

# The Offshore Industry

-middle-aged, but still learning

Mike Utt

UNOCAL 



# SPE DISTINGUISHED LECTURER SERIES

is funded principally  
through a grant of the

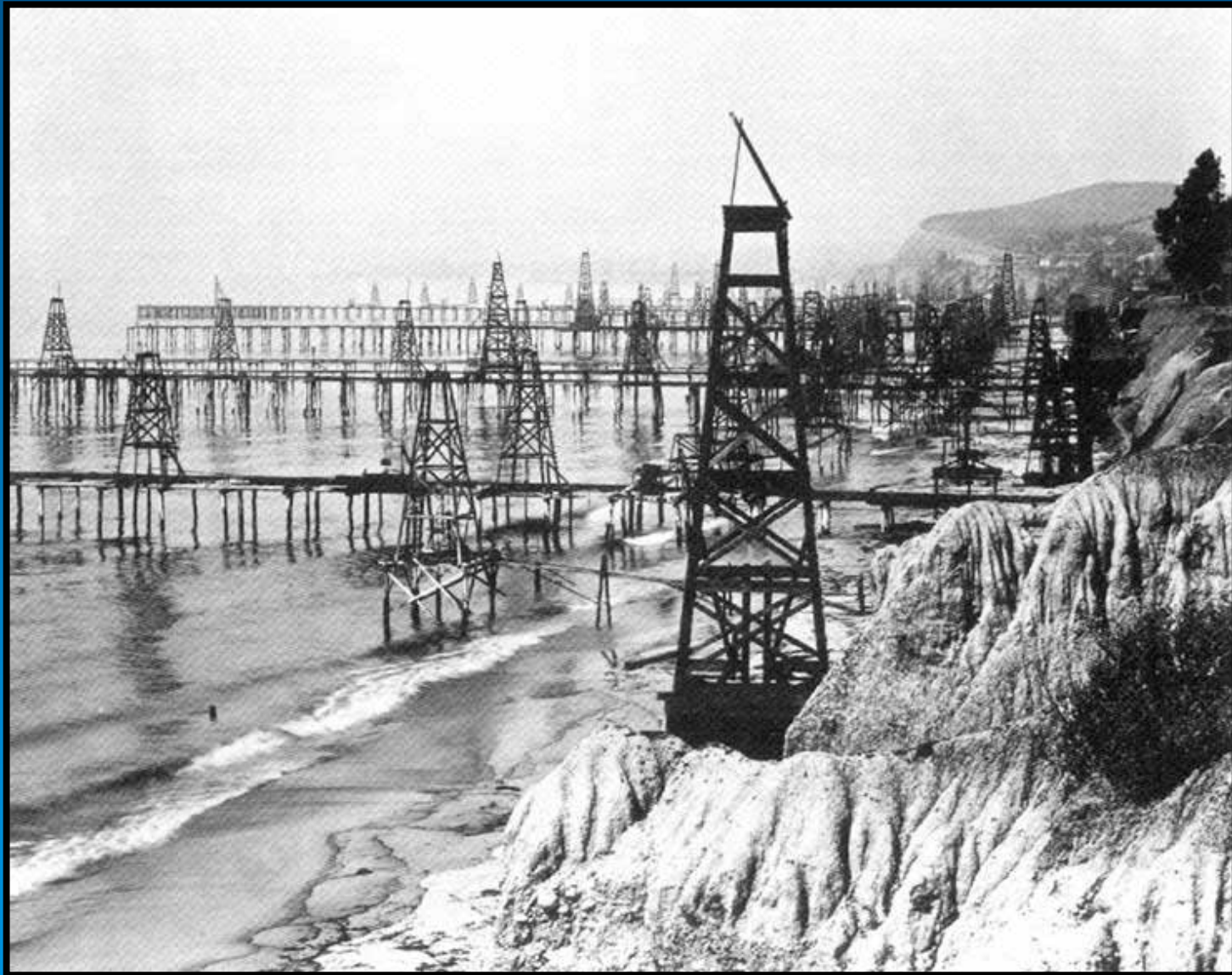
## SPE FOUNDATION

The Society gratefully acknowledges  
those companies that support the program  
by allowing their professionals  
to participate as Lecturers.

And special thanks to The American Institute of Mining, Metallurgical,  
and Petroleum Engineers (AIME) for their contribution to the program.

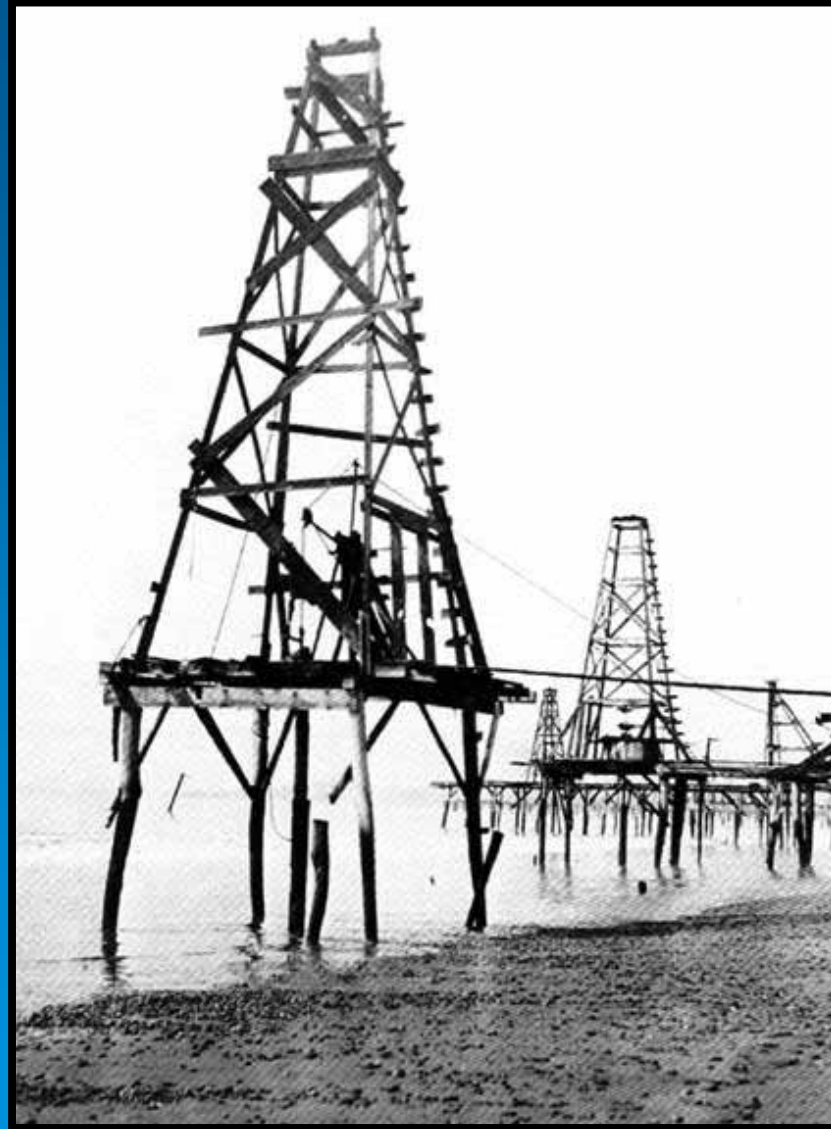


Huntington Beach, California

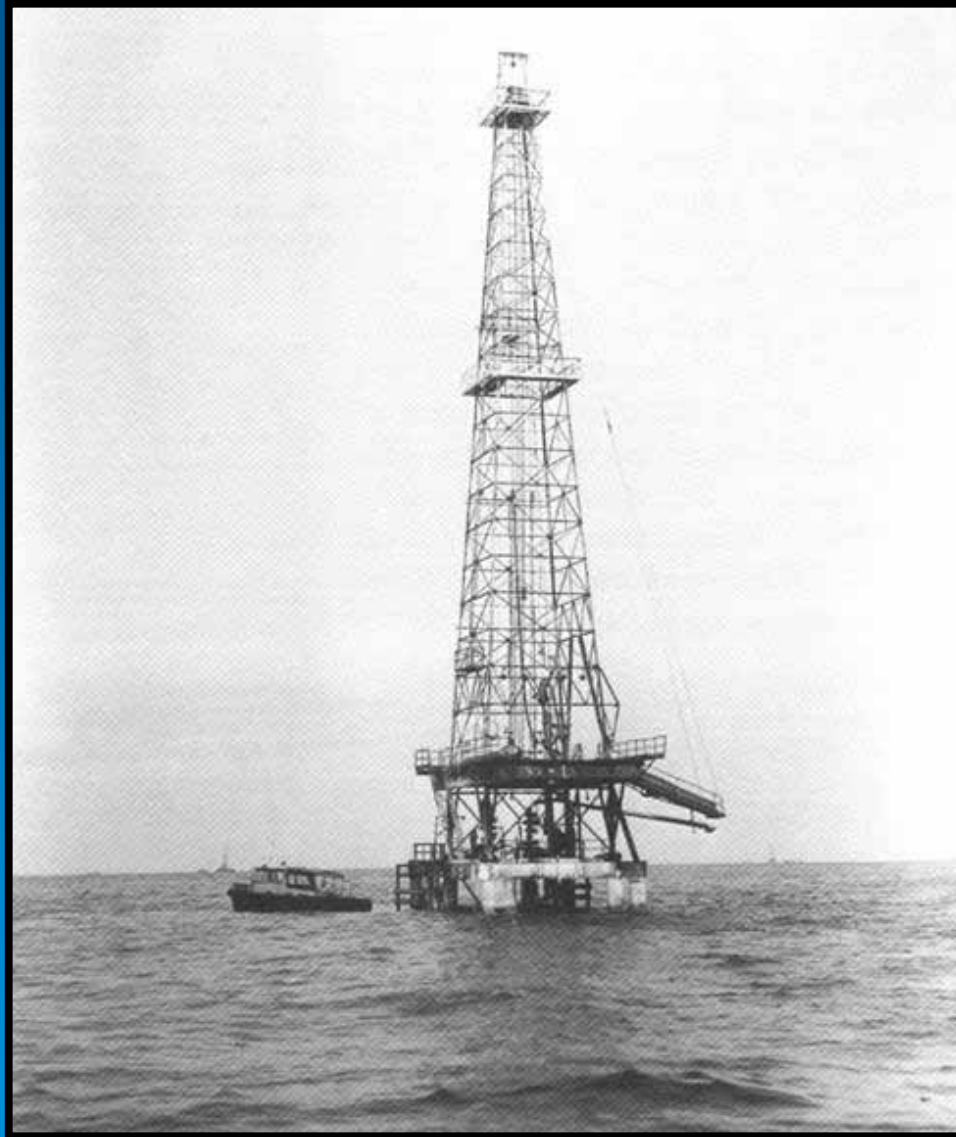


Summerland, California

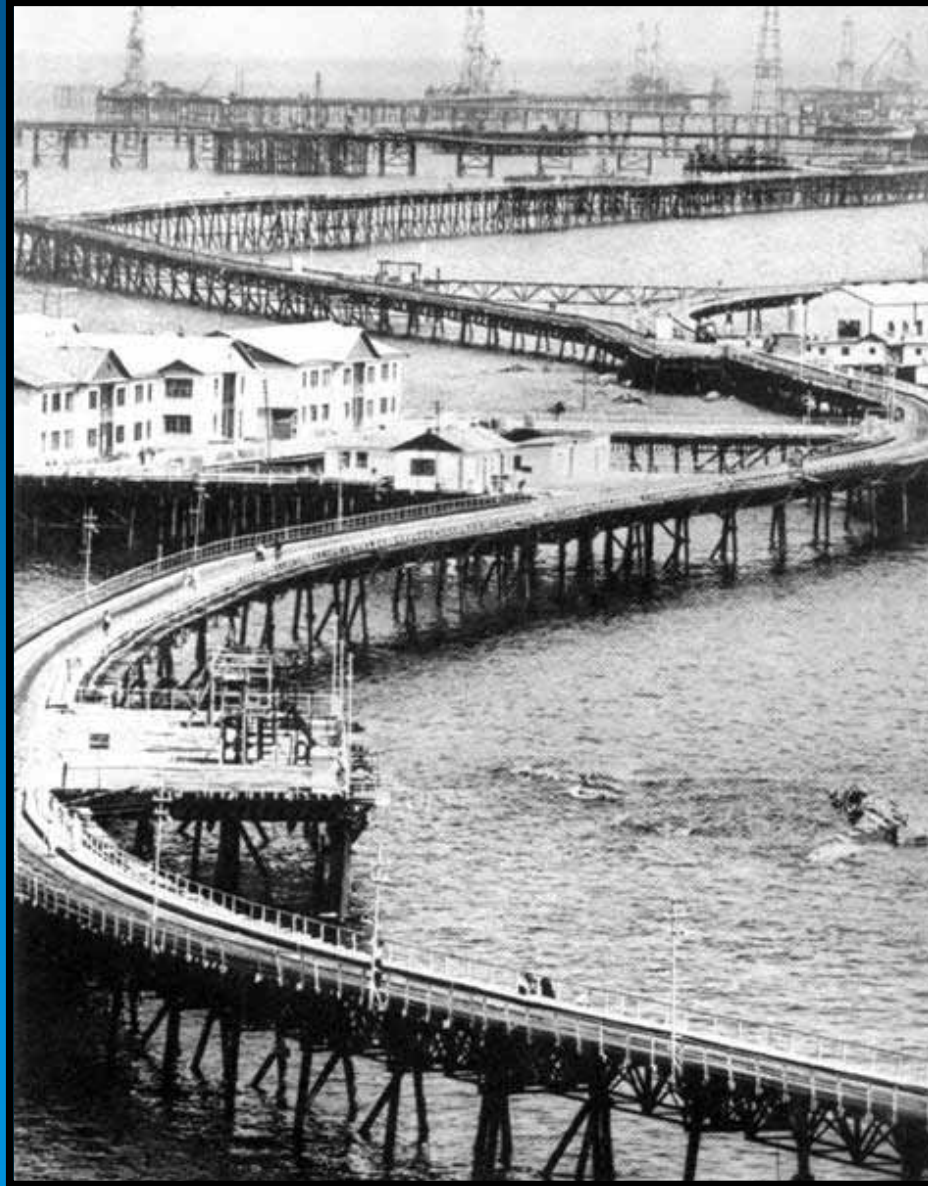




**Production  
Platform  
Summerland,  
California**



**Lake Maracaibo, Venezuela**



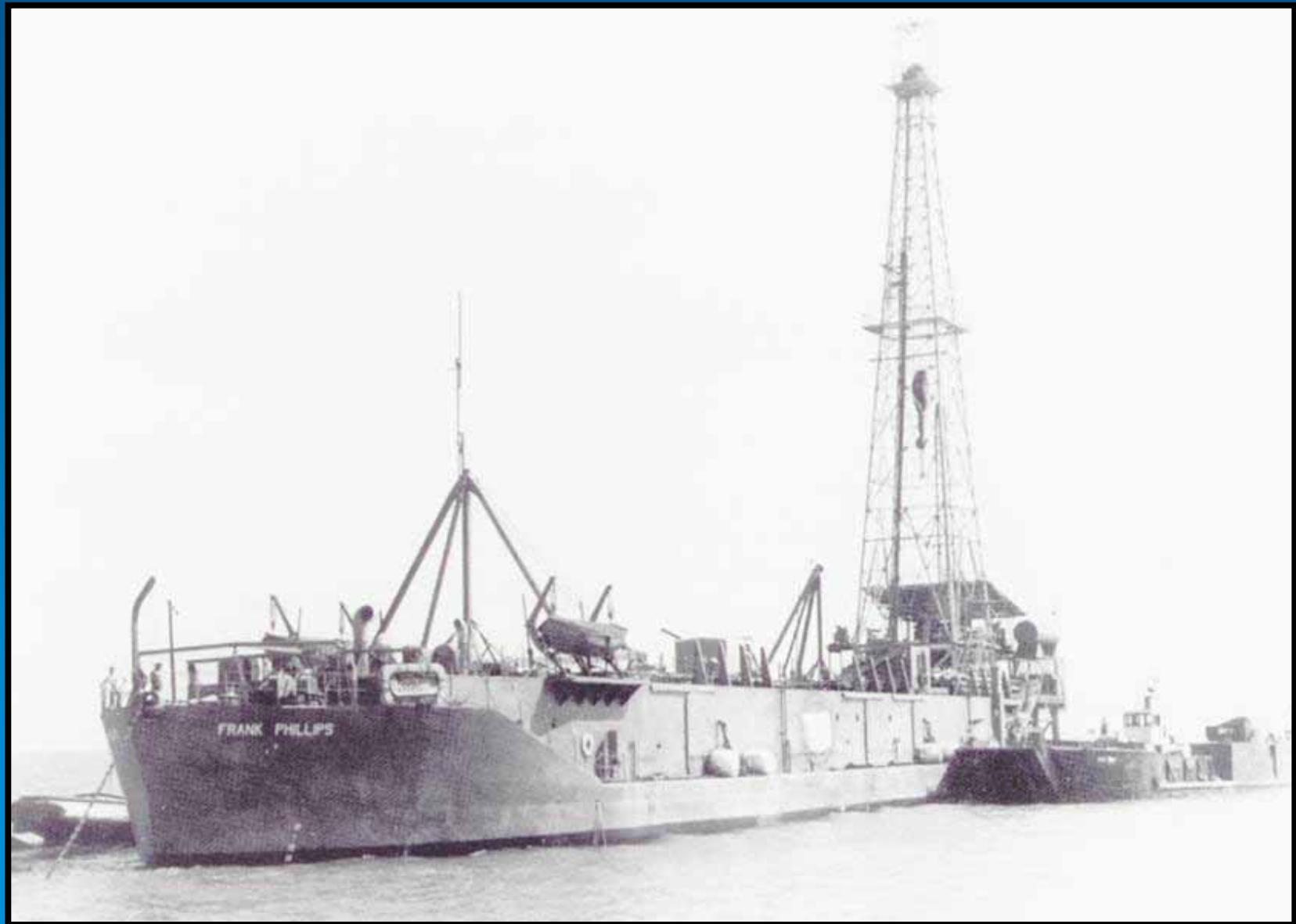
Caspian  
Sea  
Soviet  
Era  
Up To  
100 KM  
Offshore

When did the Offshore  
Industry begin ?



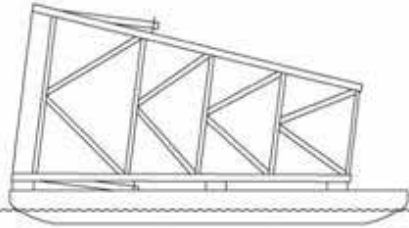
Louisiana  
September 9, 1947  
Ship Shoal Block 32



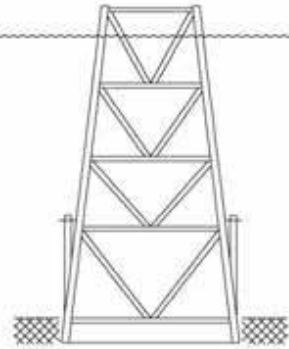


There are 5 basic types  
of offshore “Oil Rigs”

# 1. Fixed Platforms

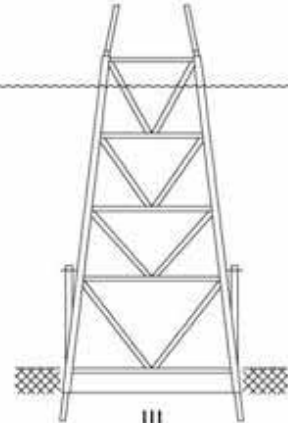


TRANSPORT JACKET TO LOCATION



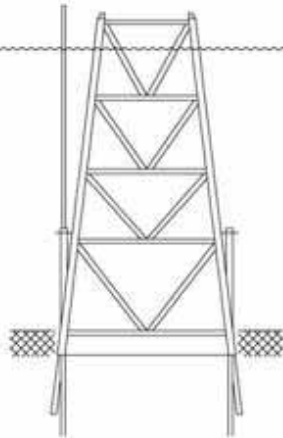
II

SET JACKET ON BOTTOM



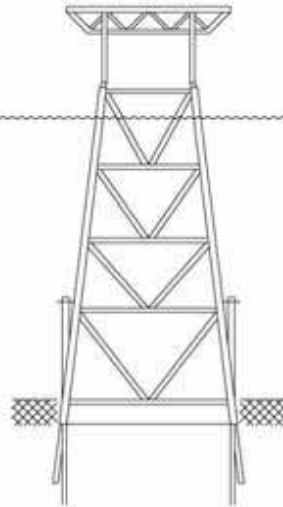
III

DRIVE BATTER PILES



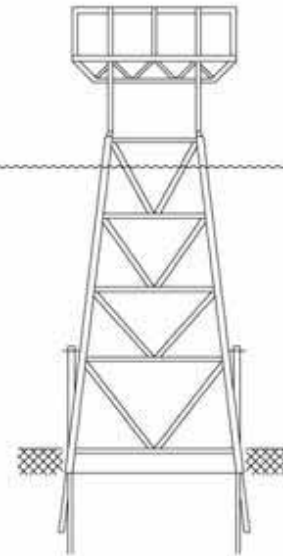
IV

DRIVE SKIRT PILES



V

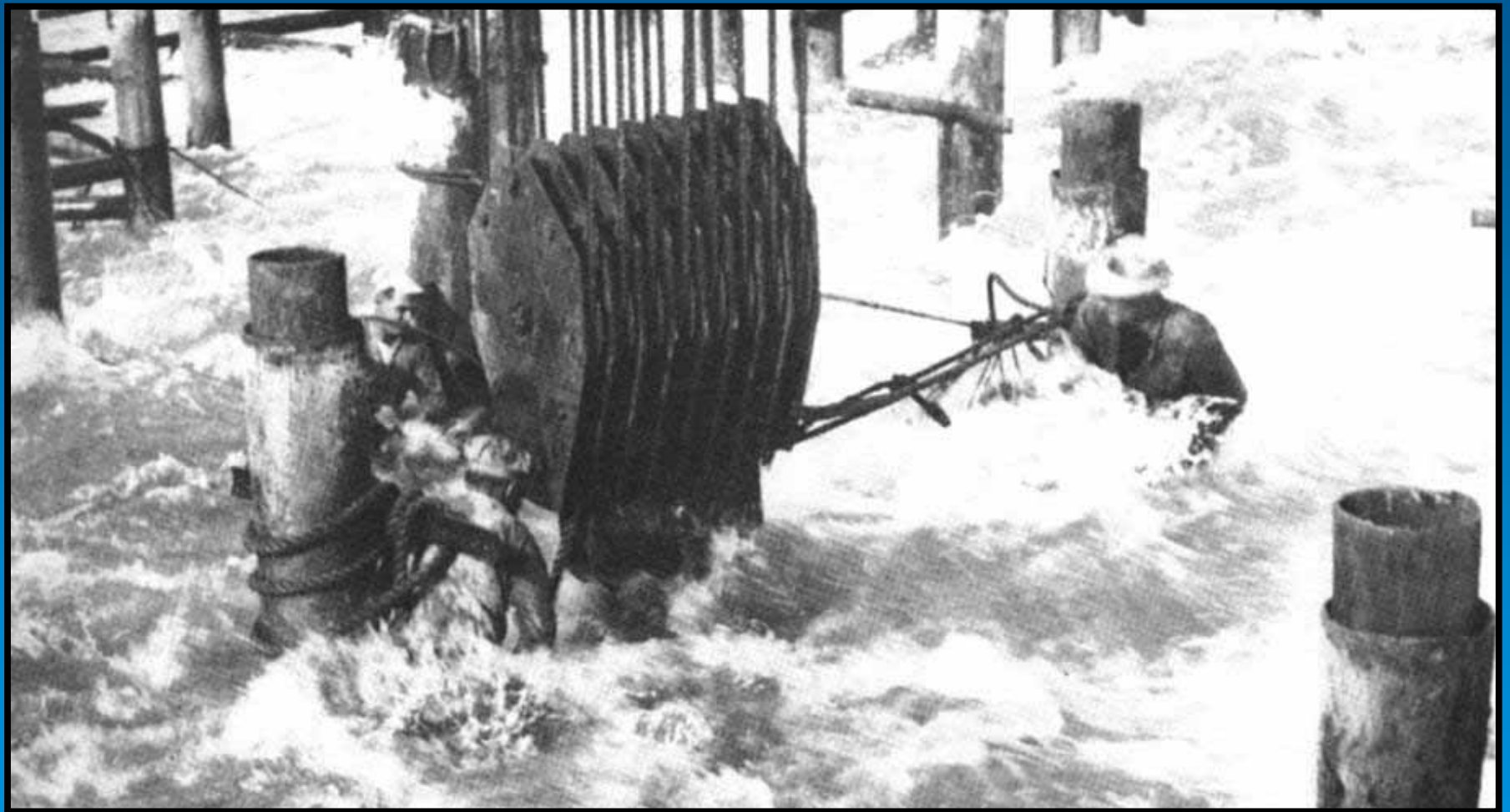
SET LOWER  
DECK SECTION



VI

SET UPPER  
DECK SECTION





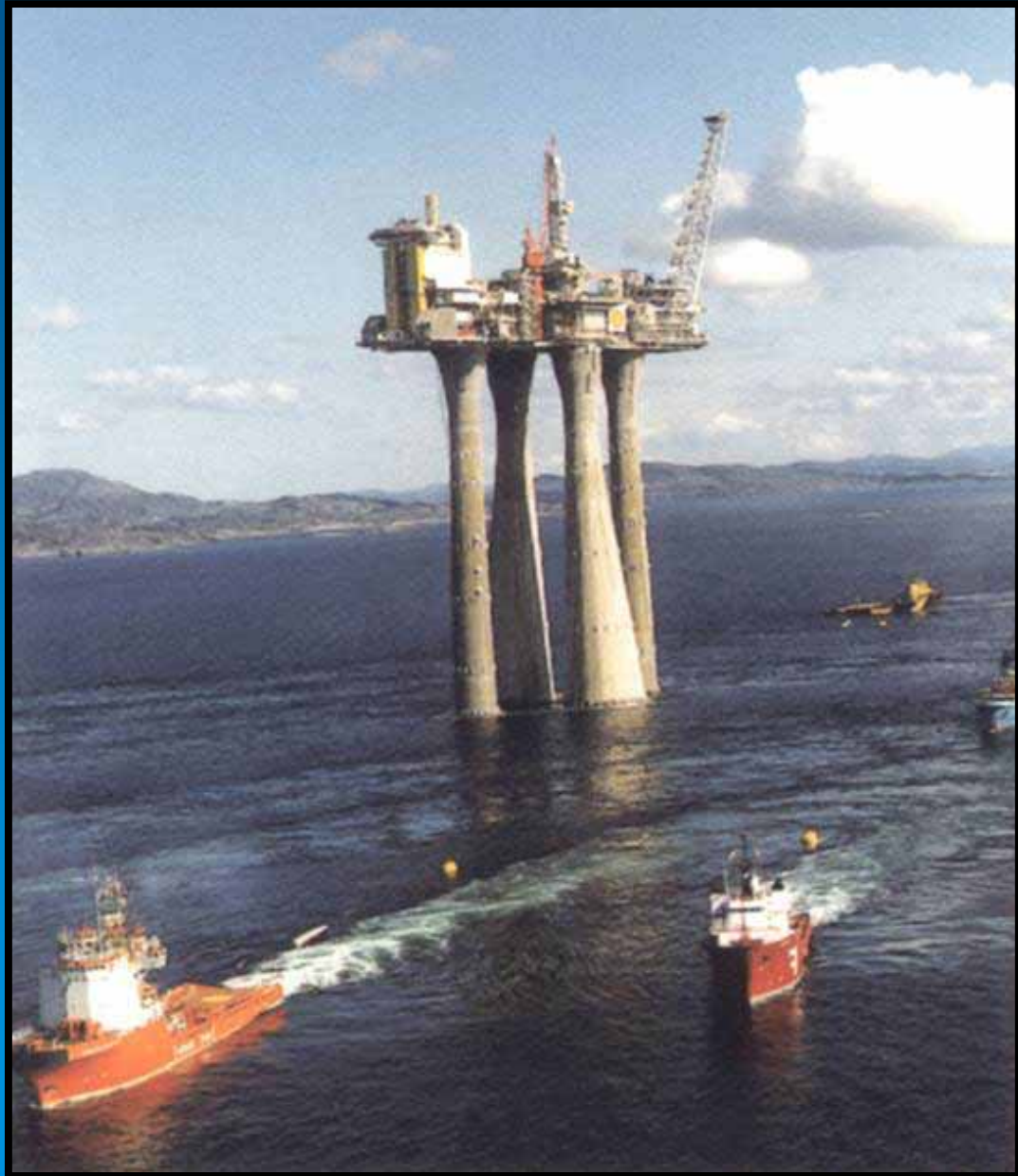






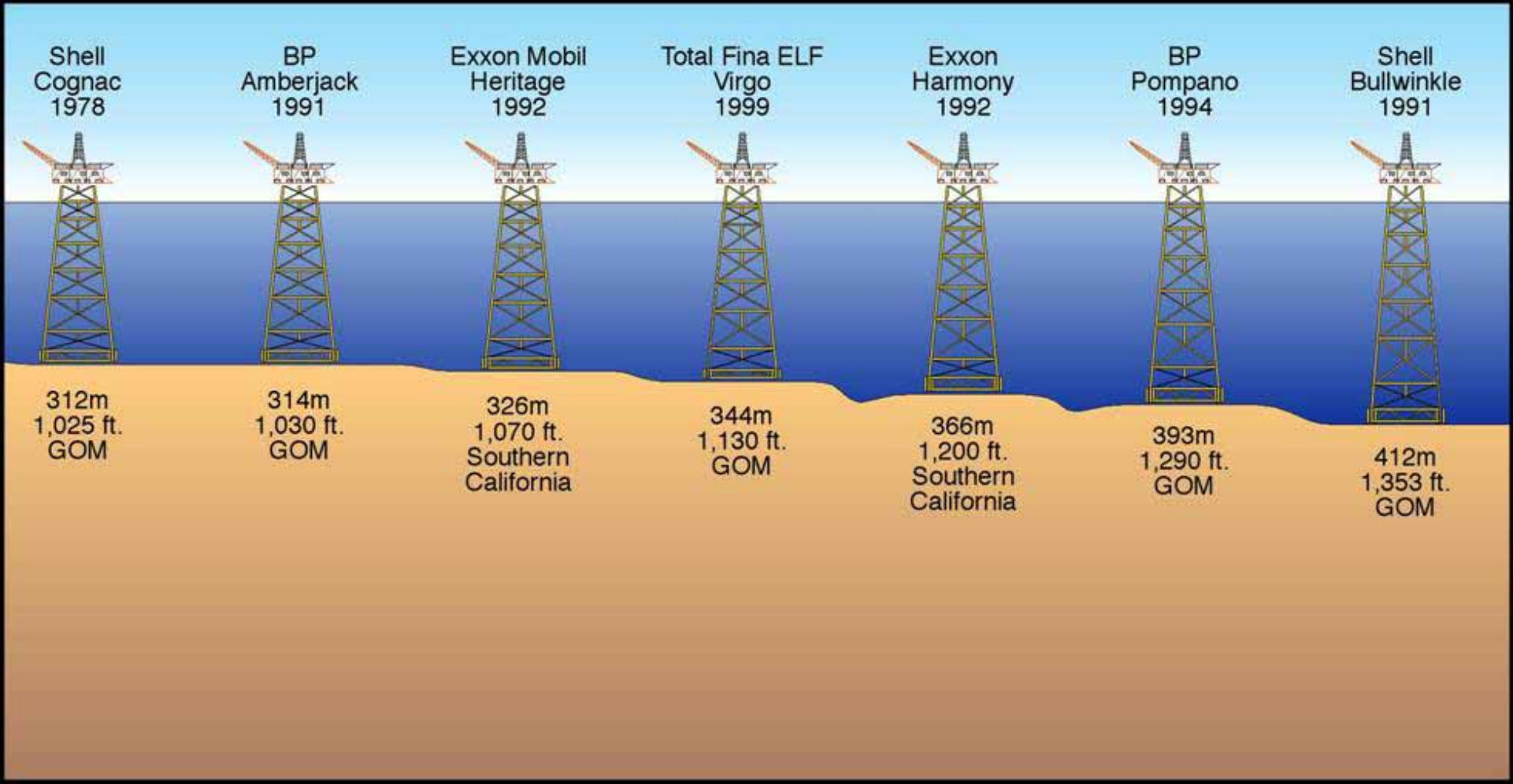




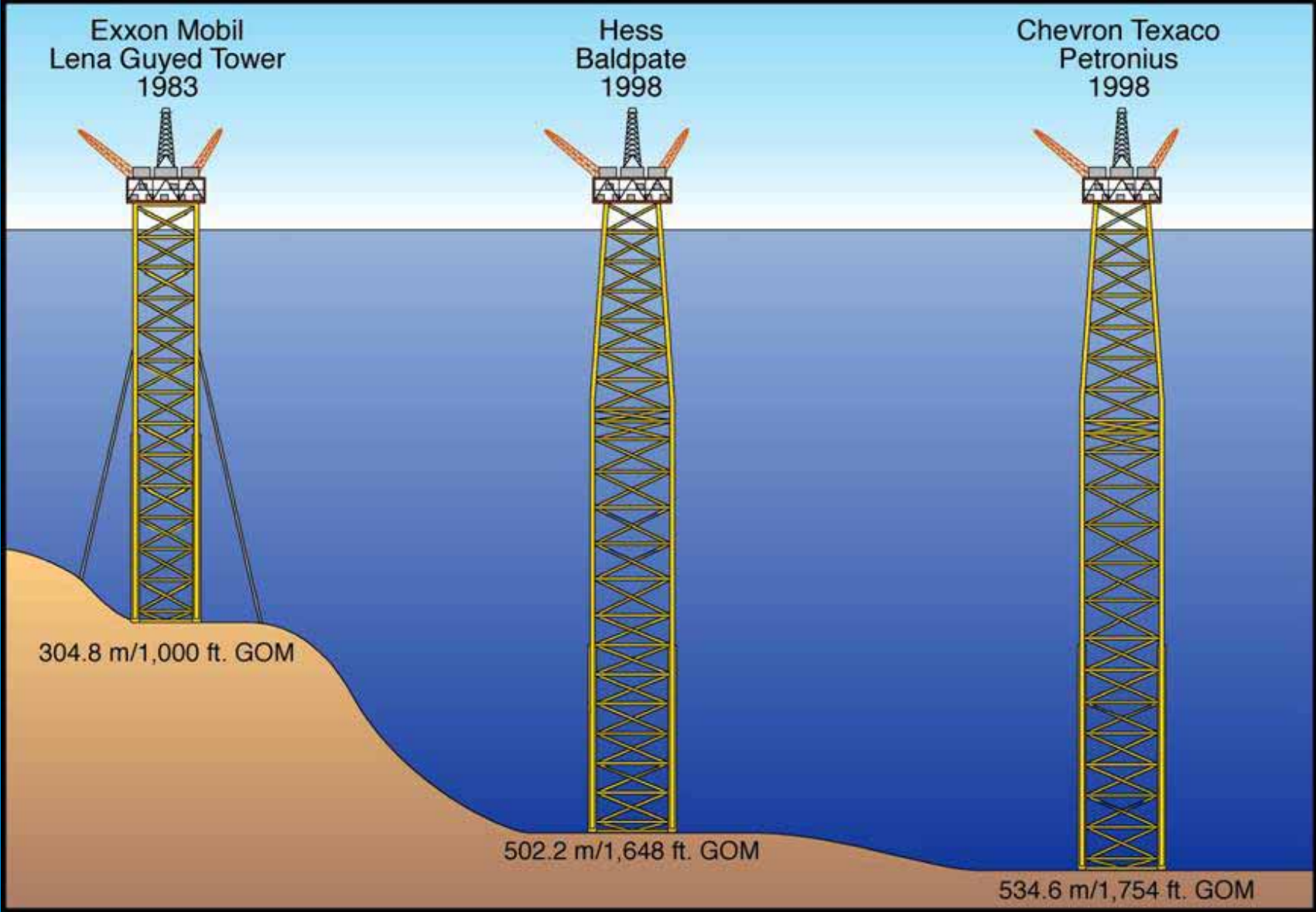




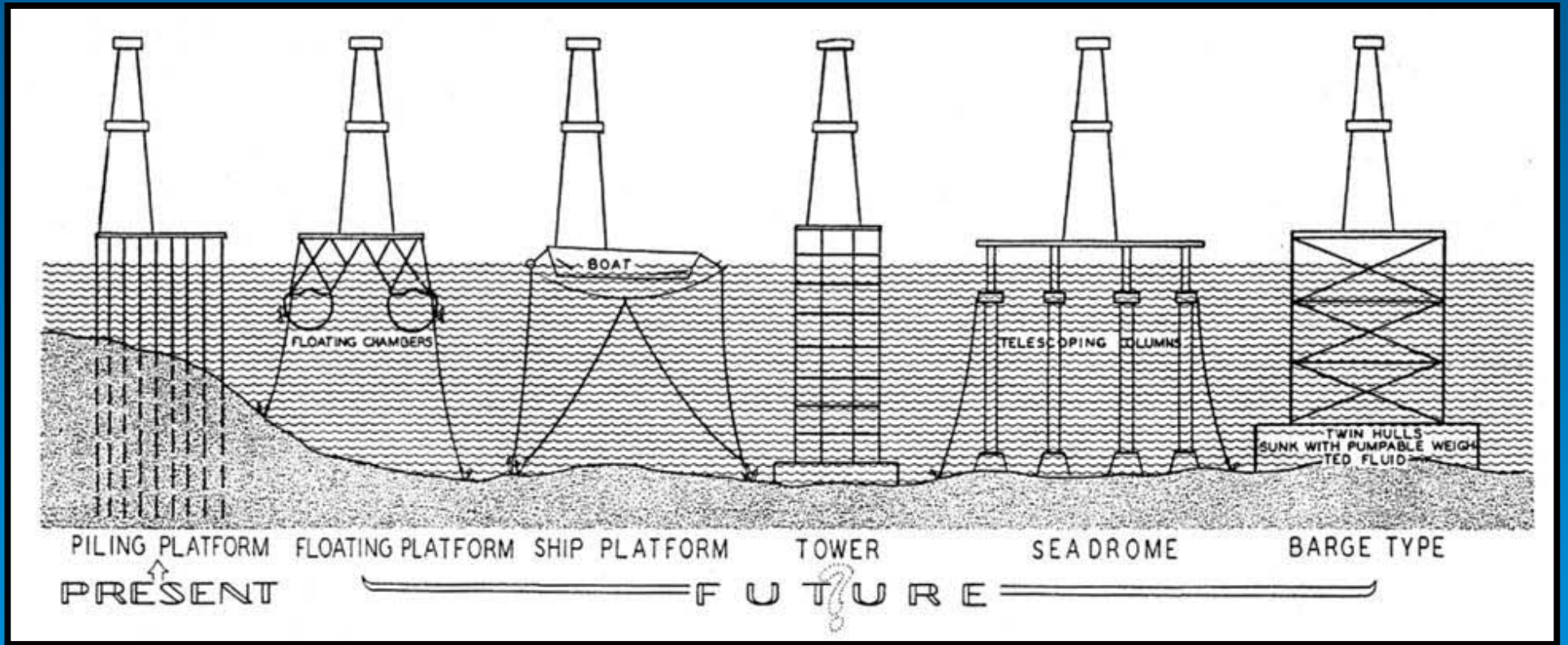
# Fixed Platforms (>1000' or 328m) - Installed or Sanctioned



# Compliant Towers (CTs), Compliant Piled Towers (CPTs), Guyed Towers - Installed or Sanctioned



# Mobile Offshore Drilling Units



From The Oil & Gas Journal  
 June 28, 1947

# 2. Submersibles





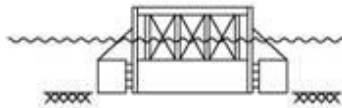
Posted Barge In Louisiana Bayou



World's First  
Submersible  
Drilling Rig  
"Breton Rig 20"

HAYWARD-BARNSDALL  
"BRETON RIG 20"  
(TRANSWORLD RIG 40)

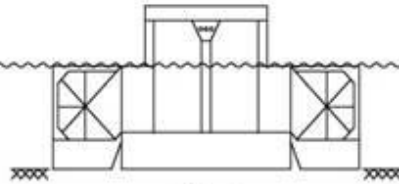
MOVABLE  
PONTOONS



1950

ODECO  
"MR. CHARLIE"

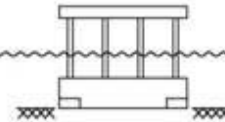
HINGED  
PONTOONS



1954

CALC  
"S-44"

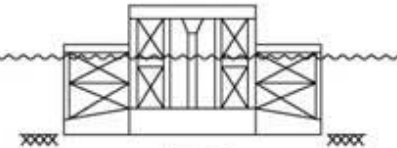
RECESSED  
PADS



1954

ODECO  
"JOHN HAYWARD"

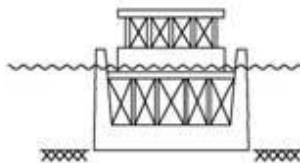
FIXED HULL  
EXTENSIONS



1955

PENROD DRYDOCK  
(PHILLIPS RIG 42)

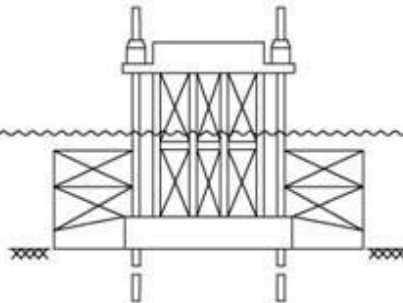
FLOATING  
DRYDOCK



1955

OFFSHORE "NO. 53"

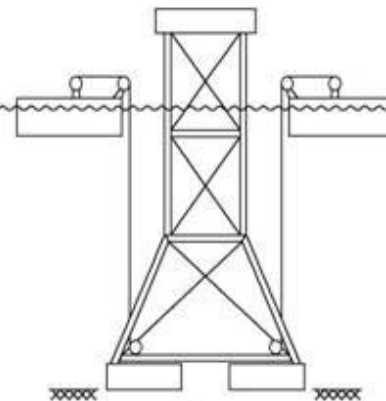
FIXED HULL  
EXTENSIONS  
& SPUDS



1955

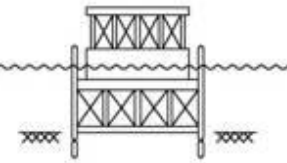
NATIONAL COAL BOARD  
(ENGLAND)

CABLE CONTROLLED



1955

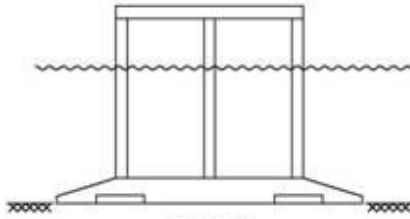
MAGNOLIA "RIG 52"  
BIRD-ON-A-NEST



1956

CALCO "S-55"

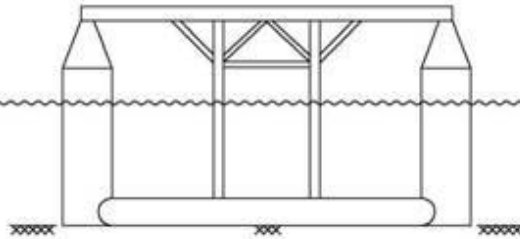
STREAMLINED  
HULL



1956

TRANSWORLD "RIG-46"

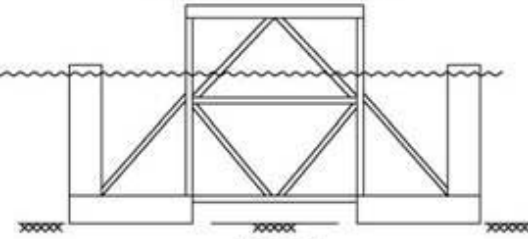
BOTTLE TYPE



1956

ODECO "MARGARET"

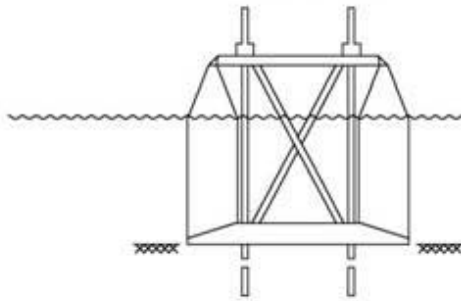
CATAMARAN HULL  
WITH BOTTLES



1957

RENROD "RIG 50"

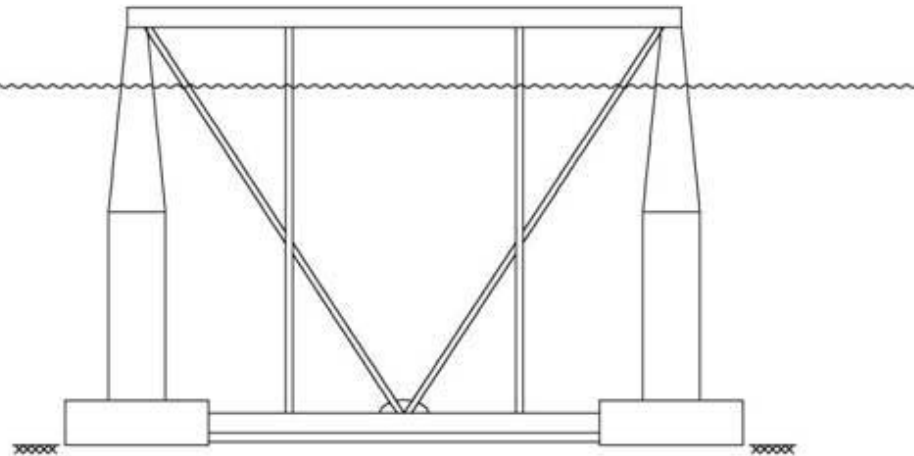
BOTTLES  
& SPUDS



1958

TRANSWORLD "RIG 54"

TRIANGULAR SHAPE



1963

# 3. Semisubmersibles



Dec. 29, 1964

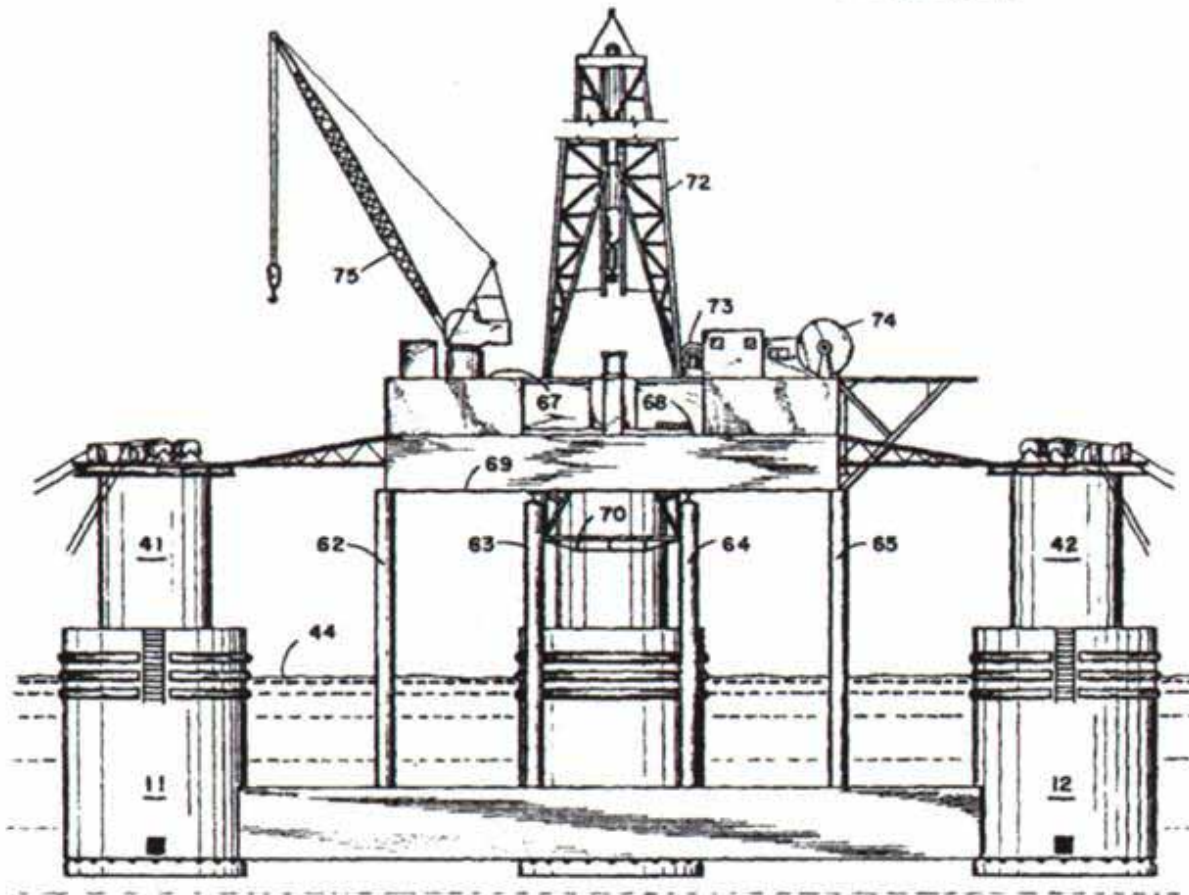
B. G. COLLIPP

3,163,147

FLOATING DRILLING PLATFORM

Filed May 22, 1961

6 Sheets-Sheet 1



INVENTOR:

B. G. COLLIPP

BY: *J. H. McContry*  
HIS AGENT



World's First  
Semisubmersible  
Bluewater I





Noble Max Smith

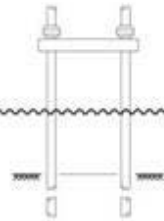




# 4. Jackups

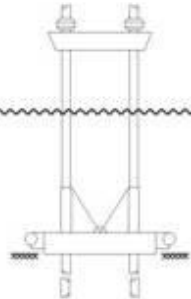


DELONG-MCDERMOTT  
"NO. 1"  
(OFFSHORE "NO. 51")  
FIRST MOBILE JACKUP



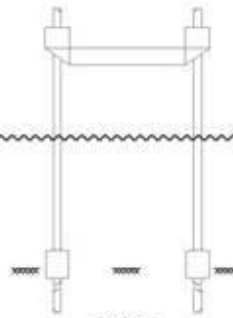
1954

GLASSCOCK "MR. GUS 1"  
COMBINATION TYPE  
(ELEVATED DECK)



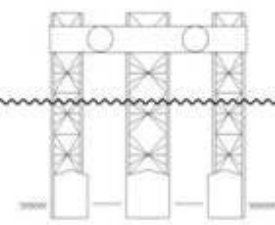
1954

OFFSHORE "NO. 52"  
CYLINDRICAL LEGS  
WITH CANS



1955

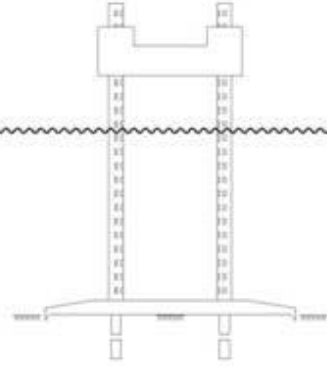
ZAPATA "SCORPION"  
OPEN FABRICATED  
LEGS  
ELECTRIC RACK AND  
PINION DRIVE



1956

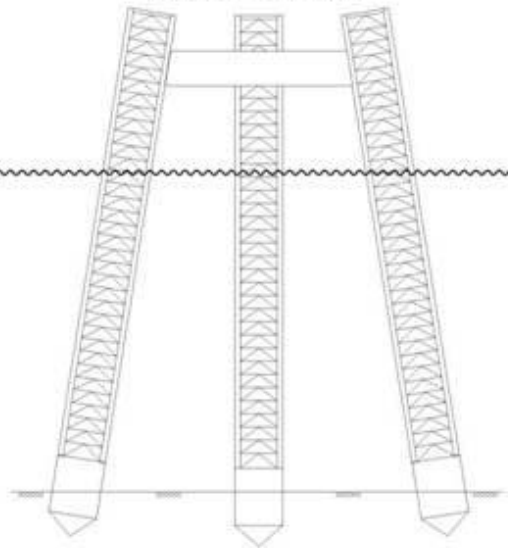
GLASSCOCK "MR. GUS II"  
(CORAL "MR. GUS II")

SUPPORT MAT  
& SPUDS



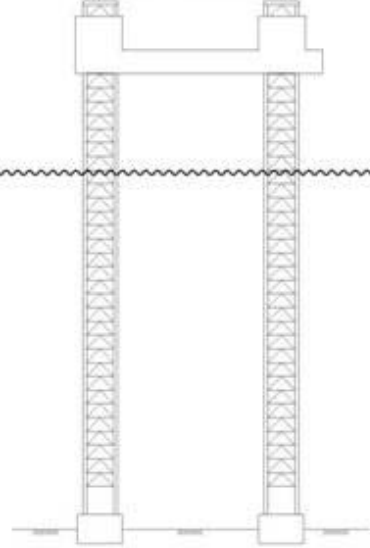
1957

"DIXILYN 250"  
CANTED LEGS



1963

OFFSHORE "ORION"  
STRAIGHT LEGS  
(DEEP WATER)



1966



# Offshore Company's No. 51



World's First Mobile Jackup



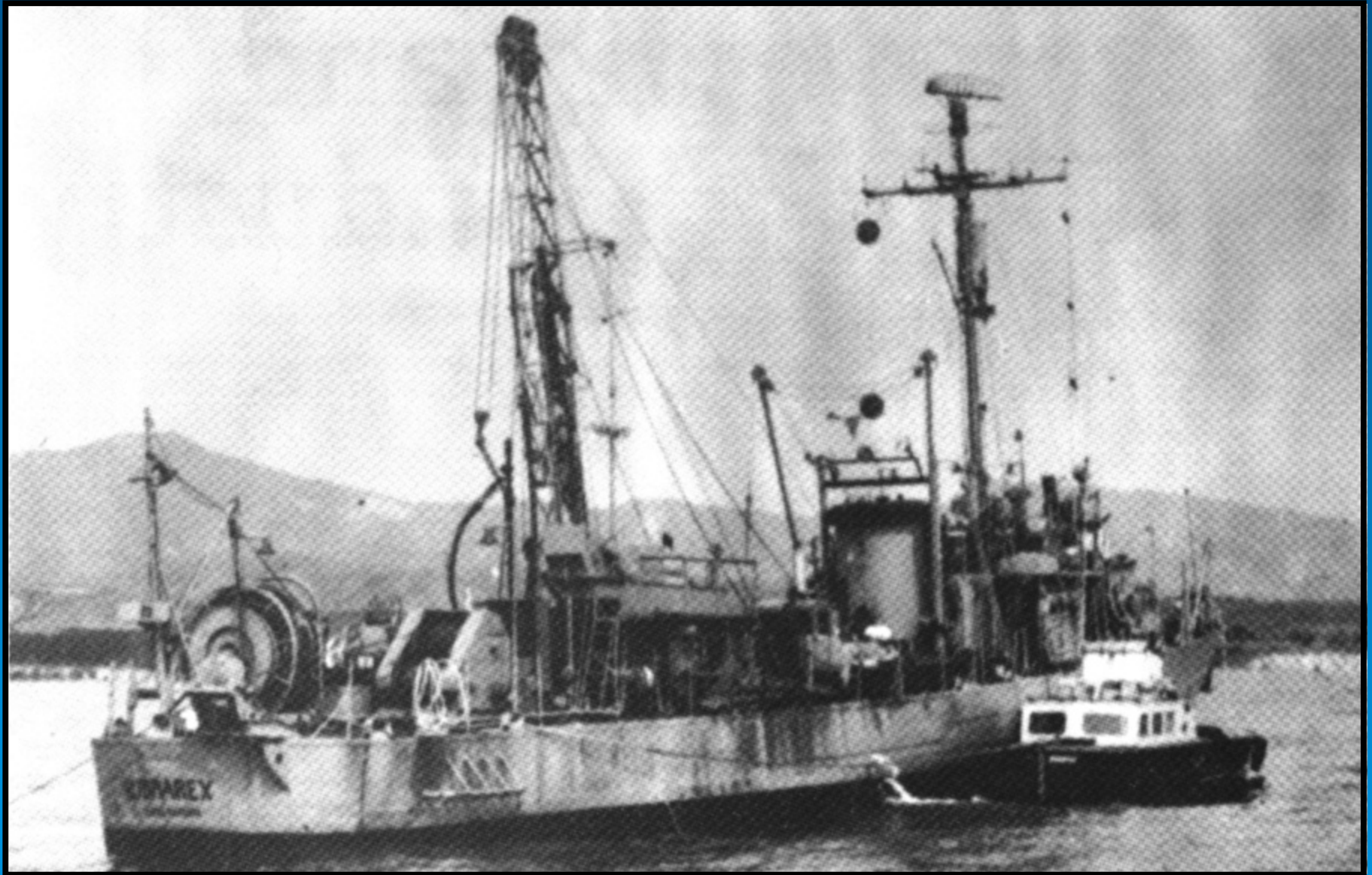
Noble Tommy Craighead







# 5. Drillships



World's First Drillship: Submarex

CUSS GROUP  
"SUBMAREX"  
(GLOBAL MARINE  
"SUBMAREX")

OVER-THE-SIDE  
CORING BARGE



1953

SOCAL  
"WESTERN EXPLORER"  
(GLOBAL MARINE  
"WESTERN EXPLORER")

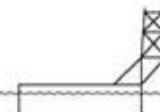
CENTERLINE BARGE



1955

BROWN AND ROOT -  
MCCLELLAND  
ENGINEERS "U-303"

OVER-THE-SIDE  
RECTANGULAR  
CORING BARGE



1956

OFFSHORE  
"D-1"

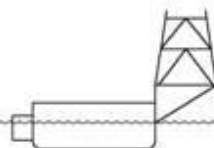
CENTERLINE  
BARGE



1958

ZAPATA  
"NOLA I"  
(GOLDEN LANE  
"MERCURY")

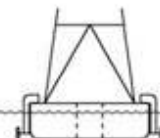
OVER-THE-SIDE  
BARGE



1959

GLOBAL MARINE  
"CUSS I"

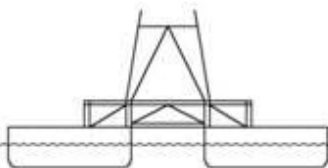
DYNAMIC  
POSITIONING



1961

READING & BATES  
"C.P. BAKER"

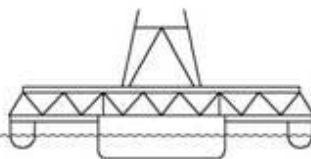
CATAMARAN



1962

ZAPATA  
"SIDEWINDER"

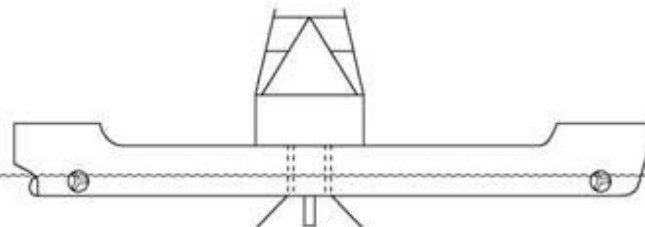
OUTRIGERS



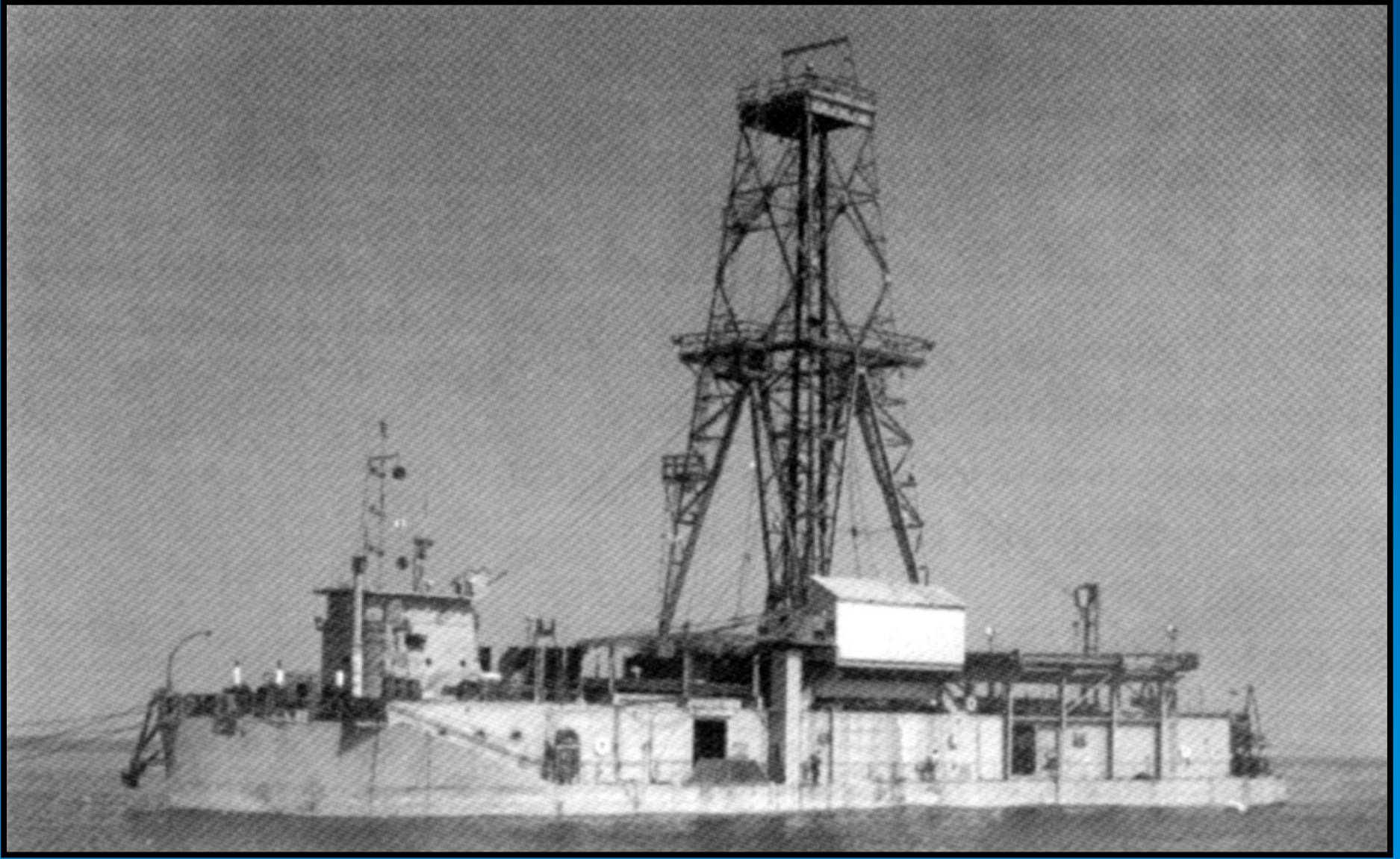
1963

OFFSHORE "DISCOVERER"

TURRET MOORING  
(WITH THRUSTERS)







Drillship Cuss-I





Zapata  
Sidewinder

Offshore  
Malaysia,

1963





# Mobile Offshore Drilling Units 2004 Fleet

- Jackups - 389
- Semisubmersibles - 166
- Drillships - 40
- Drill Barges - 22 (51 with Lake Maricaibo)
- Tenders - 24
- Submersibles - 10 (includes 3 Arctic rigs)

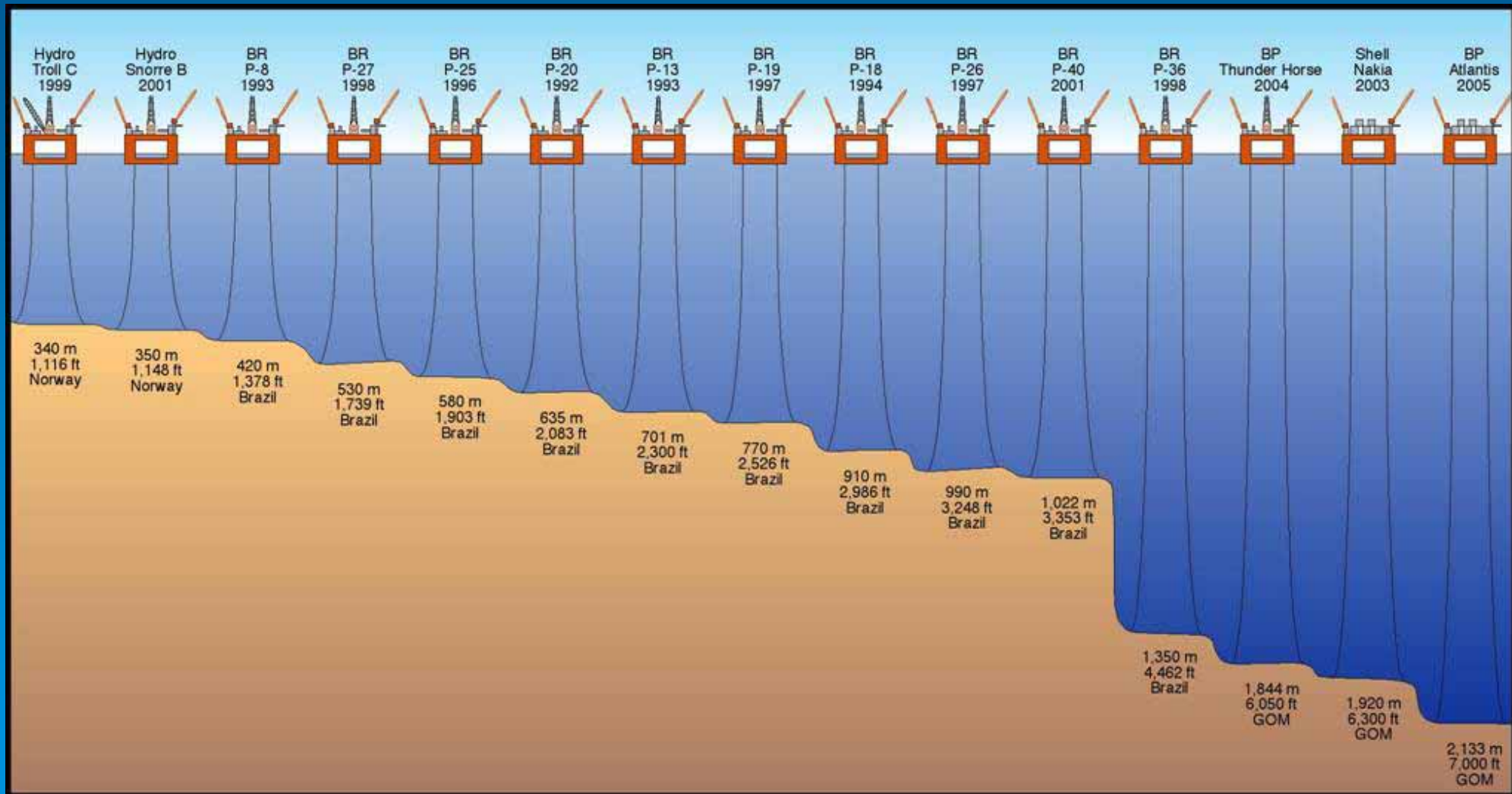


# Floating Production Systems

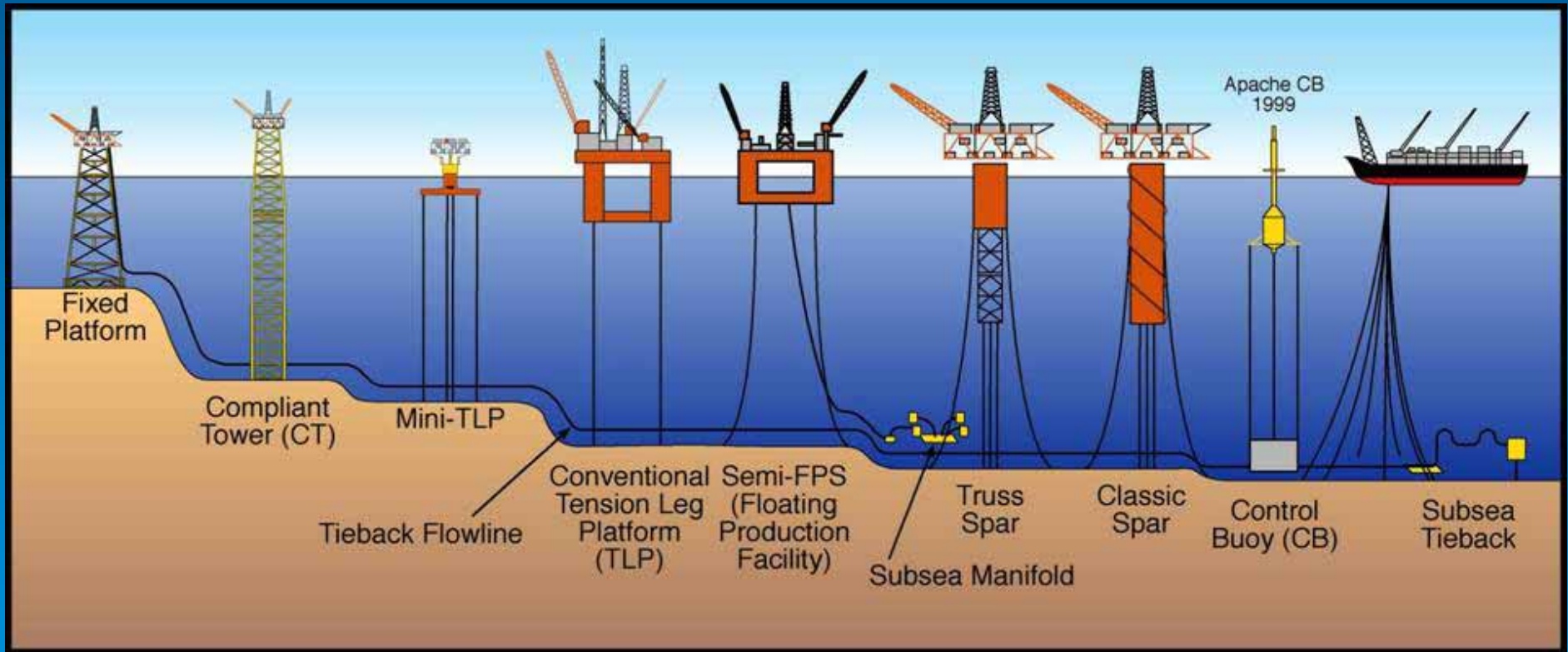
# World's First Floating Production Platform - Transworld 58



# Semisubmersible Floating Production Systems 15 Deepest Units - Installed or Sanctioned

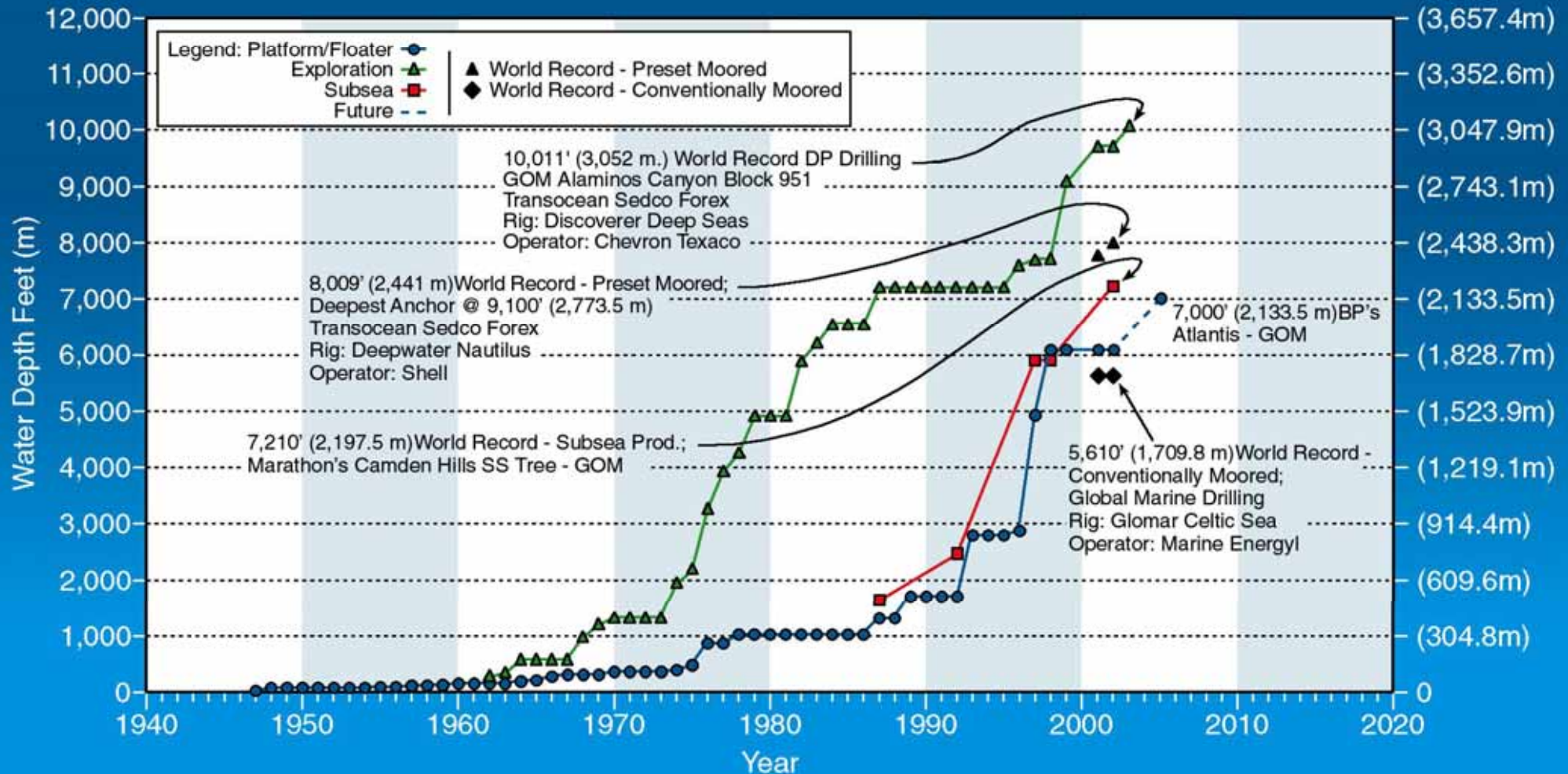


# Deepwater Systems Types

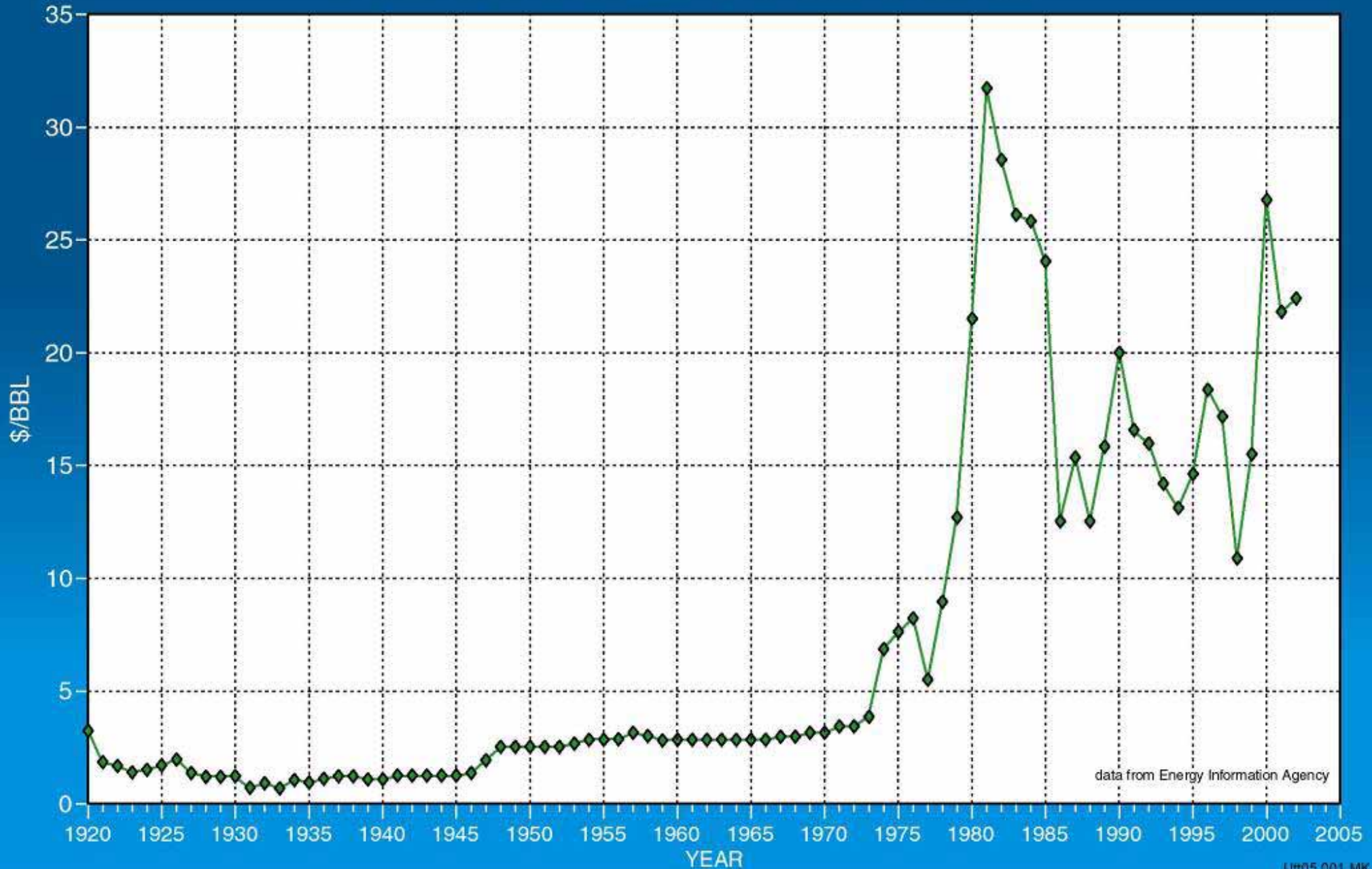




# Worldwide Progression of Water Depth Capabilities for Drilling and Production



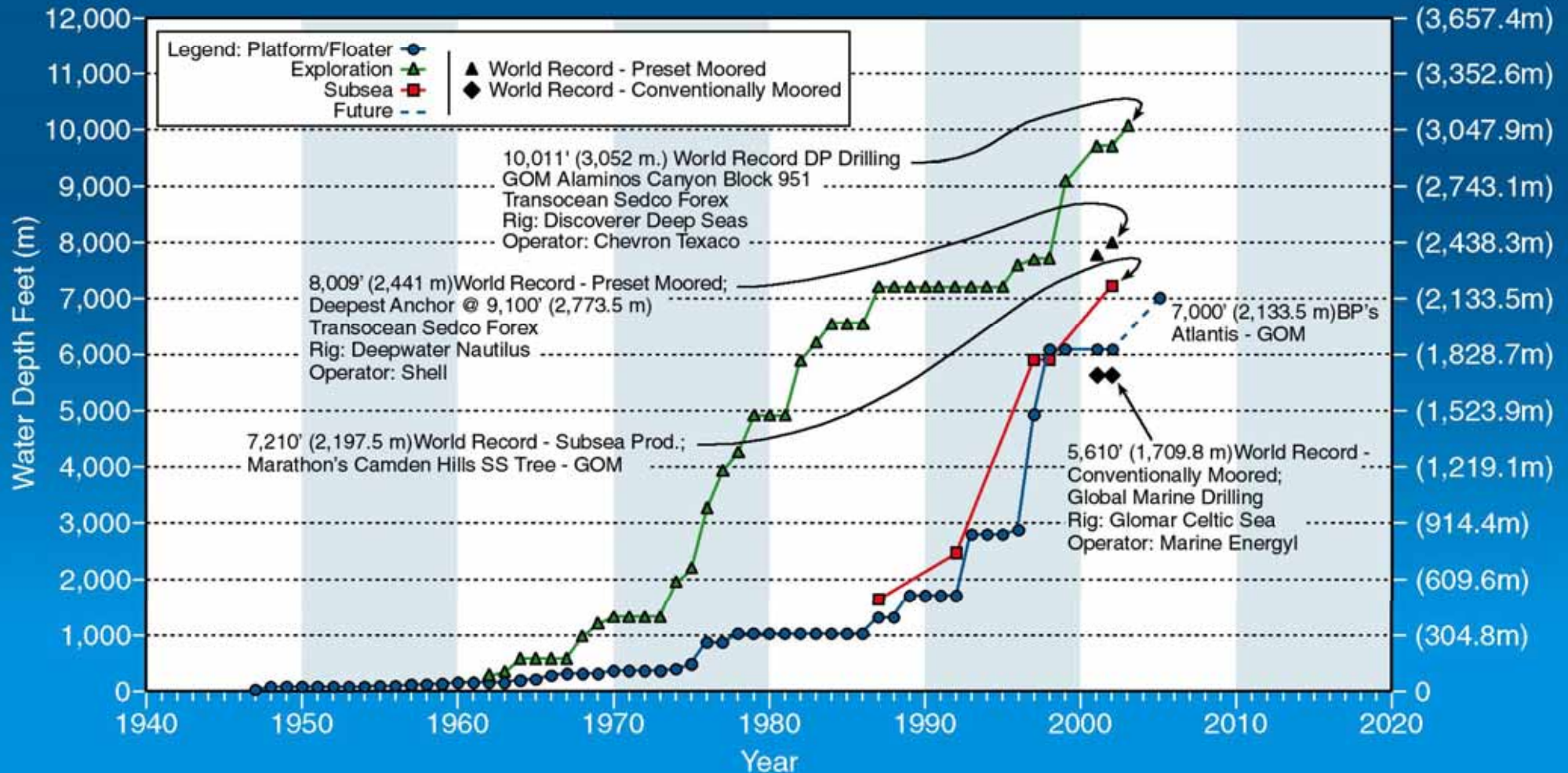
# U.S. First Purchaser's Crude Oil Price



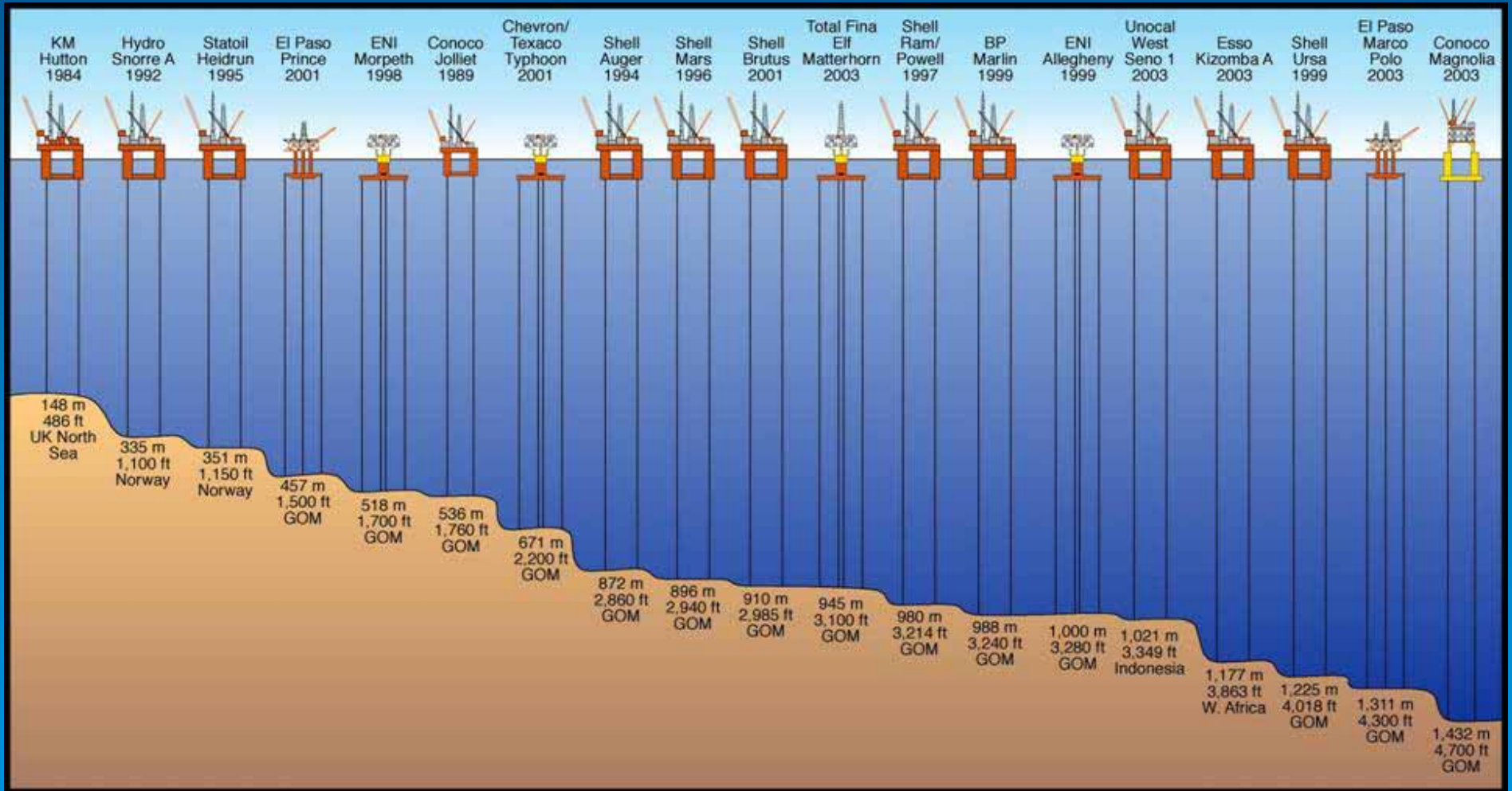
data from Energy Information Agency



# Worldwide Progression of Water Depth Capabilities for Drilling and Production



# TLPs Tension Leg Platforms - Installed or Sanctioned





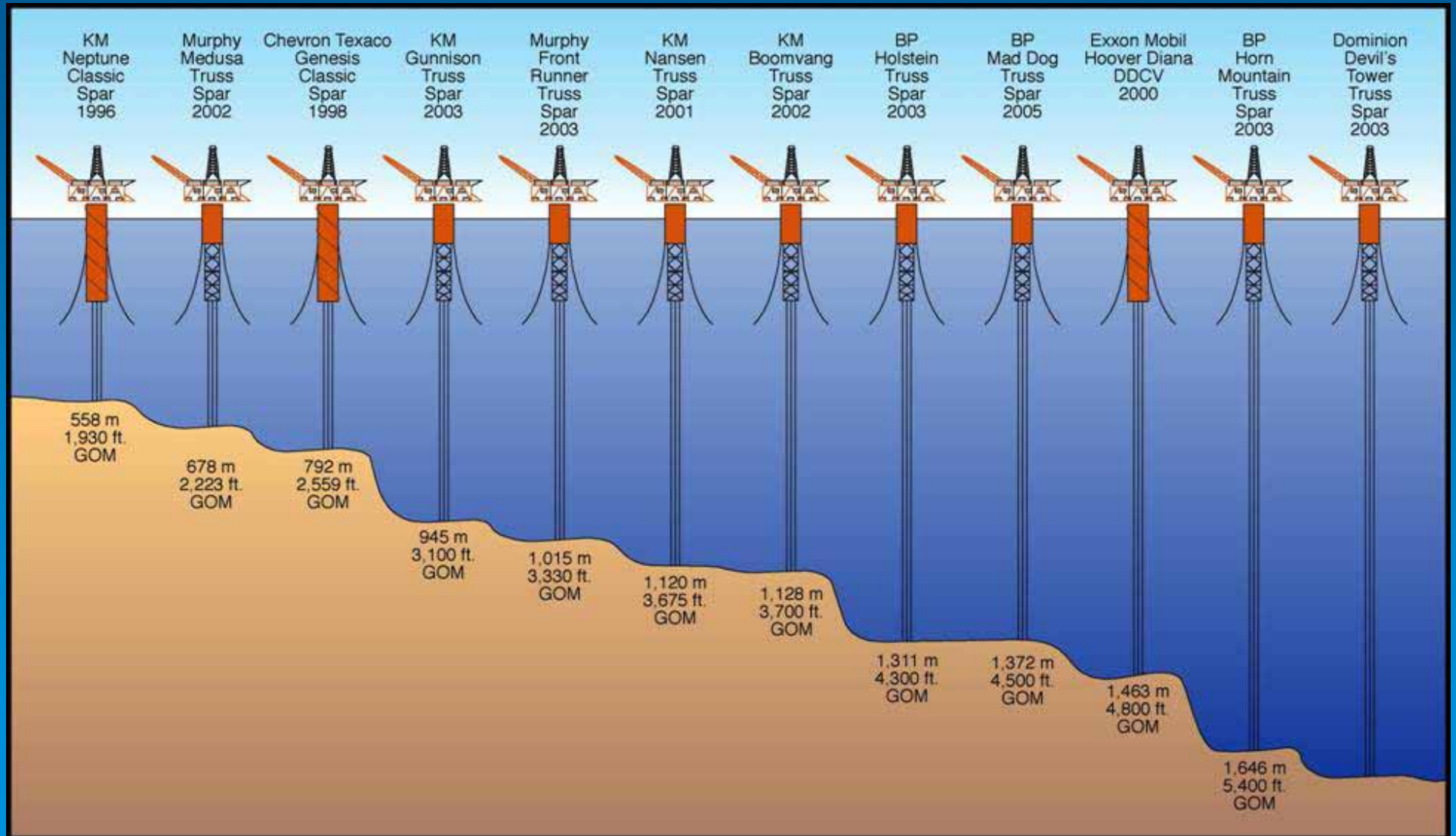








# Spars, Deep Draft Floaters (DDFs), Caisson Production Units (CPUs), Deep Draft Caisson Vessels (DDCVs), Single Column Floaters (SCFs) - Installed or Sanctioned

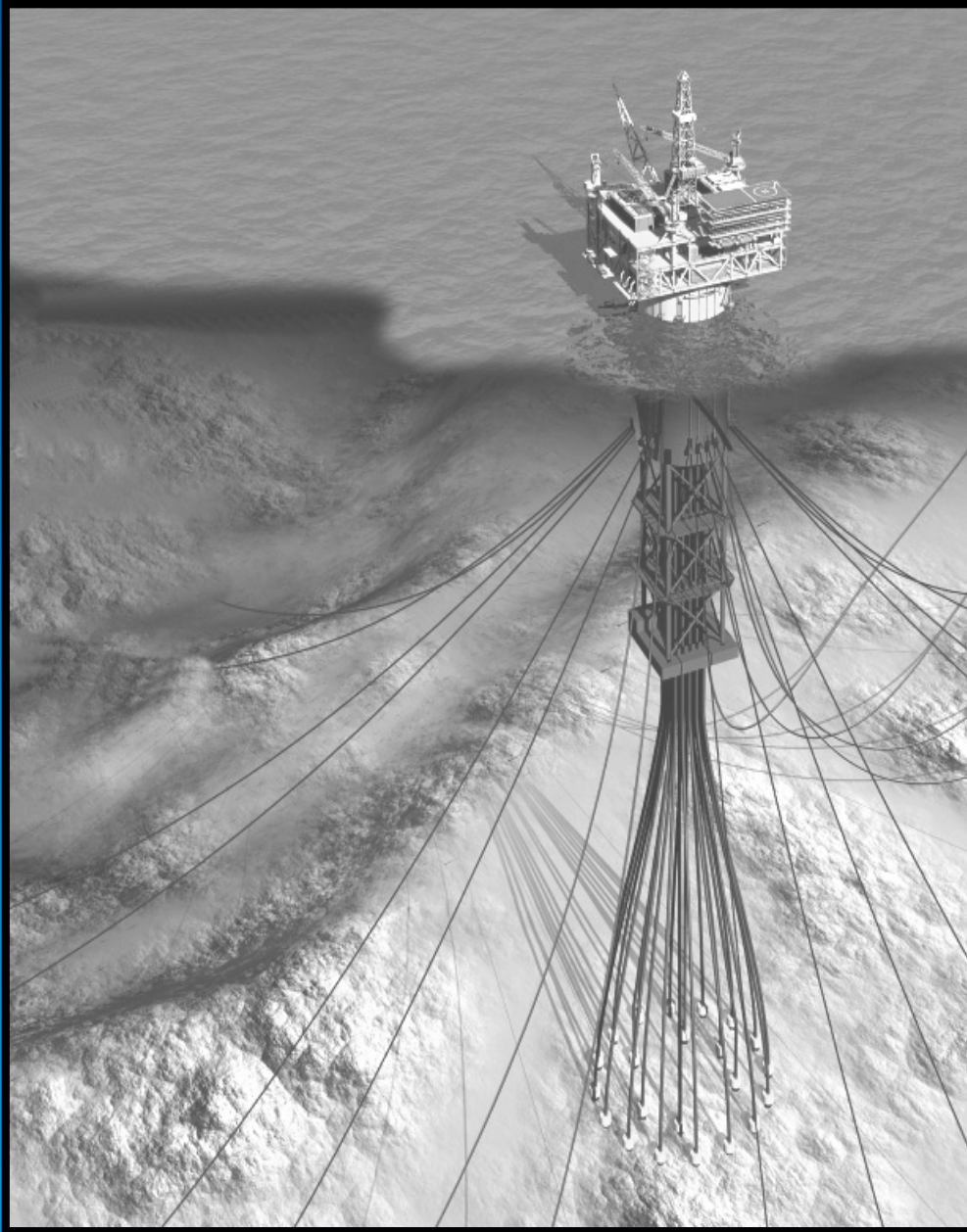






# Genesis Spar



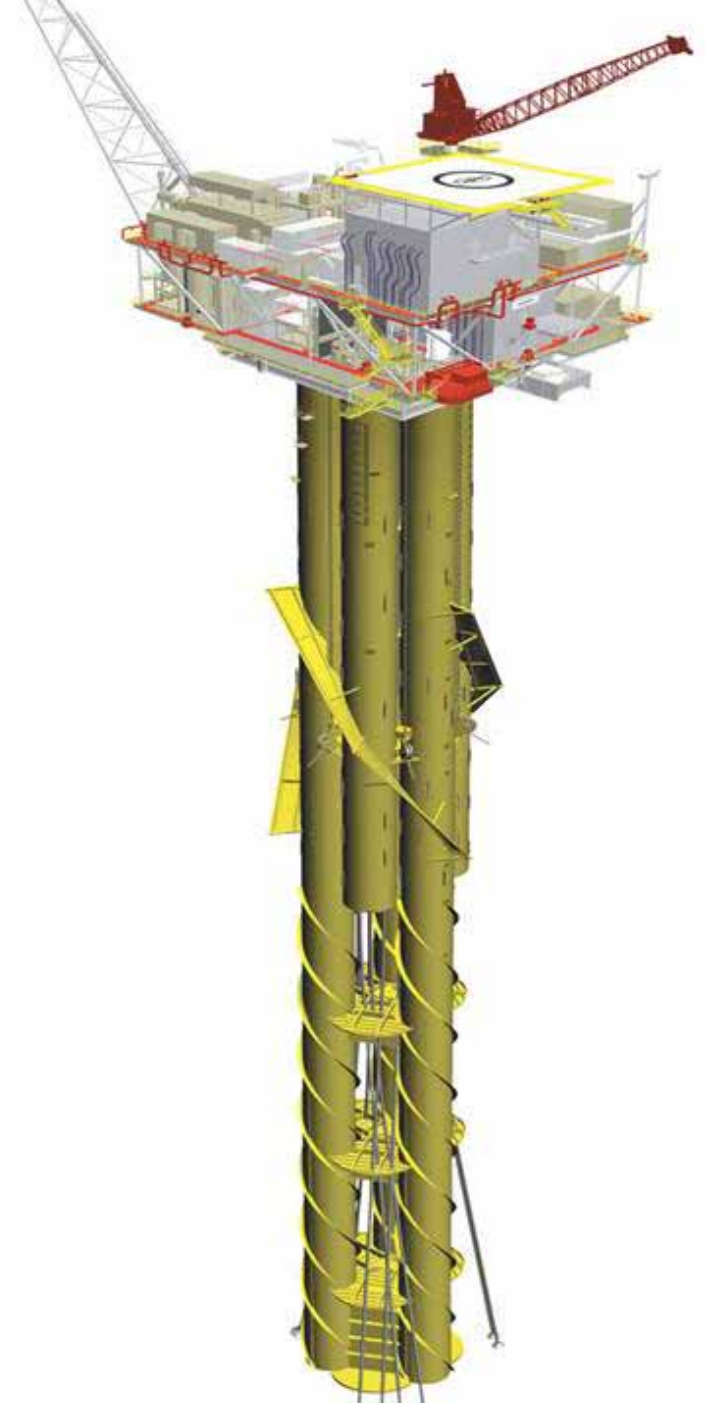


# Mad Dog Truss Spar



# Horn Mountain Spar

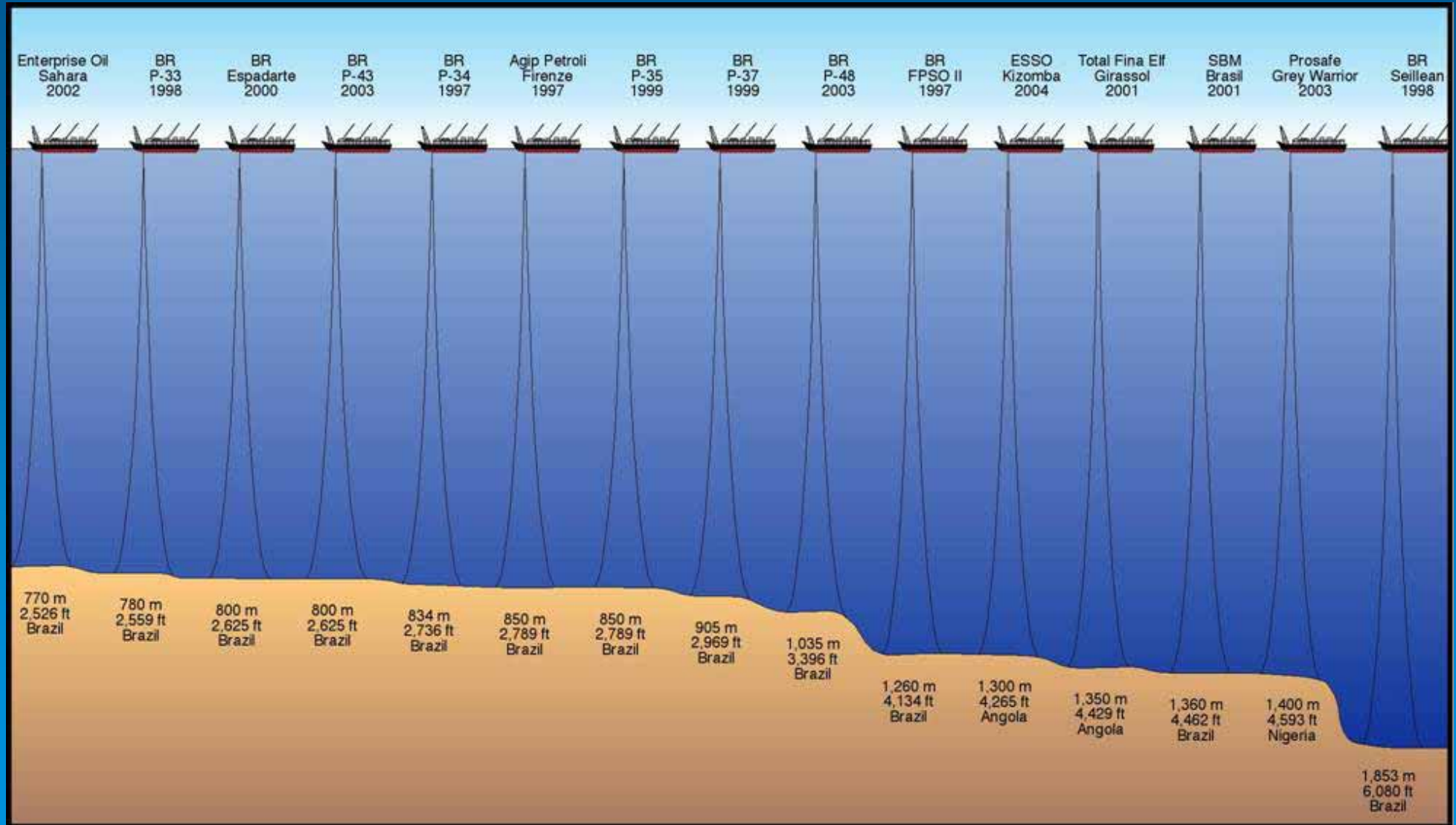




# Red Hawk Cell Spar



# FPSOs 15 Deepest Units - Installed or Sanctioned





Foinaven  
FPSO





If you know that there are  
different kinds  
of offshore “oil rigs” . . .



# Drilling

- Platform Rigs
- Mobile Offshore Drilling Units
  - Drilling Tenders
  - Jackups
  - Submersibles
  - Semisubmersibles
  - Drillships

# Production

- Fixed Platforms
  - Steel Jackets
  - Concrete gravity-based structures
- Floating Production Systems
  - Semisubmersibles
  - Tension-leg Platforms
  - Spar Platforms
  - Ship-Shaped FPSO's

. . .then you know more than  
most of the news reporters in  
the world.

- Since 1947, the offshore industry has moved from the first platform out of sight of land to safely producing in 7,000 feet (2,100 meters) of water and safely drilling in 10,000 feet (3,050 meters) of water.
- The industry is still learning, and there is more to come...



Thank You

# Benefits of SPE Membership

- **Monthly Journal of Petroleum Technology (JPT)**
- **Access to 25+ free Technical Interest Groups (TIGs)**
- **Member discounts on technical papers, journals and conference registrations**
- **Networking opportunities within the SPE community**

# **Benefits of SPE Membership**

- **Opportunities to participate in local Section activities**
- **Access to industry resources**
- **Leadership development and volunteer opportunities**
- **Career-building opportunities**

A good book...

# 50 Years Offshore

**Written by:** Hans Veldman & George Lagers

Order at:

<http://www.gasandoil.com/kivi-offshore/50years.htm#book>