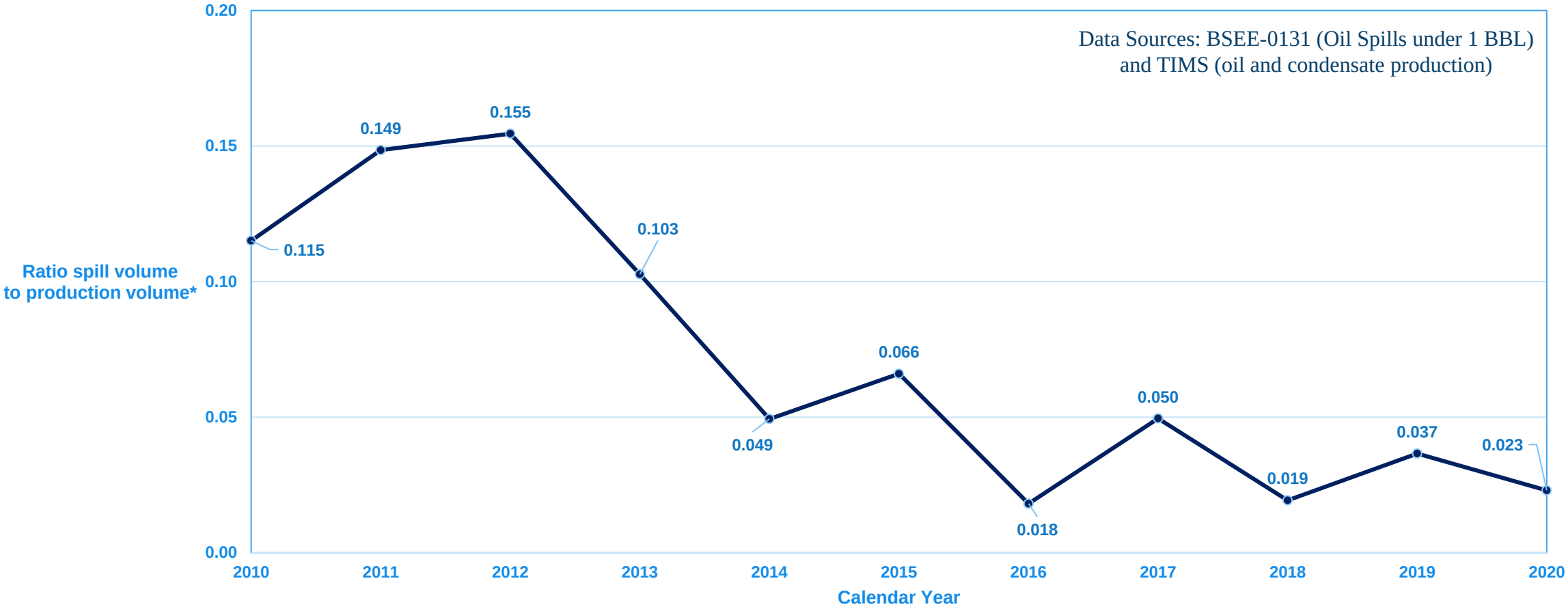
# Ratio of Oil Spill Volumes to Production Volumes
## for Oil Spills <1 BBL




***BBL spilled per 1,000,000 BBL of oil and condensate produced for operators that submitted BSEE-0131 forms.**
**Data does not distinguish between the types of operations from which the oil was spilled.**

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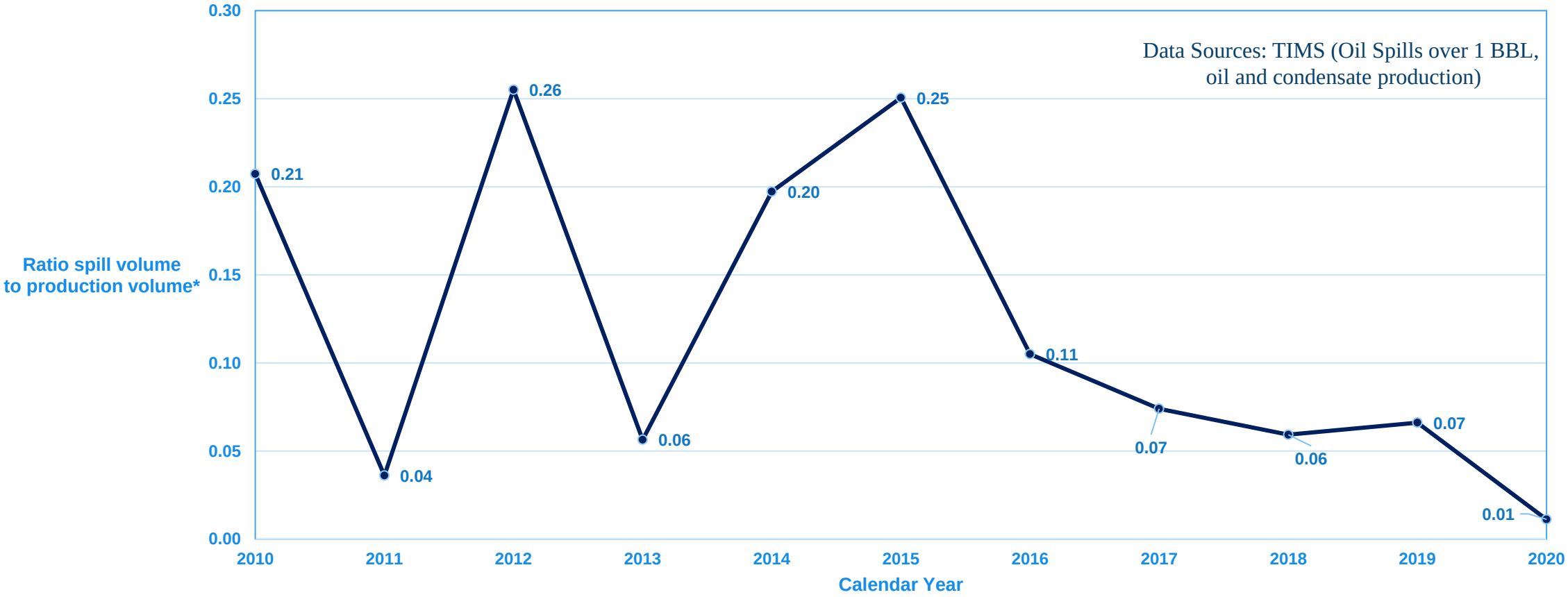
# Ratio of Oil Spill Volumes to Production Volumes

## for Oil Spills ≥ 1 BBL and < 50 BBL




***BBL spilled per 1,000,000 BBL of oil and condensate produced for entire OCS.**
**Data does not distinguish between the types of operations from which the oil was spilled.**

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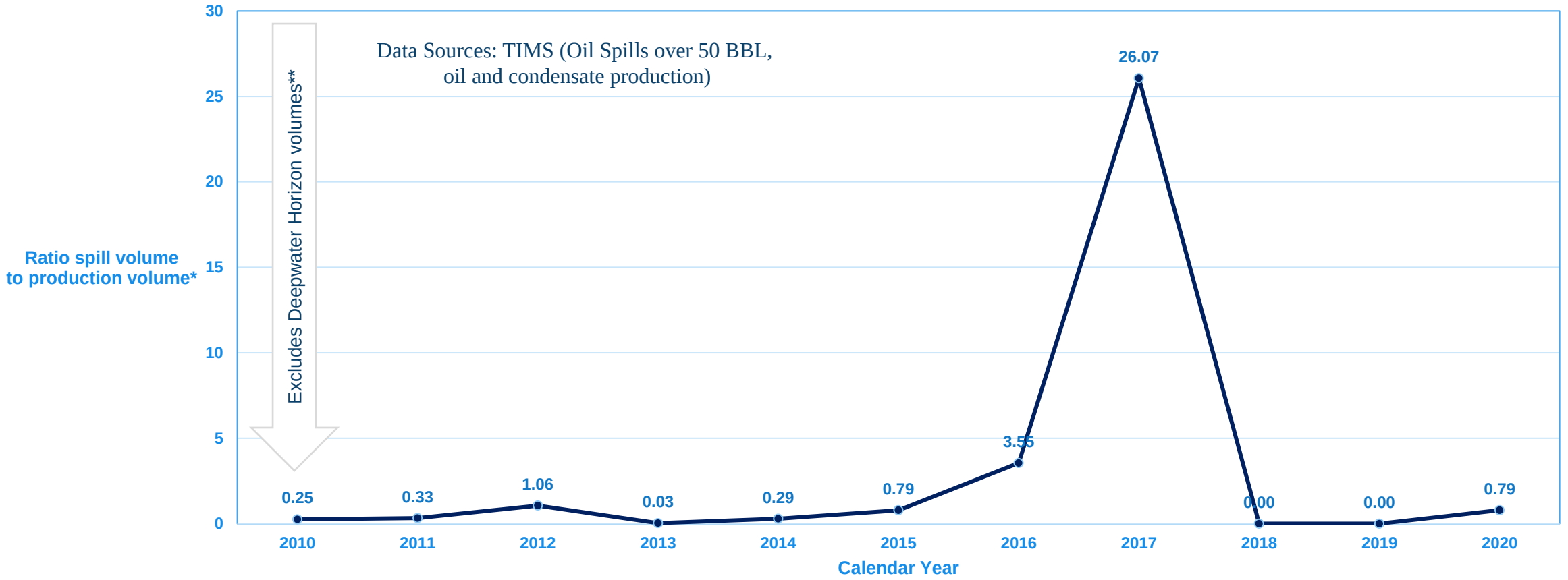
# Ratio of Oil Spill Volumes to Production Volumes
## for Oil Spills ≥50 BBL




***BBL spilled per 1,000,000 BBL of oil and condensate produced for entire OCS. Data does not distinguish between the types of operations from which the oil was spilled.**
****The CY 2010 oil spill rate excludes the volume released from the Deepwater Horizon incident, estimated by the U.S Coast Guard in an Incident-Specific Preparedness Review at 4,928,100 BBL. If it were included, this would increase the high-volume oil spill rate for CY 2010 to 8,358 BBL spilled per 1,000,000 BBL oil produced.**

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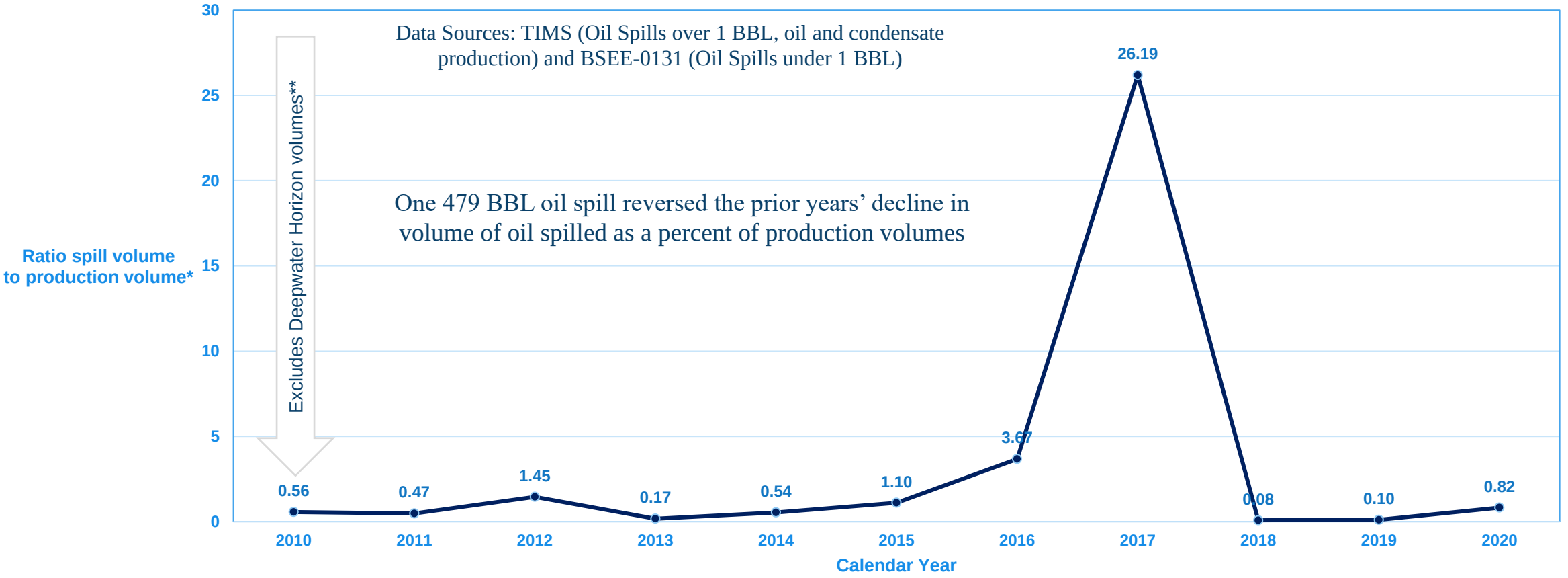
# Ratio of Oil Spill Volumes to Oil Production Volumes

## for all Oil Spills independent of their volume




***BBL spilled per 1,000,000 BBL of oil and condensate produced. Less than one barrel category data derives from operators who submitted BSEE-0131 forms, whereas the 1 to 50 and over 50-barrel categories derive from other incident reports (entire OCS). Data does not distinguish between the types of operations from which the oil was spilled.**
****The CY 2010 oil spill rate excludes the volume released from the Deepwater Horizon incident, estimated by the U.S Coast Guard in an Incident-Specific Preparedness Review at 4,928,100 BBL. If it were included, this would increase the total oil spill rate for CY 2010 to 8,359 BBL spilled per 1,000,000 BBL oil produced.**

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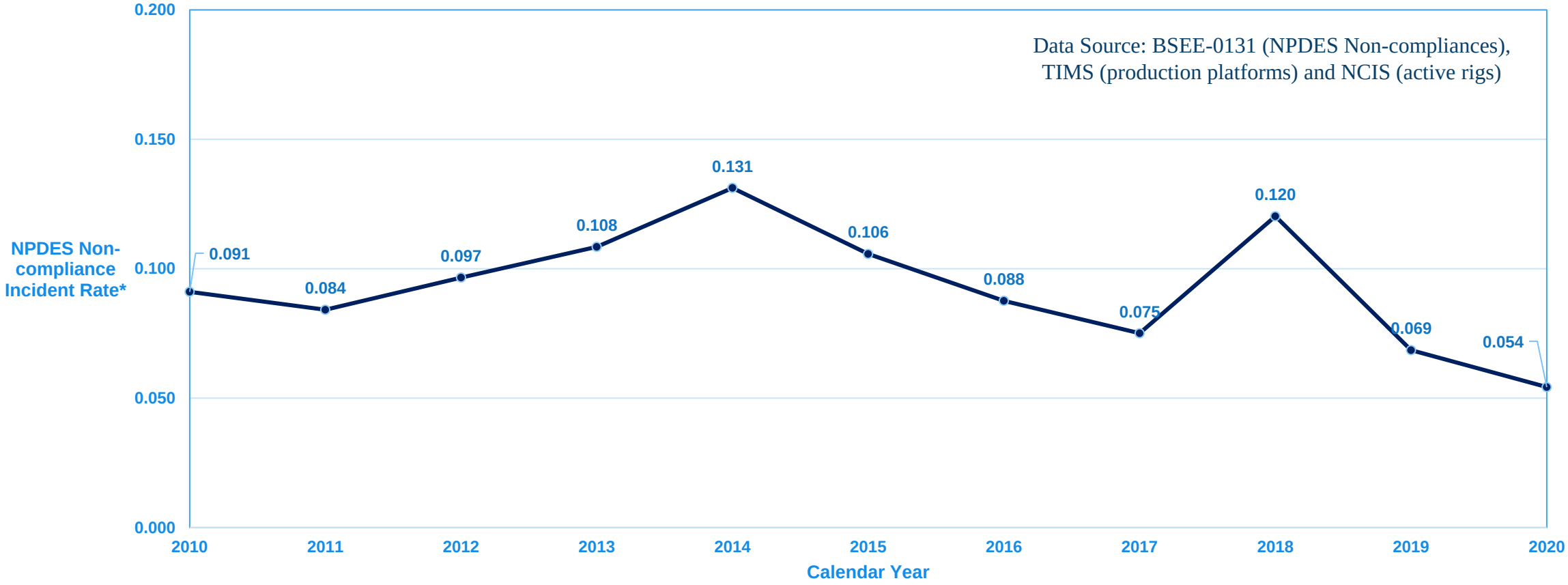
# National Pollutant Discharge Elimination System (NPDES) Non-compliance Incident Rate




***Ratio of non-compliances to number of platforms and active drill rigs for entire OCS. NPDES = National Pollutant Discharge Elimination System. Starting CY 2019, EPA NPDES Non-compliances were obtained from the EPA ECHO database and entered by BSEE into the BSEE 0131 form.**

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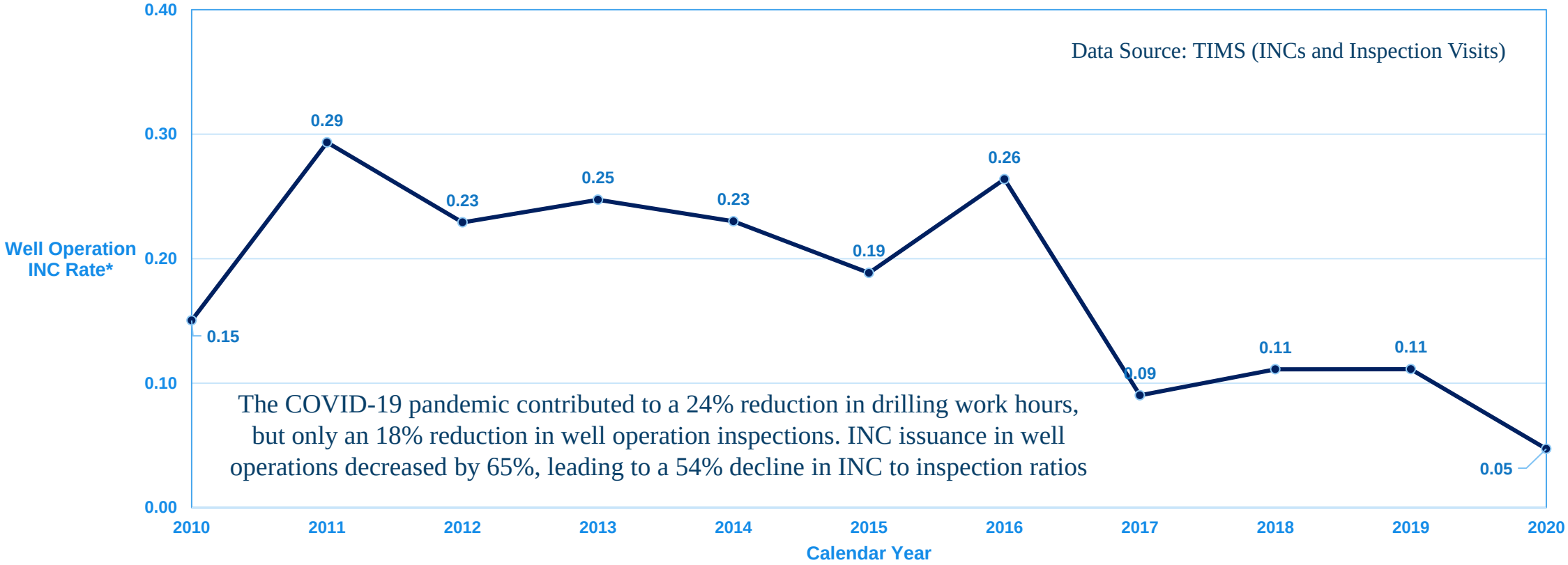
# Well Operations
# Incident of Noncompliance (INC) Rate
## (based on inspection visits)




***Ratio of well operation INCs written to the number of drilling rig and non-rig inspection visits conducted for entire OCS.**

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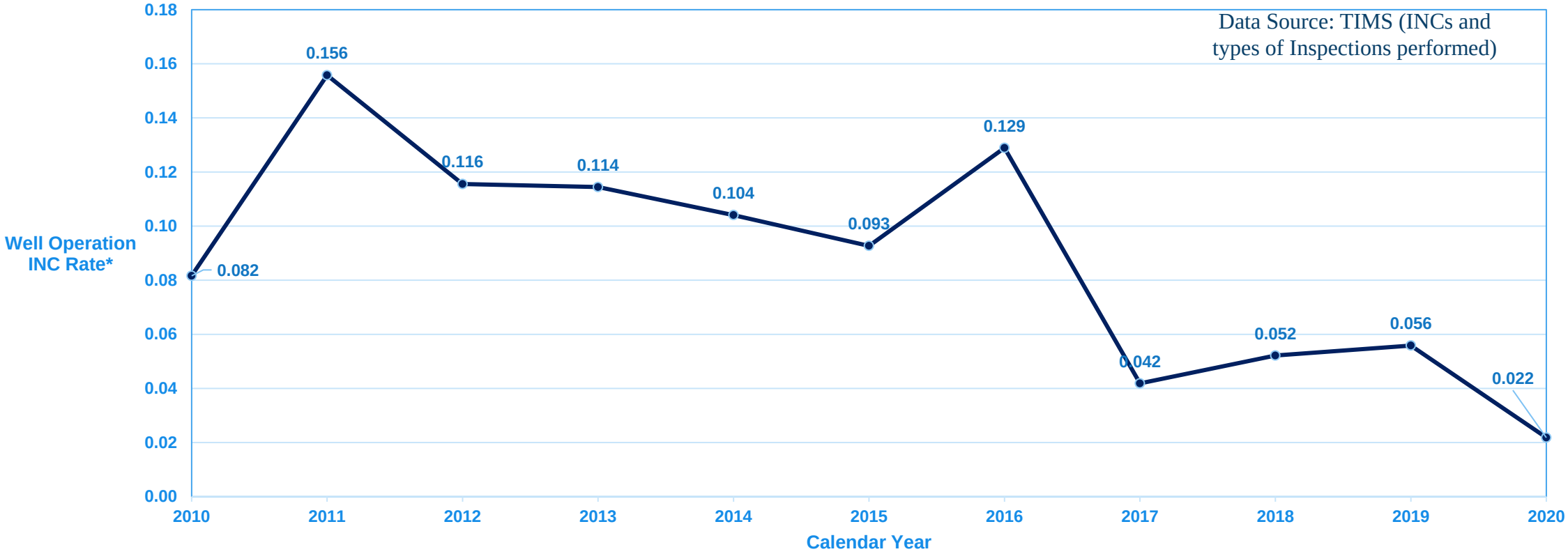
# Well Operations
# Incident of Noncompliance (INC) Rate
## (based on inspections performed)




***Ratio of well operation INCs written to the number of drilling rig and non-rig inspection types performed on the entire OCS. Each inspection visit may incorporate multiple inspection types, e.g., a wireline and a BOP inspection.**

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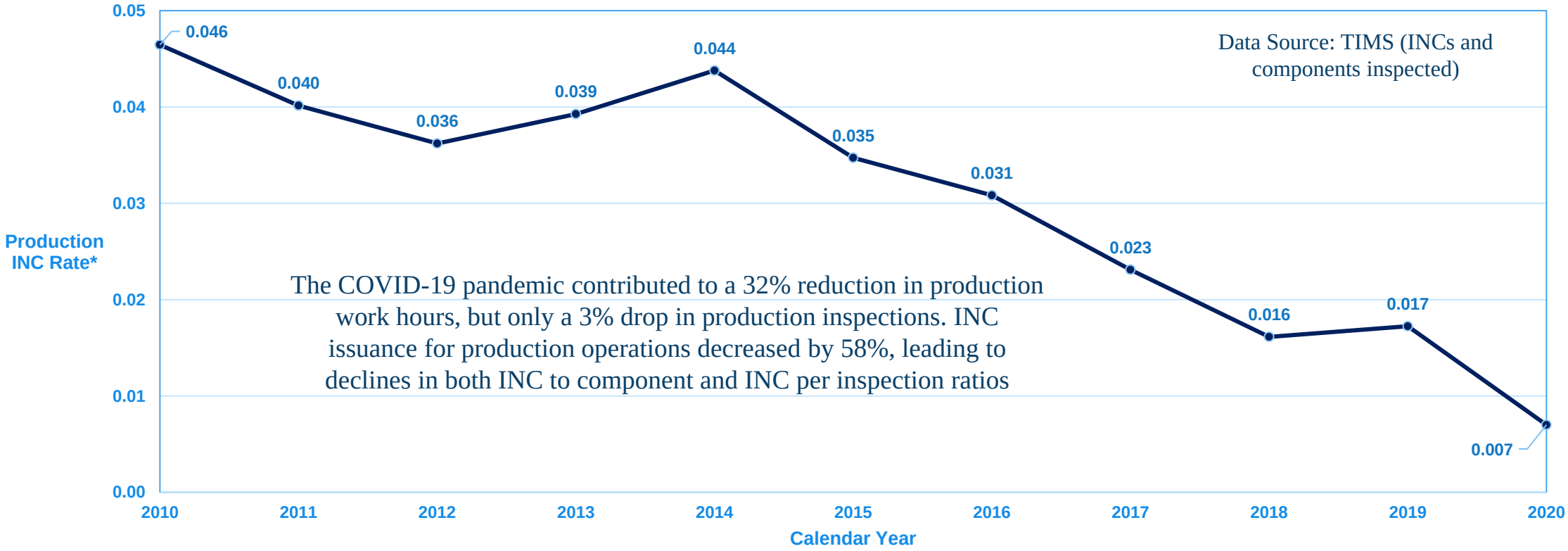
# Production
# Incident of Noncompliance (INC) Rate
## (based on components inspected)




***Ratio of production INCs written to number of components inspected for entire OCS. The method used to count components changed starting 2018; complex equipment began to be counted not as one component but as the sum of several components. Pressure monitors, temperature monitors, and high-level alarm or shutoff switches, are examples of safety system components.**

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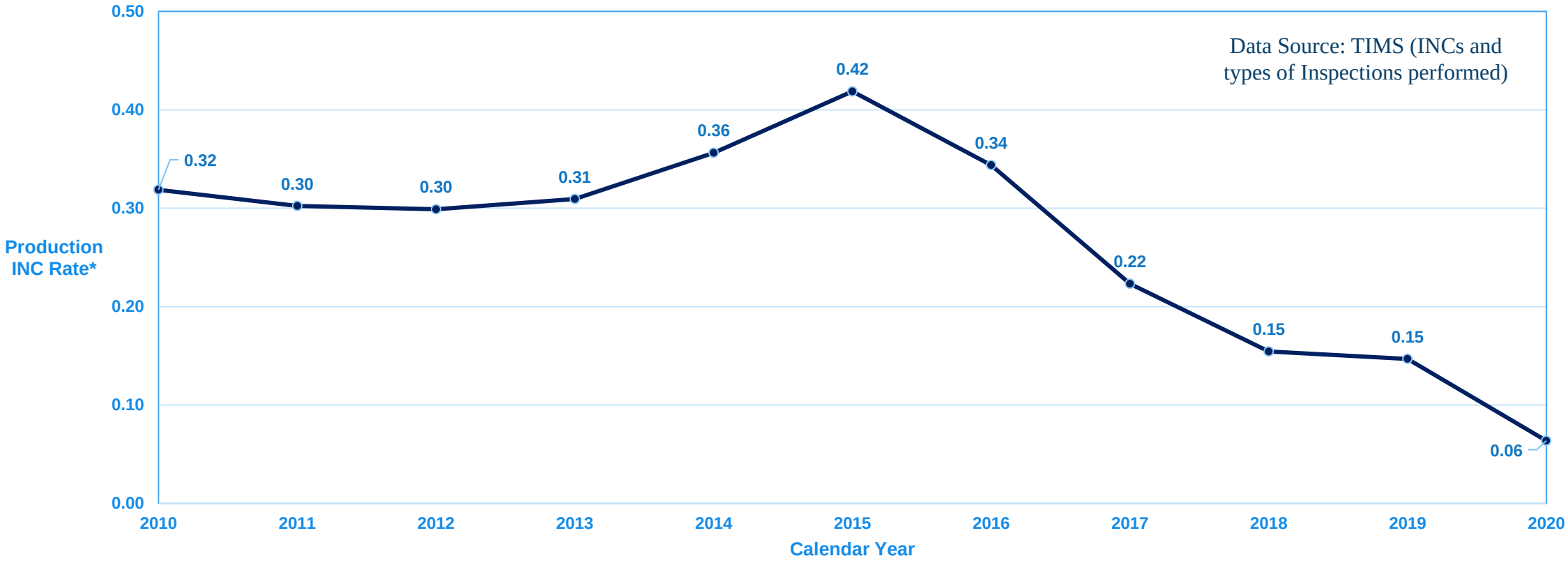
# Production
# Incident of Noncompliance (INC) Rate
## (based on inspections performed)




***Ratio of production INCs written to the total count of types of production inspections performed for entire OCS. Each inspection visit may involve multiple inspection types, e.g., a Production Complete and an Environmental inspection.**

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