Kingfisher Bulletin

Talking Points

April 2016

Wind Farms:

Use of Safety Zones & Advisory Safety Zones

With close to 30 active offshore wind farms around the coast of the UK, covering in excess of 2,250 sq kilometres, wind farms are now a significant part of the offshore environment.

There is some concern and confusion relating to unknown elements about wind farms – their structures, cables, installation methods, activities and zones. Within this article, we will look at the use of Safety Zones, which is a particularly mysterious topic that often requires clarification.

In simple terms, a 'Safety Zone' is the common term used throughout the offshore industry for a defined area around an offshore structure, which has been granted by an appropriate regulatory authority to protect:

- fishermen and mariners by reducing the risk of collision
- fishermen and mariners from entanglement on associated underwater equipment
- the people working on the installation, or in the immediate vicinity
- the installation itself against damage

For Offshore Renewable Energy Installations (e.g. wind turbines) an application for a safety zone may be submitted to a regulatory authority (normally The Department of Energy & Climate Change (DECC), but if the installation is less than 100MW and in English or Welsh waters then the Marine Management Organisation (MMO)) if the structure(s):

- will be / are being / or have been, used for the production of energy from water or wind
- permanently rest on, or are attached to the seabed
- are not connected to dry land by a permanent structure

It is an offence (under section 97 of The Energy Act 2004 (secondary legislation SI 2007 No. 1948)) to enter a safety zone except under special circumstances, some of which are outlined below.

- To save or attempt to save a life or property.
- When in distress or owing to stress of weather.

Wind farm operators will generally submit an application for safety zones for the construction and maintenance phases of the wind farm. Very few operators apply for safety zones for the operational phase. Operators must publicise their application within the media and fishing press, with consultation strongly recommended.

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Practical operation of safety zones:

Construction & Maintenance Phase

During construction of a wind farm, 500 metre safety zones are enforced where construction is underway. The use of 'rolling' safety zones are encouraged, covering only those areas of the total site in which activities are actually taking place at a given time. This minimises disruption and allows greater access to areas where activities have been completed, or are not yet underway.

Once structures have been installed, if maintenance is required, 500 metre safety zones may be used for individual structures undergoing activities.

Operational Phase

Wind farm operators may apply for 50 metre safety zones around turbines for the operational phase of their wind farm. However, this is not commonly undertaken, as a strong navigational safety risk would be required for this to be accepted.

Currently the only operational wind farm granted 50 metre Safety Zones is Greater Gabbard, off the Suffolk coast, adjacent to the Sunk Traffic Separation Scheme (TSS).

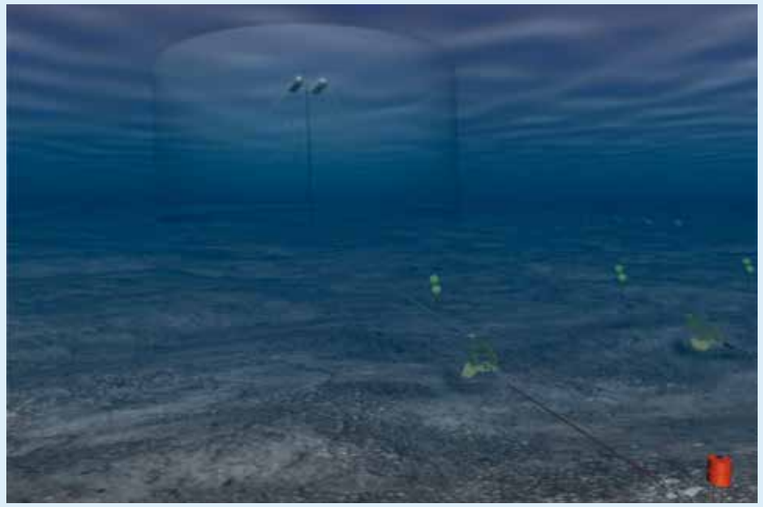
The use of 50 metre Advisory Safety Zones is more common place. These are applied following discussion with local fishermen and are voluntary, for the protection of fishermen and structures.

Key Points

- Safety Zones are enforced to protect fishermen/mariners, people within the safety zone and the structures within the safety zone.
- The term 'Exclusion Zone' is often used instead of 'Safety Zone', however, Safety Zone is the correct term under The Energy Act 2004.
- The use of Advisory Safety Zones may be implemented by an operator. These are voluntary, are usually 50 metres in radius, and may be applied to all turbines in a wind farm.
- An application for a Safety Zone cannot be made to protect export or inter-array cables.
- The maximum permissible radius of a safety zone is 500 metres from the installation structure. Therefore, a safety zone cannot be applied to a complete wind farm boundary.
- It is an offence to enter a Safety Zone and doing so may lead to prosecution.

Oil & Gas Anchors and Pennants

The oil & gas industry operating on the UK Continental Shelf (UKCS) use a variety of different systems for anchoring mobile offshore drilling units (MODUs) and floating production and/or storage units (FPSO / FSO).



For fishermen, these anchoring systems are a potential hazard, with anchors weighing in excess of 15 tonnes and extending far beyond 500 metre safety zones. It is also likely that no surface marks will be present to indicate anchor positions.

When operating, a mobile drilling rig or storage unit will always have a 500m safety zone around it. This is for the protection of: fishermen and mariners, those on-board the installation, and the installation itself. However, anchors and anchor lines often extend up to 2km from the installation. Due to the distance away from the visible rig being over 1 nautical mile, it is important for fishermen to take extreme care when fishing in the vicinity of these installations.

Depending on the type of anchoring system, there will be different hazards to fishermen at the end of each anchor line. There may be an anchor pile, a drag anchor, an anchor pennant, clump weight or a subsea buoy. Each of these structures are discussed in the boxes opposite.

Piled Anchors – more common for FPSO / FSOs

A hollow steel tube that is driven into the seabed, capable of resisting both horizontal and vertical loads. They vary in size from approx. Length: 25 metres and Diameter: 0.5 metres, to Length: 45 metres and Diameter: 2.5 metres. They may project 2 metres above the seabed when installed.

Drag Anchors – more common for MODUs

A large steel structure that embeds in the seafloor when pulled horizontally, capable of resisting horizontal loads. They vary in size although are commonly: Length: 7 metres, Width 6 metres, Height: 4 metres and Weight: 15,000 kgs. These anchors will self-bury into the seabed, although may still present a hazard to fishing.

Anchor Pennants / Piggyback anchors

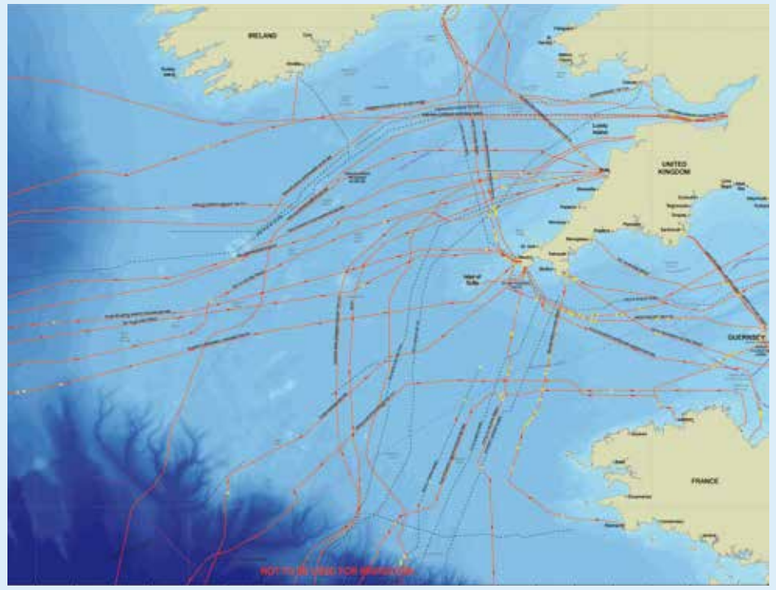
A length of narrower diameter chain or lighter wire / rope (up to approx. 200m in length) which comes out of the back of an anchor to aid in the recovery of the main anchor or for additional holding power. Note that this may have a small clump weight or subsea buoy associated with it, if to aid recovery or a further smaller anchor associated with it if for additional holding power. Anchor pennants or piggyback anchors are more commonly associated with MODUs than FPSO/FSOs.

Drilling or storage units that remain in place for the longer term (> 6 months), will be displayed on FishSAFE Information for fishermen to view on their plotter and FishSAFE Unit. Currently FishSAFE has over 150 anchor piles and 230 drag anchors, for approximately 35 different mobile installations.

Drilling or storage units that remain in place for only a short period (< 6 months), will not be displayed on FishSAFE Information. These units move too frequently and will typically be in place for a matter of weeks, before moving to a new location. Fishermen may find the anchoring systems of these installations more hazardous, due to their frequency of change. Kingfisher now produce charts of the latest anchor patterns within the Kingfisher Bulletin and at www.twitter.com/KingfisherInfo.

Subsea Cables

Planning and designing a new subsea cable



Subsea Cable Phases:

1. Route Planning and Design – April 2016
2. Pre-lay Activities – July 2016
3. Installation – October 2016
4. Post Lay Activities & Repairs – January 2017

Due to the insatiable appetite for faster communications, greater bandwidth and power links between countries, or renewable energy installations, subsea cables play a hugely important part in our lives.

Kingfisher's work on KIS-ORCA (www.kis-orca.eu) has meant there is no excuse for skippers not knowing cable locations around northern Europe. However, there still remain unknown aspects to the cable industry. Do cable owners consult with the fishing industry on new cable routes? Are all cables buried? Are cables vulnerable to impact by fishermen? How do cable owners repair cables?

This is article one of four, which will discuss the process of design, installing and repairing cables.

The first stage to complete when planning a new subsea cable is to conduct a cable feasibility study. This first step is undertaken by a cable owner to design a new submarine cable system; the purpose of a feasibility study is to identify potential cable landing sites, design the preliminary marine cable route, determine the required transmission requirements and prepare an estimate of the project costs to deliver the system.

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Once completed, the feasibility study will form part of the tender documentation to a supplier, allowing a full desktop study to be undertaken. A typical desktop study will address a number of items including:

Desktop study considerations

- Cable route engineering
- Bathymetry
- Geology
- Seismology
- Oceanography
- Meteorology
- Leisure activities
- Fishing activities
- Commercial shipping activities
- Other seabed assets along the route
- Hazards
- Environmental considerations
- Offshore exploration activities
- Permitting requirements
- Navigational concerns
- Survey recommendations
- Installation methodologies
- Maintenance considerations

It is during this desktop study phase that consultation would be undertaken with the fishing industry. This should include discussions with fishing industry contacts both at a national and regional level, including visits to the proposed landing site. Discussions with local stakeholders and the community would be also normally be undertaken.

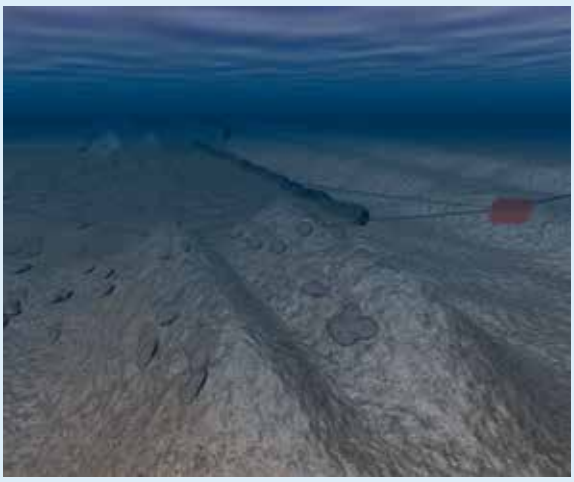
On completion of the desk top study the preferred marine cable route will be determined and the marine survey and burial assessment requirements finalised. Final route planning will then be undertaken, to determine a safe and diverse cable route, taking into consideration the list of considerations identified above.

It is at this stage that the level of cable armouring and burial activities will be agreed – both these elements will vary throughout the route, with seabed type, water depth, activity levels, etc., all dictating the amount of armour and depth of burial. Cable/pipeline crossing engineering will also be determined and the route position list and straight line diagram of the cable system produced. This will be used for cable manufacturing, for installation activities and also for the maintenance operations during the life of the cable system.

For the next Talking Points (July 2016) we will discuss the 'Pre-lay operations of subsea cables'.

Pipeline Gates

The least problematic pipeline crossing points



Following reports that fishermen were having difficulty crossing some newly installed pipelines – leading to damaged gear or spoiled catch – the Scottish Fishermen's Federation (SFF) are now contracting fishermen to conduct trawl sweep operations in certain areas.

These operations create 'Trawl Swept Pipeline Gates', which are areas of seabed where a fishing vessel has towed a chain mat and fishing gear in order to reduce the impact of spoil that has been excavated when a new pipeline is installed.

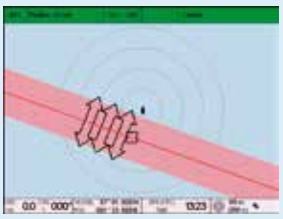
With particular seabed conditions, such as heavy clay, spoil excavated to create the trench for a new pipeline has caused problems for fishermen. Following these reports, the SFF now works with offshore operators and fishermen to conduct trawl sweep operations.

These activities are undertaken at agreed locations along a pipeline and comprise of a fishing vessel towing a chain mat, followed by fishing gear, at approximately 90 degrees across the pipeline. These activities lessen the impact of spoil, allowing normal fishing patterns to return to the area immediately. The areas are then assigned the status of Trawl Swept Pipeline Gates.

Gates on FishSAFE Data

a) Alder (10)
b) Catcher (6)
c) Flyndre-Cawdor (8)
d) Golden Eagle (22)
e) Greater Stella (16)
f) Rochelle (6)
g) Tweedsmuir (4)
h) Western Isles to Tern (8)

Trawl Swept Pipeline Gates appear on FishSAFE Information, converted by Kingfisher into plotter formats and for the FishSAFE Unit, as a collection of grouped arrows. They are 300 metres wide (either side of the pipeline) and vary in length, due to the irregular area agreed to conduct the operations.



For more information on Trawl Swept Pipeline Gates, please contact the SFF on +44 (0)1224 646944.