



# FPSO GLOBAL WORKSHOP

2002 - Houston

The FPSO Contractor Solution

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# The FPSO Contractor Solution

1. What is the difference between a Gulf Of Mexico FPSO and other FPSOs?
2. Why use a specialist FPSO Supplier / Operator such as SBM?
3. How would SBM execute a GOM FPSO project?



# What is the Difference Between a GOM FPSO and other FPSOs?

- Design in accordance with the Codes of Federal Regulation and as regulated by MMS & USCG. (30 CFR in particular).
- Not required to follow Safety Case methodology as is often applicable elsewhere.
- Specific environmental conditions:
  - ▶ Loop currents – lead to fully weathervaning design.
  - ▶ Hurricanes – design for abandonment and high wind survival.

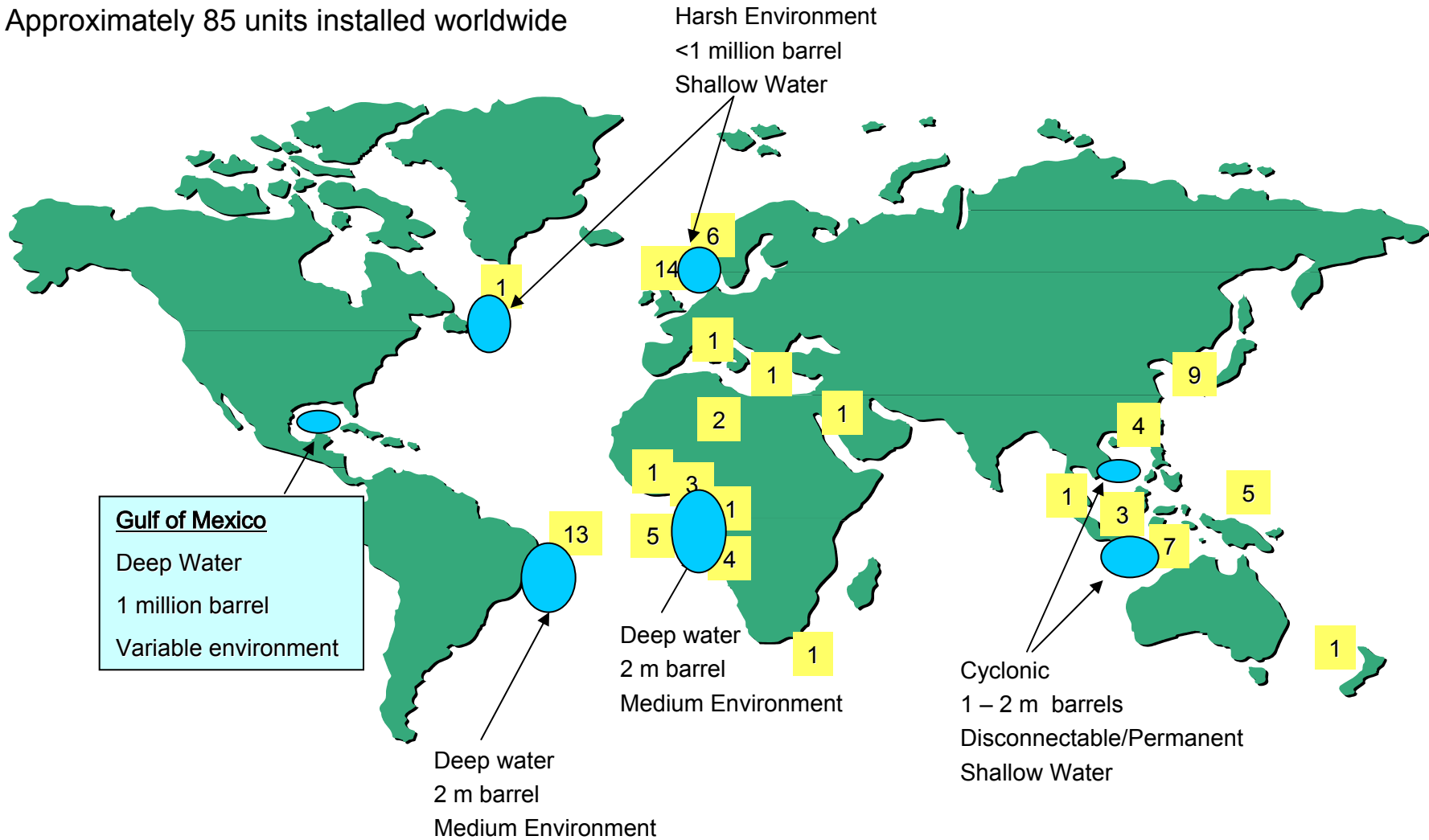
# Characteristics of a GOM FPSO

- Double side shell & bottom requirement, indicating a new build hull, however conversion is possible.
- Weathervaning, passive, single point, internal turret mooring system.
  - ▶ The GOM loop currents and deep water eliminate spread mooring systems.
  - ▶ Abandonment during hurricane conditions requires a passive system.
- Adequate design for green water on deck.
- Fatigue, global hull strength and slamming are not worse than other locations.
- Topsides and offloading systems same as elsewhere.



# Key Regional FPSO Features

Approximately 85 units installed worldwide





# Why Use a Specialist FPSO Supplier / Operator such as SBM?

## Main Points:

- In-house design capability giving an integrated system.
- Operational performance feedback resulting in improved system design.
- Operational procedures for established safety, environmental and operational performance.
- Project execution experience with FPSOs for timely project delivery.



# Why Use a Specialist FPSO Supplier / Operator such as SBM?

## Supporting Factors:

- Single contractor bringing together: the technology of the mooring system, marine and hull engineering, process plant engineering, procurement, installation engineering and systems operation.
- Proven safety, environmental and production uptime performance of delivered facility.
- Management of interfaces, hardware and information, internal and external, is critical to success. Familiarity with the specific interfaces lowers project risk.



# Why Use a Specialist FPSO Supplier / Operator such as SBM?

## Supporting Factors:

- Established relationships with fabricators, shipyards and suppliers is maintained current allowing efficient execution.
- Proven design and execution capability with FPSO experienced teams “in place” for each aspect of project. This reduces risk to production up-time requirements.





# Why Use a Specialist FPSO Supplier / Operator such as SBM?

## Option to Lease FPSO:

- No financing (for FPSO) required
- CAPEX risk (EPCI) is taken by contractor
- Obtain “life of contract” warranty on FPSO
- Payment of lease coincides with income from field
- Minimize expenditure (pay only for what is needed, during time needed)
- Residual value risk is taken by contractor
- Redeployment risk is taken by contractor
- Effect on balance sheet
- Fiscal (e.g. optimization of tax exposure)
- Benefit from contractor’s FPSO experience



# How would SBM execute a Gulf Of Mexico FPSO project?

Typical FPSO Schedule – from award to first oil

- New Build: 32 months - Anasuria
- Conversion: 22 months FPSO Falcon  
16 months FPSO Brasil

# Anasuria – North Sea New Build – Could be a GOM facility





# FPSO Falcon - Exxon - Yoho Field





# FPSO Brasil – PetroBras – Roncador Field





# How would SBM execute a Gulf Of Mexico FPSO project?

- Project Management, Engineering, Procurement  
In Houston office, perform:
  - ▶ Project management
  - ▶ Mooring system engineering and design
  - ▶ Topsides engineering and design
  - ▶ New build hull specification and basic design
  - ▶ Approvals / verification process
  - ▶ Procurement of equipment
- Approvals process. SBM has met with the MMS to map out the required process to achieve approval for an FPSO in the GOM.



# How would SBM execute a Gulf Of Mexico FPSO project?

- Hull fabrication, including detailed hull design, anticipated to be Far East, possibly Korea, Japan or China.
- Mooring Turret fabrication could be performed in many locations but yards in the Far East and Middle East have considerable experience.
- Integration of hull, mooring turret and topsides. Limited options and experience for berthing a large hull for integration works in the Gulf Coast. Integration is best performed at the hull yard or topsides fabrication yard.



# How would SBM execute a Gulf Of Mexico FPSO project?

## Module fabrication

- Capability is well proven in Gulf Coast yards. Could also be done in Far East or Middle East.
- Several module yards.
- Topsides Module sizes to be 500-800 ton driven by crane capacity.
- Main equipment skids delivered to module fab yards.
- Maximum commissioning in integration yard.

## Installation.

- Use own installation vessels or contract as required.





# How would SBM execute a Gulf Of Mexico FPSO project?

## Conclusion

- Essentially just business as usual.
- Recognize the different regulatory environment.