

Offshore Support Vessels Located in the US Gulf of Mexico in March 2018





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IMCA promotes improvements in quality, health, safety, environmental and technical standards through the publication of information notes, codes of practice and by other appropriate means.

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- ◆ Lifting & Rigging
- ◆ Marine Policy & Regulatory Affairs

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There are also five regions which facilitate work on issues affecting members in their local geographic area – Asia-Pacific, Europe & Africa, Middle East & India, North America and South America.

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Date	Reason	Revision
March 1, 2018	GoM vessel data update to the initial publication on April 4, 2017	1

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IMCA – March 1, 2018

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1 Introduction

This document updates the data and supplements the April 2017 IMCA report *Marine Construction Vessel Impacts of Proposed Modifications and Revocations of Jones Act Letters Related to Offshore Oil and Natural Gas Activities*. It should be noted that the April 2017 report was based on year end 2016 data and this update is based on the latest data available.

The focus of this document is to closely look at the Offshore Support Vessels located in the US Gulf of Mexico, at the time of writing.

2 Gulf of Mexico Regional Fleet Capacity for Offshore Support Vessels Operating in Deepwater Environments

2.1 General Overview

Offshore oil and gas exploration and production in deepwater environments is technically challenging, and is associated with more demanding vessel functionality such as dynamic positioning, increased lifting capacity and other complex vessel industrial systems. This document provides updated information on the four categories of deepwater vessels of interest to IMCA currently stationed in the US Gulf of Mexico (US GoM). It is a misnomer that the mere existence of foreign flagged vessels in the US GoM is a violation of the Jones Act. Foreign flagged vessels perform a number of valuable services to the oil & gas Operator community that have nothing to do with the Jones Act; including deep water construction work, dive support work, flotel, pipelay, heavy lift, and a myriad of other activities that do not constitute transportation.

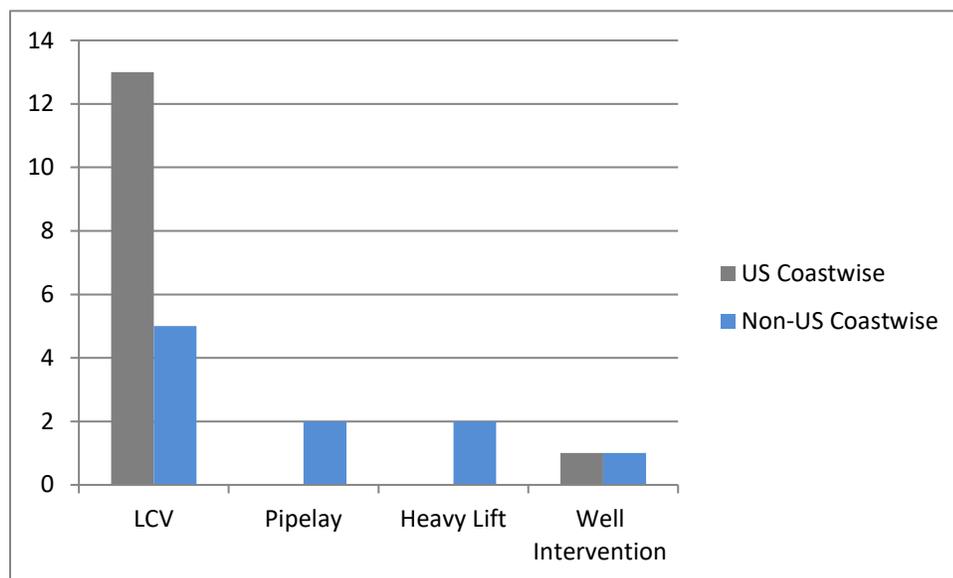


Figure 1 – GoM Regional breakdown of deepwater OSV types (24 vessels)

2.2 Light Construction Vessels (LCVs)

This category includes a number of generic vessel types, including those that support the light and medium construction activities during the installation of offshore oil and gas platforms, pipelines and related facilities. LCVs often play supporting or secondary roles, which reflects the commodity markets they can access.

LCVs are often configurable for a wide range of potential activities and can be mobilised with different mission equipment according to the needs of the contractor. This category includes vessels which are capable of supporting manned diving and/or remotely operated vehicle (ROV) diving.

The basic requirements¹ for a light construction vessel include:

- ◆ Station keeping of DP2 or greater;
- ◆ Minimum of 100T crane capacity in single fall mode²;
- ◆ Minimum crane working depth of 1,000m.

Although many LCVs look like enlarged platform supply vessels (PSVs), they are provided with accommodation and appropriate certification for carrying industrial workers, power supplies capable of feeding installation equipment, and will be equipped with a crane capable of supporting construction and deploying systems and equipment overboard.

LCVs suitable for supporting their intended activities in water depths of 3,280ft/1,000m or greater will be equipped with minimum of 100T crane capacity and 3,280ft/1,000m wire³.

The currently available number of US coastwise and non-US coastwise LCVs with a crane capacity of >100T and >1000m wire, located in the US GoM is highlighted graphically in Figure 2.

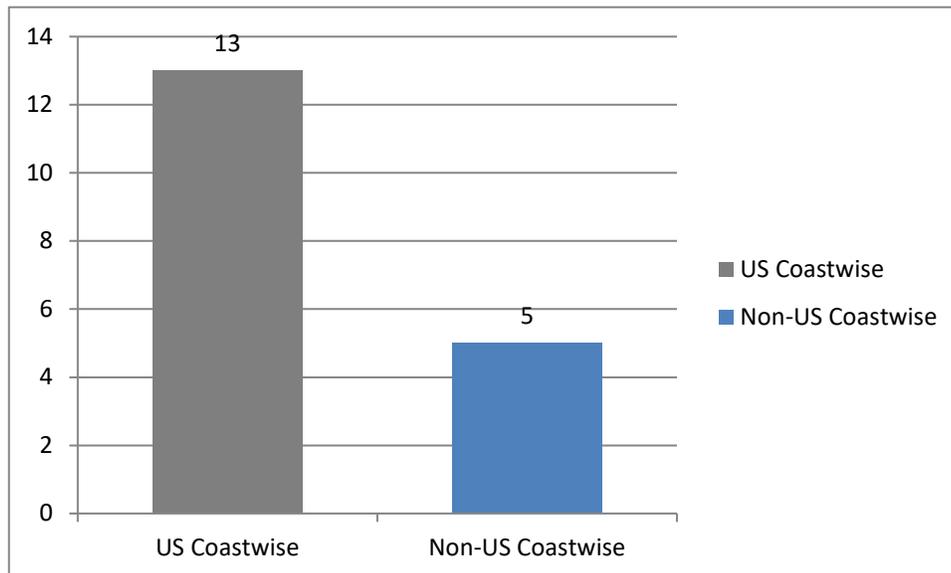


Figure 2 – Regional breakdown of deepwater capable light and medium construction vessels (>100T crane capacity; >1000m wire)

1 Vessel requirements were developed based on discussions with marine contractors and vessel captains, literature review and review of prototype industries. Individual companies may apply different criteria based on their own preferences or specific circumstances.

2 For subsea work, it is advisable to avoid multi-fall arrangements due to the likelihood of spinning and fouling. If multi-fall is utilized, manufacturers recommend limiting to 250m water depth

3 Vessel requirements were developed based on discussions with marine contractors and vessel captains, literature review and review of equivalent industries. Individual companies may apply different criteria based on their own preferences or specific circumstances.

Light Construction Vessels, located in the US GoM, meeting the basic requirements identified in this report include:

Name	Owner	DP Class	LOA (m)	Crane SF (mT)	Flag
Harvey Blue-Sea	Harvey Gulf	DP2	104	250	US
Harvey Sub-Sea	Harvey Gulf	DP2	104	250	US
HOS Warland	Hornbeck Offshore	DP2	92	250	US
HOS Woodland	Hornbeck Offshore	DP2	92	250	US
Harvey Deep-Sea	Harvey Gulf	DP2	92	165	US
Harvey Intervention	Harvey Gulf	DP2	92	165	US
C-Installer	ECO	DP2	97	150	US
Ocean Alliance	Oceaneering	DP2	94	150	US
Holiday	Chouest	DP2	88	136	US
Dove	C-Lift Holdings	DP2	85	100	US
Grant Candies	Otto Candies, LLC	DP2	89	100	US
Kirt Chouest	Chouest	DP2	87	100	US
Ross Candies	Otto Candies, LLC	DP2	94	100	US
HOS Iron Horse	Hornbeck Offshore	DP3	131.7	400	Vanuatu
Island Venture	Chouest - Island Venture II	DP3	159.8	400	Norwegian Int'l
Grand Canyon II	Volstad Maritime	DP3	128	250	Panama
Skandi Achiever	DOF Management	DP2	106	140	Bahamas
Island Pride	Chouest - Island Offshore Mngt	DP2	103.3	130	Bahamas

It is clear that there has been a significant reversal in roles over the last year or so. Eleven Coastwise qualified vessels have entered the market which have almost completely displaced the foreign flagged vessels. Although it is interesting to note that 3 of the 5 foreign flagged LCVs are operated by companies with Coastwise qualified vessels.

2.3 Pipelayers

This category includes a number of vessels that support the installation of rigid steel pipelines and flexible pipelines. There are several methods in use for laying pipe, principally:

- ◆ J-Lay – used to install rigid pipelines in deep water. Pipe is upended and welded to the seagoing pipe in a near vertical ramp, the angle of which is adjusted so that it is in line with the pipe catenary to the seabed. This method minimises pipe bending.
- ◆ S-Lay – pipe joints are welded together onboard the vessel in a horizontal production line, a stinger supports the pipe as it leaves the vessel to control the radius as it bends towards the seabed. This method offers a high rate of laying pipelines and is mainly found in shallow to intermediate water depths, although the method can also be used in deepwater.
- ◆ Reel Lay – long pipe segments are welded, tested and coated onshore and then spooled onto a large, usually vertically oriented pipe reel, in one continuous length. Once the reel-lay vessel is in position, the pipe is unspooled, straightened and then lowered to the seabed as the vessel moves forward. This offers a high production rate and high quality assurance as the welds are quality checked onshore before loading. A fabrication spool base is required onshore.

- ◆ Flex Lay – uses a vertical ramp, equipped with one or more tensioners, and a chute or wheel aligner on top to install flexible pipelines. The installed pipeline is less sensitive to fatigue and requires less complex installation, abandonment and recovery procedures.

Some pipelayers can operate in any of the above modes, offering a multi-lay capability which optimizes the lay system used according to specific product requirements. Pipelayers may be very large vessels and are often provided with large cranes to undertake construction activities when not laying pipe.

Pipelayers suitable for deepwater operation⁴ will be provided with:

- ◆ Station keeping of DP2 or greater;
- ◆ Minimum of 100T top tension;
- ◆ Minimum of 1000T pipe carrying capacity.

There are no US-coastwise qualified pipelay vessels believed to be provided with either dynamic positioning and/or this minimum pipe tension, thereby severely limiting their ability to serve deepwater fields in US waters. Dynamic positioning is essential, as in deepwater it is not practical to use anchors for positioning, and the accuracy of position keeping is not achievable using only a conventional propulsion system. When operating in deepwater and ultra-deepwater, pipe tension capabilities of 100T and greater are typically required.

Non-US coastwise qualified vessels dominate the deepwater pipelay sector. These assets have long been a staple in the development of offshore oil and gas field development projects, and have an unparalleled track record of safe, environmentally friendly operations. This is the result of many years of highly skilled asset management, design expertise and leveraging experience gained from global operations.

Figure 3 provides the numbers of coastwise and non-coastwise qualified pipelay vessels currently located in the US GoM and meeting the specified criteria for deepwater operation.

⁴ Vessel requirements were developed based on discussions with marine contractors and vessel captains, literature review, and review of equivalent industries. Individual companies may apply different criteria based on their own preferences or specific circumstances.

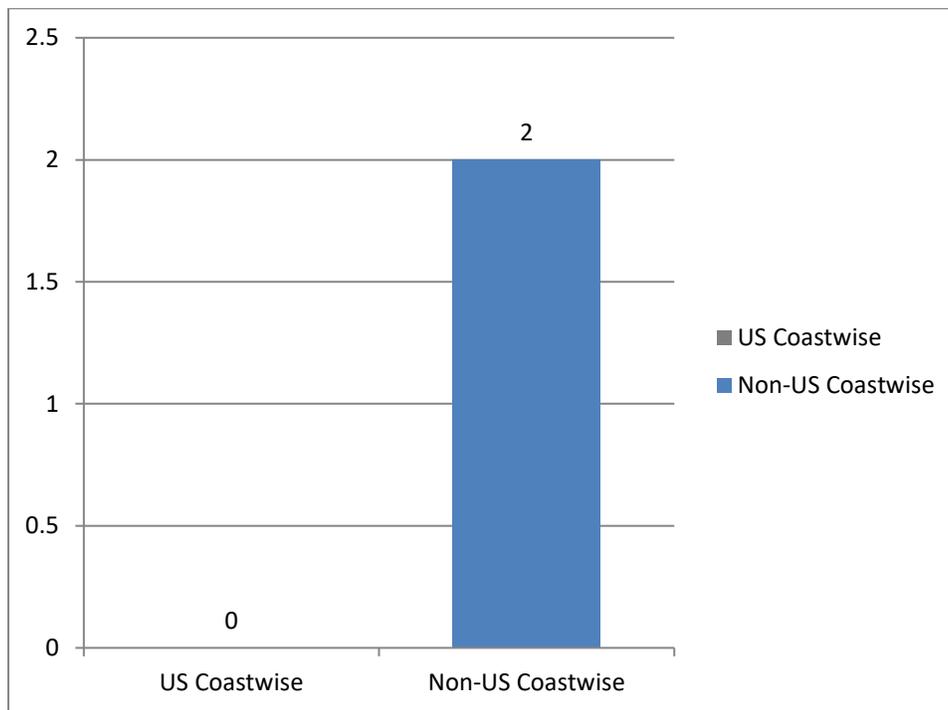


Figure 3 – Regional breakdown of pipelay vessels capable of deepwater operations; meeting the minimum requirements

Pipelay Vessels, located in the US GoM, meeting the basic requirements identified in this report include:

Name	Operator	DP	LOA (m)	Pipe carrying capacity (>1000mT)	Top Tension (>100mT)	Flag
Deep Blue	Technip Offshore UK	DP2	207	5600	550	Bahamas
Lay Vessel North Ocean 105	McDermott Intl	DP2	132	2500	400	Malta

The low level of market activity in the off season is reflected by only two vessels in the US GoM. These are foreign flagged, as no Coastwise qualified tonnage exists in this small niche market.

2.4 Heavy Lift Vessels

This category includes various self-propelled and non-self-propelled heavy lift vessels. These vessels are used for lifting large loads into position offshore. For the purpose of this report a heavy lift vessel is considered one provided with a crane of at least 1,000T lifting capacity.

Heavy lift vessels may take many forms, including both semi-submersible and conventional ship-shaped hull forms.

The basic requirements⁵ for a deepwater heavy lift vessel include:

- ◆ Station keeping of DP2 or greater;
- ◆ Minimum of 1,000T crane capacity;

⁵ Vessel requirements were developed based on discussions with marine contractors and vessel captains, literature review and review of prototype industries.

- ◆ Minimum of 200ft hook height;
- ◆ Minimum of 100ft working radius.

Figure 4 shows the coastwise and non-coastwise qualified heavy lift fleet satisfying the above criteria for deepwater heavy lifting.

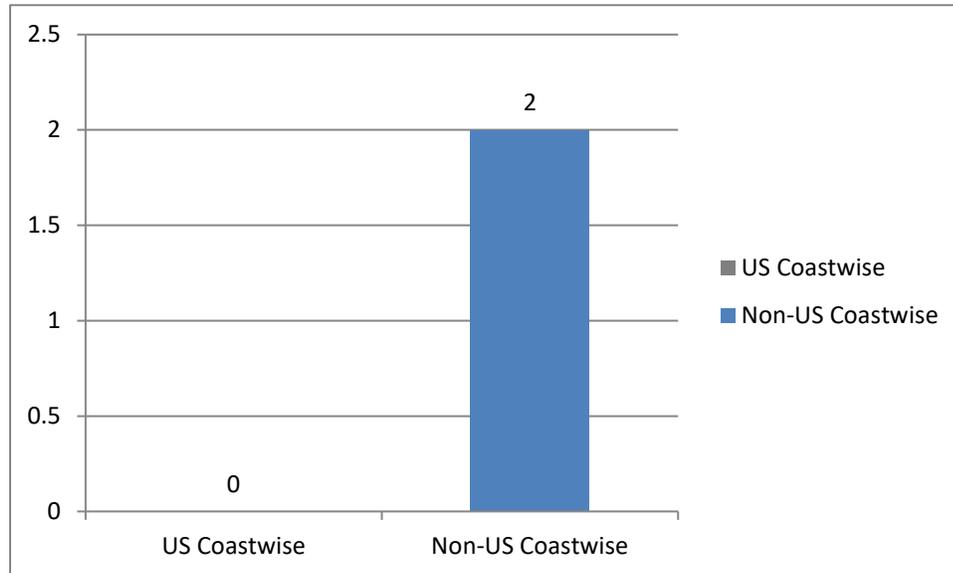


Figure 4 – Regional breakdown of coastwise and non-coastwise qualified deepwater heavy lift vessels

Heavy Lift Vessels, located in the US GoM, meeting the basic requirements identified in this report include:

Name	Owner	DP	LOA (m)	Crane Max Load (>1000mT)	Flag
Balder	Heerema Marine	DP3	154	3629	Panama
Derrick Barge 50	McDermott Intl	DP2	152	3800	Panama

The results are similar to the deepwater pipelay market, with a low level of seasonal activity and no Coastwise qualified vessels in this small niche market.

2.5 Well Intervention Vessels

These specialised vessels perform operations on an oil or gas well during its life to increase production efficiency, provide well diagnostics and support well abandonment activities. The intervention is accomplished through the use of riser and riserless technologies. The basic requirements for a deepwater well intervention vessel include:

- ◆ Station keeping of DP2 or better – the USCG recommends DP3;
- ◆ Minimum of 350T tower for riser based intervention;
- ◆ Minimum of 150T tower/crane for riserless intervention;
- ◆ MODU class notation.⁶

Figure 5 provides the numbers of coastwise and non-coastwise qualified well intervention vessels currently located in the US GoM and meeting the specified criteria for deepwater operation.

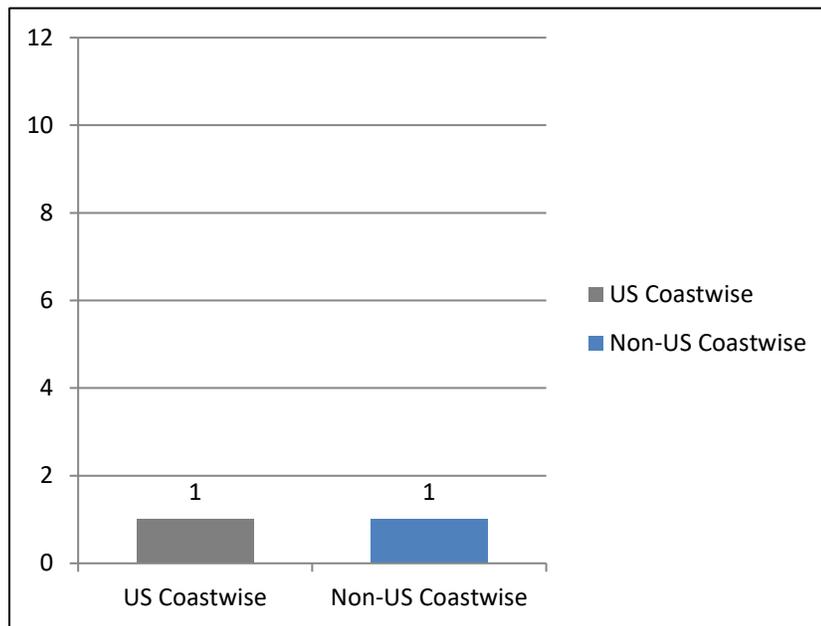


Figure 5– Regional breakdown of coastwise and non-coastwise qualified deepwater well intervention vessel capacity

Well Intervention Vessels, located in the US GoM, meeting the basic requirements identified in this report include:

Name	Operator	DP2 / 3	LOA (m)	Beam (m)	Tower Capacity Riser >350mT	Tower/Crane Capacity Riserless >150mT	Flag
Q4000	Helix Energy	DP3	95	64	650	650	US
Q5000	Helix Energy	DP3	109	70	680	680	Bahamas

The data is similar to the April 2017 report, again reflecting this small niche market.

⁶ Vessel requirements were developed based on discussions with marine contractors and vessel captains, literature review, and review of equivalent industries. Individual companies may apply different criteria based on their own preferences or specific circumstances.

3 Conclusions

At the lighter end of the market, several new Coastwise Qualified light construction vessels have entered the market and largely displaced the foreign tonnage. These vessels are quite versatile and can easily interchange between transportation and light construction. This market adjustment is normal and poses no threat to future investment and development of the US GoM.

At the heavier end of the market (Deepwater Pipelaying, Heavy Lifting, and Well Intervention) the picture is unchanged from last year, except for the current lower level of activity. These foreign flagged specialist vessels are not engaged in transportation activities and fill the high-end gap where the coastwise fleet is absent.

Our conclusions in April 2017 are unchanged and fully support the argument that the specialist class of deepwater construction vessels are pivotal to the future investment and development of the US GoM. The real threat remains that development would simply not be possible by using the lightweight LCV fleet, which is in a commodity market and unable to conduct specialist heavy construction work. Furthermore, it takes experienced marine contractors, rather than marine service companies, to build the offshore production infrastructure.