



gwerth mewn gwahaniaeth
delivering on distinction

Morlais Project Environmental Statement

Chapter 15: Shipping and Navigation Addendum

Volume II

Applicant: Menter Môn Morlais Limited

Document Reference: PB5034-ES-015

Chapter 15: Shipping and Navigation

Author: MarineSpace

MarineSpace
Making Sense of the Marine Environment™



Morlais Document No.:
MOR/RHDHV/DRW/0089(2)

File No.: MMC303

Status:
Final

Version No:
F4.0

Date:
Sept 2020

© 2020 Menter Môn

This document is issued and controlled by:

Morlais, Menter Môn. Registered Address: Llangefni Town Hall, Anglesey, Wales, LL77 7LR, UK

Unauthorised copies of this document are NOT to be made

Company registration No: 03160233 Requests for additional copies shall be made to Morlais Project

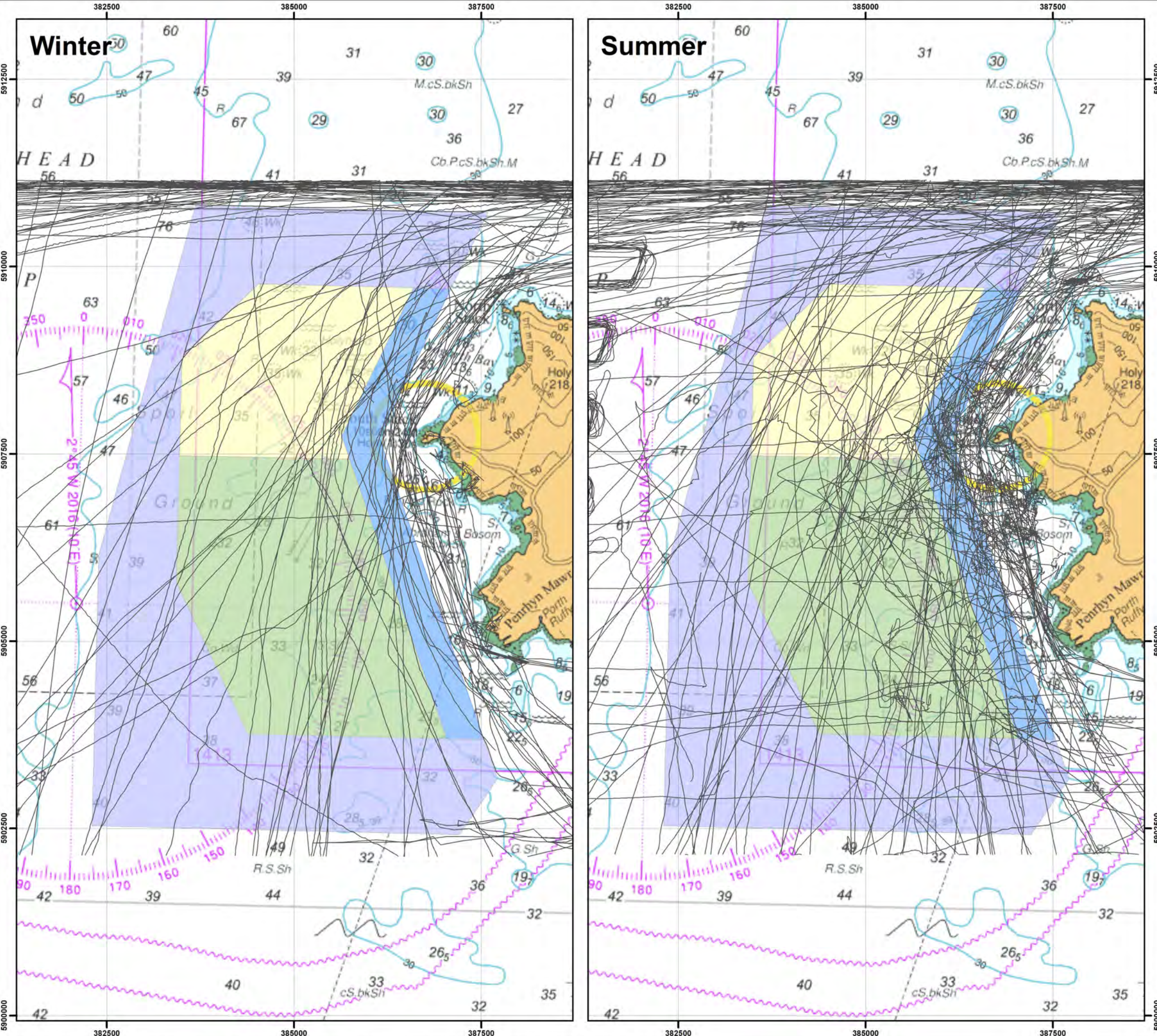


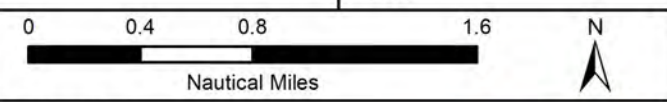
Figure 15-1
Morlais Demonstration Zone NRA Addendum
All Vessel Transits
26th August - 09th September 2017
05th April - 19th April 2019



- Legend**
- Vessel Track
 - Demonstration Zone Areas**
 - Restricted Area (Purple) - Submerged tidal devices with a minimum 20m Under Keel Clearance (UKC) only
 - Restricted Area (Gold) - No visually prominent emergent tidal devices
 - Unrestricted Area (Green) - Floating surface emergent and submerged devices
 - Restricted Area (Blue) - Submerged tidal devices with a minimum 8m UKC only

Project No. 20UK1647	Date 03/08/2020	Issue Number 001
Author Richard Marlow	Checked By Rebecca Worbey	Scale at A3 1:50,000

Data Source(s) Summer AIS and RADAR: 26th August - 09th September 2017; Winter AIS and RADAR: 05th April - 19th April 2019; Charts: MarineFIND; MDZ Layout: Menter Môn.	Coordinate System WGS 1984 UTM Zone 30N Projection: Transverse Mercator Datum: WGS 1984 Units: Metres
--	---



Produced By: Marico Marine Group United Kingdom Tel: +44 023 8081 1133	Marico Marine NZ New Zealand Tel: +64 04917 4959	MARICO MARINE www.marico.co.uk
--	--	--



Winter

D

Summer

D

Figure 15-2

Morlais Demonstration Zone NRA Addendum

Vessel Transit Density (All Vessel Types)

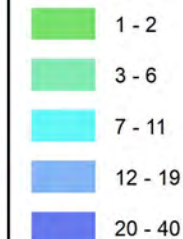
26th August - 09th September 2017

05th April - 19th April 2019



Legend

Transits per Month per 100m²



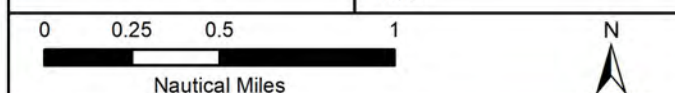
Demonstration Zone Areas

- Restricted Area (Purple) - Submerged tidal devices with a minimum 20m Under Keel Clearance (UKC) only
- Restricted Area (Gold) - No visually prominent emergent tidal devices
- Unrestricted Area (Green) - Floating surface emergent and submerged devices
- Restricted Area (Blue) - Submerged tidal devices with a minimum 8m UKC only

Project No. 20UK1647	Date 14/09/2020	Issue Number 001
--------------------------------	---------------------------	----------------------------

Author Richard Marlow	Checked By Rebecca Worbey	Scale at A3 1:40,000
---------------------------------	-------------------------------------	--------------------------------

Data Source(s) Summer AIS and RADAR: 26th August - 09th September 2017; Winter AIS and RADAR: 05th April - 19th April 2019; Charts: MarineFIND; MDZ Layout: Menter Môn.	Coordinate System WGS 1984 UTM Zone 30N Projection: Transverse Mercator Datum: WGS 1984 Units: Metres
--	---



Produced By: Marico Marine Group United Kingdom Tel: +44 023 8081 1133	Marico Marine NZ New Zealand Tel: +64 04917 4959	 www.marico.co.uk
--	--	----------------------



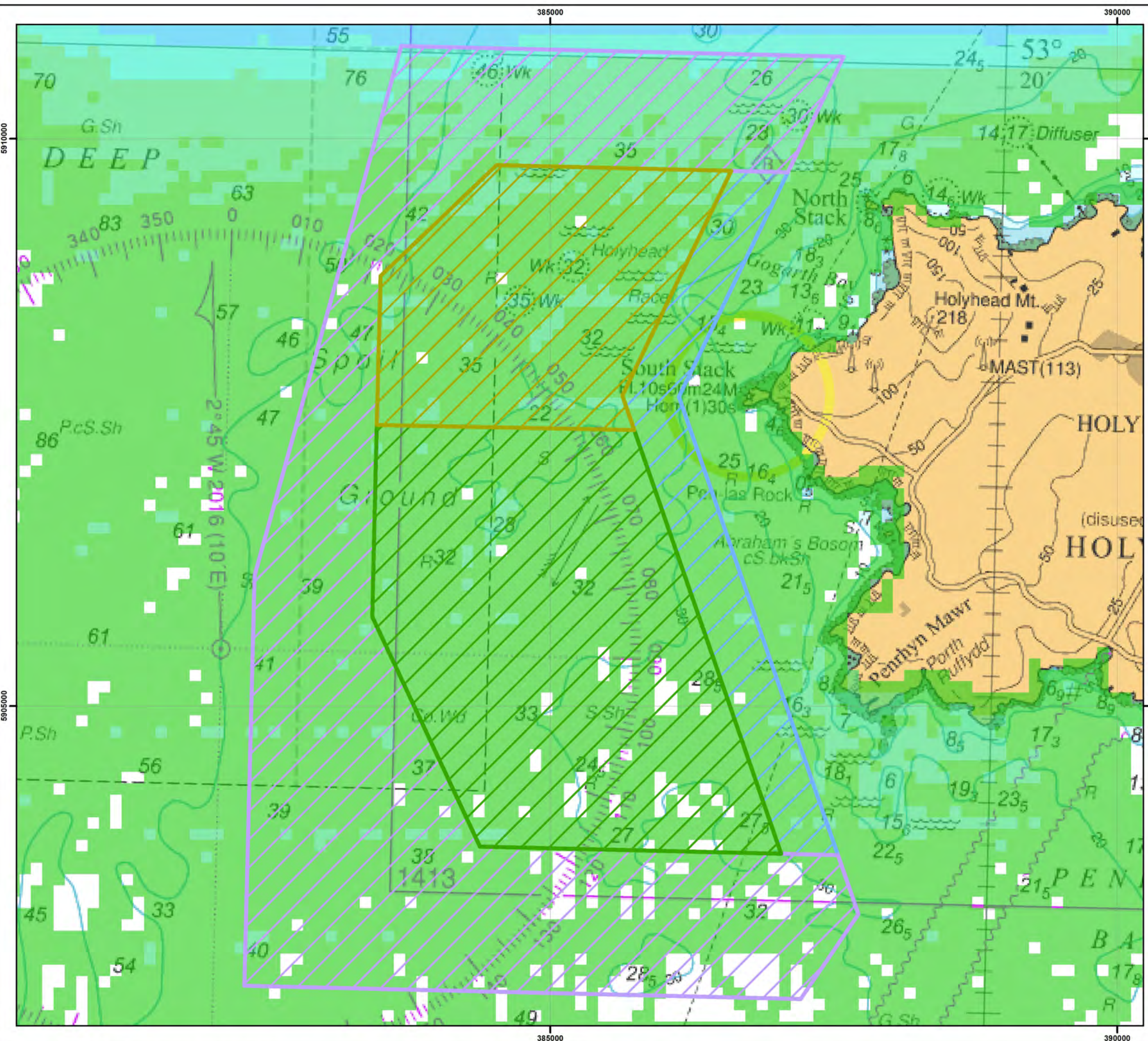


Figure 15-3
Morlais Demonstration Zone NRA Addendum
Vessel Transit Density (Winter - All Vessel Types)
01st October 2017 - 31st March 2018



Legend

Transits per Month per 100m²

- < 2
- 3 - 4
- 5 - 12
- 13 - 32
- 33 - 38
- 39 - 48

Demonstration Zone Areas

- Restricted Area (Purple) - Submerged tidal devices with a minimum 20m Under Keel Clearance (UKC) only
- Restricted Area (Gold) - No visually prominent emergent tidal devices
- Unrestricted Area (Green) - Floating surface emergent and submerged devices
- Restricted Area (Blue) - Submerged tidal devices with a minimum 8m UKC only

Project No. 20UK1647	Date 14/09/2020	Issue Number 001
Author Richard Marlow	Checked By Rebecca Worbey	Scale at A3 1:33,000
Data Source(s) Winter AIS: 01st October 2017 - 31st March 2018; Charts: MarineFIND; MDZ Layout: Menter Môn.		Coordinate System WGS 1984 UTM Zone 30N Projection: Transverse Mercator Datum: WGS 1984 Units: Metres
Produced By: Marico Marine Group United Kingdom Tel: +44 023 8081 1133		
Marico Marine NZ New Zealand Tel: +64 04917 4959		MARICO MARINE www.marico.co.uk



Winter

Summer

Figure 15-4
Morlais Demonstration Zone NRA Addendum
Commercial Vessel Transits
26th August - 09th September 2017
05th April - 19th April 2019



Legend

— Vessel Track

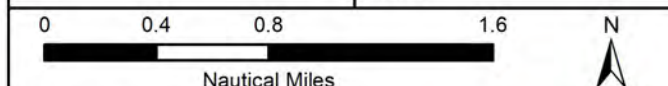
Demonstration Zone Areas

- Restricted Area (Purple) - Submerged tidal devices with a minimum 20m Under Keel Clearance (UKC) only
- Restricted Area (Gold) - No visually prominent emergent tidal devices
- Unrestricted Area (Green) - Floating surface emergent and submerged devices
- Restricted Area (Blue) - Submerged tidal devices with a minimum 8m UKC only

Project No. 20UK1647	Date 03/08/2020	Issue Number 001
--------------------------------	---------------------------	----------------------------

Author Richard Marlow	Checked By Rebecca Worbey	Scale at A3 1:50,000
---------------------------------	-------------------------------------	--------------------------------

Data Source(s) Summer AIS and RADAR: 26th August - 09th September 2017; Winter AIS and RADAR: 05th April - 19th April 2019; Charts: MarineFIND; MDZ Layout: Menter Môn.	Coordinate System WGS 1984 UTM Zone 30N Projection: Transverse Mercator Datum: WGS 1984 Units: Metres
--	---



Produced By: Marico Marine Group United Kingdom Tel: +44 023 8081 1133	Marico Marine NZ New Zealand Tel: +64 04917 4959	MARICO MARINE www.marico.co.uk
--	--	--



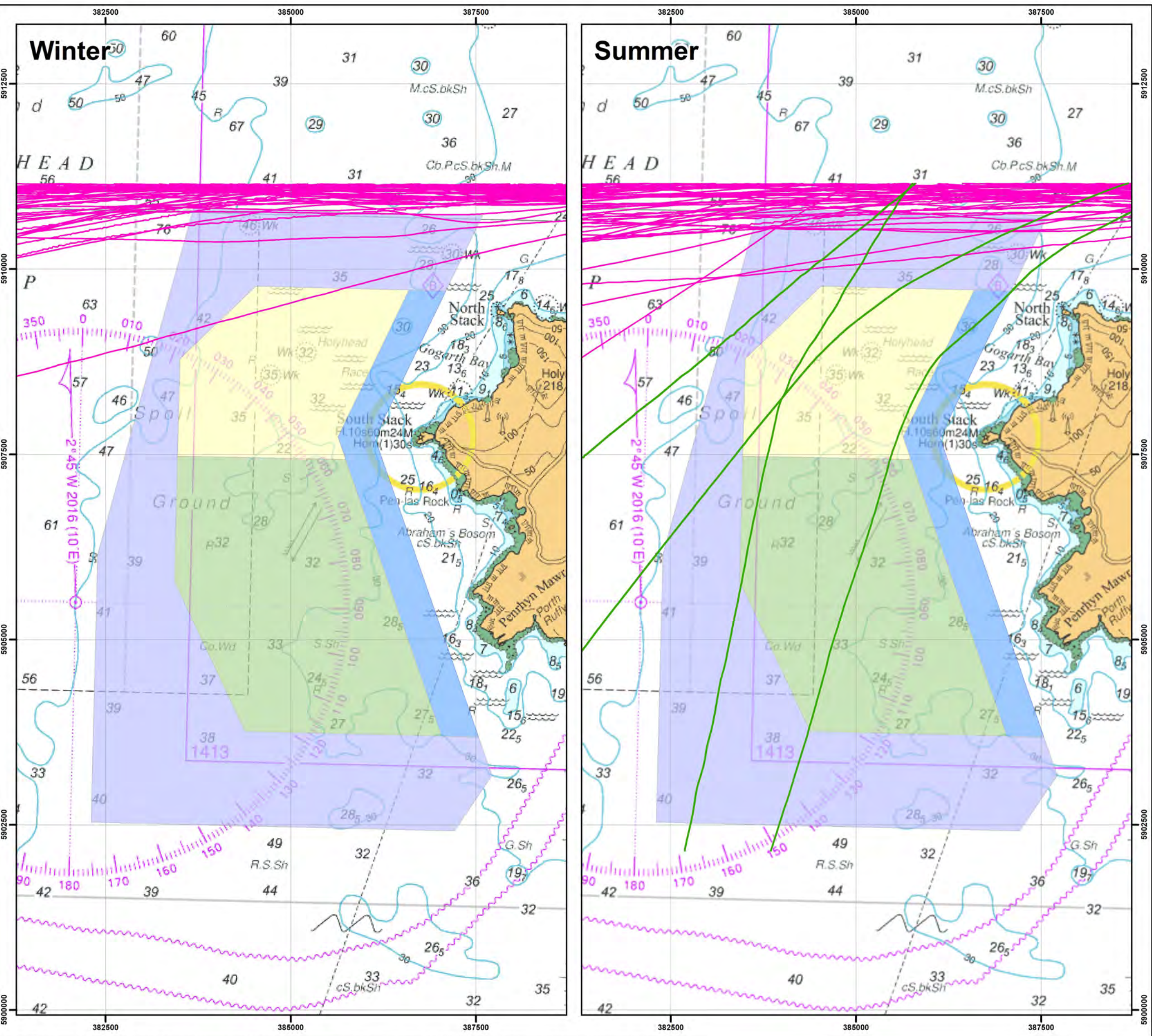
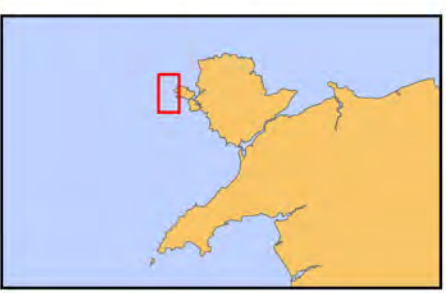


Figure 15-5
Morlais Demonstration Zone NRA Addendum
Passenger Vessel Transits
26th August - 09th September 2017
05th April - 19th April 2019



Legend

Vessel Tracks

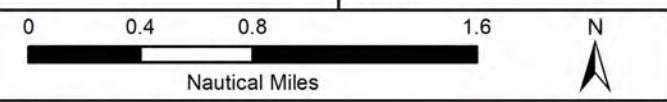
- Ferry
- Cruise Ship

Demonstration Zone Areas

- Restricted Area (Purple) - Submerged tidal devices with a minimum 20m Under Keel Clearance (UKC) only
- Restricted Area (Gold) - No visually prominent emergent tidal devices
- Unrestricted Area (Green) - Floating surface emergent and submerged devices
- Restricted Area (Blue) - Submerged tidal devices with a minimum 8m UKC only

Project No. 20UK1647	Date 03/08/2020	Issue Number 001
Author Richard Marlow	Checked By Rebecca Worbey	Scale at A3 1:50,000

Data Source(s) Summer AIS and RADAR: 26th August - 09th September 2017; Winter AIS and RADAR: 05th April - 19th April 2019; Charts: MarineFIND; MDZ Layout: Menter Môn.	Coordinate System WGS 1984 UTM Zone 30N Projection: Transverse Mercator Datum: WGS 1984 Units: Metres
--	---



Produced By:

Marico Marine Group
United Kingdom
Tel: +44 023 8081 1133

Marico Marine NZ
New Zealand
Tel: +64 04917 4959

www.marico.co.uk

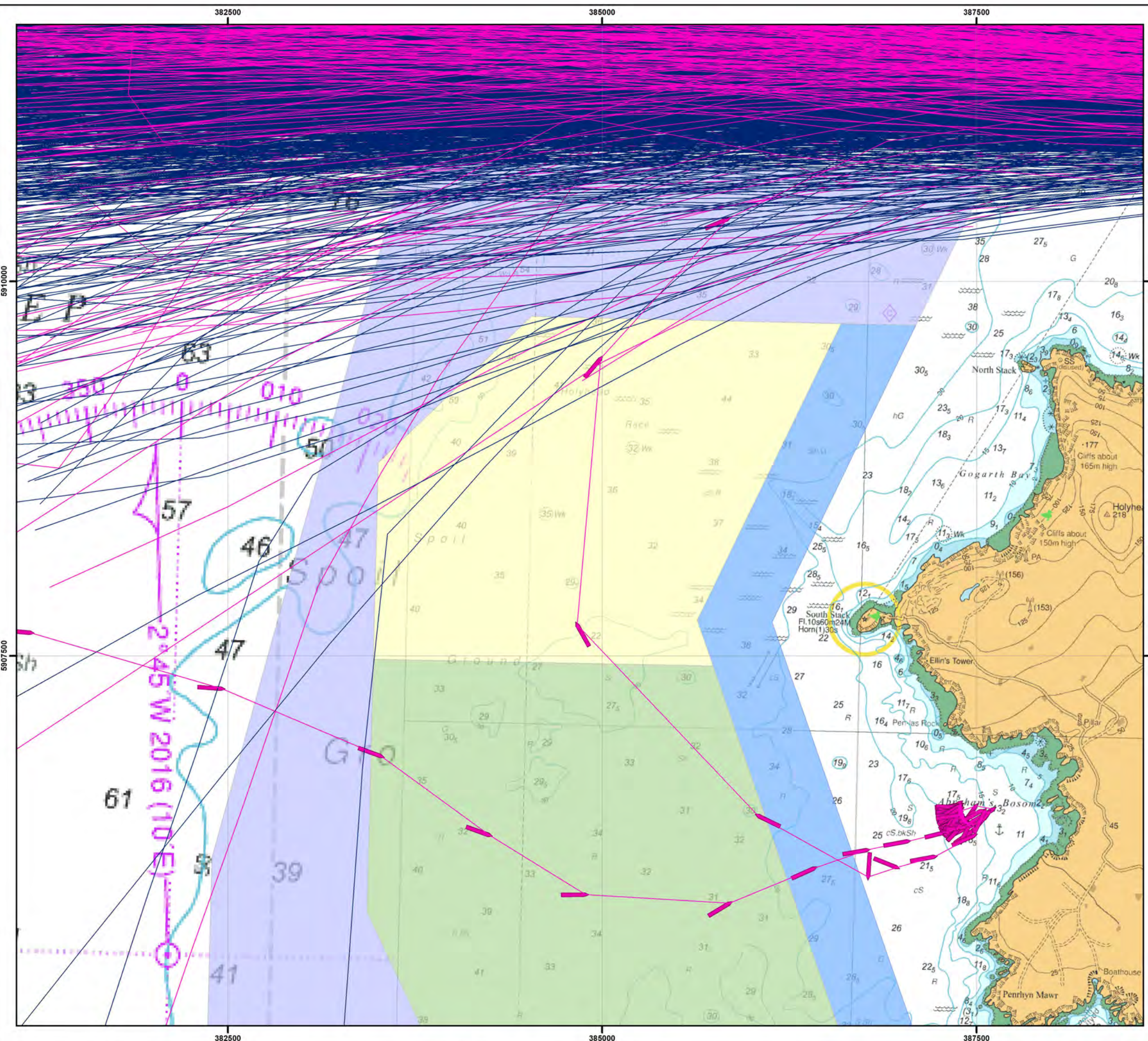


Figure 15-6
Morlais Demonstration Zone NRA Addendum
Ferry Transits
01st October 2017 - 31st March 2018



Legend

Vessel Tracks

- Tracks - Irish Ferries
- Tracks - Stena Line
- Epsilon Swept Path

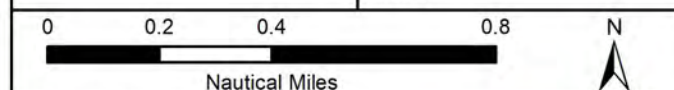
Demonstration Zone Areas

- Restricted Area (Purple) - Submerged tidal devices with a minimum 20m Under Keel Clearance (UKC) only
- Restricted Area (Gold) - No visually prominent emergent tidal devices
- Unrestricted Area (Green) - Floating surface emergent and submerged devices
- Restricted Area (Blue) - Submerged tidal devices with a minimum 8m UKC only

Project No. 20UK1647	Date 03/08/2020	Issue Number 001
--------------------------------	---------------------------	----------------------------

Author Richard Marlow	Checked By Rebecca Worbey	Scale at A3 1:25,000
---------------------------------	-------------------------------------	--------------------------------

Data Source(s) Winter AIS: 01st October 2017 - 31st March 2018; Charts: MarineFIND; MDZ Layout: Menter Môn.	Coordinate System WGS 1984 UTM Zone 30N Projection: Transverse Mercator Datum: WGS 1984 Units: Metres
--	---



Produced By: Marico Marine Group United Kingdom Tel: +44 023 8081 1133	Marico Marine NZ New Zealand Tel: +64 04917 4959	MARICO MARINE www.marico.co.uk
--	--	--



Winter

Summer

Figure 15-7
Morlais Demonstration Zone NRA Addendum
Military Vessel Transits
26th August - 09th September 2017
05th April - 19th April 2019



Legend

— Vessel Track

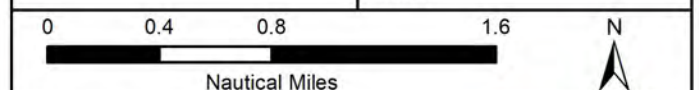
Demonstration Zone Areas

- Restricted Area (Purple) - Submerged tidal devices with a minimum 20m Under Keel Clearance (UKC) only
- Restricted Area (Gold) - No visually prominent emergent tidal devices
- Unrestricted Area (Green) - Floating surface emergent and submerged devices
- Restricted Area (Blue) - Submerged tidal devices with a minimum 8m UKC only

Project No. 20UK1647	Date 03/08/2020	Issue Number 001
--------------------------------	---------------------------	----------------------------

Author Richard Marlow	Checked By Rebecca Worbey	Scale at A3 1:50,000
---------------------------------	-------------------------------------	--------------------------------

Data Source(s) Summer AIS and RADAR: 26th August - 09th September 2017; Winter AIS and RADAR: 05th April - 19th April 2019; Charts: MarineFIND; MDZ Layout: Menter Môn.	Coordinate System WGS 1984 UTM Zone 30N Projection: Transverse Mercator Datum: WGS 1984 Units: Metres
--	---



Produced By: Marico Marine Group United Kingdom Tel: +44 023 8081 1133	Marico Marine NZ New Zealand Tel: +64 04917 4959	MARICO MARINE www.marico.co.uk
--	--	--



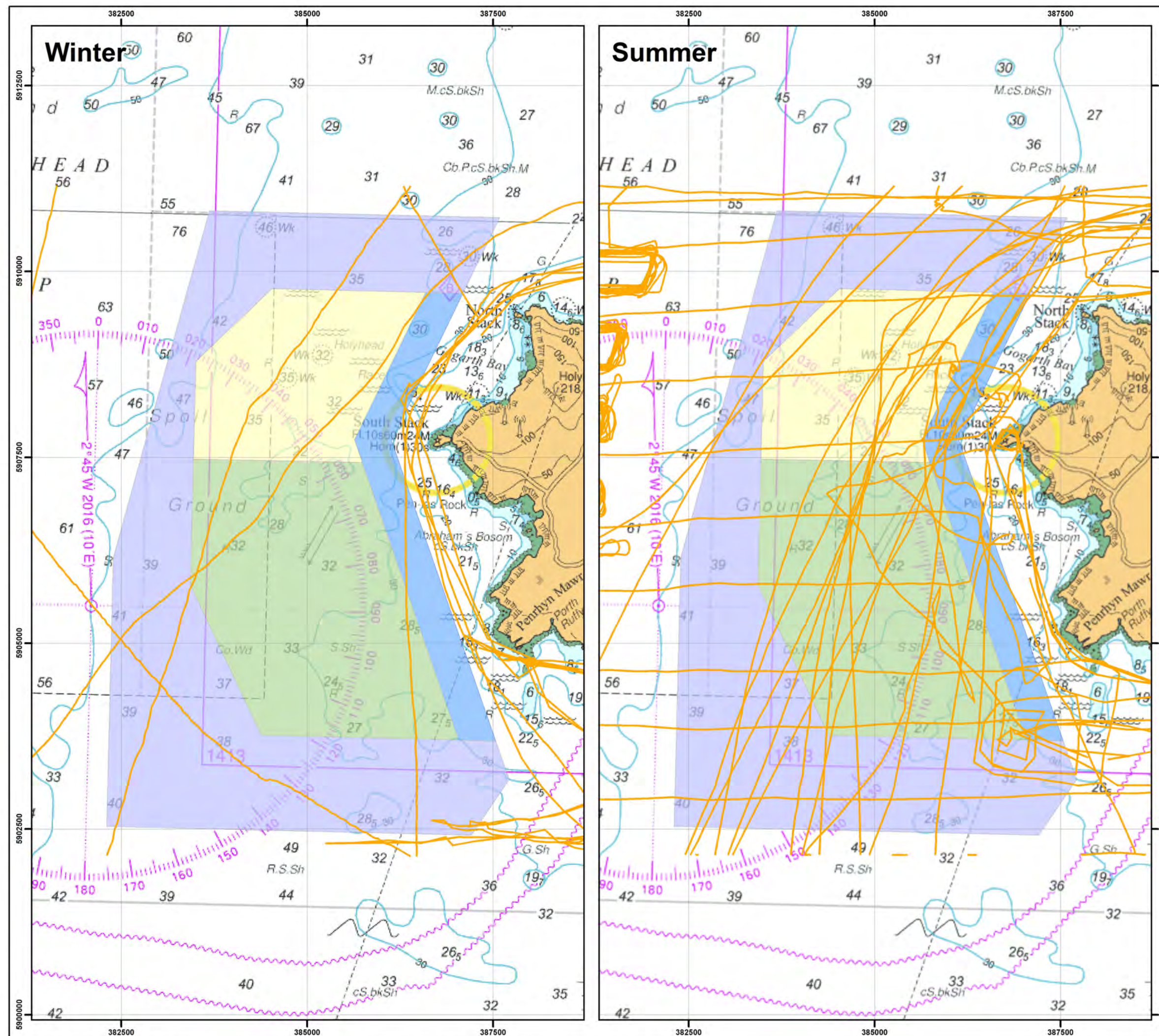


Figure 15-8
Morlais Demonstration Zone NRA Addendum
Other Vessel Transits
26th August - 09th September 2017
05th April - 19th April 2019



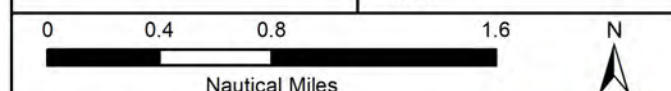
Legend

- Vessel Track
- Demonstration Zone Areas**
 - Restricted Area (Purple) - Submerged tidal devices with a minimum 20m Under Keel Clearance (UKC) only
 - Restricted Area (Gold) - No visually prominent emergent tidal devices
 - Unrestricted Area (Green) - Floating surface emergent and submerged devices
 - Restricted Area (Blue) - Submerged tidal devices with a minimum 8m UKC only

Project No. 20UK1647	Date 03/08/2020	Issue Number 001
--------------------------------	---------------------------	----------------------------

Author Richard Marlow	Checked By Rebecca Worbey	Scale at A3 1:50,000
---------------------------------	-------------------------------------	--------------------------------

Data Source(s) Summer AIS and RADAR: 26th August - 09th September 2017; Winter AIS and RADAR: 05th April - 19th April 2019; Charts: MarineFIND; MDZ Layout: Menter Môn.	Coordinate System WGS 1984 UTM Zone 30N Projection: Transverse Mercator Datum: WGS 1984 Units: Metres
--	---



Produced By: Marico Marine Group United Kingdom Tel: +44 023 8081 1133	Marico Marine NZ New Zealand Tel: +64 04917 4959	MARICO MARINE www.marico.co.uk
--	--	--



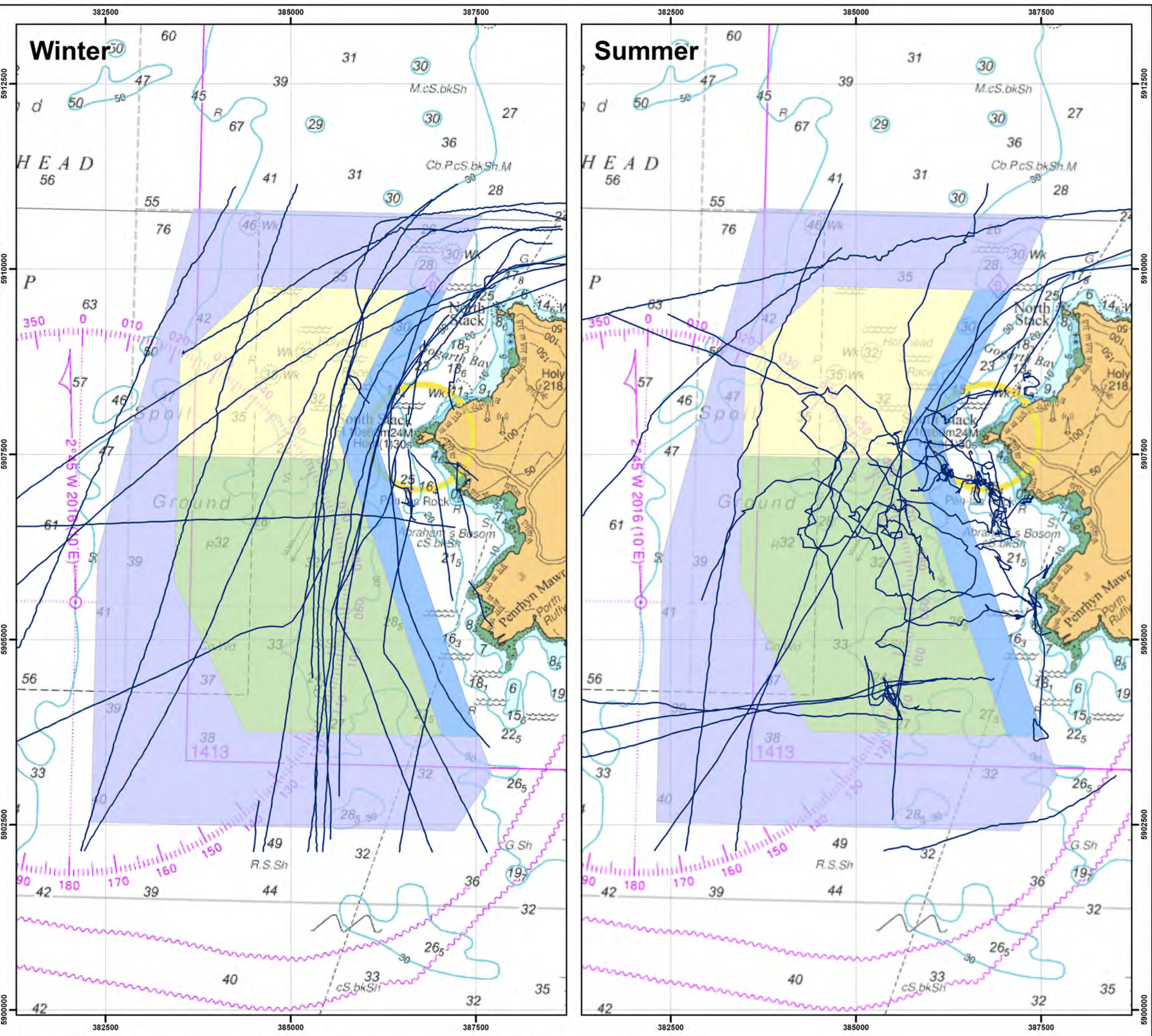


Figure 15-9
Morlais Demonstration Zone NRA Addendum
Fishing Vessel Transits
26th August - 09th September 2017
05th April - 19th April 2019



Legend

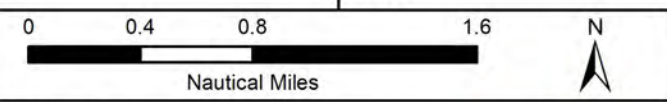
— Vessel Track

Demonstration Zone Areas

- Restricted Area (Purple) - Submerged tidal devices with a minimum 20m Under Keel Clearance (UKC) only
- Restricted Area (Gold) - No visually prominent emergent tidal devices
- Unrestricted Area (Green) - Floating surface emergent and submerged devices
- Restricted Area (Blue) - Submerged tidal devices with a minimum 8m UKC only

Project No. 20UK1647	Date 03/08/2020	Issue Number 001
Author Richard Marlow	Checked By Rebecca Worbey	Scale at A3 1:50,000

Data Source(s) Summer AIS and RADAR: 26th August - 09th September 2017; Winter AIS and RADAR: 05th April - 19th April 2019; Charts: MarineFIND; MDZ Layout: Menter Môn.	Coordinate System WGS 1984 UTM Zone 30N Projection: Transverse Mercator Datum: WGS 1984 Units: Metres
--	---



Produced By:

Marico Marine Group
United Kingdom
Tel: +44 023 8081 1133

Marico Marine NZ
New Zealand
Tel: +64 04917 4959

MARICO MARINE
www.marico.co.uk

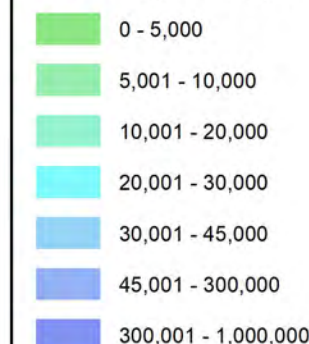


Figure 15-10
Morlais Demonstration Zone NRA Addendum
UK Fishing Intensity (kWh) from VMS Data - 2016



Legend

VMS Fishing Intensity (kWh)



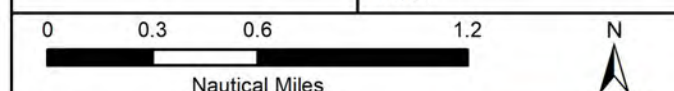
Demonstration Zone Areas

- Restricted Area (Purple) - Submerged tidal devices with a minimum 20m Under Keel Clearance (UKC) only
- Restricted Area (Gold) - No visually prominent emergent tidal devices
- Unrestricted Area (Green) - Floating surface emergent and submerged devices
- Restricted Area (Blue) - Submerged tidal devices with a minimum 8m UKC only

Project No. 20UK1647	Date 04/08/2020	Issue Number 001
--------------------------------	---------------------------	----------------------------

Author Richard Marlow	Checked By Rebecca Worbey	Scale at A3 1:40,000
---------------------------------	-------------------------------------	--------------------------------

Data Source(s) VMS Data: MMO; Charts: MarineFIND; MDZ Layout: Menter Môn.	Coordinate System WGS 1984 UTM Zone 30N Projection: Transverse Mercator Datum: WGS 1984 Units: Metres
---	---



Produced By: Marico Marine Group United Kingdom Tel: +44 023 8081 1133	Marico Marine NZ New Zealand Tel: +64 04917 4959	 www.marico.co.uk
--	--	----------------------

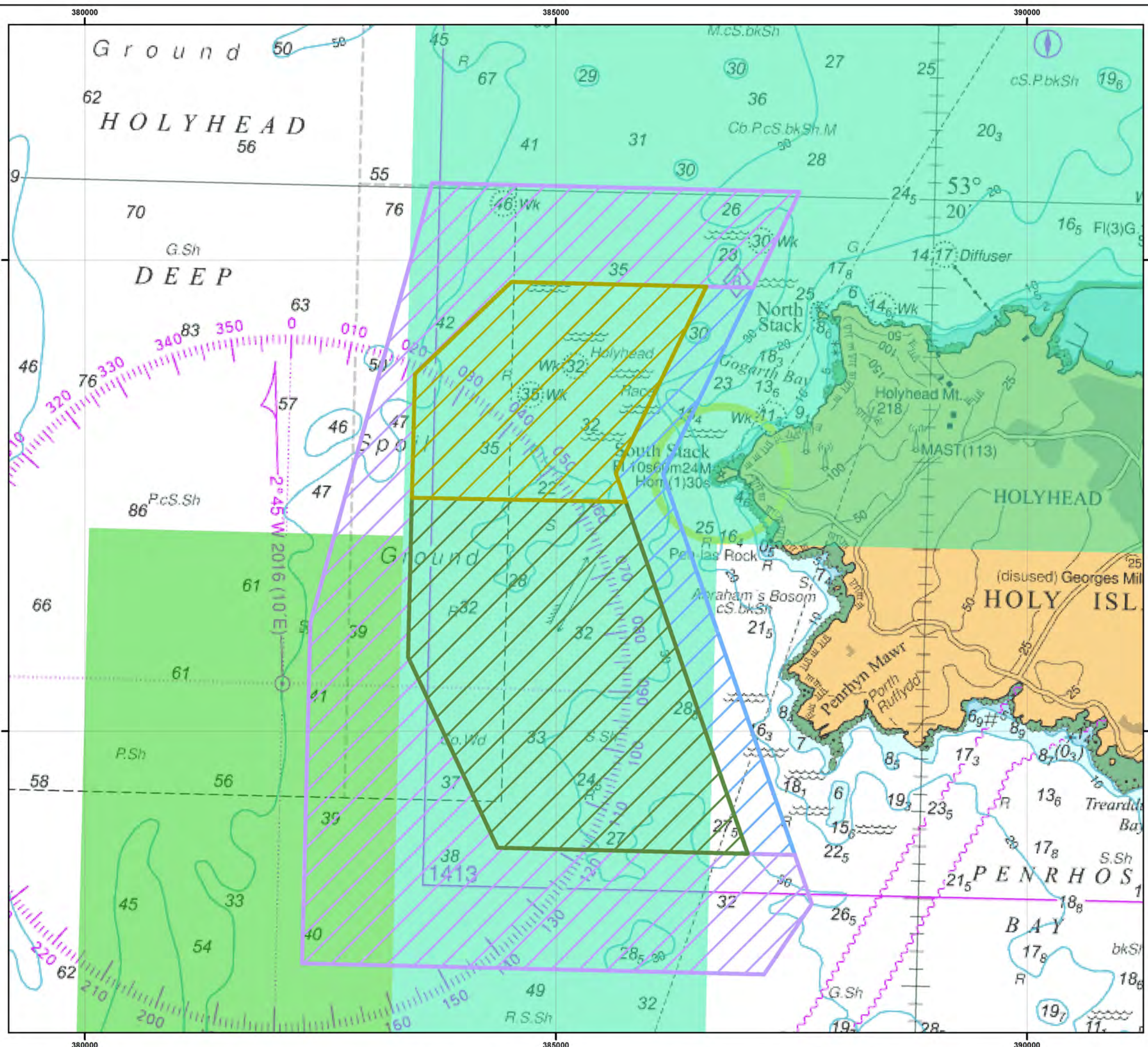


Figure 15-11
Morlais Demonstration Zone NRA Addendum
Recreational Vessel Transits
26th August - 09th September 2017
05th April - 19th April 2019



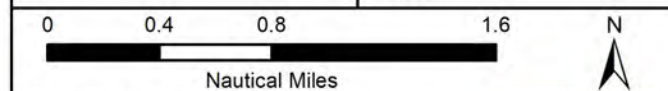
Legend

- Vessel Track
- Demonstration Zone Areas**
 - Restricted Area (Purple) - Submerged tidal devices with a minimum 20m Under Keel Clearance (UKC) only
 - Restricted Area (Gold) - No visually prominent emergent tidal devices
 - Unrestricted Area (Green) - Floating surface emergent and submerged devices
 - Restricted Area (Blue) - Submerged tidal devices with a minimum 8m UKC only

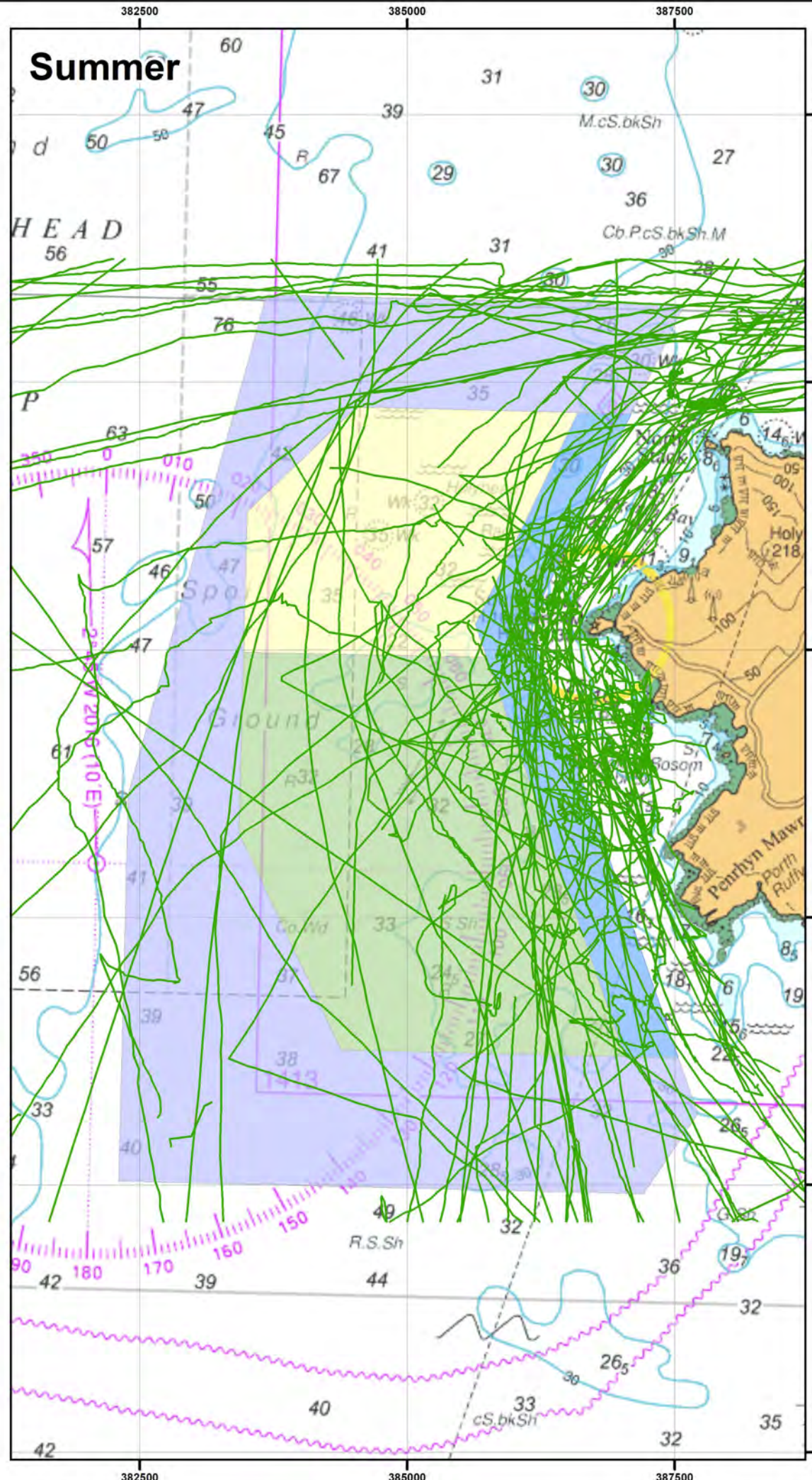
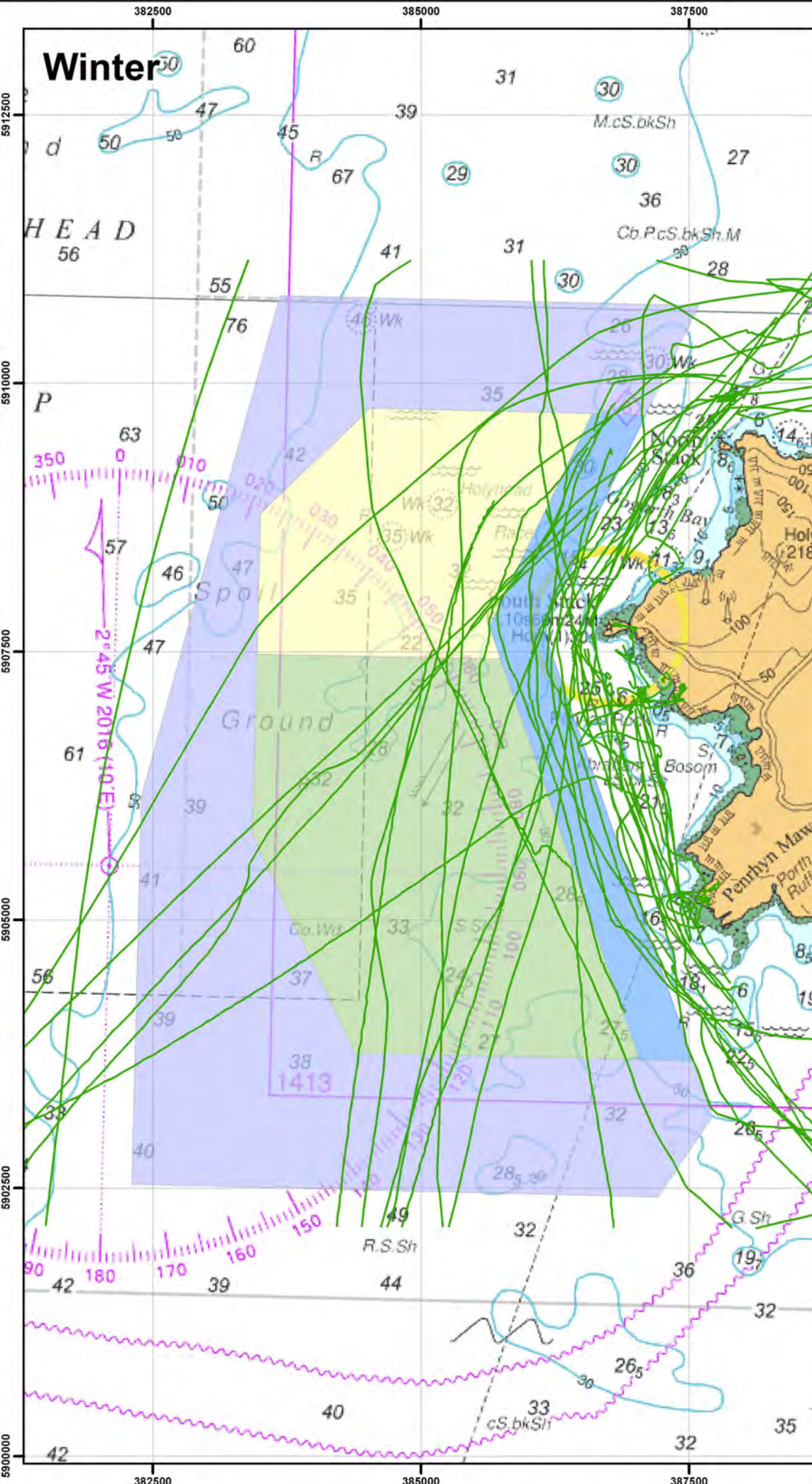
Project No. 20UK1647	Date 03/08/2020	Issue Number 001
--------------------------------	---------------------------	----------------------------

Author Richard Marlow	Checked By Rebecca Worbey	Scale at A3 1:50,000
---------------------------------	-------------------------------------	--------------------------------

Data Source(s) Summer AIS and RADAR: 26th August - 09th September 2017; Winter AIS and RADAR: 05th April - 19th April 2019; Charts: MarineFIND; MDZ Layout: Menter Môn.	Coordinate System WGS 1984 UTM Zone 30N Projection: Transverse Mercator Datum: WGS 1984 Units: Metres
--	---



Produced By: Marico Marine Group United Kingdom Tel: +44 023 8081 1133	Marico Marine NZ New Zealand Tel: +64 04917 4959	MARICO MARINE www.marico.co.uk
--	--	--



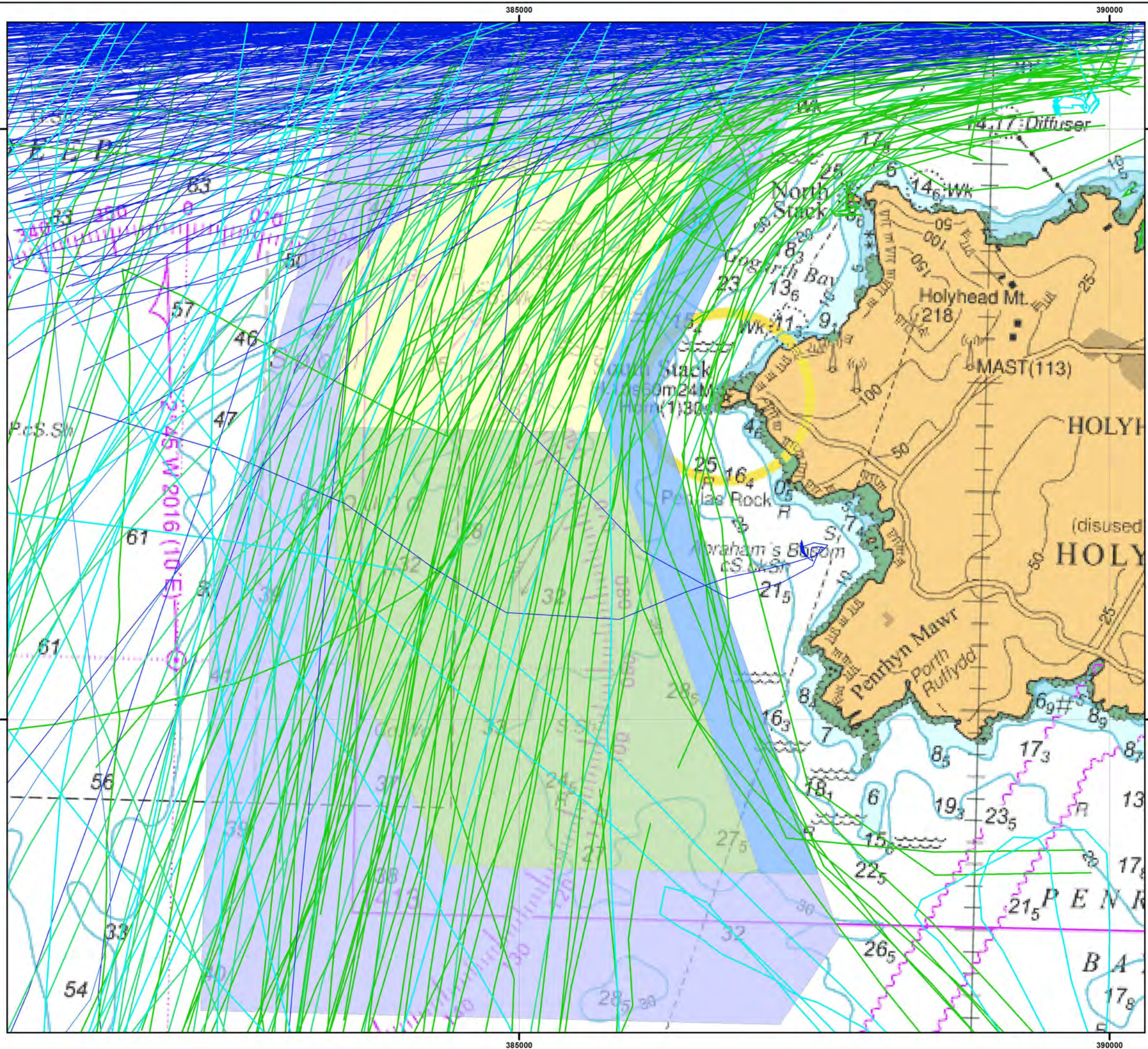


Figure 15-12

Morlais Demonstration Zone NRA Addendum

Vessel Transits by Length Over-All (LOA)
01st October 2017 - 31st March 2018



Legend

Vessel Length (m)

- 0 - 21
- 22 - 55
- 56 - 113
- 114 - 166
- 167 - 211

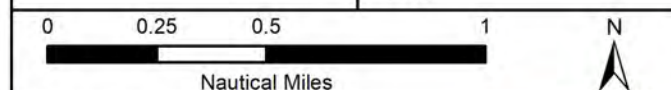
Demonstration Zone Areas

- Restricted Area (Purple) - Submerged tidal devices with a minimum 20m Under Keel Clearance (UKC) only
- Restricted Area (Gold) - No visually prominent emergent tidal devices
- Unrestricted Area (Green) - Floating surface emergent and submerged devices
- Restricted Area (Blue) - Submerged tidal devices with a minimum 8m UKC only

Project No. 20UK1647	Date 14/09/2020	Issue Number 001
-------------------------	--------------------	---------------------

Author Richard Marlow	Checked By Rebecca Worbey	Scale at A3 1:32,000
--------------------------	------------------------------	-------------------------

Data Source(s) Winter AIS: 01st October 2017 - 31st March 2018; Charts: MarineFIND; MDZ Layout: Menter Môn.	Coordinate System WGS 1984 UTM Zone 30N Projection: Transverse Mercator Datum: WGS 1984 Units: Metres
---	--



Produced By: Marico Marine Group United Kingdom Tel: +44 023 8081 1133	Marico Marine NZ New Zealand Tel: +64 04917 4959	MARICO MARINE www.marico.co.uk
---	--	--



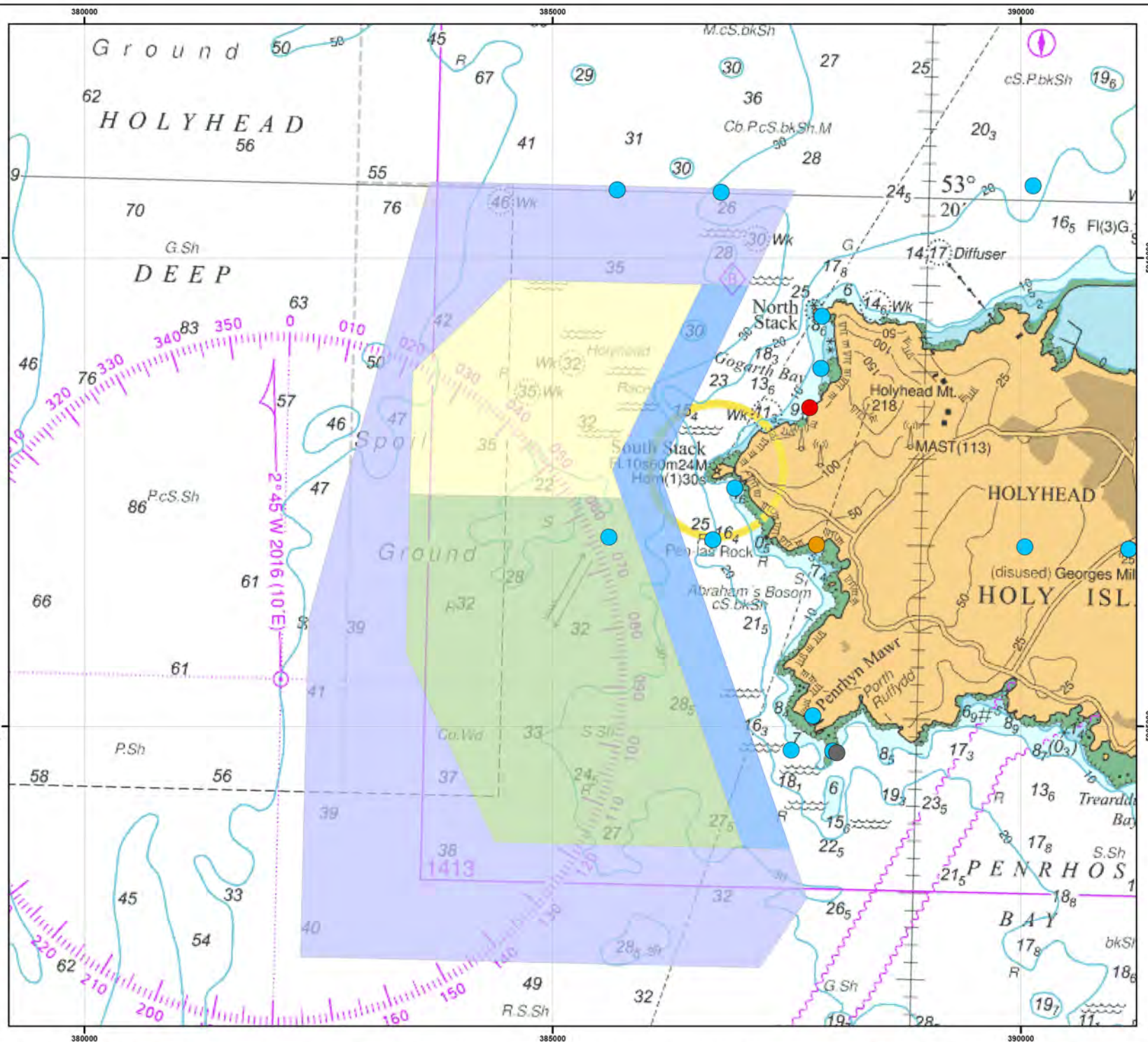


Figure 15-13
Morlais Demonstration Zone NRA Addendum
Marine Accident Investigation Branch (MAIB)
Incidents 1997 to 2017



Legend

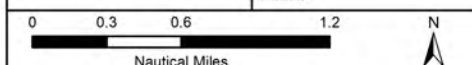
MAIB Incidents

- Collision
- Contact
- Grounding
- Other Incident

Demonstration Zone Areas

- Restricted Area (Purple) - Submerged tidal devices with a minimum 20m Under Keel Clearance (UKC) only
- Restricted Area (Gold) - No visually prominent emergent tidal devices
- Unrestricted Area (Green) - Floating surface emergent and submerged devices
- Restricted Area (Blue) - Submerged tidal devices with a minimum 8m UKC only

Project No. 20UK1647	Date 04/08/2020	Issue Number 001
Author Richard Marlow	Checked By Rebecca Worbey	Scale at A3 1:40,000
Data Source(s) Incident Data: MAIB; Charts: MarineFIND; MDZ Layout: Menter Mön.		Coordinate System WGS 1984 UTM Zone 30N Projection: Transverse Mercator Datum: WGS 1984 Units: Metres



Produced By: Marico Marine Group United Kingdom Tel: +44 023 8081 1133		Marico Marine NZ New Zealand Tel: +64 04917 4959	MARICO MARINE www.marico.co.uk
--	--	--	--



Figure 15-14

Morlais Demonstration Zone NRA Addendum
RNLI Callouts 2008 to 2019



Legend

RNLI Callouts

- Animal at Risk of Drowning
- False Alarm
- Fishing Vessel
- Military Vessel
- Person in Water
- Person on Cliff
- Recreational
- Unknown
- Object in the Sea

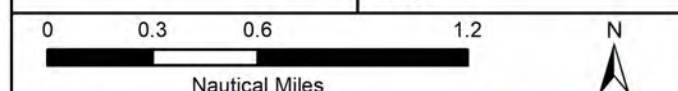
Demonstration Zone Areas

- Restricted Area (Purple) - Submerged tidal devices with a minimum 20m Under Keel Clearance (UKC) only
- Restricted Area (Gold) - No visually prominent emergent tidal devices
- Unrestricted Area (Green) - Floating surface emergent and submerged devices
- Restricted Area (Blue) - Submerged tidal devices with a minimum 8m UKC only

Project No. 20UK1647	Date 04/08/2020	Issue Number 001
--------------------------------	---------------------------	----------------------------

Author Richard Marlow	Checked By Rebecca Worbey	Scale at A3 1:40,000
---------------------------------	-------------------------------------	--------------------------------

Data Source(s) Callout Data: RNLI; Charts: MarineFIND; MDZ Layout: Menter Môn.	Coordinate System WGS 1984 UTM Zone 30N Projection: Transverse Mercator Datum: WGS 1984 Units: Metres
--	---



Produced By: Marico Marine Group United Kingdom Tel: +44 023 8081 1133	Marico Marine NZ New Zealand Tel: +64 04917 4959	MARICO MARINE www.marico.co.uk
--	--	--

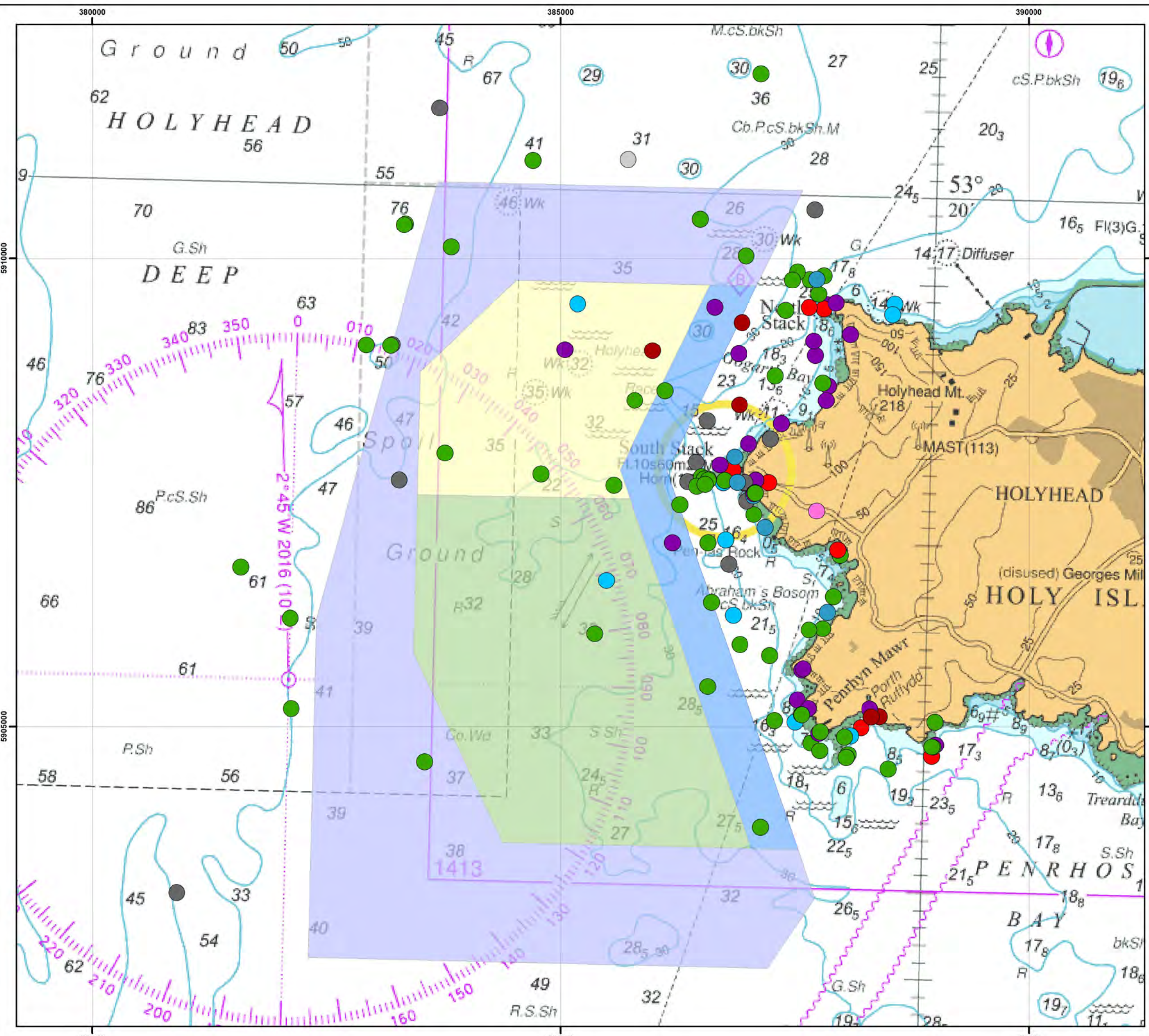
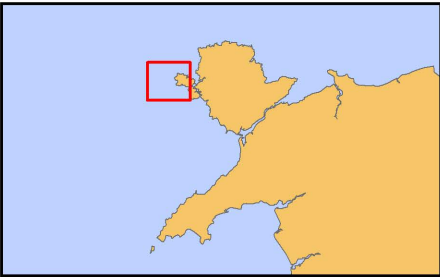


Figure 15-15
Morlais Demonstration Zone NRA Addendum
RYA UK Coastal Atlas of Recreational Boating



Legend

RYA AIS Intensity

Low High

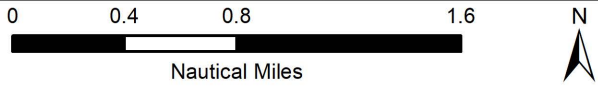
Demonstration Zone Areas

- Restricted Area (Purple) - Submerged tidal devices with a minimum 20m Under Keel Clearance (UKC) only
- Restricted Area (Gold) - No visually prominent emergent tidal devices
- Unrestricted Area (Green) - Floating surface emergent and submerged devices
- Restricted Area (Blue) - Submerged tidal devices with a minimum 8m UKC only

RYA Club
RYA Training Centre
Marina
General Boating Area

Project No. 20UK1647	Date 03/08/2020	Issue Number 001
Author Richard Marlow	Checked By Rebecca Worbey	Scale at A3 1:50,000

Data Source(s) RYA Data: Provided to Marico on behalf of Menter Môn; Charts: MarineFIND; MDZ Layout: Menter Môn.	Coordinate System WGS 1984 UTM Zone 30N Projection: Transverse Mercator Datum: WGS 1984 Units: Metres
--	---



Produced By: Marico Marine Group United Kingdom Tel: +44 023 8081 1133	Marico Marine NZ New Zealand Tel: +64 04917 4959	MARICO MARINE www.marico.co.uk
--	--	--

