



MARITIME AND COASTGUARD AGENCY

NAVIGATION RISK ASSESSMENT - OYSTER TRESTLE FORESHORE DEPLOYMENT, WHITSTABLE, KENT



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MARINE AND RISK CONSULTANTS LTD

MARITIME AND COASTGUARD AGENCY

NAVIGATION RISK ASSESSMENT - OYSTER TRESTLE FORESHORE DEPLOYMENT, WHITSTABLE, KENT

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EXECUTIVE SUMMARY

This navigational risk assessment report, prepared by Marine and Risk Consultants Limited for the Maritime and Coastguard Agency considers the location of oyster trestles placed on the foreshore in Whitstable by the Whitstable Oyster Fishery Company.

This risk assessment considers the navigation hazards to the existing water space users using the waters off Whitstable. A baseline risk assessment was undertaken without any risk control measures in place and considered the effect of vessels contacting the trestles, colliding with each other or grounding in the area. Risk control measures were then considered, including those adopted by the Whitstable Oyster Fishery Company in January 2017, and the risk assessment re scored to provide an effectiveness score to each control measure.

A site visit and stakeholder consultation was held on 17th and 18th May 2017 to assess the risk to water space users. The stakeholder consultation sessions were used to determine frequency of an event occurring, proportionate and appropriate risk control measures and any other concerns of local water space users.

The baseline risk assessment identified 10 individual hazards to navigation; all of which were assessed to fall below or close to the “As Low as Reasonably Practicable” risk margin. Although the 10 hazards fell close to this level there was a high consequence to people navigating in the area due to the trestle design with a worst credible outcome of severe injury or fatality. The three highest scoring baseline risks in the assessment are:

- Small unpowered craft contacts the trestles;
- Small sailing vessel contacts the trestles; and
- Small powered craft contacts the trestles.

Whitstable Oyster Fishery Company has introduced risk controls to the area following consultation (prior to this assessment) with Trinity House, Canterbury City Council and the Marine Management Organisation. The risk controls adopted include marking the area with yellow special marks, placing signage on the foreshore and adding withies to each trestle row demarcating the trestle limits.

This risk assessment identifies opportunities to enhance these risk control measures and provide additional risk control measures in order to reduce the consequence to people (severe injury or fatality). In addition, the relocation and/or removal of the trestle array was considered; When re scored the risk assessment with the risk controls in place showed 14 hazards all of which were assessed

to fall below or close to the “As Low as Reasonably Practicable” risk margin, and the consequence to people was significantly reduced.

The relocation and/or removal of the entire trestle array was also considered is an option which remains open to the licencing authorities.

The recommendations in this report are shown in **Table 1**

Table 1 *Risk Control measures to be adopted*

Risk Control	Control Description	Risk Control effect
Redesign	Remove the vertical steel rods from the trestles	To lower the consequence to human life for water space users contacting the trestles
Relocate Buoyage	Move the special marker buoys closer to the hazard	To reduce the likelihood of collision between recreational craft by increasing water space. To better define the layout of the trestles to water space users and increase the sailing area for WYC
Inform users	Inform all local users of the trestle locations	To reduce the likelihood of vessels contacting the trestles and to improve local stakeholder relationships
Train rescue craft	Provide training opportunities to the RNLI	To reduce the likelihood of damage to search and rescue craft navigating amongst the trestles
Mark the area	Use higher withies to mark the extent of each trestle row	To reduce the likelihood of water space users contacting the trestles at all states of tide.

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ABBREVIATIONS

Abbreviation	Detail
AIS	Automatic Identification System
ALARP	As Low as Reasonably Practicable
CCTV	Closed Circuit Television
CHA	Competent Harbour Authority
D&B	Design and Build
HW	High Water
ICW	In Collision With
IMO	International Maritime Organisation
Kt	Knot (unit of speed equal to nautical mile per hour, approximately 1.15 mph)
LW	Low Water
M	Metre
Marico Marine	Marine and Risk Consultants Ltd
MCA	Maritime and Coastguard Agency
ML	Most Likely
Nm	Nautical Mile
NRA	Navigation Risk Assessment
PEC	Pilotage Exemption Certificate
PWC	Personal Water Craft
RIB	Ridged Inflatable Boat
RNLI	Royal National Lifeboat Institute
SHA	Statutory Harbour Authority
SMS	Safety Management System
SUP	Stand Up Paddle board
VHF	Very High Frequency (radio communication)
VTS	Vessel Traffic Service
WC	Worst Credible
WOFC	Whitstable Oyster Fishery Company

1 INTRODUCTION

1.1 BACKGROUND INFORMATION

This Navigational Risk Assessment (NRA) report, prepared by Marine and Risk Consultants Limited (Marico Marine) for the Maritime and Coastguard Agency (MCA) considers the location of oyster trestles which were placed on the foreshore in Whitstable Bay by the Whitstable Oyster Fishery Company (WOFC). The NRA report provides a proportionate assessment of the deployment of the trestles and consider their positioning in relation to local marine hazards. Ultimately it is intended to enhance safety by ensuring that all marine-related hazards are identified, control measures are in place, and hazard risk levels are maintained at acceptable levels.

1.2 REGULATORY CONTEXT AND BACKGROUND

Under the Marine Licensing (Exempted Activities) Order 2011, as amended in 2013, a company wishing to place trestles on the foreshore for the purpose of shellfish cultivation must notify the Marine Management Organisation (MMO) of their intent. The Order also states that an exemption will only apply if “the deposit does not cause or is likely to cause obstruction or risk to navigation.”

As part of an exemption notification, the MMO recommends that the applicant consults with the MCA, Trinity House and local Harbour Authorities, where necessary, to determine navigational risk and any associated mitigation measures. Under the exemption order there is no requirement for the applicant to statutorily consult with the MCA, Trinity House or relevant Harbour Authorities thus this allows the applicant to self-declare that the proposed activity does not cause an obstruction or risk to navigation. During a recent notification to the MMO from WOFC, local stakeholders made representation to the MMO, MCA and the local Member of Parliament that the trestles posed a hazard to those water space users navigating in proximity to them.

1.3 OYSTER FARMING AND USE OF TRESTLES

Traditional methods of oyster farming involved oyster spat being sown on the foreshore and then dredged by boat once the oysters matured. Modern and commonly adopted methods of oyster farming involve trestles placed intertidally (to provide periodic wetting and drying) which are used to hold mesh bags in which the oysters are grown. Trestle designs vary depending on location and are generally fabricated from timber or steel. The mesh bags commonly remain in place under their own

weight or secured to the trestles by rubber banding or lashing where local hydrodynamics and/or wave conditions are more onerous.

The spat is left to grow with the bags being periodically rotated and oysters re-sorted into the bags of larger mesh size until they have matured to a suitable size whereupon the oysters are cleaned and prepared for sale. The duration of taking a seeded oyster to full marketable size takes approximately three years.

2 WHITSTABLE

Whitstable on the north-east Kent coast is a popular seaside destination for many holiday makers and recreational water space users. **Figure 1** provides a layout overview and location of relevant stakeholders and infrastructure.

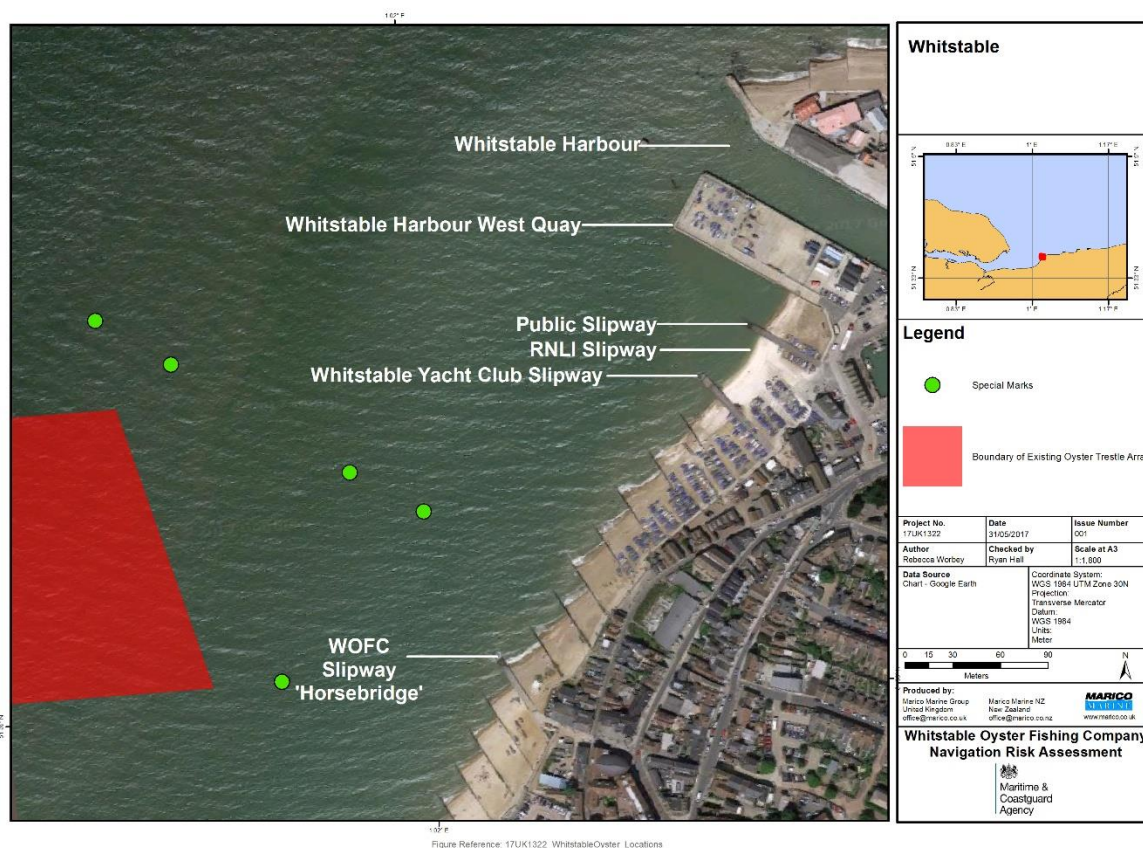


Figure 1 Whitstable

2.1 TIDAL INFORMATION

Whitstable is a secondary port to Margate. There is a tidal range of 5 metres with mean High Water Springs measuring 5.17m, and Mean Low Water Springs measuring 0.4m. The flood tidal stream has a maximum rate of approximately 2.5 knots from the Thames Estuary in a westerly direction across the foreshore and then returns in a north easterly direction back out of the Thames Estuary. The tidal limitations at Whitstable mean that visiting ships must wait until high water before any approach to the harbour is made. The foreshore to the west of the harbour has a shallow gradient from the high-water mark and is exposed for up to 3 hours of each tidal window with a bottom type of soft mud and shingle.

2.2 WHITSTABLE OYSTER FISHERY COMPANY

WOFC has an historic Royal Charter allowing them to conduct shellfish cultivation on the foreshore at Whitstable. WOFC also undertake oyster farm activities at Seasalter and Faversham (approximately 3 NM from Whitstable). In 2009 WOFC placed oyster trestles on the foreshore at Whitstable (**Figure 2**) to develop an oyster farm and grow a non-native oyster for commercial benefit. WOFC increased the quantity of trestles on the foreshore in 2015 to approximately 1500 trestles.

WOFC imports pre-fabricated trestles from France to a specified design. **Figure 3** shows a trestle in situ on the foreshore at Whitstable. They are 0.75m in height and approximately 1m long and 0.5m wide. They are made of steel re-bar construction and trestles are linked together and arranged in rows. The trestles are not anchored to the foreshore as they are of a considerable weight and this prevents them moving due to waves and currents. Due to early experience with bags moving in strong north easterly conditions, vertical steel rods, extending approximately 0.2m above the trestle surface are specified by WOFC at construction in order to retain the mesh bags in situ with rubber banding and strapping (**Figure 3**).

The oyster farming activity associated with the site involves a small workboat navigating amongst the trestles to remove the bags before transporting them to the West Quay at Whitstable Harbour.

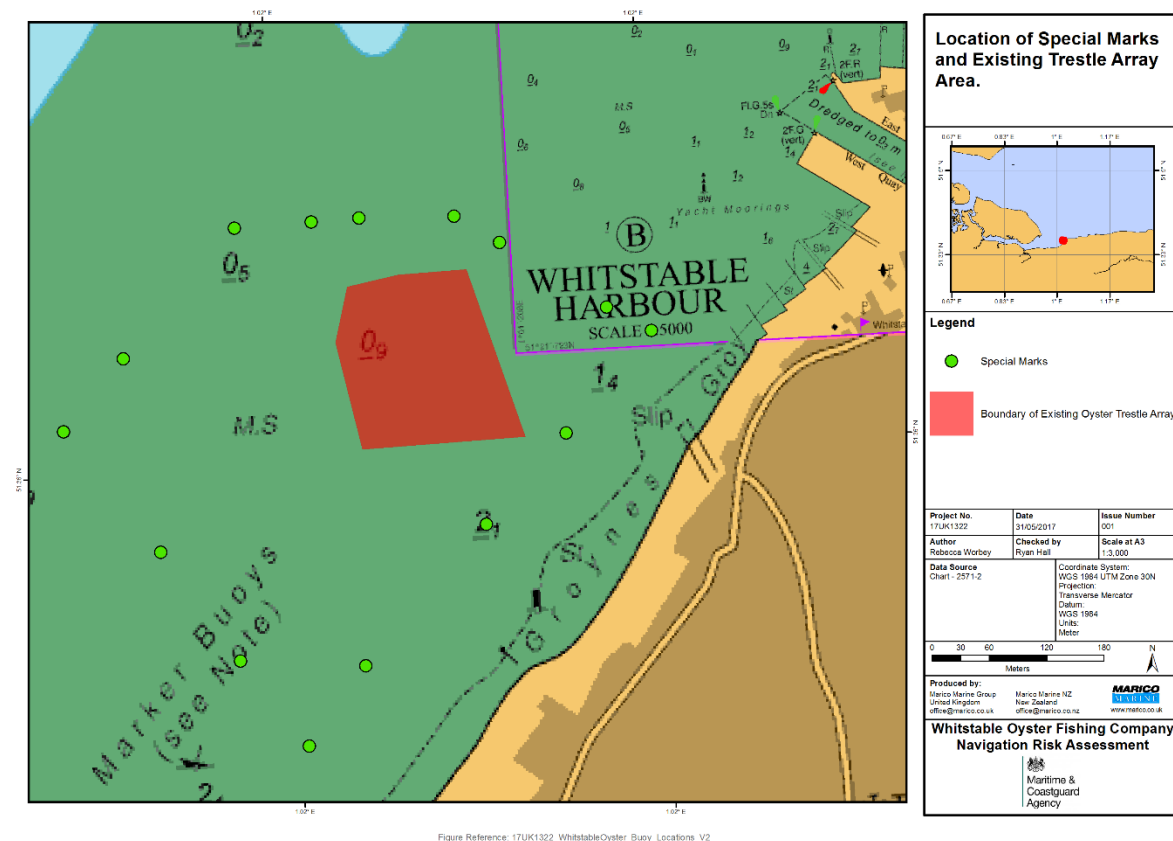


Figure 2 WOFC Location



Figure 3 Whitstable oyster trestle - Source WOFC

2.3 CANTERBURY CITY COUNCIL

Canterbury City Council manages the foreshore from the high-water mark to 300 metres off shore. The council has byelaws allowing them to control speed in the area. The speed limit of 8 knots applies to an area marked by round yellow buoys situated 150m from the high water mark and is in place to protect the public wishing to use the area from high speed vessels. The council buoyage is shown in **Figure 4** Canterbury City Council Speed limit marks The Council is also responsible for the maintenance of the public slipway and for environmental protection of the foreshore.

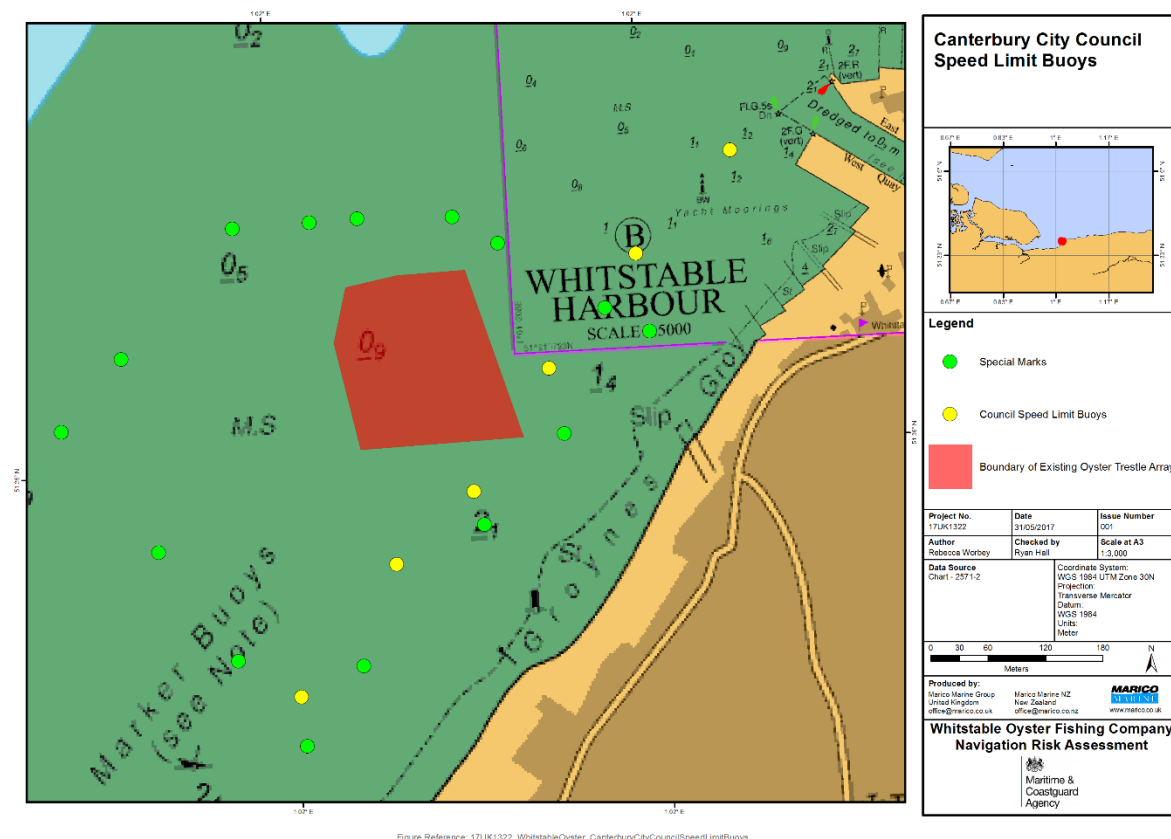


Figure 4 Canterbury City Council Speed limit marks

3 MARINE ACTIVITIES AT WHITSTABLE

To establish the impact of the trestles on water space users an understanding of vessel activity in the area was established through research, a site visit and consultation with identified stakeholders. For this risk assessment, a water space user refers to those navigating a vessel within the area and does not include swimmers or members of the public using the foreshore for other leisure pursuits.

The main activity in the area is recreational with commercial activity being limited due to the depth of water available. The recreational activity can be grouped as the following:

- Whitstable Yacht Club;
- Users of the Public Slipway – power and sail; and
- Paddling activities.

3.1 WHITSTABLE YACHT CLUB

Whitstable Yacht Club (WYC) is based 100m from the West Quay of Whitstable harbour. The club has an active membership of approximately 600 and is also a Royal Yachting Association (RYA) Training Centre. The yacht club is home to approximately 200 sailing dinghies and catamarans (stored ashore) and there are no moored yachts or vessels. At present, and following trestle placement, ailing vessels are launched from the foreshore and WYC slipway at all states of tide and sail within the corridor area bounded by the harbour wall and the trestles or proceed through this area to more open water. This is shown in **Figure 5**.

This sailing area has been reduced in size due to the trestles being placed on the foreshore. Prior to their placement, the yacht club utilised the entire foreshore length and area, with school groups maintaining a sailing line close to and along the foreshore. The new sailing area has resulted in activities now having to take place in a more condensed area or proceed further offshore.

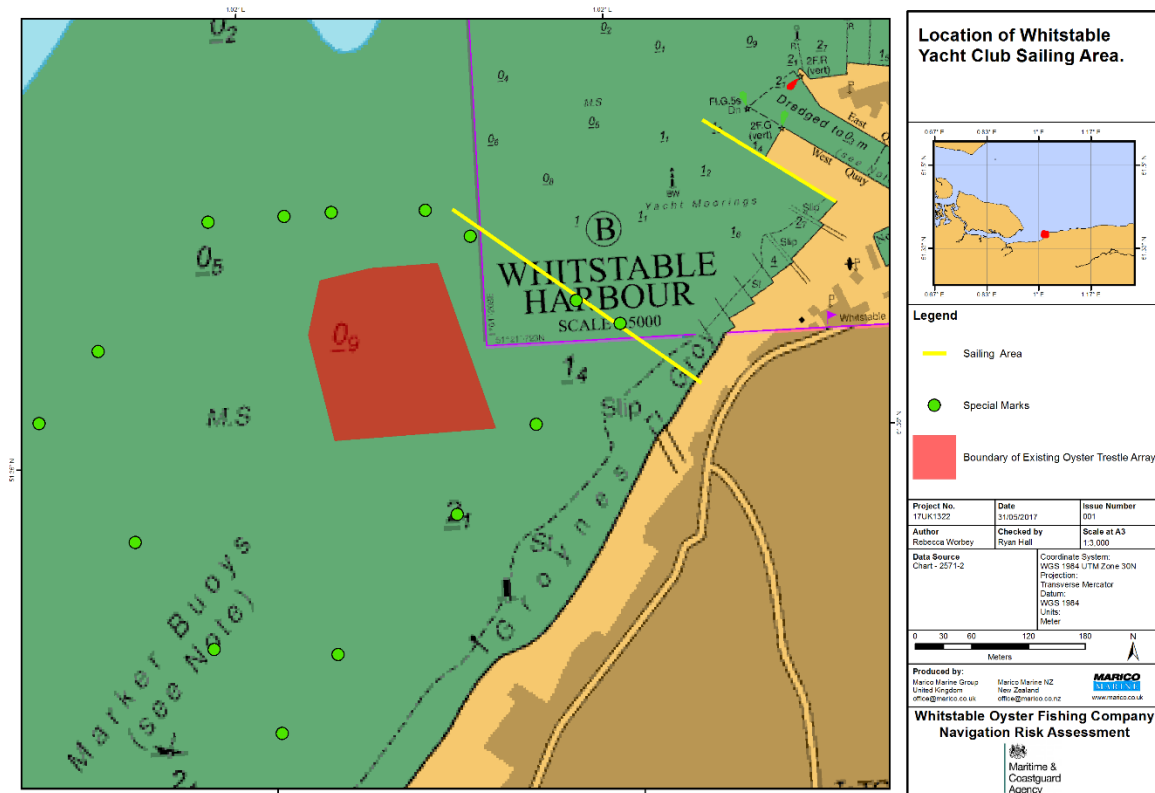


Figure Reference: 17UK1322_WhitstableOyster_SailingArea_V2

Figure 5 Whitstable Yacht Club Sailing Area

The sailing season runs from March to October with races taking place every weekend and every other Wednesday throughout. In the winter the yacht club would expect an average of 20 boats participating in each event, whereas in the summer this level can rise to 60 boats with WYC hosting events attended by visitors. The training school teaches children and adult novices to sail on a regular basis and each training session will be based on approximately 15 sailing boats with three or four support / safety boats in attendance.

Sailing activity commences from the slipway at most states of the tide, with the safety boats only being able to launch until approximately 90 minutes before Low Water.

The yacht club or Whitstable Harbour does not have mooring facilities for visiting yachts and any visitor will normally anchor in proximity to the foreshore and access shore by tender. Due to the shallow nature of the foreshore larger yachts would not be expected in Whitstable.

3.2 PUBLIC SLIPWAY

The public slipway is used by visitors and the following type of vessel is typically launched from the slipway and adjacent foreshore area:

- Personal Watercraft
- Kayaks;
- Small sailing dinghies;
- Windsurf boards;
- Paddle boards; and
- Small recreational powered craft

The slipway is predominantly used in the summer season for most vessel types with windsurfers tending to utilise the foreshore to access the water.

3.3 PADDLING ACTIVITIES

Paddling activity is experienced all year round and includes kayaks and stand up paddle boards (SUPs) and, due to the nature of the craft type, users tend to remain close to the shore line in shallow water.

3.4 RNLI

The RNLI is based in a purpose-built structure close to the West Quay at Whitstable harbour. The lifeboat is a B-class lifeboat - Atlantic 85 Rigid Inflatable Lifeboat (RIB) which has a draft of 0.53 m and is launched by a tractor and trailer using the slipway. The station receives approximately 50 call outs per year, normally to distressed fishing vessels further offshore or to assist members of the public in difficulty on the beach on the eastern side of the harbour.

3.5 COMMERCIAL VESSEL ACTIVITY

Due to the depth of water the harbour has limited commercial activity. There is a small fishing fleet based at Whitstable with fishing activity located away from the harbour at the nearby North Kent windfarms. Commercial shipping activity is limited with only one working berth inside the harbour for a vessel importing aggregate approximately 40 times a year. No commercial vessel activity is experienced to the west of the harbour and vessels entering or departing the harbour typically follow the routes as shown in **Figure 6**

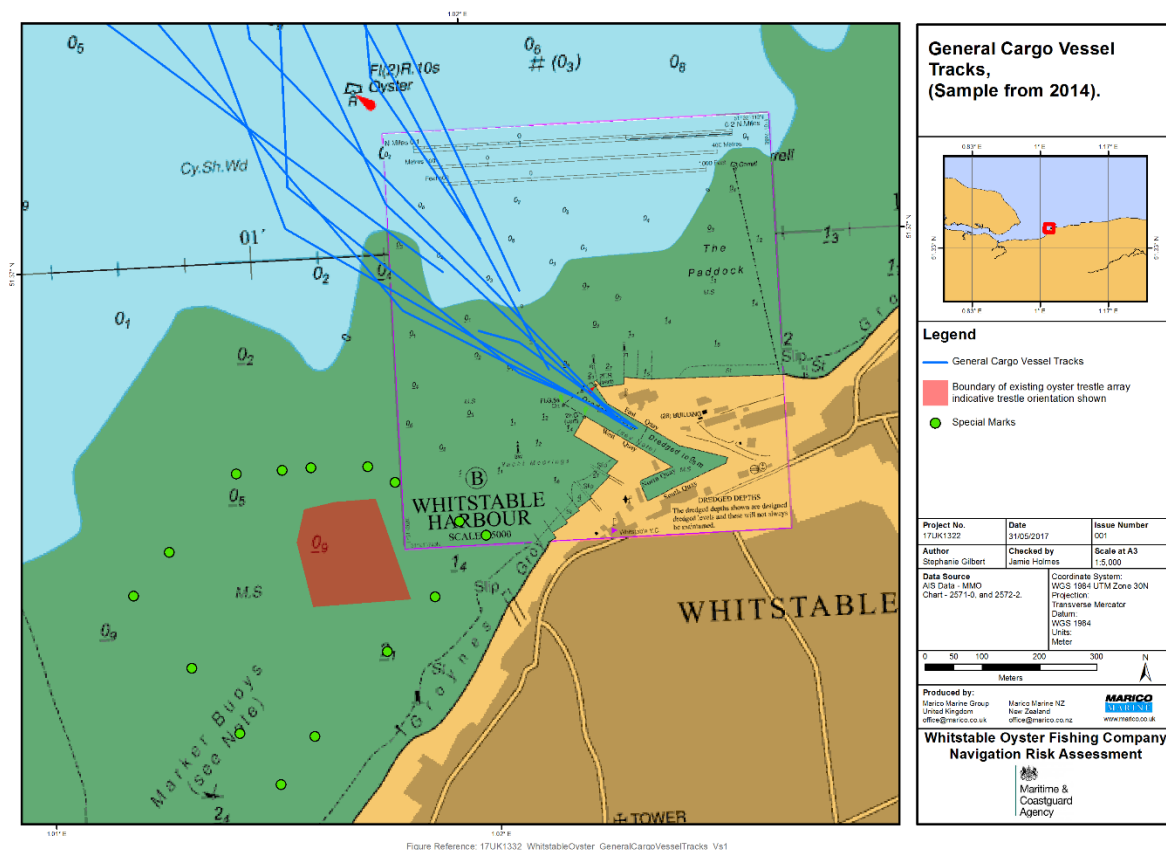


Figure 6 Commercial Activity at Whitstable

4 CONSULTATION WITH STAKEHOLDERS

Consultation meetings (identified in **Table 2**) with key identified stakeholders were undertaken during a site visit on Wednesday 17th and Thursday 18th May 2017 or by telephone from Marico Marine's office in Southampton.

Table 2 Stakeholder Consultation List

Organisation	Consultee
Whitstable Harbour	Mike Weir (Harbour Master)
Whitstable Harbour	Glyn Hall-Edwards (Harbour Manager)
Canterbury City Council	Matthew Young (Foreshore Manager)
Whitstable Yacht Club	Robert Govier (Rear Commodore Sailing)
Whitstable Yacht Club	Richard Maltby (Principle Training officer)
Whitstable Oyster Fishery Company	James Green (Owner)
Whitstable Oyster Fishery Company	George Crofton-Martin (Legal Advisor)
Royal National Lifeboat Institution	Mike Judge (Station Manager)
Trinity House	Trevor Harris and Martin Thomas (ATON Advisors)
Marine Management Organisation	Andrew Watson (Licence Assurance Manager)
Royal Yachting Association	Stuart Carruthers (Cruising Manager)

Consultation meetings were used to help determine the following requirements for this risk assessment:

- Historical information;
- Incident data;
- Vessel activity and vessel types;
- Risk control measures; and
- Improved risk control measures.

Minutes of consultation meetings can be found at **Annex C**.

5 NAVIGATION RISK ASSESSMENT

5.1 METHODOLOGY

The NRA methodology, used for this assessment, has been specifically developed for navigational use in ports/harbours. It is fundamentally based on concepts of the “Most Likely” (ML) and “Worst Credible” (WC) scenarios that reflect the range of outcomes arising from a navigation hazard (see Figure 7).

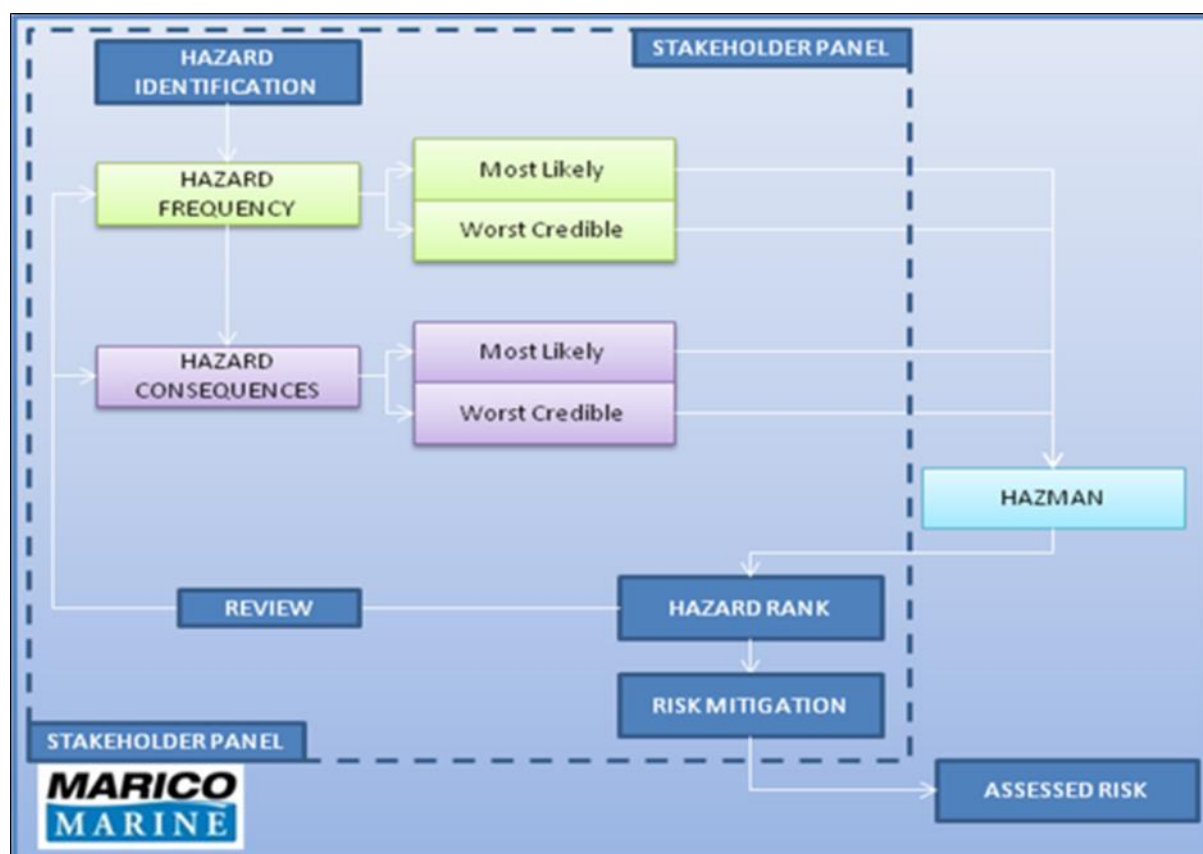


Figure 7: MARICO hazard identification and risk assessment process.

The NRA process is based on the Formal Safety Assessment methodology as adopted by the International Maritime Organisation (IMO). The NRA used the proprietary Marico Marine “Hazman II®” programme to undertake the risk assessment process.

IMO guidelines define a hazard as “something with the potential to cause harm, loss or injury”, the realisation of which results in an accident. The potential for a hazard to be realised can be combined with an estimate or known consequence of outcome. This combination is termed “risk”. Risk is therefore a measure of the frequency and consequence of a particular hazard and in order to compare risk levels a matrix is used.

At the low end of the scale, frequency is extremely remote, consequence insignificant and risk can be said to be negligible. At the high end, where hazards are defined as frequent and the consequence catastrophic, then risk is termed intolerable. Between the two is an area defined “As Low As Reasonably Practicable” (ALARP). The IMO guidelines allow the selection of definitions of frequency and consequence to be made by the organisation carrying out the NRA. This is important, as it allows risk to be applied in a qualitative and comparative way. To identify high risk levels using a quantitative mathematical approach would require a large volume of casualty data, which is not generally available.

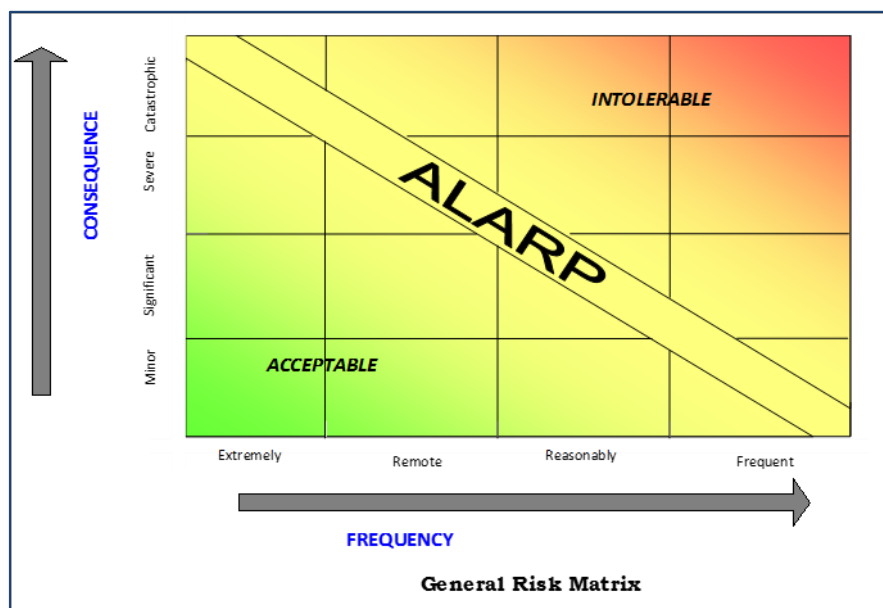


Figure 8: Frequency/Consequence Chart.

ALARP can be defined as “Tolerable”, if the reduction of the risk is impracticable, or if the cost of such reduction would obviously be highly disproportionate to the improvement. It can also be defined as “Tolerable”, if the cost of reducing the risk is greater than any improvement gained. This is showed pictorially in **Figure 8**.

5.2 VESSEL TYPES IN STUDY AREA

The water space users using the area were grouped into five vessel categories and these vessel groupings were then associated to the hazard category.

Vessel group	Vessel types
Sailing vessel	Windsurfer, sailing dinghy
Small yacht	Small yachts,
Small powered vessel	Small RIB, small powered pleasure craft, jet ski, RNLI,
Small unpowered vessel	Kayak, Stand up paddle board (SUP)
Small commercial vessel	Tugs, small work boats, pilot boat

5.3 HAZARD CATEGORIES

In order to ensure that all hazards associated with the project were identified (and allocated a Hazard Reference Number), a matrix of generic hazards was used, which focused on the risk exposure to vessel types typical to the area (see **Table 3**) .

Table 3: Initial Hazard Identification Matrix.

Hazard Ref.	Hazard Category	Hazard Title
1	Contact	Windsurfer or dinghy contacts a trestle
2	Contact	Small yacht contacts a trestle
3	Contact	Small powered vessel contacts a trestle
4	Contact	Small unpowered vessel contacts a trestle
5	Contact	Small commercial vessel contacts a trestle
6	Contact	Windsurfer or dinghy contacts the marker buoys
7	Contact	Small yacht contacts the marker buoys
8	Contact	Powered vessel contacts the marker buoys
9	Contact	Small unpowered vessel contacts the marker buoys
10	Contact	Small commercial vessel contacts the marker buoys
11	Collison	Recreational vessel in collision with another recreational vessel
12	Collison	Recreational vessel in collision with a commercial vessel
13	Grounding	Recreational vessel grounds in the buoyed area
14	Grounding	Commercial vessel grounds in the buoyed area

5.4 INCIDENT DATA

Marico Marine requested information about incidents in the trestle area from a large number of sources, including all consultees, and also checked the national incident database held by the Marine Accident Investigation Branch (MAIB).

WYC submitted a list of incidents to the MMO covering a period between Feb 2016 and Jun 2016 (pre-dating the installation of some risk control measures by WOFC) as shown in **Table 4**. During consultation, it was stated that the incident rate has declined after WOFC implemented risk controls, including marking the area, with no incidents recorded since June 2016. During the consultation, anecdotal comment was provided regarding unspecified incidents, with reference to dinghies capsizing in the area during a sailing event and drifting over the trestles. However, the sailors were recovered from the water by attending safety boats.

The RNLI stated during consultation that they have no record of a rescue in this area since the trestles were installed in 2009.

Table 4 Incident Record (Source: WYC)

Date	Incident description
Feb 16	Damaged bottom of windsurf board on trestles
Apr 16	Broke off windsurf fin on trestle
Apr 16	Damaged fin and sail whilst capsizing on trestle whilst windsurfing
Apr 16	Destroyed sail when drifting over trestle whilst windsurfing
May 16	Windsurf board fin broke whilst hitting oyster trestles
May 16	Hit oyster trestles whilst windsurfing, tore sail and damaged board
Jun 16	Landed on trestle whilst windsurfing

5.5 RISK MATRIX CRITERIA

5.5.1 Frequency

In this study, each hazard was reviewed with respect to cause and effect, with frequency of occurrence derived for notional “most likely” and “worst credible” hazard events based on **Table 5**. Frequency was assessed after a review of incidents in the area and an assessment of traffic activity. Due to the proximity of the trestles to the yacht club and to the public slipway the frequency table was updated to reflect regular occurrence of events happening.

Table 5: Hazard Frequency Scaling

Scale	Description	Definition	Operational Interpretation
F5	Frequent	An event occurring in the range once a week to once a month	One or more times in 1 month
F4	Likely	An event occurring in the range once a month to once every 6 months	One or more times in 6 months
F3	Possible	An event occurring in the range once every 6 months to once a year	One or more times in 1 year
F2	Unlikely	An event occurring in the range once a year to once in 5 years	One or more times in 5 years
F1	Remote	Considered to occur less than once in 10 years	Less than once in 10 years

5.5.1 Consequence

Consequence (or impact of risk realisation) was assessed in three key categories:

- **People** - Personal injury, fatality etc.;
- **Property** - vessel and third party; and
- **Stakeholder/ Business** - Reputation, monetary loss, public perception, etc.

Consequence is assessed against “most likely” and “worst credible” outcomes. For this assessment, the consequence table was developed to reflect the vessel type using the area and is shown in **Table 5**.

Cat	People	Vessel	Publicity / Stakeholders
C1 Negligible	Slight bruising, cuts or abrasion	Cosmetic damage to the vessel – activity can continue < £300	No adverse publicity
C2 Minor	Significant bruising, cuts and abrasion with medical assistance required on site	Damage to the vessel resulting in cease of activity £300 - £1000	Some local adverse publicity, stakeholder relationships damaged
C3 Moderate	Significant bruising, cuts / abrasion, or fracture leading to hospitalisation Liability claim possible	Repair of damage required before activity resumes £1000 -£3000	Local adverse publicity and damage to stakeholder relationships
C4 Major	Fracture, significant bleeding, long term hospitalisation Certain liability claim	Repair of vessel leading to long term unavailability £3000 - £5000	Possible national adverse publicity, certain local reputation damage with possible loss of business
C5 Catastrophic	Single fatality Certain high liability claim	Loss of vessel / replacement vessel required >£5000	National adverse publicity and business lost through stakeholder damage

Table 6 Consequence Scaling

5.6 RISK TREATMENT CRITERIA

Risk scores are calculated for each hazard under the “most likely” and “worst credible” scenarios for each of the consequence criteria (people, property, and stakeholders) based on the scores in the hazard log, using a risk matrix (see **Table 7**). This generates six individual risk scores per hazard which are documented in the “Ranked Hazard List”. The individual risk scores for each consequence category are then combined, using a proprietary algorithm in Hazman II, to derive an overall risk score. The overall baseline risk scores are used to create a ranked hazard list. All risk scores, whether individually

related to a hazard consequence category, or overall combined for an individual hazard are scored on a scale of 0 (low risk) to 10 (high risk) (see **Table 7** for more details).

Table 7: Risk Matrix.

MATRIX OUTCOME	Risk Definition	Action Taken
0 & 1	Negligible Risk	A level where operational safety is unaffected.
2 & 3	Low risk	A level where operational safety is assumed.
4 ,5 and 6	As Low As Reasonably Practicable (ALARP)	A level defined by study at which risk control in place is reviewed. It should be kept under review in the ensuing Safety Management System.
7 & 8	Significant Risk	A level where existing risk control is automatically reviewed and suggestions made where additional risk control could be applied if appropriate. Significant risk can occur in the average case or in individual categories. New risk controls identified should be introduced in a timescale of two years.
9 & 10	High Risk	A level requiring immediate mitigation.

6 RISK ASSESSMENT RESULTS

A complete review of all vessel traffic types and marine operations in Whitstable was undertaken in order to identify a list of hazards. Each hazard was assessed using the method explained in **Section 5**.

Two assessments of risk were undertaken:

- Scenario 1: Baseline Risk Assessment for the trestles with no risk controls; and
- Scenario 2: Risk Assessment for the trestles with the addition of risk control measures.

The hazard logs for the current navigational situation are in **ANNEX A** and the hazard logs for the navigational situation with the addition of the risk control measures are in **ANNEX B**.

Hazards are ranked in accordance with the level of overall risk.

6.1 RISK ASSESSMENT – SCENARIO 1 - BASELINE

This NRA considers both the most likely and the worst credible outcomes (set against likely frequency of the event happening in each case). This approach provides a more realistic and thorough assessment of risk, which reflects reality, in that relatively very few incidents result in the worst credible outcome. The first (baseline) assessment was based on the trestles being in location with no measures used to reduce the consequence or likelihood of an event happening. It is recognised that some risk controls have been put in place by WOFC, however these are excluded from the baseline assessment in order to provide a conservative risk score that reflects an unmitigated scenario.

The assessment shows that the presence of the oyster trestles increases the number of hazards in the area. Due to the vessel type and activity type the highest hazard consequence is to people, particularly with the vertical steel rods on the trestles, which could cause a potential fatality.

The baseline risk assessment results show that:

- 0 hazards were assessed as “High Risk” (>9);
- 2 hazards were assessed as “ALARP” (4 to 9); and
- 7 hazards were assessed as “Low Risk” (1 to 4).

Table 8 Ranked Baseline Hazard Log

Ref	Hazard	BASELINE RISK SCORE
1	Small unpowered craft contacts trestle	4.1
2	Windsurfer / dinghy contacts trestle	4.1
3	Small powered craft contacts trestle	3.62
4	Collision recreational with recreational	3.45
5	Collision recreational with commercial	3.1

Ref	Hazard	BASELINE RISK SCORE
6	Small yacht contacts trestles	1.2
7	Recreational Craft grounds in the area	0.74
8	Commercial vessel grounds in the area	0
9	Commercial vessel contacts trestles	0

Two of the assessed hazards have a baseline score in the ALARP range:

- Contact – Small unpowered craft contacts the trestles; and
- Contact – Small sailing vessel contacts the trestles;

When hazards are scored in the ALARP range, further means should be adopted to bring the risk to levels ranged in “Low risk”.

When analysed separately, the consequence to people remains at levels in ALARP as shown in **Table 9** and measures should be taken to reduce these risks. Importantly, the worst credible outcome for the consequence to people remains severe injury or fatality.

Table 9 Risk score people consequence only

Ref	Hazard – Consequence People only	BASELINE RISK SCORE
1	Small unpowered craft contacts trestle	5
2	Windsurfer / dinghy contacts trestles	5
3	Small powered craft contacts trestles	4

6.2 RISK CONTROLS

To bring the assessed levels to less than ALARP risk control measures should be put in place. This section identifies appropriate risk control measures.

It should be noted that WOFC had implemented some risk controls at the date of the site visit (although, in order to provide a conservative assessment, these were not considered under the baseline risk assessment). These risk controls arose following their exemption notification to the MMO, WOFC were advised to consult with several stakeholders (listed below) in order to determine navigational risk and any associated mitigation measures.

- Trinity House;
- Canterbury City Council; and
- RNLI and HM Coastguard.

In January 2017, and following their review, WOFC implemented risk controls to reduce the associated risk of the trestles. The risk controls adopted by WOFC include:

- Yellow special marks around the trestles (**Figure 9**);

- Withies on the trestles (**Figure 12**); and
- Signage on the foreshore (**Figure 11**)

Therefore, in this section, consideration and recommendations are made where these existing risk controls can be enhanced and, additionally, new risk controls have been considered.

6.2.1 Trestle Design Modification

By removing the vertical steel rods from the trestles, the consequence on human life will be significantly reduced. During consultation, the WOFC owner stated that this was possible and, due to the large number of rods, and the requirement to seek an alternative viable solution to retain the mesh bags in situ, this may take approximately one year to implement.

Removal of the vertical steel rods would also reduce the risk to vessels and subsequent damage that may be experienced in contacting the mesh bags placed on the trestles rather than vertical steel rods. During consultation, stakeholders confirmed that contacting a trestle with an oyster mesh bag on top would be comparative to that of grounding the vessel on a shingle bank.

6.2.2 Buoyage

Unlit special marks have been placed around the trestle array, as shown in **Figure 9** and **Figure 2**. The marks are spread some distance apart and located such that they don't fully represent the extent or proximity of the trestle array or the direction in which the trestles are laid relative to the special mark.



As the marks are widely and variously spread there is therefore an unclear visual barrier to those utilising the water space.

Figure 9 WOFC Special mark

It is recommended that buoyage layout is modified to locations as shown in **Figure 10** (reflecting the current trestle location) and in a broadly repeating pattern. The special marks could also be re aligned to allow for more sailing space in the area (opening the angle towards the foreshore) and to reduce the risk of collision due to congestion. This buoyage would also clearly mark the relative location of the trestles and allow those navigating in the area, especially the RNLI if required to carry out a search and rescue, to identify the hazard more readily.

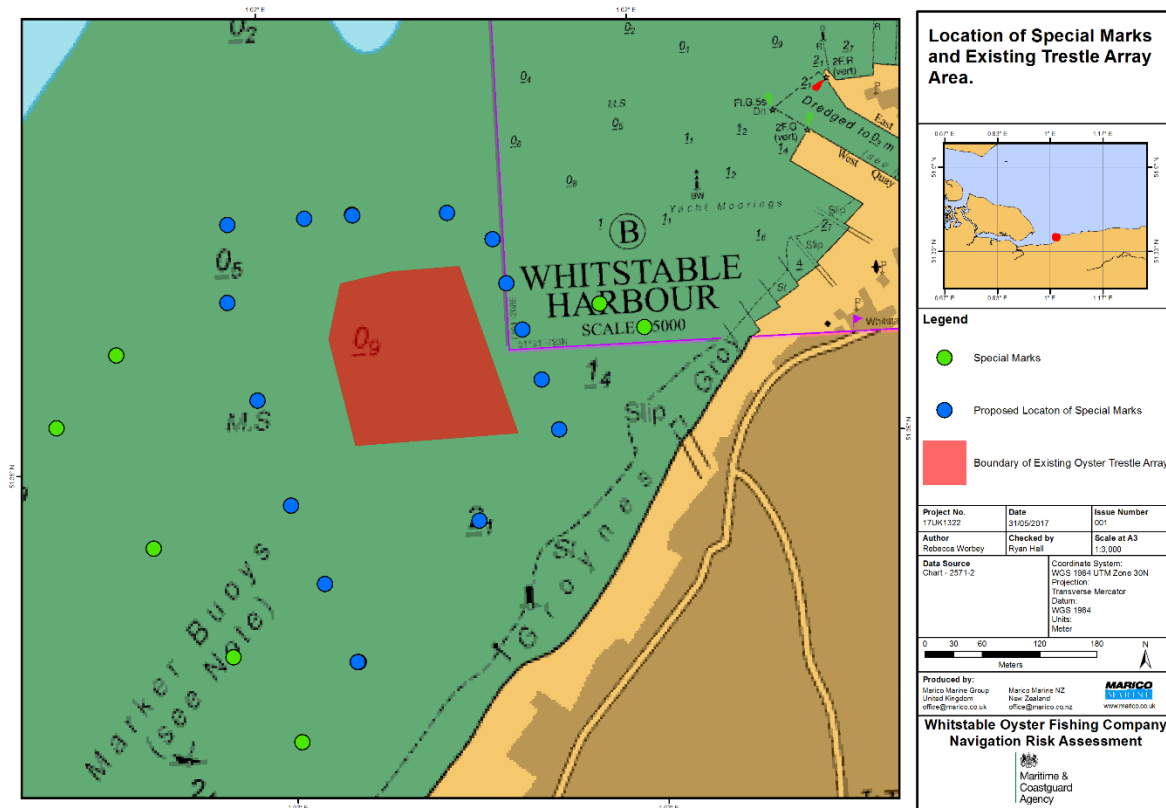


Figure Reference: 17UK1322_WhitstableOyster_Proposed_Buoy_Locations_V2

Figure 10 Proposed modified buoyage location

6.2.3 Inform Local Users

By informing local users of the trestle hazard the frequency of occurrence may reduce. WOFC have installed signs on the foreshore at Whitstable and these are sited on all groynes and public notice boards. Examples of the signage in place is shown at **Figure 11**.



Figure 11 WOFC Signage

WOFC is recommended to write to WYC, and other known water space users to inform them of the hazard. Additional signage could also be utilised to inform water space users of the hazard in local clubs, restaurants and other public amenities.

WOFC should consider conducting a periodic (annual) stakeholder meeting to ensure that a regular review of this risk assessment is carried out and that stakeholders are able to make fair representation about the placement of the trestles, their marking and the other risk control measures as identified.

6.2.4 Training and Familiarisation of Rescue Craft

The only user planned to enter the trestle array (in addition to WOFC) would be rescue craft and therefore, The RNLI would navigate amongst the trestles on a flood tide when the tide height was above 2 metres and, on an ebb tide, the RNLI would navigate the area when the tide is more than 2.5m. By providing training assistance and layout familiarisation to the local RNLI helmsmen, further mitigation against any potential contact of this vessel to the trestles when a rescue is required can be achieved.

6.2.5 Withy Navigation Markers

The trestle array is currently well marked by withy navigation markers (vertical sticks) which are placed at the corner of each trestle block as shown in **Figure 12**. The withies are submerged at high tide and therefore not always visible. It is recommended that WOFC increase the height of these withies such that they are visible at all states of tide.



Figure 12 WOFC withies

6.3 RELOCATION OF OYSTER TRESTLES

Relocating the oyster trestles would remove the hazard from the area, and would reduce the risk of collision between two recreational vessels as the water space would be less congested. The risk for contacting the trestles would remain like that scored in the risk assessment as the trestles must be intertidal and, by definition, will be in proximity to those using the water space.

Relocating the trestles would incur significant capital expenditure and, depending on the relocation site (which would require review), may not remove the hazard to water space users completely. There are operational cost considerations associated with increased transit distance and time from the Whitstable Harbour West Quay from which WOFC currently operate.

6.4 REMOVAL OF OYSTER TRESTLES

If the trestles are removed then the risk to water space users is eliminated. However, it is noted that removal will involve a large cost to the WOFC and other businesses in the area could be affected. If the trestles were removed then WOFC could utilise traditional oyster farming methods at the existing location although this is labour intensive, environmentally difficult and may not be a viable option. If WOFC were to return to traditional methods it is likely that they would have to prevent access to the foreshore for water space users to protect the oysters.

6.5 RISK ASSESSMENT - SCENARIO 2 - WITH RISK CONTROL MEASURES

Each of the risk controls identified in **Section 6.2** were allocated an effectiveness score and the risk assessment was re calculated. The risk control of yellow special marks was also identified as a hazard and scored appropriately for contact, as vessels navigating in the area might also contact the buoys and cause subsequent damage, although these did not score highly in the risk matrix.

With risk controls adopted the overall risk levels were further lowered. The three hazards originally identified as close to ALARP were brought closer to the “Low Risk” area.

The re-assessed risk assessment results shows that:

- 0 hazards were assessed as “High Risk” (>9);
- 0 hazards were assessed as “ALARP” (4 to 9); and
- 14 hazards were assessed as “Low Risk” (1 to 4).

The top scoring hazards with the risk control measures adopted are:

- Contact – Small unpowered craft contacts the trestles;
- Contact – Small sailing vessel contacts the trestles; and
- Contact – Small powered craft contacts the trestles.

Table 10 Ranked Hazards with Risk Controls

Ref	Hazard	BASELINE RISK SCORE Option 1
1	Small powered craft contacts trestle	3.51
2	Collision recreational with recreational	3.31
3	Small unpowered craft contacts trestles	3.16
4	Windsurfer / dinghy contacts trestles	3.16
5	Collision recreational with commercial	3.11

Ref	Hazard	BASELINE RISK SCORE Option 1
6	Small yacht contacts trestles	1.17
7	Grounding recreational vessel	0.72
8	Windsurfer / dinghy contacts the special marks	0.61
9	Small unpowered craft contacts the special marks	0.61
10	Small powered craft contacts the special marks	0.61
11	Small commercial craft contacts the special marks	0
12	Small yacht contacts the special marks	0
13	Commercial vessel grounds in the area	0
14	Small commercial craft contacts the special marks	0

When analysed separately, the consequence to people measures below ALARP as shown in **Table 11**. This is because by removing the rods the consequence to people is significantly reduced.

Table 11 Consequence to people after risk controls applied

Ref	Hazard – Consequence People only	BASELINE RISK SCORE
1	Small unpowered craft contacts trestle	3.7
2	Windsurfer / dinghy contacts trestles	3.7
3	Small powered craft contacts trestles	3.2

The risk scores above remain in or close to ALARP due to the frequency of event remaining low. There is little evidence to support incidents in the area and further risk controls not assessed in this report have also been adopted by other water space users, which have reduced the overall impact the trestles have.

Since the addition of the special marks Whitstable Yacht Club has added its own risk control measures to protect club members from entering the trestle area. These have not been scored in this assessment as a way to reduce consequence, but they have been used when assessing the frequency of the hazard occurring. Risk control measures adopted by WYC include:

- The marked area is deemed an exclusion zone and sailing is prohibited;
- Safety boats added to sailing lessons; and
- Club members notified of the area.

7 CONCLUSIONS

Whitstable has a high density of leisure users navigating near oyster trestles placed on the foreshore for commercial farming. The Oyster trestles do pose a hazard to navigation scored as “low risk” and this risk profile can be reduced with the adoption of risk controls.

With no risk controls in place (Scenario 1 baseline) the highest scoring hazards are:

- Small un-powered craft contacts the trestles;
- Small sailing vessel contacts the trestle; and
- Small powered craft contacts the trestle

Although the three hazards above are close to levels of ALARP the area is scored as low risk. The consequence to vessels and to stakeholders is low and there is no substantial incident rate or record of vessels contacting the trestles to show them as a frequent hazard.

By adopting the enhanced or new risk controls as highlighted in **Section 6.2** (Scenario 2) WOFC will be able to remove a life-threatening hazard, provide more water space to leisure users and significantly improve the information local stakeholders and water space users have of the area.

8 RECOMMENDATIONS

If any navigation hazards are scored as high or significant risk, then they are termed “intolerable” and as such additional risk control measures should be implemented. This may range from stopping the activities which bring about such high-risk hazards to measures which seek to reduce the likelihood and / or consequence of hazard occurrence.

Given that all the navigation hazards identified and scored in this risk assessment fall into the lower categories of risk, then current navigation activities can be considered acceptable. This does not however mean that additional mitigation should not be considered.

There is also the rationale underlying any risk assessments that however low the risk, there remains, no matter how small, a possibility that a hazard may occur.

WOFC are recommended to adopt the risk controls as identified in **Table 12**

Table 12 Recommended Risk Controls.

Risk Control	Control Description	Risk Control effect
Redesign	Remove the vertical steel rods from the trestles	To lower the consequence to human life for water space users contacting the trestles
Relocate Buoyage	Move the special marker buoys closer to the hazard	To reduce the likelihood of collision between recreational craft by increasing water space. To better define the layout of the trestles to water space users and increase the sailing area for WYC
Inform users	Inform all local users of the trestle locations	To reduce the likelihood of vessels contacting the trestles and to improve local stakeholder relationships
Train rescue craft	Provide training opportunities to the RNLI	To reduce the likelihood of damage to search and rescue craft navigating amongst the trestles
Mark the area	Use higher withies to mark the extent of each trestle row	To reduce the likelihood of water space users contacting the trestles at all states of tide.

Annex A Ranked Hazard Log – No risk controls

Ranked Hazard List : 17UK1322 Whitstable Oyster Fishery NRA (19 May 2017)

Rank	Hazard Ref.	Affected Areas	Accident Category	Hazard Title	Hazard Detail	Affected Vessel Types	Affected Stakeholders	Possible Causes	Consequence Descriptions		Risk By Consequence Category						Risk Overall	Remarks
											ML			WC				
									Most Likely (ML)	Worst Credible (WC)	People	Publicity /Stakeholder	Vessel/Craft	People	Publicity /Stakeholder	Vessel/Craft		
1	5	1	Contact	Small unpowered craft contacts trestle	SUP, Kayak, inflatable dinghy makes contact with partially submerged / submerged trestle			Severe weather; inattention; poor local knowledge; no warning of trestle placement; no markation of trestles; change of trestle position; machinery failure; equipment failure;	No injury, no damage to vessel, no adverse publicity	Severe injury, moderate damage to vessel	3	0	0	5	0	0	4.1	
2	1	1	Contact	Windsurfer / Dinghy contacts trestle	Windsurfer makes contact with partially submerged / submerged trestle			Severe weather; inattention; poor local knowledge; no warning of trestle placement; no markation of trestles; change of trestle position; equipment failure;	Minor injury, minor damage to board, no adverse publicity	Severe injury or fatality,	3	0	0	5	0	0	4.1	
3	3	1	Contact	Small powered craft contacts trestle	Small rib, leisure user, Jet ski, RNLI, makes contact with partially submerged / submerged trestle			Severe weather; inattention; poor local knowledge; no warning of trestle placement; no markation of trestles; change of trestle position; machinery failure; equipment failure; poor event management	Minor injury, minor damage to vessel, no adverse publicity	Severe injury, major damage to vessel, adverse publicity	2	0	0	4	0	0	3.62	
4	11	1	Collision	Collision Recreational with Recreational	Recreational vessel collides with another recreational vessel as a result of navigating around trestles			Avoidance of other recreational vessel; inattention; failure to follow ColRegs; machinery failure; equipment failure; poor communication; severe weather;	Minor injury, minor damage to both vessels, no publicity	Major injuries, major damage to both vessels, adverse publicity	0	0	0	3	0	0	3.45	
5	12	1	Collision	Collision - Recreational with Commercial	Recreational vessel collides with a commercial vessel as a result of navigating around the trestles			Avoidance of other recreational vessel; inattention; failure to follow ColRegs; machinery failure; equipment failure; poor communication; severe weather;	Minor injury, minor damage to both vessels, no publicity	Major injuries, severe damage to smaller vessel, adverse publicity	3	0	0	4	0	0	3.16	

Rank	Hazard Ref.	Affected Areas	Accident Category	Hazard Title	Hazard Detail	Affected Vessel Types	Affected Stakeholders	Possible Causes	Consequence Descriptions		Risk By Consequence Category						Risk Overall	Remarks
											ML			WC				
									Most Likely (ML)	Worst Credible (WC)	People	Publicity /Stakeh/Vessel/C raft	People	Publicity /Stakeh/Vessel/C raft				
6	2	1	Contact	Small Yacht contacts trestle	Small Yacht makes contact with partially submerged / submerged trestle			Severe weather; inattention; poor local knowledge; no warning of trestle placement; no markation of trestles; change of trestle position; machinery failure; equipment failure; poor event management	Minor injury, minor damage to vessel, no adverse publicity	Severe injury, major damage to vessel, adverse publicity	0	0	0	3	0	0	1.2	
8	13	1	Grounding	Grounding - Recreational Craft	A recreational craft grounds in the marked area			Severe weather; inattention; poor local knowledge; no warning of trestle placement; no markation of trestles; change of trestle position; equipment failure;	Minor damage to vessel	Moderate damage to vessel	0	0	0	1	0	0	0.74	
9	14	1	Grounding	Grounding Commercial vessel	A commercial vessel grounds in the marked area			Severe weather; inattention; poor local knowledge; no warning of trestle placement; no markation of trestles; change of trestle position; equipment failure;	No damage to vessel	Minor damage to vessel	0	0	0	0	0	0	0	
10	4	1	Contact	Small commercial craft contacts trestle	Small commercial pilot / workboat makes contact with partially submerged / submerged trestle			Severe weather; inattention; poor local knowledge; no warning of trestle placement; no markation of trestles; change of trestle position; machinery failure; equipment failure;	Minor injury, minor damage to vessel, no adverse publicity	Severe injury, major damage to vessel, adverse publicity	0	0	0	0	0	0	0	

Annex B Ranked Hazard List with Risk Controls

Ranked Hazard List : 15UK1099 Canal and River Trust (25 May 2017)

Rank	Hazard Ref.	Affected Areas	Accident Category	Hazard Title	Hazard Detail	Affected Vessel Types	Affected Stakeholders	Possible Causes	Consequence Descriptions		Risk By Consequence Category						Risk Overall	Remarks
											ML			WC				
									Most Likely (ML)	Worst Credible (WC)	People	Publicity / Stakeholder	Vessel / Craft	People	Publicity / Stakeholder	Vessel / Craft		
1	3	1	Contact	Small powered craft contacts trestle	Small rib, leisure user, Jet ski, RNLI, makes contact with partially submerged / submerged trestle			Severe weather; inattention; poor local knowledge; no warning of trestle placement; no markation of trestles; change of trestle position; machinery failure; equipment failure; poor event management	Minor injury, minor damage to vessel, no adverse publicity	Severe injury, major damage to vessel, adverse publicity	2	0	0	3.2	0	0	3.51	
2	11	1	Collision	Collision Recreational with Recreational	Recreational vessel collides with another recreational vessel as a result of navigating around trestles			Avoidance of other recreational vessel; inattention; failure to follow ColRegs; machinery failure; equipment failure; poor communication; severe weather;	Minor injury, minor damage to both vessels, no publicity	Major injuries, major damage to both vessels, adverse publicity	0	0	0	3	0	0	3.31	
3	5	1	Contact	Small unpowered craft contacts trestle	SUP, Kayak, inflatable dinghy makes contact with partially submerged / submerged trestle			Severe weather; inattention; poor local knowledge; no warning of trestle placement; no markation of trestles; change of trestle position; machinery failure; equipment failure;	No injury, no damage to vessel, no adverse publicity	Minor injury, moderate damage to vessel	3	0	0	3.7	0	0	3.16	
4	1	1	Contact	Windsurfer / Dinghy contacts trestle	Windsurfer makes contact with partially submerged / submerged trestle			Severe weather; inattention; poor local knowledge; no warning of trestle placement; no markation of trestles; change of trestle position; equipment failure;	Minor injury, minor damage to board, no adverse publicity	Severe injury or fatality,	3	0	0	3.7	0	0	3.16	
5	12	1	Collision	Collision - Recreational with Commercial	Recreational vessel collides with a commercial vessel as a result of navigating around the trestles			Avoidance of other recreational vessel; inattention; failure to follow ColRegs; machinery failure; equipment failure; poor communication; severe weather;	Minor injury, minor damage to both vessels, no publicity	Major injuries, severe damage to smaller vessel, adverse publicity	3	0	0	4	0	0	3.11	

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Rank	Hazard Ref.	Affected Areas	Accident Category	Hazard Title	Hazard Detail	Affected Vessel Types	Affected Stakeholders	Possible Causes	Consequence Descriptions		Risk By Consequence Category						Risk Overall	Remarks
											ML			WC				
									Most Likely (ML)	Worst Credible (WC)	People	Publicity / Stakeholder	Vessel/Craft	People	Publicity / Stakeholder	Vessel/Craft		
6	2	1	Contact	Small Yacht contacts trestle	Small Yacht makes contact with partially submerged / submerged trestle			Severe weather; inattention; poor local knowledge; no warning of trestle placement; no markation of trestles; change of trestle position; machinery failure; equipment failure; poor event management	Minor injury, minor damage to vessel, no adverse publicity	Severe injury, major damage to vessel, adverse publicity	0	0	0	3	0	0	1.17	
7	13	1	Grounding	Grounding - Recreational Craft	A recreational craft grounds in the marked area			Severe weather; inattention; poor local knowledge; no warning of trestle placement; no markation of trestles; change of trestle position; equipment failure;	Minor damage to vessel	Moderate damage to vessel	0	0	0	1	0	0	0.72	
8	6		Contact	Windsurfer contacts marker	Windsurfer makes contact with buoy / marker			Severe weather; inattention; poor local knowledge; change of trestle position; equipment failure;	Minor injury, minor damage to board, no adverse publicity	Severe injury or fatality,	0	0	0	1	0	0	0.61	
9	8		Contact	Small Powered craft contacts marker	Small craft, leisure user, jet ski RNLI, makes contact with buoy / marker			Severe weather; inattention; poor local knowledge; change of trestle position; equipment failure; machinery failure	Minor damage to vessel	Severe injury, major damage to vessel, adverse publicity	0	0	0	1	0	0	0.61	
10	10		Contact	Small unpowered craft contacts marker	SUP, Kayak, inflatable dinghy makes contact with buoy / marker			Severe weather; inattention; poor local knowledge; change of trestle position; equipment failure; machinery failure	No damage to vessel	Minor injury, moderate damage to vessel	0	0	0	1	0	0	0.61	
11	9		Contact	Small commercial craft contacts marker	Small commercial craft makes contact with buoy / marker			Severe weather; inattention; poor local knowledge; change of trestle position; equipment failure; machinery failure	No damage to vessel	Severe injury, major damage to vessel, adverse publicity	0	0	0	0	0	0	0	
12	7		Contact	Small Yacht contacts marker	Small yacht makes contact with buoy / marker			Severe weather; inattention; poor local knowledge; change of trestle position; equipment failure; machinery failure	Minor damage to vessel	Severe injury, major damage to vessel, adverse publicity	0	0	0	0	0	0	0	
13	14	1	Grounding	Grounding Commercial vessel	A commercial vessel grounds in the marked area			Severe weather; inattention; poor local knowledge; no warning of trestle placement; no markation of trestles; change of trestle position; equipment failure;	No damage to vessel	Minor damage to vessel	0	0	0	0	0	0	0	

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Issue No: 01

NRA - Oyster trestle foreshore deployment

Rank	Hazard Ref.	Affected Areas	Accident Category	Hazard Title	Hazard Detail	Affected Vessel Types	Affected Stakeholders	Possible Causes	Consequence Descriptions		Risk By Consequence Category						Risk Overall	Remarks
											ML			WC				
									Most Likely (ML)	Worst Credible (WC)	People	Publicity /Stakeh	Vessel/C raft	People	Publicity /Stakeh	Vessel/C raft		
14	4	1	Contact	Small commercial craft contacts trestle	Small commercial pilot / workboat makes contact with partially submerged / submerged trestle			Severe weather; inattention; poor local knowledge; no warning of trestle placement; no markation of trestles; change of trestle position; machinery failure; equipment failure;	Minor injury, minor damage to vessel, no adverse publicity	Severe injury, major damage to vessel, adverse publicity	0	0	0	0	0	0	0	

Annex C Annex C – Stakeholder consultation minutes

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Issue No: 01

NRA - Oyster trestle foreshore deployment

Minutes- MMO Consultation– Whitstable Oyster Fishery NRA – 09 May 2017

Client: MCA
 Project: 17UK1322-NRA SE Kent – Whitstable Oyster Fishery Navigational Risk Assessment
 Venue: Marico House, Southampton by Telephone with MMO
 Date of Meeting: 09 May 2017 – 0930 – 1015

Present:	Marico Marine	Jamie Holmes (JJH)
	Marico Marine	Ryan Hall (RH)
	Marico Marine	Ray Blair (RB)
	MMO	Andrew Watson (AW)
	MMO	Alan Gibson (AG)

Item	Agenda item	Action
1	<p>Background information</p> <p>RH introduced the Marico team and outlined the project headlines to the MMO, mainly that this is an impartial risk assessment to assess the risks associated with trestles placed on the foreshore at Whitstable by Whitstable Oyster Fishing Company (WOFC)</p> <p>AW outlined the background to the WOFC exemption application and the history behind the case, mainly;</p> <ul style="list-style-type: none"> • WOFC trestles are known to have been in situ since 2009; • Since 2009 there has been a steady increase in the number of trestles; • In 2011, the Marine and Coastal Access Act and the Exempted Activities Order required those conducting shellfish cultivation activities to notify the MMO of their exemption from the Act; • In 2013, the Exempted Activities Order was amended to include the addition that; “the deposit does not cause or is likely to cause obstruction or risk to navigation”; and • WOFC had notified the MMO of exempted activities. <p>NOTE /ACTION: AW highlighted that the assessment of legislative activity was outside of the NRA scope but formed useful background information. AW to send MMO guidance and legislation to Marico.</p>	<p>Marico / AW</p> <p>(received 08 May17)</p>
2	Trestles and fishing activity	

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NRA - Oyster trestle foreshore deployment

	<p>RB asked if there was a definition of 'trestle' and its meaning in the context of the NRA.</p> <p>AW confirmed that there is no clear definition of a trestle. The CEFAS report for the WOFC area confirmed that there are up to 1500 trestles in situ at Whitstable.</p> <p>It is assumed that a trestle (for the purpose of the NRA) relates to one single placement of a metal structure used for the purpose of holding Oyster bags.</p> <p>AG and AW confirmed that this type of activity is normal for oyster cultivation and is as MMO would expect to see across the UK. A good example of a local oyster fishing ground is at Seasalter where no mitigation measures such as withys, buoys or signage are in place.</p>	
3	<p>Area of activity</p> <p>RH discussed the area and potential growth in the area marked by buoyage. It is not currently known whether the western limit of the area is marked to highlight current activity related to seeding of oysters, as opposed to future trestle location.</p> <p>ACTION: RH / RB to clearly identify the area as marked including seeding and trestle locations.</p> <p>AW confirmed that the MMO is not concerned with the number or location of trestles, however are only concerned with any risk associated to the placement of the trestles, as they are currently situated in close proximity to Whitstable Yacht Club, and that future development / expansion should not be assessed in the NRA.</p>	RH / RB
4	<p>Stakeholders and previous consultation</p> <p>AG attended a previous stakeholder meeting in Whitstable where the placement and associated risk of the trestles were discussed. Those in attendance at the meeting included;</p> <ul style="list-style-type: none"> • WOFC – Mr Green (owner); • WOFC – legal representation; • MCA; • MMO; • Trinity House; and • Whitstable Yacht Club. <p>At the meeting, mitigation measures were proposed by WOFC and a consensus of stakeholders showed that if the mitigation measures were adopted by WOFC then the activity would be an "acceptable risk". Mitigation measures discussed included:</p>	

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NRA - Oyster trestle foreshore deployment

	<ul style="list-style-type: none"> • Adequate marking through buoyage; • Appropriate signage on the foreshore; and • UKHO to be notified; <p>It is understood that WOFC have carried out all mitigation measures.</p> <p>ACTION: AG to send (where possible) minutes of all meetings held to Marico.</p> <p>AG highlighted that the meeting was well attended but politically tense. The main concern to the Whitstable Yacht Club was that of impact on economic and tourism activities, along with some navigational concerns. The yacht club are unwilling to accept any of proposed mitigation measures and want to see all trestles removed.</p> <p>RB commented on the spikes attached to each trestle and whether their removal was a mitigation measure previously addressed. AW confirmed that they have been discussed but is unaware of any progress made by WOFC to remove or improve them.</p> <p>ACTION: Marico to confirm status of spikes on trestles and whether WOFC have commenced removing them.</p> <p>RH asked about the ownership of the land. AW confirmed that WOFC own the foreshore area where trestles are located.</p>	<p>AG</p> <p>RH / RB</p>
7	<p>A.O.B</p> <p>JJH asked whether other exemptions or applications had accompanying risk assessments, so that they could be used as a potential bench mark for this project. AW confirmed that applications will not normally have the benefit of a full NRA. It is widespread practice for the local Harbour Authority, MCA or Trinity House to provide advice to applicants which is submitted in any license request.</p> <p>RH confirmed that Marico will set up another teleconference after further stakeholder consultation.</p> <p>ACTION: RH to confirm date and time of next teleconference.</p>	<p>RH</p>

Minutes- Trinity House Consultation– Whitstable Oyster Fishery NRA – 08 May 2017

Client: MCA
 Project: 17UK1322-NRA SE Kent – Whitstable Oyster Fishery Navigational Risk Assessment
 Venue: Marico House, Southampton by Telephone with Trinity House
 Date of Meeting: 08 May 2017 – 0930 – 1015

Present:

Marico Marine	Ryan Hall (RH)
Marico Marine	Ray Blair (RB)
Trinity House	Trevor Harris (TH)
Trinity House	Martin Thomas (MT)

Item	Agenda item	Action
1	Background information RH introduced the Marico team and outlined the project headlines to Trinity House (TH), mainly that this is an impartial risk assessment to assess the risk associated with trestles placed on the foreshore at Whitstable by Whitstable Oyster Fishing Company (WOFC) TH gave a brief history to WOFC's consultation with TH and the agreed buoyage requirements mainly; <ul style="list-style-type: none"> • WOFC consulted with TH in Oct 2016 on advice from the MMO; • As this is an exemption notification TH are only considered advisory consultees and have no statutory powers; and, • TH initial advice was for the trestles to be marked with unlit special marks (yellow buoy with a yellow X top mark). 	
2	Trestles and fishing activity TH confirmed that the original request to TH was for the provision of 6 buoys marking the area around trestle activity. Subsequently WOFC have expanded the area and 14 special marks are now in location at Whitstable.	

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	<p>WOFC contacted TH to update the position of the buoys and TH confirmed that they advised WOFC to inform the UKHO of the new locations.</p> <p>Is it not known why the expansion in area size was required.</p> <p>TH confirmed advice given to WOFC:</p> <ul style="list-style-type: none"> • Special marks should be used to mark the hazard only; • Special marks should not be used to highlight an exclusion zone; and • Special marks do not have to be lit. <p>It is to be noted that TH consider the fishing activity to be typical of an oyster fishery and that other oyster grounds do not have markings or mitigation measures in place.</p>	
3	<p>Stakeholders and previous consultation</p> <p>TH were represented at a stakeholder engagement meeting with the MCA and WOFC. During the meeting mitigation measures were discussed, mainly;</p> <ul style="list-style-type: none"> • Adequate marking through buoyage; • Appropriate signage on the foreshore; and • UKHO to be notified; <p>WOFC confirmed that progress would be made on the above mitigation measures. TH considered the WOFC owner to be fair and responsive to the advice given.</p>	
4	<p>A.O.B</p> <p>Given that this is an exemptions issue and not a statutory application, TH is not a statutory consultee and has had only an advisory role in the application. TH confirmed that to have any statutory influence this activity would have to be subject to a marine licence.</p> <p>RH confirmed that a subsequent teleconference would be organized if further questions arose during stakeholder consultations.</p>	

Minutes- Canterbury City Council Consultation– Whitstable Oyster Fishery

NRA – 17 May 2017

Client: MCA
 Project: 17UK1322-NRA SE Kent – Whitstable Oyster Fishery Navigational Risk Assessment
 Venue: Canterbury City Council Foreshore office
 Date of Meeting: 17 May 2017 – 1500 – 1630

Present	Marico Marine	Ryan Hall (RH)
	Marico Marine	Ray Blair (RB)
	Canterbury City Council	Matthew Young (MY)

Item	Agenda item	Action
1	<p>Background information</p> <p>RH introduced the Marico team and outlined the project headlines to the foreshore manager (MY), mainly that this is an impartial risk assessment to assess the risks associated with trestles placed on the foreshore at Whitstable by Whitstable Oyster Fishing Company (WOFC)</p> <p>MY outlined the history to the trestle placement:</p> <ul style="list-style-type: none"> • 2009 Some (number unknown) trestles placed on the foreshore • April 2016 Significant increase in number of trestles deployed • December 2016 Buoyage and withies installed on the site <p>MY outlined the type of vessel activity experienced in the area:</p> <ul style="list-style-type: none"> • Public slip way used by visiting jet skis, kayaks, dinghy's • Yacht club slip way used by dinghy's and safety boats (ribs) • RNLI slip used by lifeboat (Rib) • Horsebridge used by WOFC boats 	
2	<p>Area of Activity</p> <p>MY confirmed that the foreshore (between Street and Sea Salter out to approximately 2NM) is owned by Mr Green WOFC from a Royal Charter dating back to the 1600's.</p> <p>RH asked about local council byelaws and any other markings in the area. MY confirmed that CCC have placed yellow buoys 300 m from the high-</p>	

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	water mark, these buoys indicate an 8-knot speed area. MY confirmed that the CCC jurisdiction runs to the line of yellow buoys.	
3	<p>Hazards and risk controls</p> <p>CCC have suggested the following Risk Controls to WOFC:</p> <ul style="list-style-type: none"> • Mark the area of hazard with buoyage • Place signage on the foreshore • Remove spikes from trestles • Inform local users by NTM of the trestle placement <p>It was noted that most of these RC's had been adopted with the exception of the removal of the spikes.</p>	
4	<p>Improving or further risk controls</p> <p>A discussion was held about the placement of the marker buoys, RH suggested that the two buoys closest to the Yacht Club could be relocated to allow for more space and to identify the line of trestles. MY agreed that this would be beneficial.</p> <p>RB suggested that the withies placed on the trestles could be better placed and sit above HW, as they are currently submerged at HW. MY confirmed that this would-be a worthwhile exercise.</p>	
7	A.O.B	

Minutes- Whitstable Oyster Fishery Company Consultation– Whitstable Oyster Fishery NRA – 17 May 2017

Client: MCA
 Project: 17UK1322-NRA SE Kent – Whitstable Oyster Fishery Navigational Risk Assessment
 Venue: WOFC – Lobster Shack
 Date of Meeting: 18 May 2017 – 0830 – 1000

Present	Marico Marine	Ryan Hall (RH)
	Marico Marine	Ray Blair (RB)
	WOFC	James Green (JG)
	Furley Page (legal counsel)	George Crofton-Martin (GC)

Item	Agenda item	Action
1	<p>Background information</p> <p>RH introduced the Marico team and outlined the project headlines, mainly that this is an impartial risk assessment to assess the risks associated with trestles placed on the foreshore at Whitstable by Whitstable Oyster Fishing Company (WOFC).</p> <p>JG outlined the history to trestle placement on the foreshore and confirmed that the trestles originated in 2009. Further expansion was made to the site in 2016 and buoyage was added in December 2016 after advice was sought from Trinity House. Although not a key part to the WOFC business the trestles place an importance on shell fish farming and cultivation supported by the UK Shellfish Association.</p> <p>GC confirmed that risk controls had been implemented after consultation with the MMO and Trinity House and further consultation with WYC.</p>	
2	<p>Whitstable foreshore use</p> <p>JG confirmed that he is the owner by Royal Charter of the foreshore at Whitstable and confirmed the following vessel activity:</p> <ul style="list-style-type: none"> • Dinghy's from WYC • Visiting vessels, jet Skis, dinghy's and Kayaks • RNLI use of the emergency slipway <p>GC stated that the company WOFC have not received a liability claim, compliant or incident record from any water space user.</p>	

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3	<p>Area buoyage and withies</p> <p>RH asked if the chart provided by CCC was correct. JG stated that the Western limits of the buoyage had been moved East to the trestles and that the trestles lay in a NE direction.</p> <p>Withies have been on site since December 2016 and are used to mark the line of trestles. A clear navigational path is shown by the withies as utilised by the WOFC vessels. JC confirmed that they are not visible at HW.</p>	
4	<p>Risk controls</p> <p>JC confirmed that mitigation measures had been in place since December 2016. He suggested that further improvement could be made to the RCs, mainly:</p> <ul style="list-style-type: none"> • Relocate the buoyage closest to the YC to allow more sea room • Remove the spikes from the trestles, although this may take a year • Add a HW Withy to each trestle clearly marking each corner of trestle block • Write to all water space users as notification (NtM) • Offer training to the RNLI to facilitate safe navigation through the trestles. 	
7	A.O.B	

Minutes- Whitstable Yacht Club Consultation– Whitstable Oyster Fishery NRA – 17 May 2017

Client: MCA
 Project: 17UK1322-NRA SE Kent – Whitstable Oyster Fishery Navigational Risk Assessment
 Venue: Whitstable Yacht Club
 Date of Meeting: 17 May 2017 – 1630 – 1800

Present	Marico Marine	Ryan Hall (RH)
	Marico Marine	Ray Blair (RB)
	Whitstable Yacht Club	Robert Govier (RG)
	Whitstable Yacht Club	Richard Maltby (RM)

Item	Agenda item	Action
1	<p>Background information</p> <p>RH introduced the Marico team and outlined the project headlines, mainly that this is an impartial risk assessment to assess the risks associated with trestles placed on the foreshore at Whitstable by Whitstable Oyster Fishing Company (WOFC)</p> <p>RG introduced himself as the Club's Rear Commodore and RM as the Club's principle training officer.</p> <p>RG confirmed the history to the trestle placement:</p> <ul style="list-style-type: none"> • 2009 Some (number unknown) trestles placed on the foreshore • April 2016 Significant increase in number of trestles deployed • December 2016 Buoyage and withies installed on the site 	
2	<p>Whitstable Yacht Club (WYC) activity.</p> <p>WYC has approximately 600 members and approximately 200 small sailing dinghy's assigned to the club and located on the foreshore at Whitstable.</p> <p>Training programmes take place for children, novices and refreshers and a single training session may facilitate up to 20 children. These training sessions will facilitate approximately 15 dinghy's and 3 safety boats.</p>	

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	<p>Racing activity takes place from March to December at weekends and every other Wednesday. In the winter, approximately 20 boats will race per session and this increases to 60 boats in the summer.</p> <p>Sailing vessels can launch at all states of tide, safety boats can launch up to 90 minutes before LW.</p> <p>WYC has no visitor berth or mooring facility, however inter-club events are held at regular intervals. Vessels visiting will have to anchor and use tenders to get ashore.</p>	
3	<p>Incidents and WYC vessel management</p> <p>RB asked the YC to confirm a list of incidents relating to the trestles. There were initial incidents in summer 2016 when the trestle expansion took place, however since the deployment of special marks and withies there have been no further record of incident.</p> <p>Of the incidents recorded there were no severe injuries or damage to vessel and most occurred to windsurfers crossing the unmarked area.</p> <p>RB asked WYC if the current situation is manageable, RG confirmed that although the water space for sailing activity has reduced the activity is still manageable and the club has implemented an exclusion zone (marked by the special marks) in its sailing directions. This means that a racing competitor will be disqualified if navigating within the trestle area.</p> <p>RM raised an incident where a school child capsized in proximity to the exclusion zone. The safety boat could recover the child from the water but could not secure the vessel leading to it drifting over the trestles. There was no reported damage to the vessel. When asked how frequent this happens RM could not provide previous examples.</p>	
4	<p>Risk controls</p> <p>A discussion about risk controls and possible new risk controls was held. WYC main concern is that they have lost sailing space, previously they were able to sail to the Neptune Public House, now they have a more condensed area and can sail between the Harbour limits and the buoyage marking the trestles.</p> <p>RG suggested that if the two closest buoys to the YC were relocated closer to the trestles this would open space and decongest the area.</p> <p>Other risk controls included:</p>	

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	<ul style="list-style-type: none">• Locate the buoys closer together to provide an obvious barrier to those on the water line• Remove the spikes from the trestles to reduce the consequence of injury• Increase the height of the withies so that they can be observed at HW• Relocate western edge of buoyage closer to the trestles to increase paddling / sailing area <p>WYC have taken additional RC measures to ensure the safety of their club members including the change to sailing directions, risk assessments for events and safety boat provision to all activity.</p>	
7	A.O.B	

Minutes- RNLI Consultation– Whitstable Oyster Fishery NRA – 17 May 2017

Client: MCA
 Project: 17UK1322-NRA SE Kent – Whitstable Oyster Fishery Navigational Risk Assessment
 Venue: RNLI Whitstable
 Date of Meeting: 18 May 2017 – 1100 – 1230

Present	Marico Marine	Ryan Hall (RH)
	Marico Marine	Ray Blair (RB)
	RNLI	Mike Judge (MJ)

Item	Agenda item	Action
1	<p>Background information</p> <p>RH introduced the Marico team and outlined the project headlines, mainly that this is an impartial risk assessment to assess the risks associated with trestles placed on the foreshore at Whitstable by Whitstable Oyster Fishing Company (WOFC).</p> <p>MJ gave background information to the village green application and confirmed the use of the slipways by various water space users.</p> <ul style="list-style-type: none"> Public slip way used by Jet Skis and visitors RNLI slipway used by the lifeboat WYC slip used by dinghy's <p>MJ described the lifeboat operation and confirmed that the lifeboat draws 0.75m.</p>	
2	<p>Trestles as a hazard</p> <p>MJ confirmed that the trestles can be navigated over at HW. The lifeboat will navigate over the trestles on an ebb tide up to the point the tide reaches approximately 2.5m. JG confirmed that the withies mark the trestles but are covered at HW.</p> <p>There is no record of the lifeboat having to conduct a rescue in the trestle area.</p>	
4	<p>Risk controls</p> <p>MJ confirmed that removing the spikes is the most effective risk control for the hazard.</p>	

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	<p>The marking of the area is adequate however buoys could be better aligned to provide a tighter barrier to vessels in the area.</p> <p>Training would be beneficial to the lifeboat crew in navigating around the trestle site.</p>	
7	A.O.B	

Minutes- RYA Consultation– Whitstable Oyster Fishery NRA – 10 May 2017

Client: MCA
 Project: 17UK1322-NRA SE Kent – Whitstable Oyster Fishery Navigational Risk Assessment
 Venue: Marico House, Southampton
 Date of Meeting: 10 May 2017 – 1400 – 1500

Present	Marico Marine	Ryan Hall (RH)
	Marico Marine	Ray Blair (RB)
	RYA	Stuart Carruthers (SC)

Item	Agenda item	Action
1	<p>Background information</p> <p>RH introduced the Marico team and outlined the project headlines, mainly that this is an impartial risk assessment to assess the risks associated with trestles placed on the foreshore at Whitstable by Whitstable Oyster Fishing Company (WOFC).</p> <p>SC described the RYA's involvement in the project. The RYA was engaged by Whitstable YC who oppose the trestle placement at Whitstable.</p> <p>The RYA consulted with Whitstable YC at meetings held in March 2017 and have since written to the MMO and MCA opposing the trestle location as sailing areas are reduced.</p> <p>SC confirmed that the letter written to the MMO and MCA by Whitstable YC was put together by the RYA, who regularly assist its members in representation.</p> <p>SC outlined the other water users in the area, mainly Whitstable YC and water sports centre, Whitstable sailing club and Sea Scouts, although these are located away from the trestle location on the Eastern side of Whitstable harbour.</p>	
2	<p>Trestles as a hazard</p> <p>SC confirmed that the RYA believe the trestles to be a hazard and prevent sailing and water sport activities in the area.</p> <p>SC was not aware of any incidents in the area, and no incidents have been reported to the RYA.</p>	
4	Risk controls	

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	SC confirmed that removing the spikes is the most effective risk control for the hazard. However, it is the RYA's view that the trestles should be removed in their entirety from Whitstable.	
7	A.O.B	

