



Maritime &
Coastguard
Agency

MARINE GUIDANCE NOTE

MGN 687(M+F)

Safety of Navigation: Methodology for Assessing Marine Navigation Safety and Emergency Response Risks of Fin/Shellfish and Seaweed/Algal Farms

Notice to other UK Government Departments, Aquaculture Developers, Port Authorities, Ship owners, Masters, Ships' Officers, Fishing Industry, Rescue Organisations, Recreational Sailors/Users.

This notice can be read in conjunction with Marine Guidance Note 654 "Safety of Navigation: Offshore Renewable Energy Installations (OREIs) – Guidance on UK Navigational Practice, Safety and Emergency Response", and Methodology for Assessing Marine Navigational Safety & Emergency Response Risks of Offshore Renewable Energy Installations (OREI).

Summary

- The placement of fin/shellfish and seaweed/algal farms in UK waters has the potential to affect shipping, safety, the freedom of navigation, and emergency response.
- In order to deliver improved socio-economic objectives, a balance needs to be struck between minimising negative impacts on maritime safety whilst maximising the contribution of fin/shellfish and seaweed/algal farms to the economy. Although the concepts and operation of each sector are fundamentally different, the approach to assessing risk is the same with a proportionate approach applied.
- This guidance has been produced to assist marine licence applicants in preparing their Navigation Risk Assessment and emergency response arrangements for all types of fin/shellfish and seaweed/algal farms, and to identify the type and level of information that should be provided by the applicant. It includes templates that applicants may wish to follow in preparing their submission.

1. Background

1.1 Maritime and Coastguard Agency (MCA)

- 1.1.1 The MCA is responsible for:
- the safety policy for vessels in UK waters;
 - the safety policy of all seafarers on UK flagged vessels;
 - ensuring all equipment requirements on UK vessels are fit for purpose;
 - setting training and certification standards for seafarers on UK vessels;
 - the environmental safety of UK coast and waters;
 - ensuring a programme of hydrographic surveys in UK waters; and
 - overseeing coastal rescue volunteers, hydrographic surveys, seafarer certification and the port state control inspection regime.
- 1.1.2 The MCA provides a 24-hour maritime search and rescue service around the UK coast, and international search and rescue through His Majesty's Coastguard (HMCG). The MCA is responsible for the safety of navigation outside of port limits, as a maritime authority under the International Maritime Organization's (IMO) International Convention for the Safety of Life at Sea, 1974 (SOLAS) and the Merchant Shipping Act 1995.
- 1.1.3 The MCA is a statutory consultee and/or primary advisor to the Marine Licensing regulators in the UK (see table 1 page 4).

1.2 UK Hydrographic Office (UKHO)

- 1.2.1 The UKHO is responsible for the timely promulgation of information to mariners such as national notices to mariners, navigational warnings, new editions of and updates to nautical charts and publications.
- 1.2.2 The UKHO acts as NAVAREA I Co-ordinator for the International Maritime Organization (IMO) and the International Hydrographic Organization (IHO) World-wide Navigational Warning System and the UK National Co-ordinator for issuing coastal navigational warnings. The Radio Navigational Warnings (RNW) team within the UKHO will pass information to the appropriate co-ordinator should any activities fall outside of NAVAREA I.
- 1.2.3 Therefore, information must be submitted to the UKHO within set timescales as stated in marine licence conditions, by the marine licence holder to allow for the timely promulgation of information to mariners.

2. Introduction

- 2.1 Fin/shellfish farms and seaweed/algal farm activities have the potential to be a direct risk to navigation and impact the marine environment through rerouting vessels around a farm, preventing the freedom of navigation through a site and constricting traffic or funnelling shipping. Smaller vessels could be forced into closer proximity to larger vessels and the frequency of encounter and collision risk could increase as a result of a new farm.
- 2.2 There are direct and indirect impacts on activities and marine users during the construction, operational and decommissioning phases including, but not limited to:

Construction and decommissioning:

- Collision of vessels with farm craft
- Allision of vessels with farm infrastructure
- Entanglement of farm ropes and lines with craft keel, rudder and/or propeller/propulsion
- Dropped objects
- Displacement of vessels

Operational Phase:

- Man overboard during harvesting
- Recreational or fishing vessel collides with the farm (allision)
- Entanglement of farm ropes and lines with craft keel, rudder and/or propeller/propulsion
- Collision with buoyage
- Displacement of vessels

2.3 This guidance aims to mitigate the risk to shipping and navigation and aims to ensure the risk is within the parameters of As Low As Reasonably Practicable (ALARP). It details the kind and quality of evidence that MCA expects fin/shellfish farm and seaweed/algal farm marine licence applicants to provide in order to demonstrate that their project is well-developed.

2.4 The criteria set out here is published for indicative purposes only and does not constitute a definitive or exhaustive list of requirements. Each marine licence application is considered on a case-by-case basis taking account of site-specific information.

2.5 Moreover, the criteria specify only the minimum level of detail necessary for MCA to give initial consideration to a proposed development. Satisfaction of the criteria will not guarantee the MCA's acceptance of an application.

2.6 So far as is reasonably practicable, all information supplied to MCA in connection with the criteria set out here should be supported by robust evidence and/or verification by independent third parties as appropriate.

3. Fin/Shellfish and Seaweed/Algal Farms

3.1 A marine licence is likely required from the Marine Licensing regulators for all licensable marine activities listed in the relevant Marine Acts. These may include construction, alteration and improvement, or deposit of any substances or objects in the sea from a vehicle or vessel, which could be a danger or obstruction to navigation. The MCA is a statutory consultee and/or primary advisor to the Marine Licencing regulators as follows:

Country	England	Wales	Scotland	Northern Ireland
Area from coast (in nautical miles) and legislation	0-12nm & 12-200nm Marine and Coastal Access Act 2009	0-12nm & 12-200nm Marine and Coastal Access Act 2009	0-12nm – Marine (Scotland) Act 2010 12-200nm – Marine and Coastal Access Act 2009	0-12nm – Marine Act (Northern Ireland) 2013 12-200nm – Marine and Coastal Access Act 2009
Licensing Authority	Marine Management Organisation	Natural Resources Wales	Scottish Ministers through Marine Scotland	0-12nm Department of Agriculture, Environment and Rural Affairs 12-200nm - Marine Management Organisation

- 3.2** During the licensing process, the marine licensing regulator will consider any impacts on interference with other legitimate user of the sea, navigation safety and emergency response. They also ensure that applications are in line with all relevant international legislation and Marine Plans. Further information on the marine licensing process can be found through the appropriate marine licencing regulator websites.
- 3.3** In an application, a Navigation Risk Assessment (NRA) is required in respect of these activities through discussions with the MCA and relevant navigation stakeholders. As part of this, MCA requires information on the intended deposits including the longitude and latitude coordinates in WGS84 datum, the materials to be deployed, the configuration of components, the mooring arrangements, the methodology used, and location depicted on a nautical chart. A shapefile or other GIS object (e.g. KML) must be provided.
- 3.4** In all cases, the MCA would expect applicants to have appropriate recovery arrangements of all the equipment and infrastructure for decommissioning of the farm, in all eventualities including large scale damage, or bankruptcy. The seabed and water column must be returned to its original profile following the decommissioning. It is the responsibility of the marine licence holder to ensure that the area is appropriately marked until made safe for other marine users.

4. Navigation Risk Assessment Requirements

4.1 Inside a Statutory Harbour Authority

- 4.1.1 Inside Statutory Harbour Authority (SHA) limits, the relevant harbour authority will have the jurisdiction for the safety of navigation before and during construction, the operational lifespan, and the decommissioning of the farm.
- 4.1.2 Applicants should discuss their proposals with the relevant SHA to obtain the relevant approvals and permits or works licences.

4.2 Outside a Statutory Harbour Authority

- 4.2.1 In the absence of an SHA, the responsible navigation authority is the Maritime and Coastguard Agency (MCA). The MCA therefore must be reassured that the risks to vessel activity in the area have been fully assessed, relative to the scale of the works (proportionality, see section 4.4).
- 4.2.2 It is important to identify appropriate stakeholder bodies for consultation i.e. those who will have an interest in the effect on navigation of the proposed development. It is important that their views are recognised, and they are consulted through the appropriate stakeholder organisation. Such groups may include representatives of from the following sectors:
- commercial shipping e.g. operators, associations
 - ports, harbours and marinas
 - recreation e.g. RYA, sailing and recreational clubs
 - fishing associations
 - emergency response e.g. RNLI
 - government agencies/departments and regulators e.g. General Lighthouse Authority (GLA), Health and Safety Executive (HSE).

Note: The above list of examples is not exhaustive. Appropriate stakeholders should be identified on a case-by-case basis.

4.3 Navigation Risk Assessment Overview

- 4.3.1 An NRA must be submitted to support the Marine Licence application as required by the relevant marine licensing regulator in the UK, to assess the impact and risk of the site to shipping, navigation and emergency response (see annex 1). The marine licensing regulator will then consult with MCA, General Lighthouse Authority (GLA) and others on the suitability and acceptability of the NRA to ensure the risk to navigation is reduced to As Low As Reasonably Practicable (ALARP)¹.
- 4.3.2 The NRA should include the effect on navigation within the area proposed for the farm plus the wider effects of vessel traffic transiting to locations outside of the immediate area of study (e.g. navigational squeeze and in-combination/cumulative impacts with other existing structures). The NRA should assess this during the construction and operational phases of the farm.

¹ Descriptions of ALARP can be found in:

a) Health and Safety Executive (2001) '[Reducing Risks, Protecting People](#)'

b) IMO (2018) MSC-MEPC.2/Circ.12/Rev.2 dated 9 April 2018, '[Revised Guidelines for Formal Safety assessment \(FSA\) in the IMO Rule-Making Process](#)'

4.3.3 The MCA would expect an NRA to follow the International Maritime Organization's (IMO) Formal Safety Assessment (FSA) process, and encourages early engagement to agree the approach, scope (proportionality) and techniques to be used going forward.

4.4 Proportionality

4.4.1 The scope and depth of the developer's assessment, together with the tools and techniques necessary to carry this out, should be proportionate to the scale of the development and magnitude of the risks. Prior to applying for a marine licence, applicants are advised to:

- Inform the MCA of their proposals and seek guidance
- Carry out a preliminary hazard analysis
- Define an appropriate programme of work
- Define the tools and techniques to be used
- Be prepared to change scope, depth, tools and techniques resulting from assessed risk as the full assessment progresses

4.5 Risk Assessment

4.5.1 The MCA would expect the items listed below to be considered for inclusion in the NRA. The scope of the NRA should be discussed with the MCA on a case-by-case basis:

- Project details and scope – overview of the proposals, composition, materials, layout and dimensions. Farming, seeding and harvestings' timescales and methodology.
- The NRA must be based on a sound knowledge of the traffic densities and types, therefore the existing traffic baseline for full site including surrounding areas is required. The traffic survey should include as appropriate:
 - Automatic Identification System (AIS) data (class A and B) - at least 28 days of seasonal data (14 days peak summer and 14 days peak winter) and desk top study with consultation to ensure all vessel types, including personal watercraft, found in the area are captured. This should include traffic densities and type, other offshore infrastructure and any other navigational features (as seen on nautical charts etc). AIS surveys may not be appropriate in all cases particularly in remote locations that are only be visited by vessels and craft not carrying and operating AIS. In this instance, traffic surveys must include alternative sources of data and information, as below.
 - Radar and visual surveys may be appropriate and should be considered according to location, scale of the project and vessel types in the area.
 - Other data sources to identify non-AIS traffic such as recreational vessels (e.g. RYA Coastal Atlas), personal watercraft and smaller fishing vessels (e.g. Vessel Monitoring System).
 - The traffic study should be supported by local consultation with stakeholders.
- Hazard log listing the hazards created or changed by the introduction of the farm and its associated equipment (see template in section 5.2);

- A qualitative and/or quantitative assessment (see template in section 5.3) on the risks associated with the hazards during construction, operation and decommissioning:
 - a risk control list (see template in section 5.4) including the risks, the risk mitigation measures, and the residual risk after applying suitable risk control measures.
 - the tolerability of the residual risk and
 - An ALARP declaration should then be stated.
- Search and Rescue overview including layout and access for service craft or emergency response vessels. This includes confirmation of the applicant's ability to self-rescue and the availability of the standby vessel for use in an emergency. The emergency response arrangements should be detailed in the Marine Emergency Action Card and be agreed with HM Coastguard in advance via oeo@mcga.gov.uk
- Monitoring, maintenance and inspection arrangements (including frequency) for the site and response times should any component break free. Where the proposed farm location is in close proximity to other projects or proposed projects in the vicinity, these should be considered cumulatively and in combination with each other in relation to shipping and navigation.
- The MCA then makes a decision on whether the claim that the risks associated with the site are 'Tolerable' on the basis of 'As Low As Reasonably Practicable' (ALARP).

4.5.2 A copy of the full FSA methodology document for large scale projects can be found in [MGN 654 Annex 1](#). Although written for the offshore renewables industry, the principles can be applied to any works in the marine environment.

4.6 Tolerability of Individual Risks

4.6.1 Applicants should aim to achieve agreement with stakeholders that risks in the hazard log are reduced to a level that is as low as reasonably practicable (ALARP). Failure to reach agreement may result in delays or objections from stakeholders within the licensing process.

Risk

Each risk entered in the hazard log should be assessed against a risk matrix. Section 5.3 provides examples of risk scoring from the IMO and HSE. Other risk scoring systems may be used, and the techniques selected will need to be justified in the submission.

- There must be no unacceptable risks.
(Note: The risk ratings may, with suitable justification, be determined by those undertaking the assessment. "Unacceptable" risks are normally those with a score of 6 or 7, in the HSE example on page 13).
- All risks assessed as Tolerable with 'x' (e.g. scores 3 to 5, in the HSE example) shall be subject to an assessment of rule compliance and proposed risk controls. Further risk control options must be considered to the point where further risk control is grossly disproportionate (i.e. the ALARP principle) and an ALARP justification and declaration made.

Evidence

For each entry in the hazard log the sources of evidence must be listed e.g. expert judgement, quantitative calculations and the related risk scores justified.

Risk Controls

For each entry in the hazard log the risk controls must be listed.

4.7 Additional Information

- 4.7.1 The NRA should include detailed information of any consultation with local users or any consideration of the potential impact the site may have on vessels operating in the local area, including emergency response resources. It would be useful to know whether any local consultation with users has been undertaken to ensure that the site selection for the site is suitable and does not unsafely restrict vessels or unsafely impede access in any way.
- 4.7.2 The MCA would also like to ensure that consultation has been undertaken with the relevant General Lighthouse Authority with regards to the marking and lighting of the site.
- 4.7.3 The MCA would expect the NRA to also detail the decommissioning arrangements once the site has reached the end of its operational lifespan.
- 4.7.4 Once the applicant has completed an NRA and submitted it as part of their marine licence application, the MCA will formally respond through the marine licence consultation process.

4.8 Risk Mitigation Measures

- 4.8.1 Local notifications to local users and mariners must be issued and include the following organisations:
 - The relevant local HM Coastguard zone (to be confirmed by MCA on a project basis) and oeo@mca.gov.uk
 - UK Technical Services Navigation - navigationsafety@mca.gov.uk
 - UKHO - navwarnings@ukho.gov.uk; sdr@ukho.gov.uk and GM_HW_Hub@ukho.gov.uk
 - General Lighthouse Authority:
 - Northern Lighthouse Board (Scotland and the Isle of Man) - navigation@nlb.org.uk
 - Trinity House (England, Wales and Channel Islands) – navigation@trinityhouse.co.uk
 - Irish Lights (Northern Ireland and Republic of Ireland) – operations@irishlights.ie
 - Seafish - kingfisher@seafish.co.uk
 - Others as appropriate (commercial operators, fishing operators/groups and recreational groups, local ports and harbours).
- 4.8.2 Other risk mitigation measures may include but not limited to:
 - Aids to Navigation / lighting and marking arrangements as agreed with the relevant General Lighthouse Authority
 - The publication of Maritime Safety Information by the UK Hydrographic Office (UKHO), and the update of nautical charts and publications.
 - Standby vessel for response to an emerging emergency
 - GPS monitoring of equipment

- Third Party Verification of mooring arrangements
- Marine Emergency Action Card

4.9 UKHO Information

4.9.1 The UKHO requires notification on which of the limits they need to publicise, depending on any restrictions that will apply in one or more areas.

4.9.2 The as laid longitude and latitude coordinates in WGS84 datum must be supplied to the following email addresses:

- navwarnings@ukho.gov.uk,
- sdr@ukho.gov.uk
- GM_HW_Hub@ukho.gov.uk.

5. Potential Incidents and Example Templates

5.1 Potential incidents resulting from navigation activities:

- Collision - defined as a vessel striking, or being struck, by another vessel, regardless of whether either vessel is under way, anchored or moored; but excludes hitting underwater wrecks.
- Allision/Contact – defined as a violent contact between a vessel and a fixed structure. Contact is defined as a vessel striking, or being struck, by an external object that is not another vessel or the sea bottom. Sometimes referred to as Impact. An under-keel clearance assessment may be appropriate to assess minimum water depths over infrastructure².
- Grounding and Stranding - Grounding is defined as the ship coming to rest on, or riding across underwater features or objects, but where the vessel can be freed from the obstruction by lightening and/or assistance from another vessel (e.g. tug) or by floating off on the next tide. Stranding is defined as being a greater hazard than grounding and is defined as the ship becoming fixed on an underwater feature or object such that the vessel cannot readily be moved by lightening, floating off or with assistance from other vessels (e.g. tugs).
- Foundering - to sink below the surface of the water.
- Capsizing/sinking - the overturning of a vessel after attaining negative stability.
- Fire/Explosion - Fire is defined as the uncontrolled process of combustion characterised by heat or smoke or flame or any combination of these. An explosion is defined as an uncontrolled release of energy which causes a pressure discontinuity or blast wave.
- Loss of Hull Integrity (LOHI) - defined as the consequence of certain initiating events that result in damage to the external hull, or to internal structure and subdivision, such that any compartment or space within the hull is opened to the sea or to any other compartment or space.

² see [MGN654 Annex 3](#).

- h. Flooding/leaks/swamping - Flooding is defined as sea water, or water ballast, entering a space, from which it should be excluded, in such a quantity that there is a possibility of loss of stability leading to capsizing or sinking of the vessel.
- i. Equipment failure/Machinery Related Accidents - Machinery related accidents are defined as any failure of equipment, plant and associated systems which prevents, or could prevent if circumstances dictate, the ship from manoeuvring or being propelled or controlling its stability.
- j. Payload Related Accidents - includes loss of stability due to cargo shifting and damage to the vessel's structure resulting from the method employed for loading or discharging the cargo. This category does not include incidents which can be categorised as Hazardous Substance, Fires, Explosions, Loss of Hull Integrity, Flooding accidents etc.
- k. Hazardous Substance Accidents - defined as any substance which, if generated as a result of a fire, accidental release, human error, failure of process equipment, loss of containment, or overheating of electrical equipment; can cause impairment of the health and/or functioning of people or damage to the vessel. These materials may be toxic or flammable gases, vapours, liquids, dusts or solid substances.
- l. Accidents to Personnel - defined as those accidents which cause harm to any person on board the vessel e.g. crew, passengers, stevedores; which do not arise as a result of one of the other accident categories. Essentially, it refers to accidents to individuals, though this does not preclude multiple human casualties as a result of the same hazard, and typically includes harm caused by the movement of the vessel when underway, slips, trips, falls, electrocution and confined space accidents, food poisoning incidents, etc.
- m. Accidents to the General Public and Shore Populations - defined as those accidents which lead to injury, death or loss of property amongst the population ashore resulting from one of the other ship accident categories.

5.2 Example Hazard List for OREIs

DESCRIPTION				
Ref		Description of Causal Chain (Event Sequence) (Accident Sequence)		
1				General Navigation Safety
1	2			Collision
1	2	01	a	Merchant vessel [broken down by type] navigating near or around an OREI collides with another vessel that is navigating near or around an OREI
1	2	01	e	Merchant vessel [broken down by type] navigating through an OREI collides with another vessel that is navigating through an OREI.
1	2	02	a	Fishing vessel collides with another vessel navigating near, around or through an OREI
1	2	02	b	Presence of fishing vessels causes collision between other navigating vessels.
1	2	03	a	Recreational vessel collides with another navigating vessel navigating near, around or through an OREI
1	2	03	b	Presence of recreational vessels causes collision between other navigating vessels.
1	2	04	a	Anchored vessel collides with another navigating vessel navigating near, around or through an OREI
1	2	04	b	Presence of anchored vessels causes collision between other navigating vessels.
1	2	05	a	Vessel engaged in servicing an OREI collides with another navigating vessel navigating near, around or through an OREI
1	2	05	b	Presence of vessels engaged in servicing an OREI causes collision between other navigating vessels.
1	2	06	a	Vessels engaged in servicing an OREI (e.g. a mother and daughter vessel arrangement) collide with each other
1	2	06	b	Vessels engaged in servicing an OREI (e.g. a mother and daughter vessel arrangement) collide with another navigating vessel navigating near, around or through an OREI
1	2	06	c	Presence of vessels engaged in servicing an OREI (e.g. a mother and daughter vessel arrangement) causes collision with other navigating vessels
1	3			Contact
1	3	01	a	Vessel [broken down by type, inc personal watercraft] under control makes contact with a floating or fixed OREI structure e.g. foundation, platform, transition piece, blade, substation, accommodation platform
1	3	01	b	Vessel servicing an OREI structure makes contact with an OREI structure
1	3	01	c	Vessel not under command makes contact with an OREI structure
1	8			Grounding and Stranding
1	8	01	a	Vessel under control grounds or becomes stranded on an OREI structure e.g. foundation, transition piece, collapsed wind turbine.
1	8	01	b	Vessel servicing an OREI structure grounds on an OREI structure
1	8	03	a	Vessel not under command grounds or becomes stranded on an OREI structure
1	8	04		Due to restricted manoeuvring a vessel navigating near, around or through an OREI grounds or becomes stranded.
1	8	07	a	Due to naturally shifting sand banks a vessel navigating near, around or through an OREI grounds or becomes stranded.

5.3 Risk Matrix

5.3.1 There is no generally accepted standard for a risk matrix therefore applicants will be expected to define the following as appropriate to their project:

- likelihood/frequency of incident scenarios
- severity/consequence of incident scenarios
- risk matrix

- tolerability matrix scores

5.3.2 The below IMO examples are based on ship-board scenarios and will require intelligent application for navigational risk posed by fin/shellfish farm and seaweed/algal farms. It is suggested that the assessment is based on a matrix which the applicant believes is appropriate for the needs of their development.

- IMO Example of Likelihood/Frequency Index:

Frequency Index			
Frequency	7	Frequent	Once per month on one ship
	5	Reasonably Probable	Once a year in a fleet of 10 ships
	3	Remote	Once a year in a fleet of 1000 ships
	1	Extremely Remote	Once in 20 years of a fleet of 5000 ships

- IMO Example of Severity/Consequence Index (note: this example does not consider severity/consequence to property):

Severity Index			
Severity	4	Catastrophic	Multiple fatalities
	3	Severe	Single fatality of multiple severe injuries
	2	Significant	Multiple of severe injuries
	1	Minor	Single of minor injuries

- IMO Example of Risk Matrix:

Risk Matrix					
	FREQUENCY	SEVERITY			
		1	2	3	4
		Minor	Significant	Severe	Catastrophic
4	Frequent	8	9	10	11
		7	8	9	10
3	Reasonably Probable	6	7	8	9
		5	6	7	8
2	Remote	4	5	6	7
		3	4	5	6
1	Extremely Remote	2	3	4	5

- HSE Example of Tolerability Matrix³:

Risk Matrix Score	Tolerability	Explanation
7	Unacceptable	Risk must be mitigated with design modification and/or engineering control to a Risk Class of 5 or lower before consent
6	Unacceptable	Risk must be mitigated with design modification and/or engineering control to a Risk Class of 5 or lower before consent
5	Tolerable with Modifications	Risk should be mitigated with design modification, engineering and/or administrative control to a Risk Class of 4 or below before construction
4	Tolerable with Additional Controls	Risk should be mitigated with design modification, engineering and/or administrative control to a Risk Class 3 or below before operation
3	Tolerable with Monitoring	Risk must be mitigated with engineering and/or administrative controls. Must verify that procedures and controls cited are in place and periodically checked
2	Broadly Acceptable	Technical review is required to confirm the risk assessment is reasonable. No further action is required.
1	Broadly Acceptable	Technical review is required to confirm the risk assessment is reasonable. No further action is required

5.4 Example Risk Control List for OREIs

Risk Control Description

- identify all the relevant risk controls
- define the type of control (asset, rule, good practice and/or option)
- define what effect of control (prevention, mitigation and/or emergency response).

DESCRIPTION			RISK CONTROL TYPE				RISK CONTROL EFFECT		
			Asset	Rule	Good Practice	Option	Prevention	Mitigation	Emergency Response
1		Vessel Assets							
	1	Emergency Response - Requisitioned Vessels	✓						✓
	2	Search and Rescue - Inshore	✓						✓
	3	Search and Rescue - Lifeboats	✓						✓
	4	Search and Rescue Requisitioned Vessels	✓						✓

³ HSE [R2P2 document](#)

DESCRIPTION			RISK CONTROL TYPE				RISK CONTROL EFFECT		
			Asset	Rule	Good Practice	Option	Prevention	Mitigation	Emergency Response
	5	Tugs	✓						✓
	6	GLA Tenders	✓						✓
	7	Support Vessels	✓						✓
2		Aviation Assets							
	1	Search and Rescue - Helicopter	✓						✓
	2	Oil Spill Dispersant - Aircraft	✓						
3		Assets							
	1	AIS Base Station on infrastructure	✓						
	2	Marks and Lights	✓				✓		
	3	Sound Signals	✓				✓		
	4	CCTV	✓						
	5	Design specifications e.g. to aid SAR	✓					✓	✓
4		Control Room Assets							
	1	AIS monitoring	✓				✓		
5		Shore-based Assets							
	1	Marine Radar, Navigation and Communications Systems	✓				✓		
	2	Marine Rescue Coordination Centres	✓						✓
	3	Vessel Traffic Service	✓				✓		
	4	Shore Radar	✓				✓		
6		Other Assets							
	1	Pilot Services	✓				✓		
	2	Charts	✓				✓		
7		Consent							
	1	Deny consent				✓	✓		
8		Configuration and Design							
	1	Optimise location, alignment, size and layout			✓		✓		
	2	Minimum safe depth clearances		✓			✓		
9		Routeing and Routeing Management							
	1	Continuous watch by multi-channel VHF, including Digital Selective Calling (DSC) from Control Centre			✓		✓		
	2	Monitoring by radar, AIS and/or closed-circuit television (CCTV) from Control Centre				✓	✓		
	3	Speed limits to control wash			✓		✓		
10		Navigational Marking							
	1	External Marking to GLA requirements		✓			✓		
	2	Internal Marking to GLA requirements		✓			✓		
	3	ID Marking of Individual Structures		✓			✓		
	4	Aids to Navigation to GLA requirements		✓			✓		
12		Communication and Training							

DESCRIPTION			RISK CONTROL TYPE				RISK CONTROL EFFECT		
			Asset	Rule	Good Practice	Option	Prevention	Mitigation	Emergency Response
	1	Promulgation of information and warnings through local notifications to mariners and other appropriate media		✓	✓		✓		
	2	Marking on Navigation Charts		✓			✓		
13		Safety Management							
	1	Operator's Safety Management System			✓			✓	
	2	Operator's Safety and Operations Plan			✓			✓	
	3	Operator's Emergency Plan			✓			✓	
	4	Contingency plan if GPS switched off/failed			✓				
	5	Emergency Response Plan	✓				✓	✓	✓
14		Regulatory							
	1	Application of the principles of the Port Marine Safety Code				✓			
15		Search and Rescue							
	1	SAR response planning			✓				✓
	2	SAR asset provision planning			✓				✓
	3	Marine Emergency Action Card		✓					✓
16		Emergency Planning							
	1	Salvage response planning			✓			✓	
	2	Salvage asset provision planning			✓			✓	
	3	Oil Spill response planning			✓			✓	
	4	Oil Spill asset provision planning			✓			✓	

6. Emergency Response

6.1 Marine Emergency Action Card (MEAC)

6.1.1 As the maritime emergency service in the UK, HM Coastguard requires specific content to be included within the Marine Emergency Action Card (MEAC):

- Summary and description of the site including location (on a nautical chart), components and dimensions (pictures and/or diagrams) should support a description.
- Contact information including emergency phone number, backup number and any radio frequencies used. Contact email address(es) should also be included.
- Any emergency response structure to be established including key roles.
- Vessel information including any permanently contracted/owned by the farm or the types which may be in attendance, including communication information and role.

- If vessel crew have emergency beacons i.e. Personal Locator Beacons (PLBs), information should be included on the type of beacon and how further information can be gathered e.g. via the above listed emergency contact number.
- Monitoring information (which may include vessels detailed above) including any shore-based detection systems (e.g. radar, AIS) and communication capabilities.
- Any hazard markings and/or lights, particularly those on the coast or which may be visible from sea.
- Any pollutants and/or environmental hazards which could pose a risk to emergency responders, the coastline and/or marine environment, including response options.
- HM Coastguard information including nearest MRCC, nearest SAR resources and contact information including telephone and email.

NOTE: The coastguard should be immediately notified via 999 if a life-threatening emergency occurs.

- Any additional information which may be useful to HM Coastguard.
- It may be beneficial to include a notification diagram and/or flowchart to demonstrate how the emergency notifications will happen.

6.1.2 Any contact information contained in the MEAC and provided to the MCA will be used solely for the purposes of emergency response as part of the Agency's functions. The information will be kept securely and will not be used for any other purpose without permission from the information provider. The information will be stored by the MCA until the company provides updated information or the farm ceases to exist, at which point the information will be deleted.

7. Review of Procedure and Good Practice

7.1 This guidance will be reviewed annually to ensure it remains fit for purpose and evolves with the aquaculture industry. The review will consider improvements, concerns and items of good practice with a view to updating, refining and improving guidance and procedures for mitigating risk in the marine environment for fin/shellfish and seaweed/algal farms in the future.

More information

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Maritime and Coastguard Agency
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Website: www.gov.uk/mca

Please note that all addresses and telephone numbers are correct at time of publishing.

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Annex 1

Standard Format of a Submission

Applicants are invited to submit their Navigational Risk Assessments in the following format:

Sect.	Contents	Commentary on the Contents
1	Summary	
2	Risk Claim supported by a Reasoned Argument and Evidence	<p>This should be written in such a way so that, if read separately from the rest of the document, the reader can understand. It should include:</p> <ul style="list-style-type: none"> a. Navigational safety claim b. Supporting reasoned argument c. Overview of the evidence obtained <p>Detailed description of the tools and techniques used, describing in detail, and demonstrating where necessary, the tools and techniques used and their rationale. This will be necessary for gaining acceptance of the proportionality.</p>
3	Description of the Marine Environment and the Development	<p>This description should include the:</p> <ul style="list-style-type: none"> a. Current marine environment b. Future marine environment c. Proposed infrastructure
4	Analysis of the Marine Traffic	<p>This analysis should include:</p> <ul style="list-style-type: none"> a. Current traffic densities and types b. Predicted future traffic densities and types c. The effect of infrastructure on current traffic densities and types d. The effect of infrastructure on future traffic densities and types
5	Status of the Hazard Log	<p>This should include:</p> <ul style="list-style-type: none"> a. Summary of Tolerable, ALARP and Intolerable Risks b. Graphical representation of all risks on a matrix
6	Navigation Risk Assessment	<p>The risk assessment should include:</p> <ul style="list-style-type: none"> a. Base Case b. Future Case c. Base Case with infrastructure d. Future Case with infrastructure e. Future Options f. A summary of the other navigation safety risks from the hazard log and the risk controls put in place to manage them

Sect.	Contents	Commentary on the Contents
7	Search and Rescue Overview and Assessment	<p>Assessment dependent on level agreed with the MCA. In high risk developments this may include, prior to or post consent:</p> <ul style="list-style-type: none"> • Resource Planning • Prevention Strategy • Response Plan Assessment
8	Status of Risk Control Log	An overview of the risk controls in the Risk Control Log
9	Major Hazards Summary	<p>A summary of the major hazards, how they have been assessed, how they will be controlled and what trials have been undertaken to develop the assessment or controls. Likely “Major Hazards” to be summarised are:</p> <ul style="list-style-type: none"> • Collision and contact with other vessels and with OREI structures • Grounding • Contact with cables and snagging • Interference with communications, radar, etc.
10	Through Life Safety Management	<p>An indication of, or a commitment to, the planned through life safety management including:</p> <ul style="list-style-type: none"> • Updating risk assessments • Filling gaps in assessment • Safety Policy • Safety Management System • Safety and Operations Plan • Emergency Plan • Through Life Review • Marine Emergency Action Card