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Morlais Project

Rebuttal Proof of Evidence - Navigation

Applicant: Menter Môn Morlais Limited
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MARICO MARINE

MENTER MÔN

SHIPPING AND NAVIGATION

REBUTTAL PROOF OF EVIDENCE OF PAUL BROWN

Date: 17 November 2020

UK HMA | British Ports Association | International Harbour Masters Association | renewableUK

MARINE AND RISK CONSULTANTS LTD

MENTER MÔN

SHIPPING AND NAVIGATION - REBUTTAL PROOF OF EVIDENCE

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1 INTRODUCTION

1.1 NAME AND POSITION

My name is Commander Paul Brown Royal Navy (Retired) and I am a Principal Consultant for Marine and Risk Consultants Limited, known as Marico Marine. I am acting as a witness for Shipping and Navigation on behalf of Menter Môn.

1.2 PURPOSE

This rebuttal proof of evidence is submitted in response to the proofs of evidence submitted for exchange. I have read the various proofs of evidence submitted to the Inquiry and I respond to issues raised in respect of Shipping and Navigation in the submitted evidence of:

• Richard Hill (Planning and Environmental Officer for the RYA)

Insofar as I can usefully comment on it, I have. My silence on any particular point should not be taken as agreement to it.

1.3 APPROACH

In the interests of brevity and to avoid repetition, I have chosen to address the points raised by the RYA by theme. I am aware that the Snowdonia Canoe Club (SCC) have also objected to the project but did not submit a proof of evidence in an acceptable format and will not be attending the inquiry, I have nevertheless tried to address the points they have raised and specifically the issue of "run out" in **Section 15.**

2 SCALE AND FUTURE CONSENT SAFEGUARDING

2.1.1 Paragraph A7

The RYA state "the order will enable the applicant to expand from 12 MW to over 100 MW without additional consents; therefore, the project as applied for is clearly far larger than any reasonable person would define as small scale."

2.1.2 Paragraph A11

The RYA express concern with regard to the consent process in saying "it is unclear from the draft Order how the receptors of the area will be safeguarded, as device selection and detailed layouts are developed, as there is not a requirement for further consent."

2.1.3 Paragraph A15

The RYA state that ""The MDZ will be c. 100 MW or more (worst case 240 MW), without phased consenting, on an area of 34km².".

Response: Reference to the Navigation site of the publicly available Morlais website (https://www.morlaisenergy.com/navigation) shows that a carefully phased approach to the development is planned with phase 1 (0-4 years) showing an example deployment of 6 tidal devices and phase 2 (4 -10 years) showing a deployment of a possible additional 30 devices of three differing types.

Each new array will be the subject of individual Navigational Risk Assessments (NRA), which include, as a critical part, stakeholder consultation as a part of the process.[1] In addition, the applicant has committed to formally updating the existing site NRA every two years giving all stakeholders a voice which must be heard and heeded by the applicant.

[1] As required in the TWAO order "Definitions: "updated navigational risk assessment" means an updated navigational risk assessment for each relevant phase of each tidal work undertaken in accordance with the methodology of the navigational risk assessment carrying document reference 18UK1479-RN-MM-NRA-20 -3 and the navigational risk assessment addendum carrying reference MOR-MCO-DOC-001 forming part of the environmental statement (as such assessments are updated from time to time) and taking into account the location and characteristics of the tidal works proposed for deployment, the method of construction anchoring proposed lighting, operation and any associated maintenance requirements or methods of repowering or decommissioning (as applicable) and an assessment of the cumulative effects of the proposals with previously deployed tidal works and shall include the extent of any proposed safety zone to be applied for in accordance with article 43; and in Schedule I Part 4 - Updated Navigational Risk Assessment pPrior to each of the following activities-

- the construction of any tidal work, the repowering of any tidal work and the decommissioning of any tidal work described in the NRA and the NRAA.

It is also required in condition 27 of the Marine Licence: Condition 27 – "The licence holder must submit to NRW for approval, in consultation with Trinity House and MCA, a tidal device or array specific Navigational Risk Assessment (NRA) at least 4 months prior to deployment. The NRA must be updated every two year with an area wide NRA and for each array subsequent deployment and consider the in-combination effect with already deployed tidal devices or arrays."

Importantly, the safeguards secured through the TWAO will also be further subject to the strict conditions of the Marine Licensing process through Natural Resource Wales under the Marine and Coastal Access Act 2009.

Far from giving the applicant carte blanche to extend the development up to 100 MW without oversight, this process ensures that the development of the site is correctly monitored by those who support it and, importantly those who do not.

3 SOCIO ECONOMIC IMPACT

3.1.1 Paragraph A10 and paragraphs D5 – D8

The RYA allege that the applicant has failed to assess the Socio Economic impacts of the project. This is addressed in the following documents:

1. ES chapter 25 MDZ/A25.25.
2. MDZ/H1 MMC132 Supplementary Tourism and Recreation Assessment* 27/03/2020.
3. MDZ/H2 MMC215 Economic evaluation of the recreational value of the coastal environment 18/09/2020.
4. MDZ/H4 MMC133 Supplementary Socio-economic Assessment.
5. MDZ/P6 MMC440 Dr Edward Thomas Jones; Socio Economics Proof of Evidence.

4 LOSS OF AMENITY

4.1.1 Paragraphs A20, D1, D3 and D4

The RYA raise the question of loss of amenity and allege that the applicant has not addressed this issue in the NRAA by saying “neither the NRA Addendum nor the ES considers the impacts of the proposal on recreational amenity.”

Response: This is correct, the NRAA states “Please note, the Navigation Risk Assessment considers safety of navigation and does not seek to address any possible loss of amenity.”

Addressing this comment from a navigational point of view, the RYA are attempting to imply that the project will result in the loss of a large section of “recreational” water that is under constant use by local clubs.

The area of water that the MDZ will occupy is, by the RYA's own admission, "turbulent" and advice from Admiralty Sailing Directions, as well as numerous other sources, cite this area as one that requires respect owing to the overfalls, rough water and its exposed location. By coincidence, the November 2020 issue of Yachting Monthly ran an article on tidal races describing them as "fearsome," noting the requirement for caution in passage making and stating "of course, the simple answer is to avoid them altogether," and placing the Anglesey Races as number 5 in the scale of nastiness in the UK.[2]

[2] Yachting Monthly November Edition "The UKs 11 Fiercest Tidal Races" by DAG Pike.

EXPERT ON BOARD

DAG PIKE has spent 65 years at sea on yachts and motor boats, and has made several transatlantic record attempts

THE UK'S 11 FIERCEST TIDE RACES

Breaking waves and lurking rocks have earned some British tide races a fearsome reputation. Dag Pike explains how to navigate them

Get your timing wrong through a tide race and it can be an uncomfortable or even dangerous experience

The British Isles lies in one of the most turbulent maritime regions in the world. Not only are our shores battered by the depressions that roll in with frequent monotony during the winter months, but every 12 hours the tide turns and billions of litres of water move in and out from our shores. This huge water flow fills and empties the English Channel, pours up into the Irish Sea and on up and down the West Coast of Scotland and up north it finds a way around the islands to enter the North Sea.

The tidal streams generated by this flow can be fearsome, running up to 10 knots in places and when the land gets in the way, impeding the flow of the tide, tide races can generate wild seas that can prove a significant hazard for sailing yachts, with short steep waves, where you can barely recover from one wave before the next one hits you. In benign conditions this need hardly trouble you. Where the seabed rises suddenly, tidal flows are concentrated around headlands or through narrows, and if the tide and wind are opposed, then swell with a long wavelength in open water will slow down and concertina up, making the waves build in height, with much steeper faces, crests that are much more likely to break and with the ability to swallow boats whole. You don't want to get it wrong.

TACKLING A FEARSOME RACE

Of course the simple answer is to avoid tide races altogether but around our uneven coast, this can be wildly impractical with detours of many miles and hours, or long delays to await better conditions. Many tide races have earned a fearsome reputation, and not without reason, but once you know and understand them there can often be a way through, either at particular times and states of the tide, in certain conditions, through channels of calmer water, or by enduring a bit of uncomfortable sailing.

You can usually find the areas where tide races occur by reading the pilot guides or they can be marked on the charts so you can prepare for them but a word of caution here. Don't follow their guidance blindly. Firstly, think very carefully about going through a tide race at night. It can be hard to assess the conditions ahead and often the best route may be close under a headland inshore where you need good visibility to steer a safe course past rocks and lobster pots. I remember coming up Channel once in the late afternoon in deteriorating weather and thinking about shelter in Portland Harbour. With an experienced skipper we just made it through the inside passage before it got dark but it was a close run thing.

Secondly, remember that it is not only the sea conditions that can be challenging in a tide race. The flow of the water increases because the space for the water becomes restricted and the same applies to the wind so you will usually find stronger winds around the headlands and narrow channels where tide races occur.

Then there is the question of selecting the right tide to go through. Ideally you want to go through a race with a favourable tide so that you speed through, but if the wind is against the tide then you will get much steeper waves and more of them will break and behave unpredictably. Following winds and tides would be ideal, but if you're going against the wind, then going through at slack water may be preferable. In some races, this switch in tidal direction can be quite short lived, maybe an hour at most. The position of the disturbed water can also change as the tide progresses, so it is no simple calculation. Remember that while tides are predictable the wind is not, so any carefully made calculations will need reassessing for the actual conditions on the day.

You then need to prepare your boat and your crew for what lies ahead. It may be a calm day but you are about to enter an area of rougher water, so the boat should be set up accordingly. Having the engine on and ready for action is no bad idea should you need it in a hurry, or to give you an extra shove clear of the worst of the tide. It may be prudent to put a reef in, in anticipation of the wind increase around a headland, and everything should be battened down and secured for sea just in case. For the crew it should be lifejackets and lifelines on and restrictions on coming up on deck or heading down below in case one of those unruly waves dumps itself on board.

Tide races can be a test of seamanship, requiring good judgement about how and when to tackle them. Often the alternative might be many miles added to the distance you have to sail, so it can be easy for your judgement to be biased towards taking the risk. There can be many factors involved, including the strength of the tides, whether they are springs or neaps, the time of the tides, the wind conditions and forecast, the extent of the tide race area and finally the ability of your yacht and crew to cope with adverse conditions.

TAMING THE BEASTS

I have been through many of the tide races around the British Isles and there is no doubt that an engine gives you a lot of confidence, helps reduce the time you are exposed, and can get you out of difficulties when close in to the shore where the margins for error are small.

Ultimately, with proper planning, a bit of daring, and a seamanlike sense of when to hold back , it's possible to tame these fearsome tide races, and even use them to your advantage.

Figure 1 - Yachting Monthly Article of Tide Races Dated November 2020

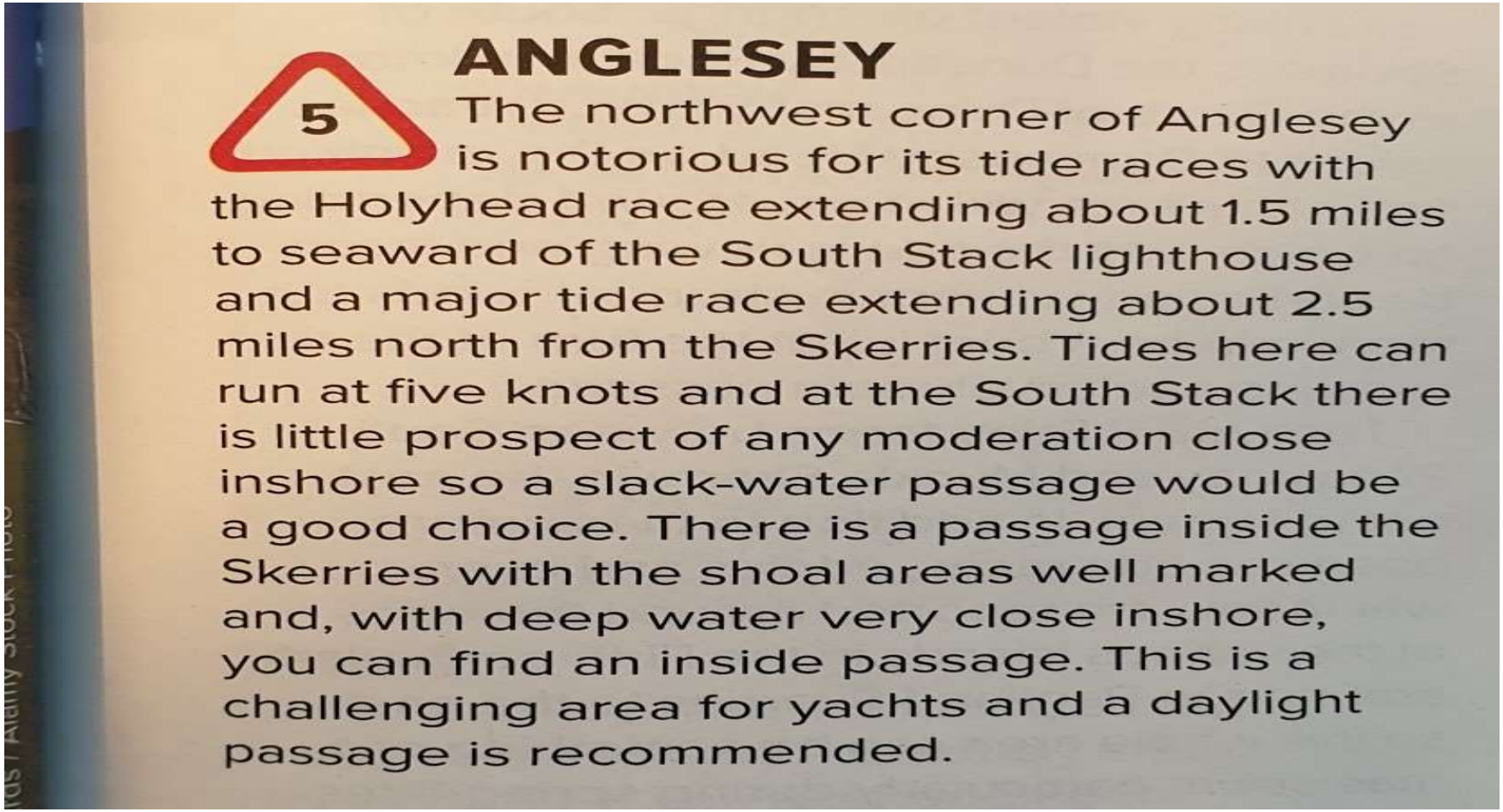

Figure 2 - November 2020 Yachting Monthly Advice on the Anglesey Tide Race

Except on the rare days when the Irish Sea is calm and the tides weak, the area occupied by the MDZ is much more likely to be an area through which mariners will swiftly pass, will not seek to loiter and are seldom likely to use it to recreate. This should not be taken to mean that mariners do not and should not use the waters here, only that it is rarely a benign environment and that it requires common sense, respect and considered planning to do so. Similarly, as noted below in addressing the question of sea room for passing vessels in **section 10,** the applicant has made significant efforts to ensure that there remains enough space for those vessels wishing to transit the area to do so in safety. Nevertheless, in my opinion, the loss of amenity from a navigational point of view is likely to be minor when compared the benefits derived from this important project.

5 COMMERCIAL NAVIGATION

5.1.1 Paragraph A16

The RYA reminds the applicant of the requirement to "avoid causing alteration to the ease and safety of navigation in port approaches or reduce the commercial attractiveness of the ports e.g. through increases in vessel insurance premiums."

Response: Demonstrably the applicant has very clearly done this as evidenced by the agreement of the project design by Stena Lines, Irish Sea Ferries, the Chamber of Shipping and the Harbour Master of Holyhead. The NRA[3] and the NRAA[4] show a record of constructive engagement and agreement with these important stakeholders over 3 years as the project design has evolved and developed in response to their concerns. The comments below on recreational traffic displacement in **section 14** are also relevant.

[3] NRA Page 134 – Meeting Minutes with Chamber of Shipping.

[4] NRAA Page E14 – Meeting Minute.

6 COLLABORATIVE APPROACH

6.1.1 Paragraph C1

The RYA questions the approach of the applicant to collaborative working by saying in paragraph C1 "The Welsh National Marine Plan (WNMP) indicates the need for collaborative working (Policy ELC_02b) when establishing a demonstration zone. The separation of landscape impacts from navigation safety, with respect to visual prominence of arrays, demonstrates that the applicant has not had due regard for the WNMP with respect to promoting collaborative work between stakeholders before applying for consent."

6.1.2 Paragraph H3

The RYA state ""The RYA, to demonstrate how collaborative working should be undertaken, provided an alternative proposal based on the 2018 consultation."

Response: This is incorrect.

The stakeholder consultation sections of the NRA and the NRAA as well as the work to support the production of Statements of Common Ground with Trinity House, the MCA and every other stakeholder stand as evidence of 3 years of steady, constructive and considered stakeholder consultation. This is further evidenced by the applicant's review and significant change of the project design in 2020 in response to consultee concerns and the final design which was endorsed by the MCA, Trinity House and the Irish Sea ferry companies through the Chamber of Shipping.

In contrast, the RYA used their considerable influence and leverage with local sailing clubs to forbid their members from meeting or discussing the project with the applicant.[5] A screenshot of Holyhead Sailing Club Website instructing its members not to consult or discuss the project with the applicant is below – dated 16th October 2020.

[5] It is acknowledged that this was in a genuine effort by the RYA to centralise the sailing community response to the project but had the unfortunate side effect of closing any information flow and of shutting any attempt by local clubs to better understand the project.

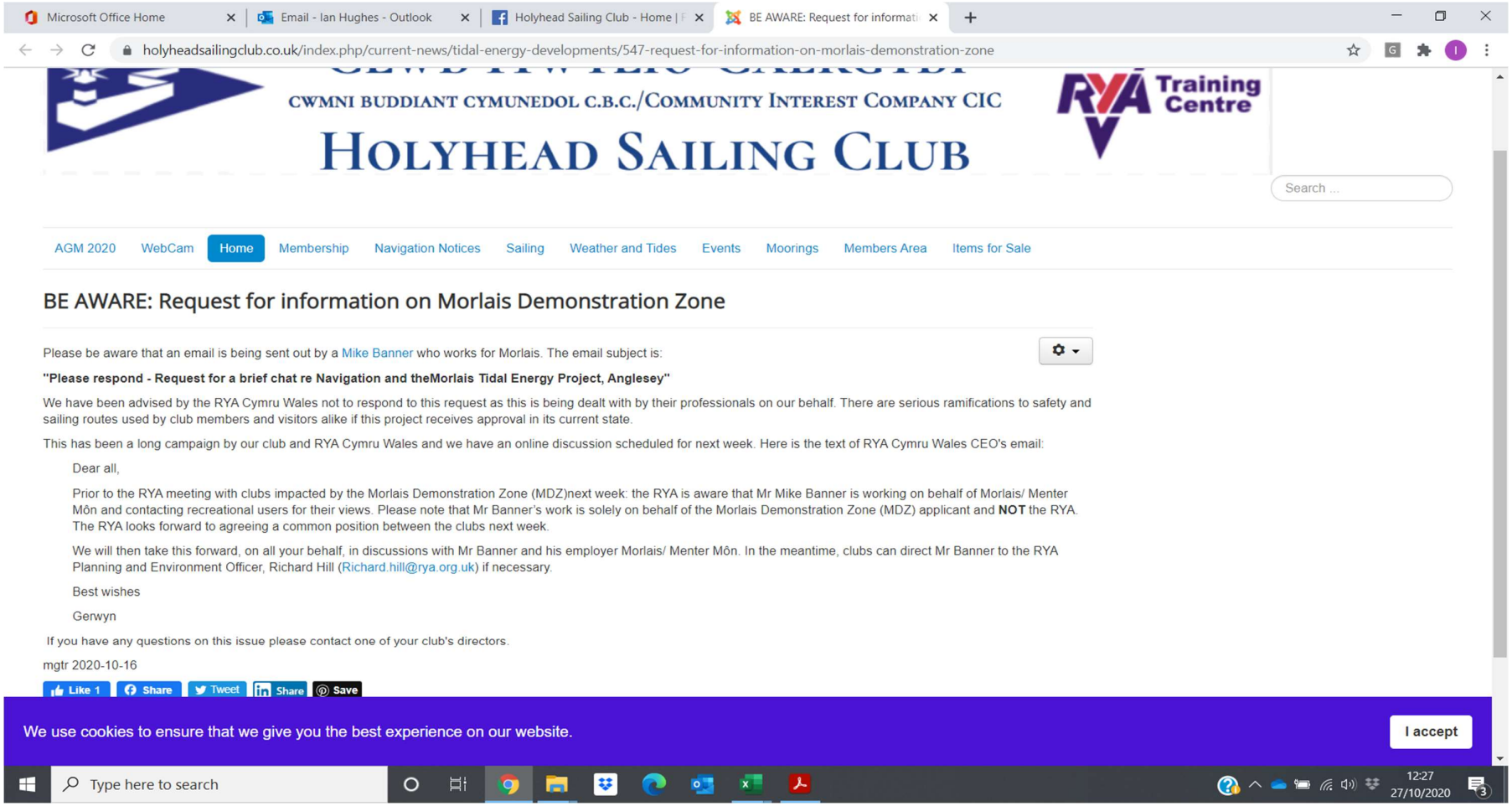

Figure 3 - Holyhead Sailing Club - Instruction Not to Engage with the Applicant

7 QUALITY OF SURVEY DATA

7.1.1 Paragraph D2

Also in paragraphs E2, E9, E10 and E11[6], the RYA challenge the quality of the data and the methods used to collect it to underpin the NRA, claiming that it "did not include all the recreational activities that take place within the proposed MDZ (Sections 6.4.7 and 6.4.8, RYA Statement of Case)."

Response: This is incorrect.

The surveys were conducted by Anatec Ltd, a highly respected and professional survey company. Their surveys included AIS and Radar data and, as is industry standard and MCA required practice for Radar surveys, this data was supplemented by visual surveys and observation to identify and correlate the radar contacts.

MGN 543 is very clear in requiring "An up to date, traffic survey of the area concerned should be undertaken within 12 months prior to submission of the Environmental Statement. This should include all the vessel types found in the area and total at least 28 days duration but also take account of seasonal variations in traffic patterns and fishing operations. (Note: AIS data alone will not constitute an appropriate traffic survey)."[7]

Most importantly, the MCA as the regulator and the arbiter of Navigational standards, and already familiar with the techniques used by Anatec Ltd, were equally clear in specifically agreeing that the survey data was sufficient and representative of traffic levels in the area, and that the survey was conducted in accordance with the requirements of MGN 543 (the industry guideline for surveys of this type).[8]

The quality and completeness of the survey data set is evidenced by the fact that the visual and radar survey show detections / photographs of kayaks (as in **Figure 4** below) as well as other non AIS carrying and non-radar conspicuous vessels such as sailing dinghies and RIBs.

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[6] This refers to the first point E11 on page 12 in the RYA POE. There is a second point E11 on page 14 which refers to the lack of project detail – which has already been addressed by the applicant in the navigation section of the project website.

[7] MGN 543 Annex 1 Para 2 (a).

[8] MCA Statement of Case Page 1, MCA Letter to NRW - Part 4 Marine Licencing Dated 7th January 2020 and MCA Statement of Common Ground – Page 13 Data Sources.

Project:	A3955
Client:	Xodus Group on behalf of Morlais
Title:	Summer Maritime Traffic Survey – South Stack, Anglesey

anatec
www.anatec.com

Figure 5.4 Kayaks Survey Image (1st September 2017)

Figure 4 - Anatec Ltd, Morlais Summer Survey Image – Page 41[9]

[9] Anatec Survey Data - Project Number A3955.

Amplifying **point 6** above and as further evidence of the applicant's efforts to fully collaborate with stakeholders, in response to the RYA's concerns about the survey data, the applicant purchased the RYA's own data in the form of the RYA Coastal Atlas of Recreational Boating[10] for the area. It should be noted that this Atlas uses AIS data only and, by coincidence, the data set it uses is also supplied by Anatec Ltd[11]. This additional data served only to complement and endorse the traffic levels and types represented by the more comprehensive AIS, Radar and visual survey. The fact that the RYA's Coastal Atlas relies on AIS detection only, does not detect smaller vessels and is, by their own admission, an indication of its lack of reliability and accuracy might be the reason why the RYA has drawn incorrect conclusions about traffic levels.

Lastly, the RYA challenge the "inadequate assessment of consultation responses," in the first paragraph E11: It must be noted that the NRA and NRAA annex D and E evidence a comprehensive record of stakeholder consultation and that the evolution of the project design over 3 years in response to their comments must indicate that far from being inadequate, the applicant had significant regard for consultation responses. Disagreement with the answer to a given question does not necessarily mean that the answer is incorrect.

8 QUALITY OF THE NRA AND NRAA

8.1.1 Paragraph E12

In an effort to discredit the NRA and the NRAA, the RYA "note that the NRAA concentrates on navigational issues off South Stack. Section 7.2 Vessel Track Analysis Figure 2 of the NRAA would, however, also indicate choke points off the North Stack and Penrhyn Mawr, within the proposed Eastern Inshore Route, these locations are not specifically mentioned. There is, therefore, a doubt as to whether the NRAA has considered these areas."

[10] https://www.rya.org.uk/knowledge-advice/planning-environment/Pages/uk-coastal-atlas-of-recreational-boating.aspx

[11] "Data processing for the 2019 update is in line with the 2016 release processed by Anatec" RYA Coastal Atlas Page 4,

8.1.2 Paragraph E16

The RYA state "The RYA is therefore concerned about the accuracy of the NRAA, with respect to ensuring an informed Consent. This is compounded by the applicant's requirement that additional DSNRA and ASNRA will be needed following consent, indicating that a consent decision is being sought without robust information on which to base it."

8.1.3 Paragraph H1

The RYA state that the applicant "Submitted a confusing NRAA which is unclear as to the division of navigation safety responsibility between applicant and developers (Section 7.2, RYA Statement of Case). The MCA also indicates that they have similar concerns with respect to what risk control measures are recommended for implementation."

Response: The process, methodology and conclusions of both the NRA and the NRAA were agreed and approved by the MCA as the regulator and statutory authority for matters of navigation in the UK.[12] The MCA agreed that the NRA and the NRAA addressed navigational issues throughout the entire MDZ and the surrounding area and that they were both fit for purpose. The consideration of the northern ferry transit corridor[13], poor weather routing and the associated under keel clearance required for Irish Sea Ferries is one of the many examples to show that the NRA and the NRAA considered the entire area and did not just focus on South Stack.

In addition it must be remembered that the NRA and the NRAA were conducted according to the strictures of MGN 543 (again acknowledged by the MCA in their Statement of Case) and used an internationally accepted FSA methodology that has been successfully employed by Marico Marine for 124 NRAs, including 23 renewable projects, over the last 7 years. It should be noted that this methodology is also used by the MCA and other UK marine risk assessment companies and is widely accepted as the "norm" in assessing and quantifying marine risk for complex projects.

It is not understood why the RYA have chosen to see the applicant's commitment to conduct Device and Array specific NRAs as well as two yearly updates to the site NRA as an indication of poor process / lack of confidence, rather than as a demonstration of a responsible developer committing to a firm set of publicly auditable checks and balances in the spirit of industry best practice.

[12] MCA Statement of Case and Response to Statements of Case.

[13] NRAA Paragraph 7.3.3 – Passenger Vessels

Similarly, the applicant does not agree that the NRAA was confusing, it feels that it was perfectly clear as evidenced by the fact it was understood by the MCA, Trinity House and even the SCC, who did not like it or agree with its conclusions, but nevertheless understood it.

In regard to the RYA alleging MCA "concerns" about the NRAA, this is simply incorrect; the MCA have stated they have no concerns with regard to the NRAA[14] and are again, crystal clear with regard to which control measures they recommend for implementation, as evidenced in their Response to Statements of Case and the successful achievement of a Statement of Common Ground with the applicant.

9 ADEQUATE REPRESENTATION OF RECREATIONAL VESSEL TYPES

9.1.1 Paragraph E8

The RYA declare that "Recreational boat clubs have indicated that the applicant's NRA does not consider all the water - based recreational activities that take place within the area of the proposed MDZ (Section 6.4.6, RYA Statement of Case)."

Response: It is an unfortunate side effect of the RYAs own policy of enforced silence on its member clubs that did not allow the applicant the opportunity to establish which recreational clubs were concerned about the project and why, but most importantly what type of water based recreational activity they felt was under represented.

It is perhaps even more unfortunate that the RYA seem to have failed their member clubs by not stating in any of their documentation what type of activity it is that they think has not been considered. Remembering that the NRA and the NRAA made 2 wide requests for stakeholder advice and opinion, the applicant (and the MCA)[15] feels that the survey data and the assessments considered every sort of recreational activity that occurs in this area including (but not limited to) kayaking, sailing dinghies, stand up paddle boards, yachting, fishing and motor boating. Table 11-2 of the NRAA details the vessel categories that were analysed in the risk assessment process and which were derived during stakeholder consultation; it should be remembered that the RYA played a full part in this and had over 3 years in which to indicate the detail of any perceived shortfalls in coverage of water based activity in the NRA or NRAA but until now, have failed to do so.

[14] MCA Statement of Case.

[15] MCA Statement of Common Ground Page 14 Data Sources were "Over and Above MGN 543 Requirements."

10 INSHORE PASSAGE - SEA ROOM

10.1.1 Paragraph E1

The RYA states that the "MCA has indicated to the applicant that this should involve: ensuring the revised NRA and ES chapter addresses recreational user concerns and that the applicant should seek their agreement for a consent decision to be reached. This includes concerns, with respect to the Eastern Inshore Route, that 1000m does not provide enough sea space for vessels under sail. These require further consideration by the applicant in discussion with the RYA."

10.1.2 Paragraph E21

The RYA note that "We note the argument made by the applicant that they have increased the width of the channel to a minimum 1km (including a 500m area of submerged devices), approximately 0.5 nautical mile. However, this concession does not adequately address recreational user concerns, raised during the 2018 consultation, that the width of the Eastern Inshore Channel should be 1-2 nautical miles, with the RYA indicating a safe distance from hazards to navigation, such as overfalls of 740m (Section 6.3.4, RYA Statement of Case.)"

10.1.3 Paragraph E22

In paragraph E22 the RYA state "The DECC OESEA3, WNMP and the MPS indicate that development and demonstration of tidal stream energy should take place at an appropriate location, whilst having regard for recreational and other marine users. A goal for any demonstration project is to demonstrate that the proposal can integrate with existing uses of an area. The interactive boundaries assessment and failure to address the concerns of recreational users demonstrate that the MDZ cannot achieve this with its current design. The use of such safety boundaries should have been considered as a key constraint on the layout of the proposed area following consultation in 2018. Constraint mapping, as part of the EIA, does not appear to have been incorporated by the applicant in order to determine project viability with regard to existing use of the marine space."

10.1.4 Paragraph H2

The RYA state "The MCA has indicated that "there are still concerns raised by the RYA that the 1000m does not provide enough sea space for vessels under sail" and that "the MCA recommends this is further considered by the applicant in discussion with the RYA."

Response: Part of the statement in paragraph E1 is incorrect; the MCA did not require the applicant to **reach** agreement with recreational users, it stated that "The MCA recommends this is **further considered** by the applicant in discussion with the RYA." Nevertheless, even if this were not recommended by the MCA as the governing body, the applicant has continued, and will continue to attempt to engage the RYA, its members and its member clubs in genuine attempts to reach a consensus by which the project can be taken forward with RYA and local club support.

It must be noted that in its response to Statements of Case the MCA has already stated that the Eastern Inshore Boundary is "large enough for motorised vessels and for 90% of the transits that are recorded through this channel[16]." In addition, it should also be noted that the common practice of seamen would normally expect a prudent mariner to plan a passage through these "turbulent" waters in a vessel with a motor; this is endorsed by the November 2020 Yachting Monthly article referenced in **section 3** above; they advise when passing through a tidal race that "having the engine on and ready for action is no bad idea.[17]" Similarly, it is important to remember that under the International Regulations for the Prevention of Collision at Sea, a sailing vessel becomes a power driven (motorised) vessel as soon as it starts its motor.[18]

It is of concern that the RYA appear to be proposing to denote that all waters that are less than 1000m wide as "unsafe"; this would seem to be recommending that serious consideration should be given to closing the ports of Holyhead and Falmouth (among many others) to recreational craft and to cancelling the Isle of Wight Round the Island Race, all of which use tidal waters in which there is less than 1000m to navigate.

The origin, authority and derivation of the "1-2 miles" sea room which the RYA state that their "recreational users" need for the safe transit of this area is not understood; there appears to be no science, seamanship or marine regulation to support this claim. In efforts to understand the genesis of this distance requirement, the applicant made many attempts to contact local sailing clubs but as shown in **Section 6**, these clubs were forbidden by the RYA to make independent contact with the applicant.

Lastly the comment in paragraph E22 with regard to the alleged lack of constraint mapping with regard to the EIA is not understood; it is hoped the RYA will acknowledge the extensive surveys and data

[16] MCA Response to Statements of Case Page 1

[17] Yachting Monthly November 2020 – "The UKs 11 Fiercest Tide Races."

[18] IRPCS Rule 3, parts B and C.

gathering undertaken by the applicant over a considerable period to support the project with the precise aim of mapping pressures on the marine space from ecological, ornithological, marine mammal, commercial shipping and recreational activity in the area. The entire purpose of the NRA and the NRAA is to map and analyse marine activity and both assessments were unequivocal in their conclusions that the project was viable and that the associated marine risks were mostly low or ALARP.

11 USE OF UNDER KEEL CLEARANCE CALCULATIONS

11.1.1 Paragraph E13

The RYA states "Section 10 Under Keel Clearance (UKC) Analysis is derived solely from AIS data collected between October 2017 and March 2018 (Winter), so it is not understood why the data from the other two periods of observation were not additionally included. Given these periods would include recreational activity, analysis should have been undertaken to confirm that the use of UKC as a mitigation would safeguard recreational craft. We note the MCA shares similar concerns about how the UKCs are calculated."

Response: The applicant is unaware of any remaining concerns that the MCA have with regard to UKC and the applicant has already signed a Statement of Common Ground with the MCA in this regard. It is perhaps worth noting that in their response to the licence application ORML 1938 dated 8 January 2020, the RYA stated that "if the licence is granted only for subsurface devices, with under keel clearance of 8 to 20 metres within an MDZ with an appropriately designed eastern boundary, and that any future use of floating/ surface or emergent devices should require a new licence application with associated EIA/ES and NRA, the RYA would be prepared to remove our objection." The objection in paragraph E11 to using UKC as a way of safeguarding recreational craft is in contradiction to this earlier statement.

In addition, the use of October 2017 and March 2018 data was explained in the NRAA: "six months of AIS data from between October 2017 and March 2018 were additionally sourced to account for any seasonal variances in ferry activity and usage of the poor weather routes."[19] Feedback from recreational consultees, which included the RYA, is detailed in table 10-2 of the NRAA and which helps explain the UKC rationale; far from representing a lack of thoroughness it shows that the NRAA

[19] NRAA Paragraph 7.1.4 Recording Periods.

adopted a cautious approach to UKC to protect all water users including recreational, and one which was encouraged by the MCA, the Ferry companies and the Chamber of Shipping.

12 UNDER KEEL CLEARANCE - IN THE ORDER

12.1.1 Paragraph E14

The RYA take issue with UKC calculations in paragraph E14 stating that "it is not understood why the applicant has recommended that UKC should be assessed on a future case by case basis for each Device Specific NRA (DSNRA) or within Array Specific Navigation Risk Assessments (ASNRA). Table 10-4 has established that vessels with a draught of less than 3 metres will require a UKC of 8 metres and those with a draught of more than 3 metres will require a UKC of 20 metres, so it is not understood why this needs to be assessed only within a DSNRA or ASNRA. It is the RYA's concern that either there is a lack of confidence in the NRAA, or that future NRAs will vary the UKC without the safeguards of a consenting process. The Order should, therefore, be modified to have specified UKC conditions (8m or 20m) for specific geographical locations within the MDZ."

Response: The need to assess UKC on a case by case basis is one of the founding principles of the demonstration zone and one which allows the applicant the flexibility to deploy tidal devices where they are best suited. The mandatory steps required by the marine licensing process will provide all the necessary consenting safeguards to ensure that the applicant does not overstep the boundaries and this will be further protected by the applicant's commitment to both Device and Array specific NRAs (which will include stakeholder consultation) which will ensure a robust, publicly accountable and continued risk assessment process.

Nevertheless it should be noted that the applicant has already agreed specified UKC conditions (8m or 20m) with the MCA for specific geographical locations within the MDZ which will be safeguarded through the Marine Licensing process as below: "The Order identifies areas in which the deployment of devices with less than either an 8m or 20m UKC (respectively) may only be deployed following the approval of a device deployment protocol by the Welsh Ministers, following consultation with Trinity House. Controls on the deployment of devices with less than 8m or 20m UKC will also be secured through conditions on the Marine Licence." [20]

[20] Trinity House Statement of Common Ground – Page 9.

13 AREA TO BE AVOIDED (ABTA) AND PRECAUTIONARY AREA (PA)

13.1 PARAGRAPH E17

The RYA state "We note that the MCA has rejected the use of an Area to Be Avoided (ATBA). It is not clear from the NRAA if the lack of an ATBA will prevent ALARP being reached for risks dependent on this designation being in place. The use of ATBA and Precautionary Areas generally apply to commercial vessels and not recreational craft. The RYA are unclear as to how these designations will be a mitigation measure that will benefit recreational craft safety, nor how these measures achieve ALARP for recreational craft."

Response: The MCA did not **reject** the use of an ABTA or a PA, they said they did not consider them to be **necessary**; the difference between the two words is considered significant in saying that the MCA did not consider the use of an ABTA to be required as a mitigation measure. Further, the RYA are correct in saying that "the use of ATBA and Precautionary Areas generally apply to commercial vessels and not recreational craft," its use as a mitigation measure (if used) is one that would be mainly focussed on the risk presented to commercial vessels.

14 DISPLACEMENT OF VESSELS

14.1.1 Paragraph E18

The RYA state that "In reference to paragraph 8.2.7 of the RYA's Statement of Case, which refers to displacement of traffic, the MCA agrees that the NRAA could provide further information on the likely displacement routes. The MGN checklist states that displacement is addressed in Section 7 of the NRAA, however it does not appear this has been addressed for recreation vessels." This is an important deficiency, as the applicant's NRAA relies on pre–construction sailing directions that would concentrate recreational craft inshore, without considering navigational conflicts with other craft (e.g. kayakers and smaller recreational craft-RIBS and dinghies) or offshore without considering the potential collision risks with commercial shipping."

Response: As the constructive dialogue between the applicant and the MCA continued following the publication of the NRAA (and culminating in the agreement of a Statement of Common Ground) the MCA, as the statutory regulatory authority for navigation matters in the UK, suggested that further information could be provided to explain the underlying rationale in the NRAA on the likely impact of

displacement routes caused by the presence of the MDZ and specifically those for recreational vessels[21]. A discussion paper was produced, the full text of which is at **Annex A**.

Using selected vessel tracks from the existing Anatec survey data, analysis was conducted with the intention of quantifying and illustrating the potential diversionary effect of the MDZ. Indicative vessels were selected, their original tracks plotted and a second projected track constructed estimating how it is expected that a mariner would act to avoid the MDZ taking into account the wind and conditions. The plot for a South Easterly wind is shown at **Figure 5** and the plot for a South Westerly wind is shown at **Figure 6.**

[21] MCA Response to Statements of Case page 2

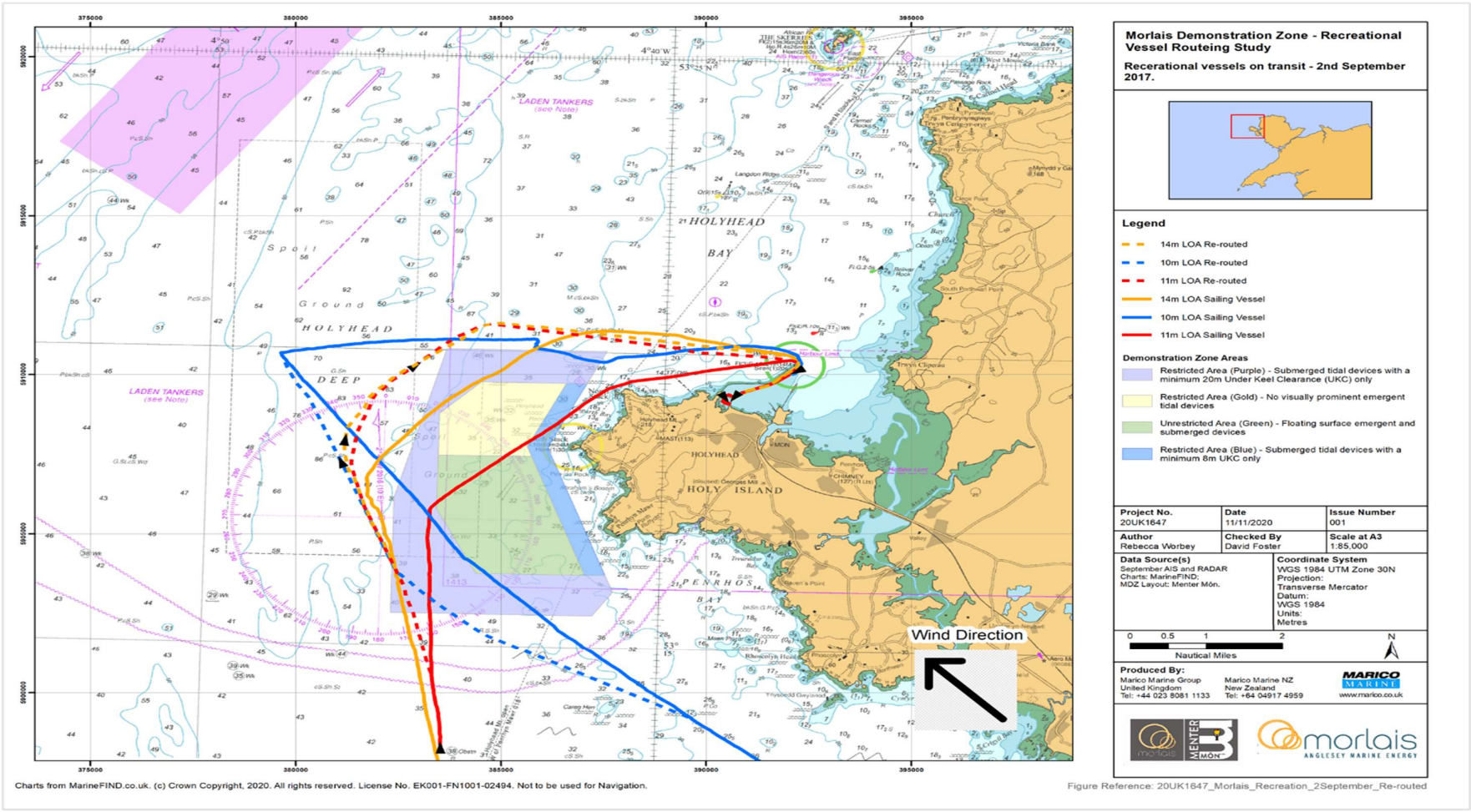

Figure 5 - South Easterly Wind - Actual Tracks (Bold) and Projected Tracks (Dotted) Showing Potential Displacement

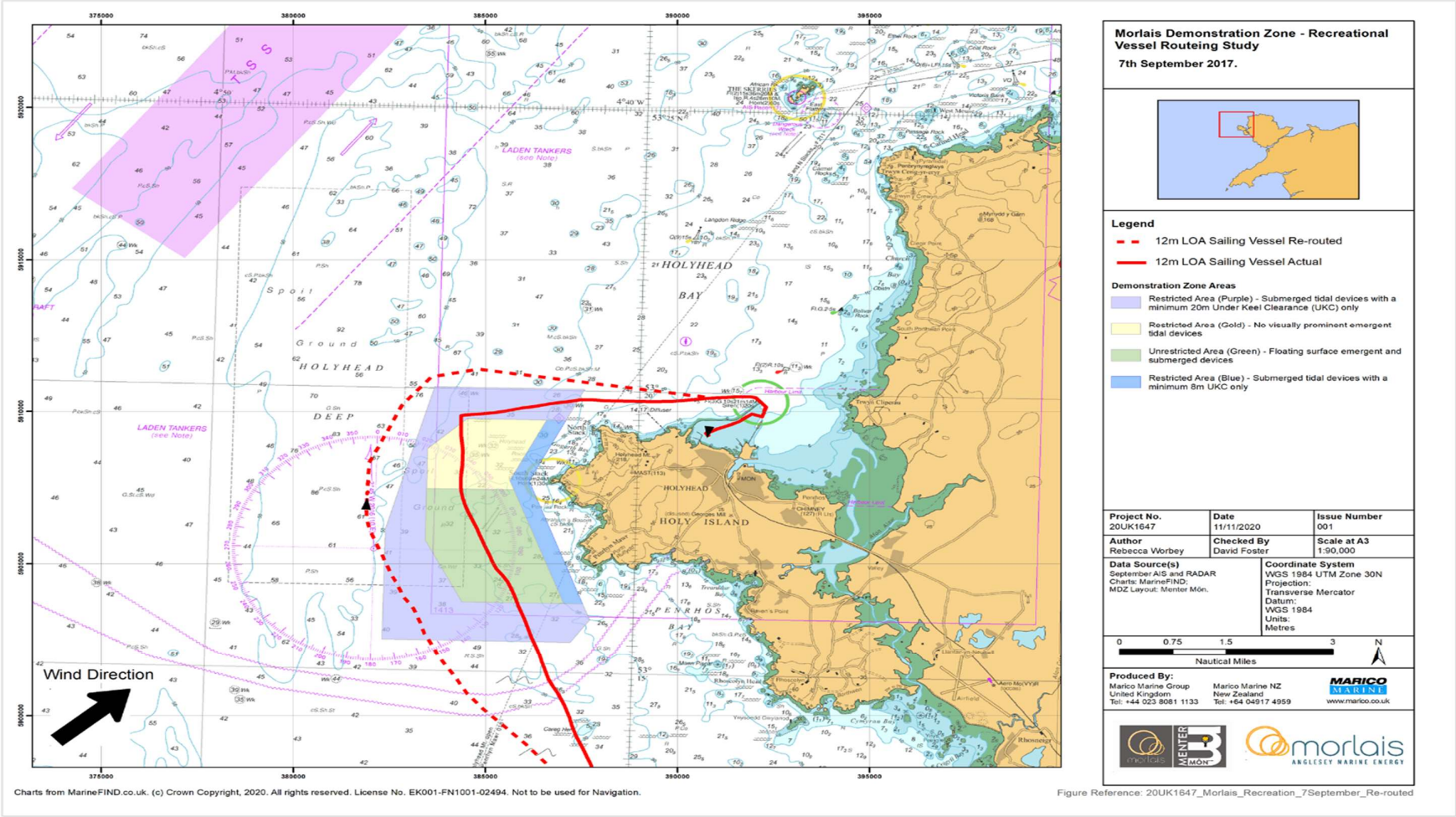

Figure 6 - South Westerly Wind - Actual Tracks (Bold) and Projected Tracks (Dotted) Showing Potential Displacement

The resulting additional estimated distance and time to destination are given in **Table** below.

Table 1: Re-routed vessel tracks estimated additional distance and time to destination at 5 Kts

Sailing Vessel	Date Recorded	Additional distance (nm)	Approximate Additional time (minutes) at 5 knots
14m LOA	2nd September	0.7	8
10m LOA	2nd September	0.5	6
11m LOA	2nd September	2.5	30
12m LOA	7th September	2	24

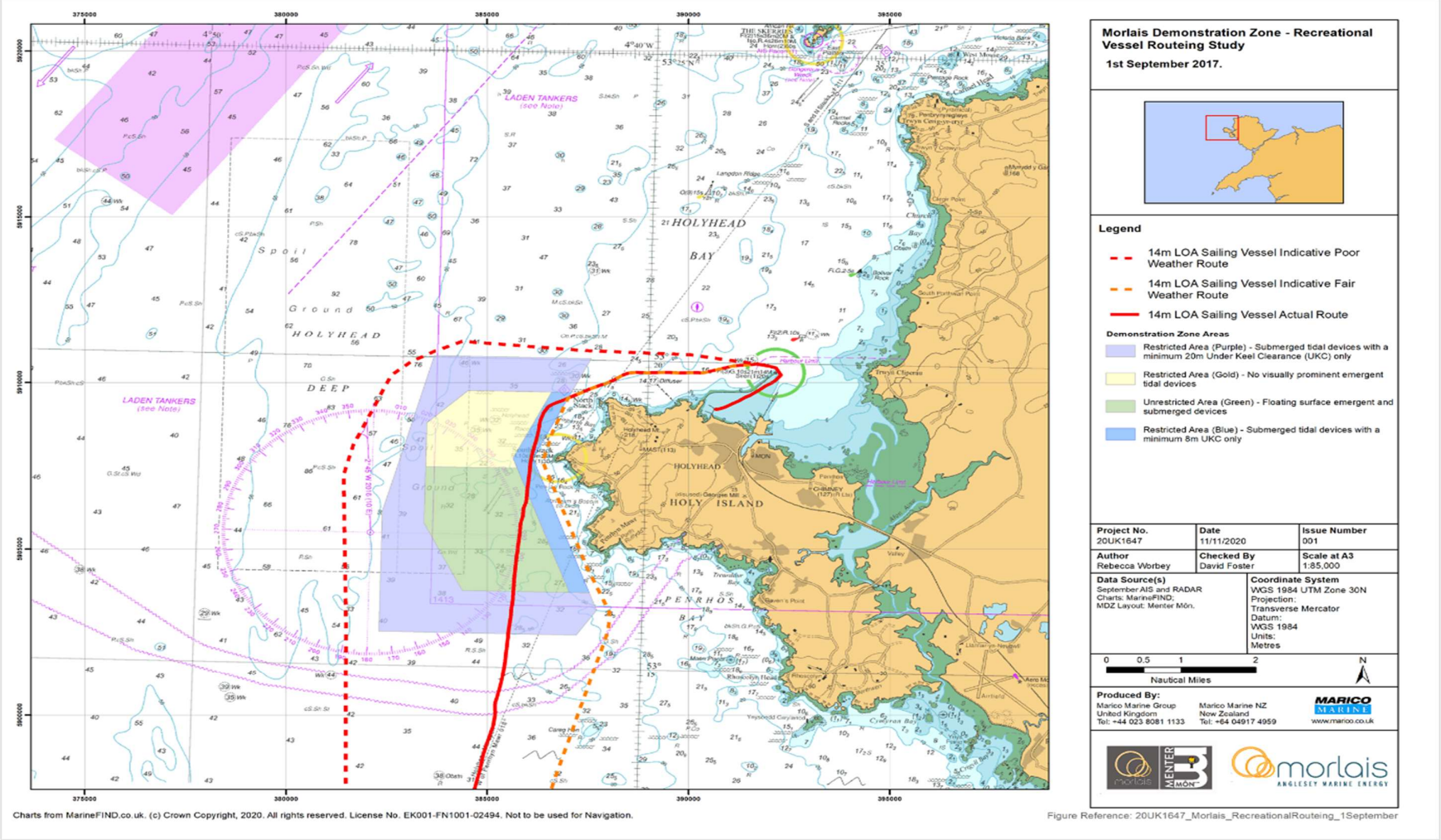

Figure 7 – Projected (Dotted) Track Diversions through the Western Offshore and Eastern Inshore Route

An additional representative track of a typical recreational vessel passing through the MDZ was then selected and diverted from her previous passage using either an offshore or an inshore routing:

- To pass to the west of the proposed MDZ (indicating routeing to avoid inclement weather, adverse tidal streams or possibly at night); and
- Through the inshore route to the east (indicating routeing deviation in fair weather, favourable tidal stream and probably in day light).

The estimated change in time and distance in accordance with the criteria outlined above is shown in **Table**.

Table 2: Re-routed vessel tracks estimated additional distance and time to destination at 5 Kts

14m LOA Sailing Vessel	Additional distance (nm)	Approximate additional time (minutes) at 5 knots
Poor Weather Route to the west of the MDZ	2.5	30
Fair Weather Route via Inshore Channel	-0.1	-1

Concluding comments: The examples above are an indicative projection designed to illustrate how it is that recreational vessel routing might be altered as a response to the presence of the MDZ. The conclusion reached is that the MDZ will require recreational mariners to take a marginally different and insignificantly longer route but not in a way that cannot be accommodated by the normal practice of sensible passage planning and one that is endorsed by the RYA – planning early and ahead.[22]

14.2 THE "PRUDENT MARINER" AND "SAILING DIRECTION" COMMENTS

In paragraph E18, the RYA gives a rather muddled warning about the treacherous sea conditions in the Irish Sea and seems to be implying that the "prudent recreational user"[23] is incapable of reading a weather forecast, planning and executing a passage plan and using a channel which is wider than the entrance to Holyhead new harbour.

Similarly the RYA incorrectly accuses the applicant of "failing to consider the modifications to Imray / Sailing Directions as a possible mitigation measure to improve navigation safety for recreational users," but is directed to number 2 in the list of embedded risk control measures in the NRAA at table 11-5; "Promulgation of information and warnings through local Notices To Mariners (NTM) and other appropriate Maritime Safety Information (MSI) dissemination methods."

15 INTERACTIVE BOUNDARY ASSESSMENT (IBO)

15.1.1 Paragraph E19

The RYA state that "The revised Interactive Boundary Assessment IB02 (reference document 20UK1619-RN-MM-VT502-2) re-assesses the northern route as tolerable with a separation of 0.55nm from the 90% traffic level; however the eastern route remains intolerable, being unable to maintain a distance of 0.5nm from the 90% traffic level, the cause being the proximity of the eastern MDZ boundary to the headlands of South Stack, North Stack and Penrhyn Mawr. We note the comments from the MCA with respect to the applicant needing to agree this route with recreational users. Following ongoing consultation with club representatives, on behalf of RYA members, the proposed route is still considered unsafe, particularly as the narrow choke points coincide with areas of

[22] https://www.rya.org.uk/knowledge-advice/safe-boating/have-a-plan/Pages/hub.aspx

[23] The assumption being that the RYA means its own members or at least recreational mariners who are suitably equipped to be afloat in such "treacherous waters."

turbulence (Sections 6.3.4 and 8.5.9 of the RYA Statement of Case with respect to" navigational squeeze.)

Response: It is important to state that in their Response to Statements of Case the MCA did not require the applicant to **agree** the Eastern Inshore Route with recreational users, it recommended "this is further **considered** by the applicant in discussion with the RYA."[24]

IBOs are tools primarily designed to assess commercial shipping safety and routeing with regard to Offshore Renewable Energy Installation (OREI) developments. The eastern inshore passage is almost uniquely used by leisure vessels and rarely by commercial traffic. The "intolerable" grading rightly focussed the attention of the applicant on the eastern inshore passage and more so to note that MGN 543 requires developers to "recognise that the template is not a prescriptive tool but needs intelligent application and that advice will be provided on a case-by-case basis."

Sea room is discussed at **section 10** but, again, it is felt that 1000m is sufficient space in to allow vessels to pass safely and, again, it should be noted that the MCA agrees.

The RYA also rightly mention that this area coincides with areas of turbulent waters but attention is once again drawn to advice from Admiralty Sailing Directions, and many others including the RYA itself[25], which encourage mariners to "have a plan" and to choose to make their passage at sensible times. For example, the Yachting Monthly recommend "a slack water passage would be a good choice"[26] through the 11 "Fierce" tidal races it discusses – including west Anglesey at number 5.

16 SEA KAYAKING / CANOEING

Although the Snowdonia Canoe Club did not submit a Proof of Evidence, in their Statement of Case they did mention that they considered the potential for a disabled / distressed kayaker / canoeist being swept by the tidal stream into the MDZ as a serious concern. I have previously addressed this in my Proof of Evidence[27] but felt it useful to further amplify on the subject and to include more detailed visual aids to help explain why I agree with the conclusions of the NRAA and why I consider that the presence of the MDZ will not significantly change the risk profile to a sea kayaker / canoeist.

[24] MCA Response to Statement of Case - Page 2.

[25] https://www.rya.org.uk/knowledge-advice/safe-boating/have-a-plan/Pages/hub.aspx

[26] Yachting Monthly November 2020.

[27] Paragraph 5.2.1 – page 29

16.1.1 The Threat to Canoeists

The waters off Anglesey are considered to be the among the world's best for sea kayaking / canoeing but every practitioner will also immediately recognise that they can also be very dangerous particularly to the unskilled, the unprepared or the unwary. I felt it would be useful to rehearse the logic process underpinning the NRAA:

a. The British Canoe Club classify this area of water as "Advanced Water"[28] which requires experience and skill to master as a canoeist and it is fair to assume that users of this water will be capable of self-rescue.

b. By definition canoeists are not going to be afloat in this area alone and so there is a reasonable expectation of mutual support and / or activating external rescue resources.

c. Beginners or intermediate canoeists will not be afloat here or, if they are, they will have robust support and safety cover available.

d. Most kayaking / canoeing activity takes place relatively close to the shore – within 300m of the coastline because this is where the fast moving waters and standing wave trains are located.

e. It is accepted that the occasionally highly skilled practitioners may stray further offshore but only in relatively benign conditions – Force 4 or less.[29]

f. The parts of the MDZ, where surface piecing devices may be present, will lie at least 1000m offshore.

g. The surface piercing devices will typically be up to 200m apart and laterally spaced up to 500m apart.[30]

h. In phase 1 (years 0-4) of the project there will be potentially only be 6 devices present.

i. Any moving part of any tidal device will be more than 3m below the surface. By design, modern lifejackets make it almost impossible for a person to submerge below the water. It is reasonable to assume that all afloat will be wearing lifejackets.

[28] Any journey on the sea where tidal races, overfalls or open crossings may be encountered and sections of coastline where landing is not possible – British Canoeing (https://www.britishcanoeing.org.uk/uploads/documents/British-Canoeing-TERMS-OF-REFERENCE-V5-0-Jan-2107_170401_214151.pdf)

[29] The Stacks Sea Kayaking Route Card "Anything more than a gentle breeze from the south, west or north has a significant effect on the tidal races. Wind against tide can produce huge breaking seas that are, for mortals, better observed from land.

[30] PDE Version 4 - Table 4-9 Worst Case Spacing Parameters for Devices within the MDZ.

j. The surface piercing part of a tidal device will be streamlined, around which a comparatively light floating object will be swept past, rather than collide and be pinned or swept under, by the tidal stream.

k. The site NRA will be updated every 2 years, and this will require stakeholder consultation as well as fresh analysis of any incident data and the resulting overall risk profile. A change in that risk profile from its present "low" grading will require further mitigation measures to be taken by the applicant.

l. Each new array will be subject to its own separate NRA which will again, require stakeholder consultation as well as fresh analysis of any incident data and the risk profile.

16.2 RUN OUT

Figure 8 shows the projected path of a distressed kayaker / canoeist in trouble off South Stack and with 12 minutes of maximum[31] ebb tidal flow applied. A worst case start position has been set at 300m to seaward off South Stack. Similarly, **Figure 9** shows the projected path of a distressed kayaker / canoeist in trouble off Penrhyn Mawr and with 12 minutes of maximum flood tidal flow applied. A worst case start position has been set at 300m to seaward off Penrhyn Mawr.

[31] It should be noted that 5 knots tidal flow represents peak tidal flow which will only occur during spring tides and for 2-3 hours per cycle – this is very much worst case.

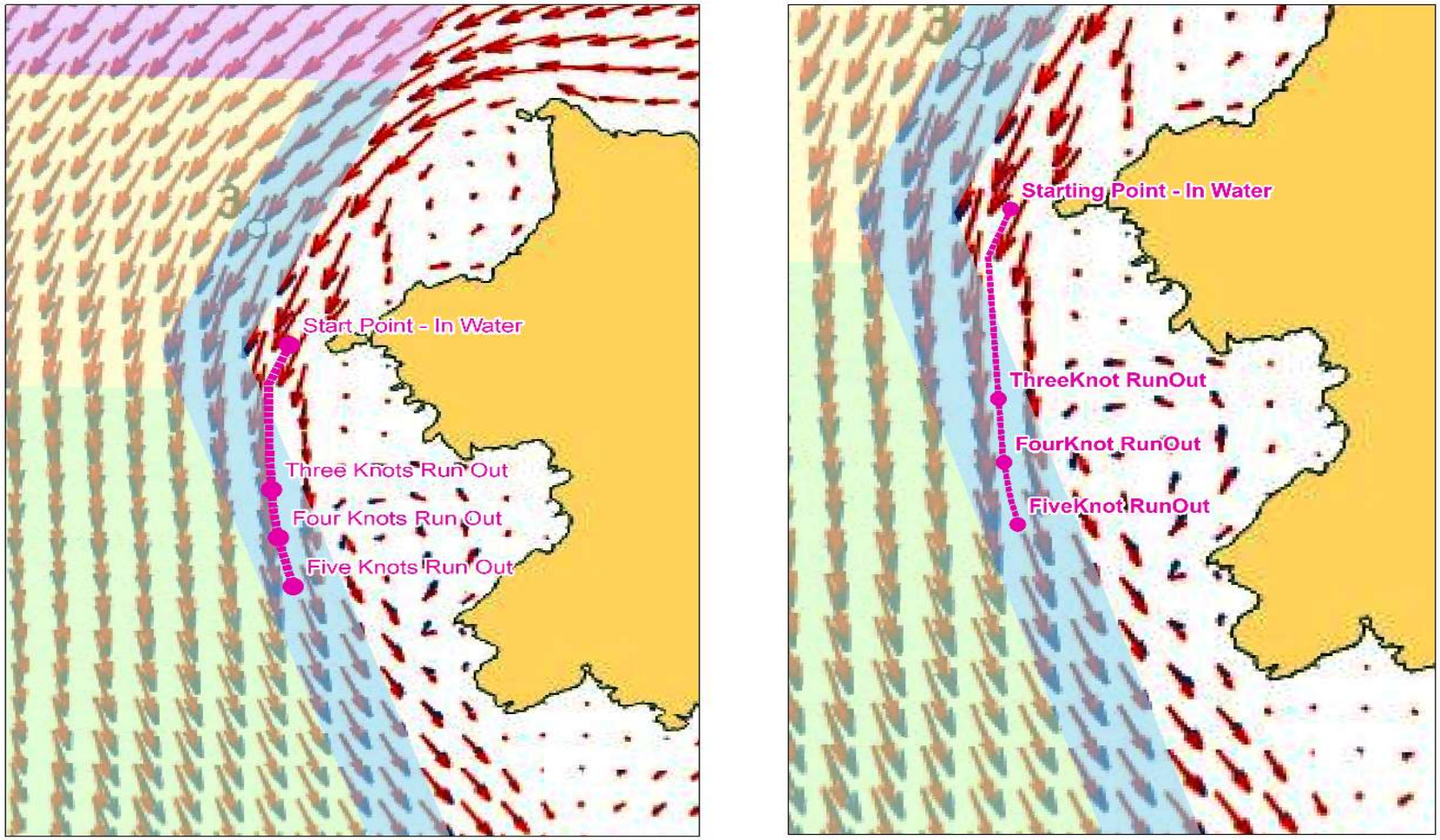

Figure 8 - Ebb Flow Tidal Streams for HW +3 and HW +4 Hours. Showing the Projected Track of a Distressed Kayaker.

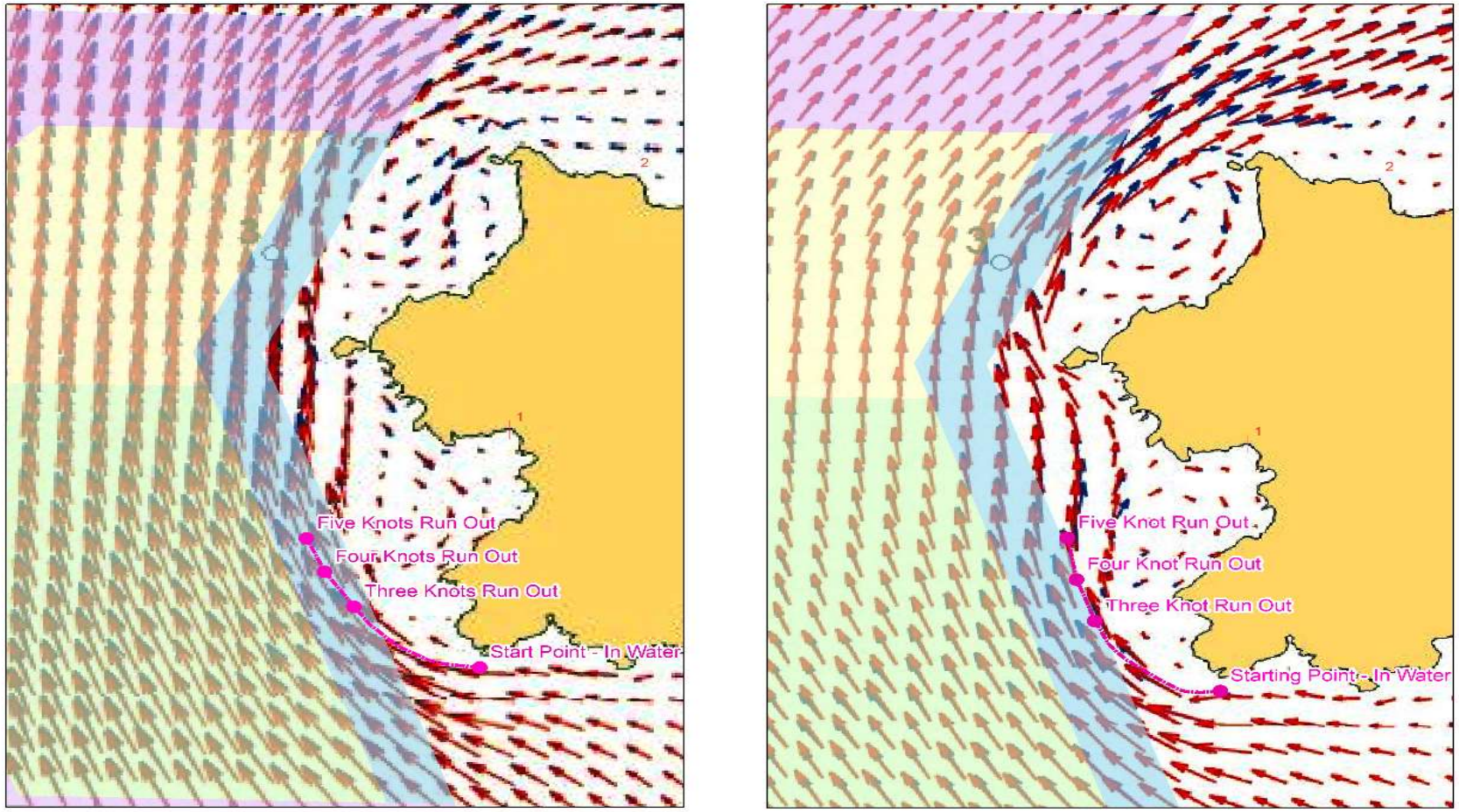

Figure 9 Flood Flow Tidal Streams for HW -2 and HW -4 Hours. Showing the Projected Track of a Distressed Kayaker.

16.3 CANOE AND KAYAKING SUMMARY

The profile of the kayakers using this challenging area of water indicates that they would normally be expected to be capable of self-rescue or that they would be accompanied by sufficient mutual support to effect swift rescue. In the event that a kayaker does become disabled, isolated and becomes a floating "swimmer" **Figure 8 and Figure 9** try to demonstrate that it is considered unlikely (but not impossible) that they will be swept into the MDZ. Even if circumstances were to contrive for this to happen, as any surface piercing devices will be set typically up to 200m apart and laterally up to 500m apart, so there seems to be a very slim chance that direct contact by a floating kayaker would be made. Even were this occur however, the shape of any surface piercing part of the tidal devices means that a distressed kayaker will be swept past the object and not onto it / or against it – this is perfectly demonstrated by a YouTube clip of kayakers "playing" around the Sea Gen Tidal Turbine in Strangford Lough[32] and where the kayakers are literally "brushed aside" by the pressure bow wave of the tidal device. Lastly, on the logical assumption that the kayaker would be wearing a lifejacket, it follows that it is almost impossible for a person in the water to submerge below the water sufficiently deep for any contact to be made with moving parts of the tidal device.

17 CONCLUDING COMMENTS

As highlighted in **Section** 1 of this rebuttal proof of evidence, my silence on any particular point in the submitted proofs evidence should not be taken as agreement with it.

[32] "Sea Kayaking SeaGen - Strangford Lough" - YouTube https://www.youtube.com/watch?v=1v06y_fIkeE

Annex A Clarification Note

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CLARIFICATION NOTE

Following completion of the Morlais NRA Addendum, Marine and Risk Consultants Ltd. (Marico Marine) has been requested to further clarify the likely displacement routes of recreational vessels around the Morlais Development Zone (MDZ), particularly:

- The likely spatial displacement routes of recreational vessels avoiding the MDZ in inclement weather conditions when avoiding utilisation of the inshore route;
- The likely change in transit times as a result of avoidance of the MDZ; and
- The likely change of encounters between commercial traffic and recreational vessels as a result of avoidance of the MDZ.

This study has been undertaken with reference to the guidance outlined within **Table 17-2** and reference documents noted in **Table 17-1**.

Table 17-1: Reference Documents

Document Reference	Description
18UK1479_MorlaisNRA_Issue-03	Morlais Navigation Risk Assessment Addendum
A3955 South Stack Summer Traffic Survey Morlais Rev01	Summer survey report
20UK1619_RN_MM_VTS02-02	Interactive Boundary Report
Admiralty Sailing Directions NP37 – West Coast of England and Wales Pilot	Regional information on all aspects of navigation, including routeing and met-ocean conditions.

Table 17-2: Guidance Documents

Policy / legislation	Description
MGN 543, Annex 3: MCA Template for assessing distances between OREI boundaries and shipping routes.	This MGN highlights issues to be considered when assessing the impact on navigational safety and emergency response, caused by OREI developments.

In order to realistically estimate how recreational vessels would revise their passage plans to avoid the MDZ in poor weather conditions - where navigation through the inshore route is not considered prudent - tracks were selected from days with representative wind directions and speeds, as described within the corresponding survey report.

Figure 10 shows representative recreational vessel tracks on the 02nd September 2017 when the maximum south easterly wind speeds reached force 6. It should be noted, that timestamps were absent from the data recorded on 2nd September, as such, for illustrative re-routeing purposes, it has been assumed that the recorded tracks occurred during the weather conditions outlined below, which persisted between 12:00 and 00:00, as noted in the survey report; 'The dominant wind direction was from the south-east, full cloud, rain, gusts and medium to high seas.' Three recreational sailing vessels between 10m and 14m were identified on route to Holyhead from the south.

A single 12m LOA sailing vessel was additionally identified by AIS approaching Holyhead Harbour on 7th September, shown in Error! Reference source not found.. The wind direction was reported to be f rom the south-west at speeds of force 4 to force 5 for the entirety of the day, with the survey report also noting overcast conditions with a slight to moderate sea state. It should be noted that no recreational vessel attempted to make a passage to the south in these conditions.

The estimated diverted routes following construction of the MDZ are shown in **Figure 10** and **Figure 11** and the resulting estimated distance and time to destination are given in **Table**.

Table 17-3: Re-routed vessel tracks estimated additional distance and time to destination at 5 Kn

Sailing Vessel	Date Recorded	Additional distance (nm)	Approximate Additional time (minutes) at 5 knots
14m LOA	2nd September	0.7	8
10m LOA	2nd September	0.5	6
11m LOA	2nd September	2.5	30
12m LOA	7th September	2	24

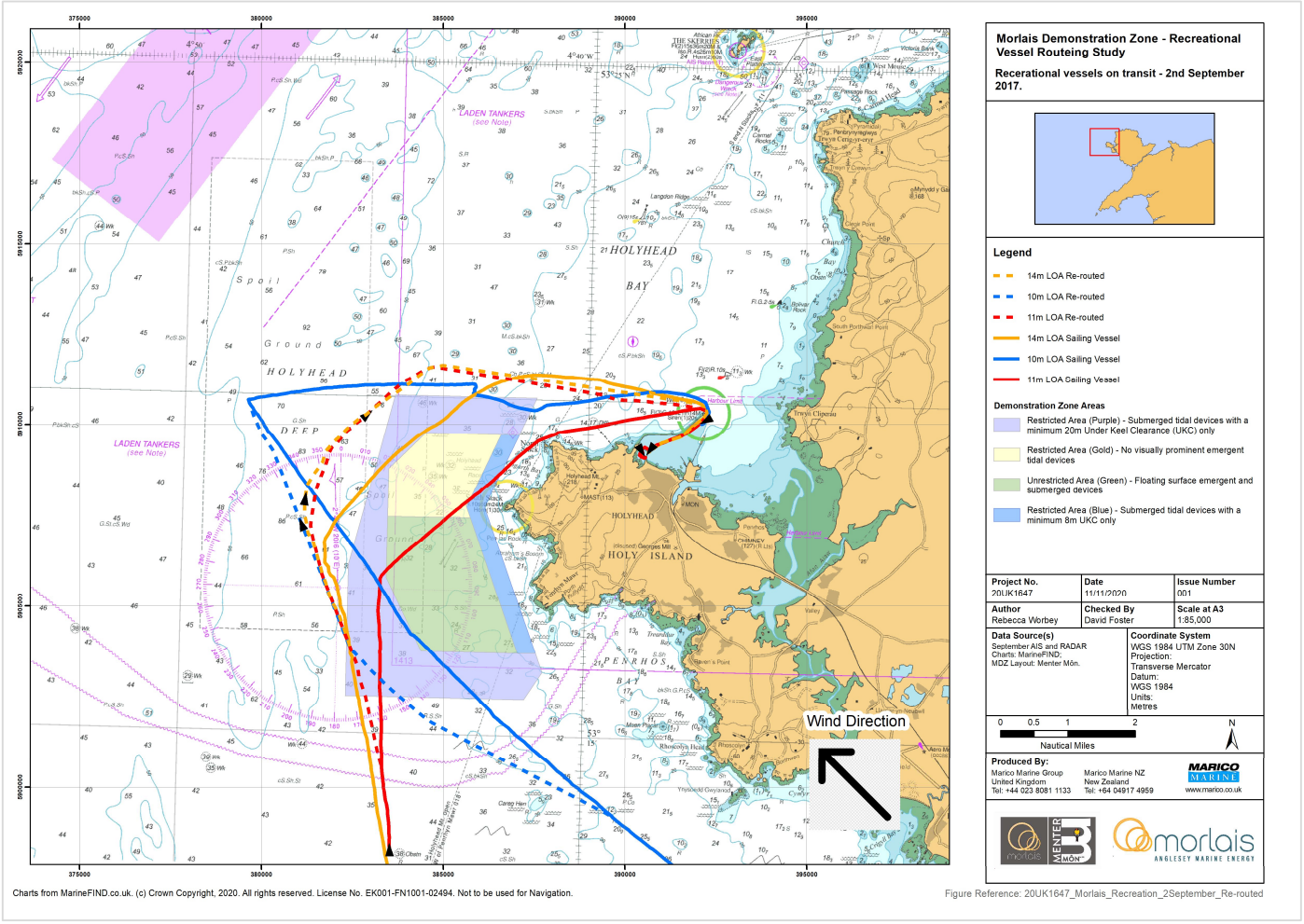
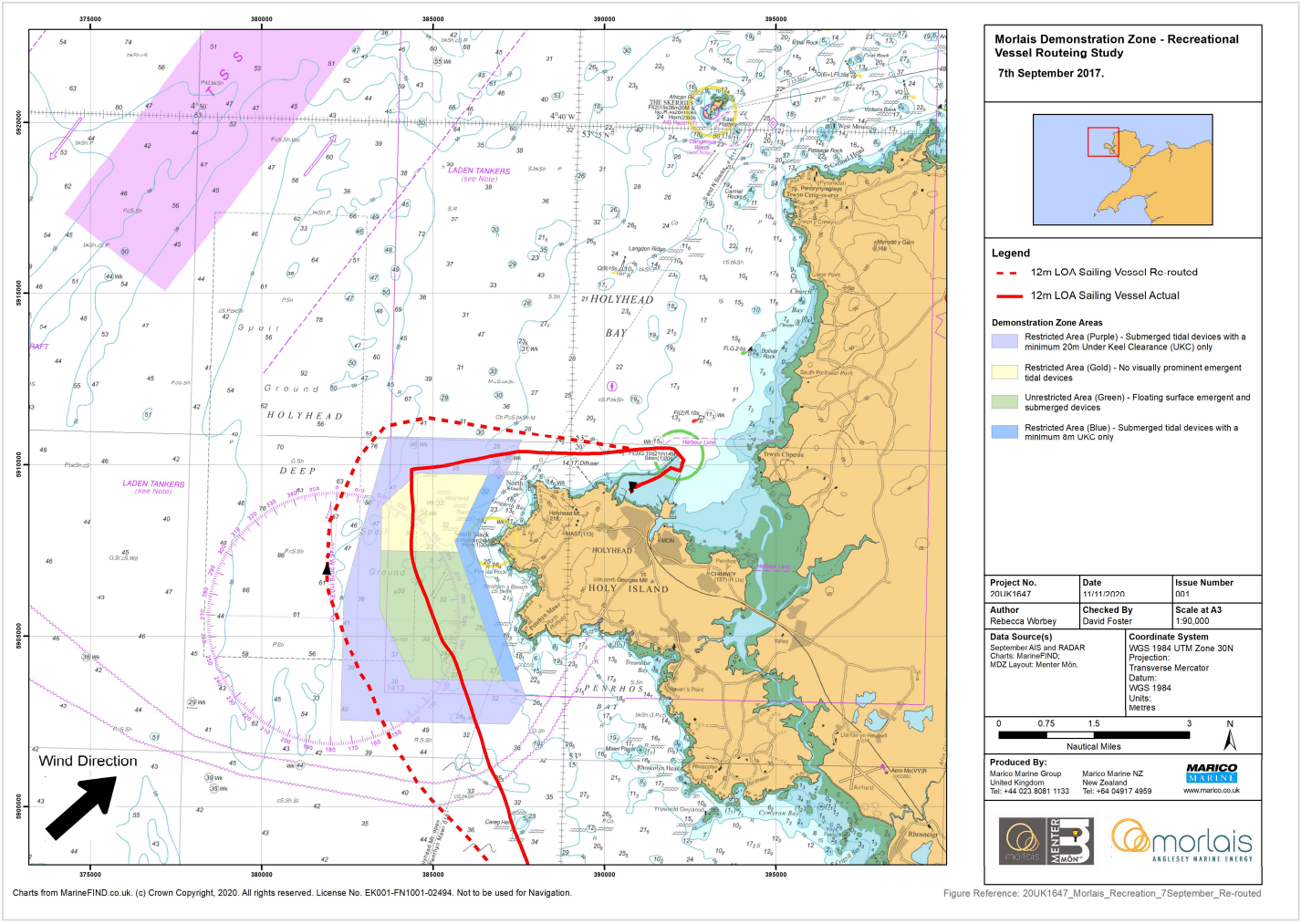


Figure 10: 2nd September Indicative Track Diversions assuming force 5 south-easterly condition



Charts from MarineFIND.co.uk. (c) Crown Copyright, 2020. All rights reserved. License No. EK001-FN1001-02494. Not to be used for Navigation.

Figure Reference: 20UK1647_Morlais_Recreation_7September_Re-routed

Figure 11: 7th September Indicative Track Diversions assuming force 5 south-westerly conditions

A representative track of a typical recreational vessel passing through the MDZ was additionally selected and diverted from her previous way point in two manners:

- To pass to the west of the proposed MDZ (indicating routeing to avoid inclement weather, adverse tidal streams or possibly at night); and
- Through the inshore route to the east (indicating routeing deviation in fair weather, favourable tidal stream and probably in day light).

The estimated change in time and distance in accordance with the criteria outlined above is shown in **Table**.

Table 17-4: Re-routed vessel tracks estimated additional distance and time to destination at 5 Kn

14m LOA Sailing Vessel	Additional distance (nm)	Approximate additional time (minutes) at 5 knots
Poor Weather Route to the west of the MDZ	2.5	30
Fair Weather Route via Inshore Channel	-0.1	-1

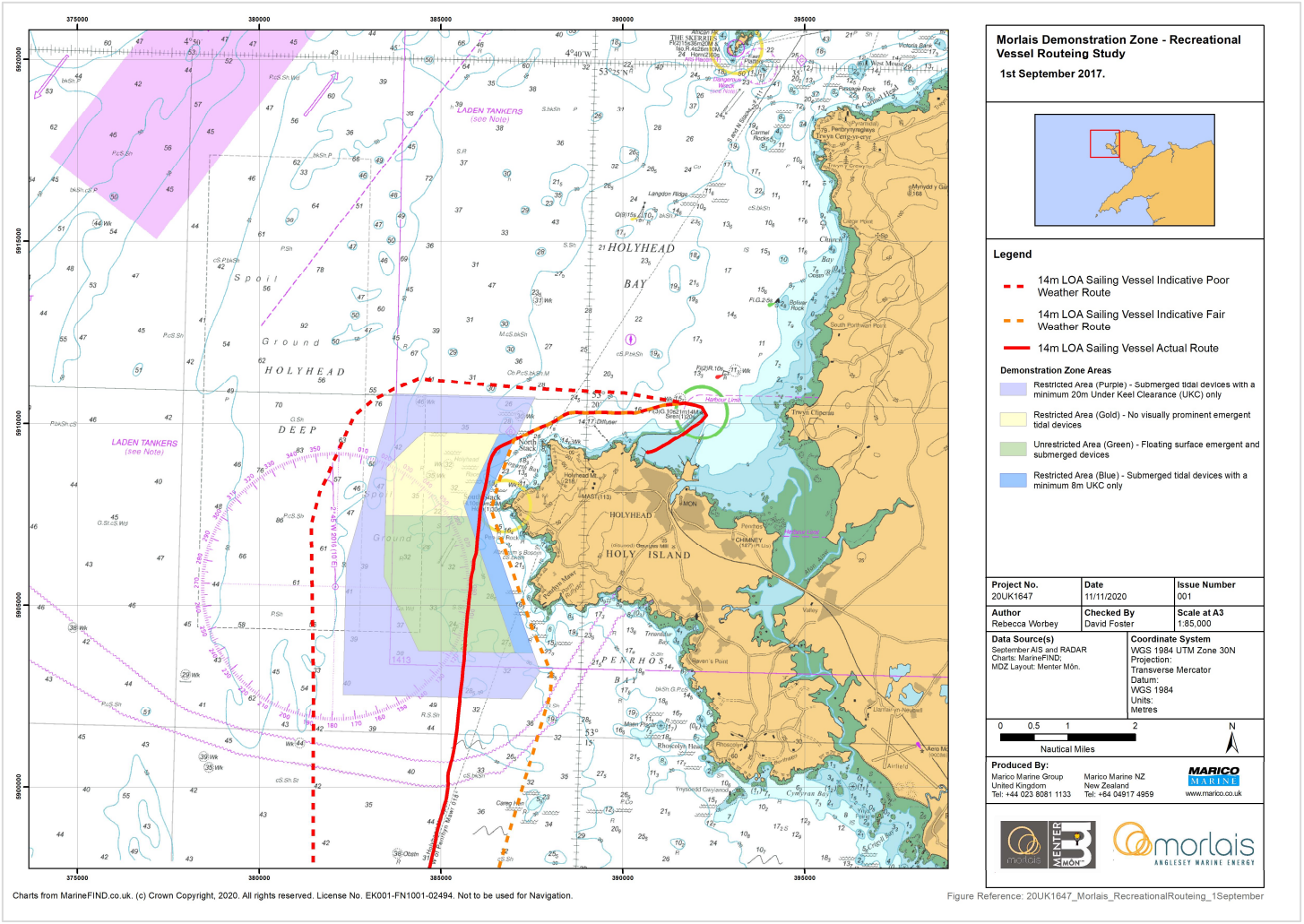


Figure 12: Indicative Track Diversions through the western offshore and eastern inshore route

DISCUSSION

Existing Scenario

- All recreational vessels identified within the representative poor weather survey days were 10m LOA or over and identified from AIS.
- On the assessed dates, where wind conditions reached Force 5 or above, no transits were identified from RADAR and there is no record of smaller recreational vessels venturing into the waters to the west of Holy Island.
- The assessed data indicates that larger recreational vessels already keep well clear of the Holy Island rocky coastline when the wind speed is force 5 or above.

Commercial vessel interactions

The likelihood of increased interactions with commercial vessels is low, with the Off Skerries TSS located 2nm away from the western most edge of the re-routed vessel tracks, with the exception of a single sailing vessel whose actual as opposed to modelled transit passed in close proximity to the TSS.

The ferries should be able to maintain their timetable and normal passage plans in winds of up to and including force 8. Therefore, the ferry routes and ferry traffic density to the north of the MDZ should remain relatively unchanged in wind speeds up to and including Force 8.

Given the large area within which the ferries typically operate (90% of the ferry traffic utilises an area 1nm wide), the likelihood of a recreational vessel meeting a ferry, post construction of the MDZ, is low.

When conditions are such that recreational vessels consider that navigating through the inshore route is imprudent, the majority of smaller recreational vessels are likely to have already taken heed of the weather forecast and are already unlikely to be navigating in the area, resulting in a low recreational vessel density. There will, however, be occasions when the weather blows up unexpectedly or when the skipper of a small recreational vessel ventures out or gets caught out in strong winds.

The ferry timetables for Irish Ferries and Stena Line are shown in **Table 17-5** . A total of 16 individual transits are made per 24-hour period equating to approximately 1 transit every 1.5 hours. Assuming diversion of a maximum of 8 recreational vessels per 24 hours, as identified within the NRA Addendum during summer, this would represent an average of one recreational vessel transit every 3-hours over a 24-hour period. Therefore, the encounter rate between ferries and recreational vessels would remain low.

Table 17-5: Stena Line and Irish Ferries - Representative Dublin – Holyhead Timetable

Stena Line		Irish Ferries	
Departure Time	Arrival Time	Departure Time	Arrival Time
Holyhead to Dublin			
02:30	05:45	02:40	05:55
08:55	12:10	08:15	11:45
14:00	17:15	14:10	17:25
20:30	23:45	20:15	23:30
Dublin to Holyhead			
02:15	05:45	02:00	05:25
08:10	11:50	08:05	11:30
14:50	18:20	14:30	18:00
20:40	00:01	20:55	00:20