



Joint Tactical Exercise Planning Staff

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JTEPS JW152

16 September 2015

JOINT WARRIOR 152 SUBMARINE, MINEWARFARE, LIVE FIRING AND DENIAL OF GPS TRAINING ACTIVITY

1. Exercise Joint Warrior 152 will take place between 4 and 15 October 2015, delivered by the Joint Tactical Exercise Planning Staff (JTEPS) from Faslane. It is a programme of exercises conducted across the UK by land forces, warships, submarines and aircraft from 12 Nations. The majority of the exercise is focussed in the airspace, offshore and coastal waters to the north and north west of Scotland. This booklet provides outline information on scheduled activity including details of intended gunnery and aircraft bombing activity at Cape Wrath and in some open ocean areas.
2. The information is correct at the time of going to print but the routine **SUBFACTS** and **GUNFACTS** broadcasts, made during the exercise, will provide updated information.
3. The information provided in this booklet will also be published in Fleet Ops Notice to Fishermen, Defence Training Estate Scotland Notice to Fishermen, Cape Wrath Range Notices and Notices to Airmen. This document is also on the internet at:

<http://www.royalnavy.mod.uk/qhm/clyde/jw>.
4. This booklet contains the following sections:
 - a. Submarine Activity.
 - b. Warship Activity.
 - c. Minewarfare Activity.
 - d. Live Firing and Gunnery Activity.
 - e. Denial of GPS Services.
 - f. Unexploded Ordnance Advice.
5. The warships taking part have been instructed to offer fishing vessels and the wider civilian community every assistance in their dealings with exercise activity. This applies especially when in the vicinity of submarines, when warships are conducting live firing or when GPS is denied for military training. You are invited to contact them via VHF to ensure that military training and civilian activities are sensibly and safely de-conflicted.

6. Throughout Exercise Joint Warrior 152 the following points of contact are available on a 24/7 basis to attend to any immediate problems or questions:

Primary - Joint Warrior Duty Controller	01436 674321 Ext 3401
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Secondary - Duty Submarine Controller	01923 956366
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HM Coastguard at Belfast, Stornoway and Aberdeen can also contact the Joint Warrior staff directly and will relay information if necessary.

7. If you have any queries, problems, or suggestions as to how JTEPS can improve this booklet, please do not hesitate to contact the Staff Officer Submarines at the above address.

Signed on Dii

A M Stacey
Captain Royal Navy
Captain JTEPS

Submarine Activity

1. The Submarine Activity Grid on the following page shows the areas and time periods where submarine activity associated with Joint Warrior (JW) is forecast. Please note that other submarines that are not part of the exercise may transit the areas north west of Scotland; their activity is not covered in this brief. The daily SUBFACTS broadcast by the Coastguard will provide notification of the actual areas where exercise and transiting submarine activity is taking place. During Joint Warrior, in order to keep the SUBFACTS broadcast short, a number of Scottish Exercise Areas are grouped together. The groupings are shown in the chartlet and table in this section.
2. Communications can be established with submarines during JW when they are surfaced or at periscope depth on VHF Ch 16 (working Ch 73). In the event that they are operating with warships, one of the warships will have been detailed to act as the Fishing Vessel Safety Ship (FVSS) in accordance with the Code of Practice. The FVSS has two overarching duties:
 - a. To make fishing vessels aware of submarine activity in their vicinity and to provide information and advice to minimise the risk of interaction.
 - b. To provide assistance to the participating submarine in compiling a comprehensive surface picture in order to minimise the risk of interaction with non-exercise vessels.
3. It is usually easier to establish communications with the FVSS than with a submarine. However, any warship in the vicinity may be contacted and asked for a report on any exercises involving submarines which are being conducted in the local area. Alternatively, the ship may be used to relay messages or instructions to the submarine if required. All warships, including the FVSS, can be contacted on VHF Channel 16 (working Channel 73).

Submarine Activity

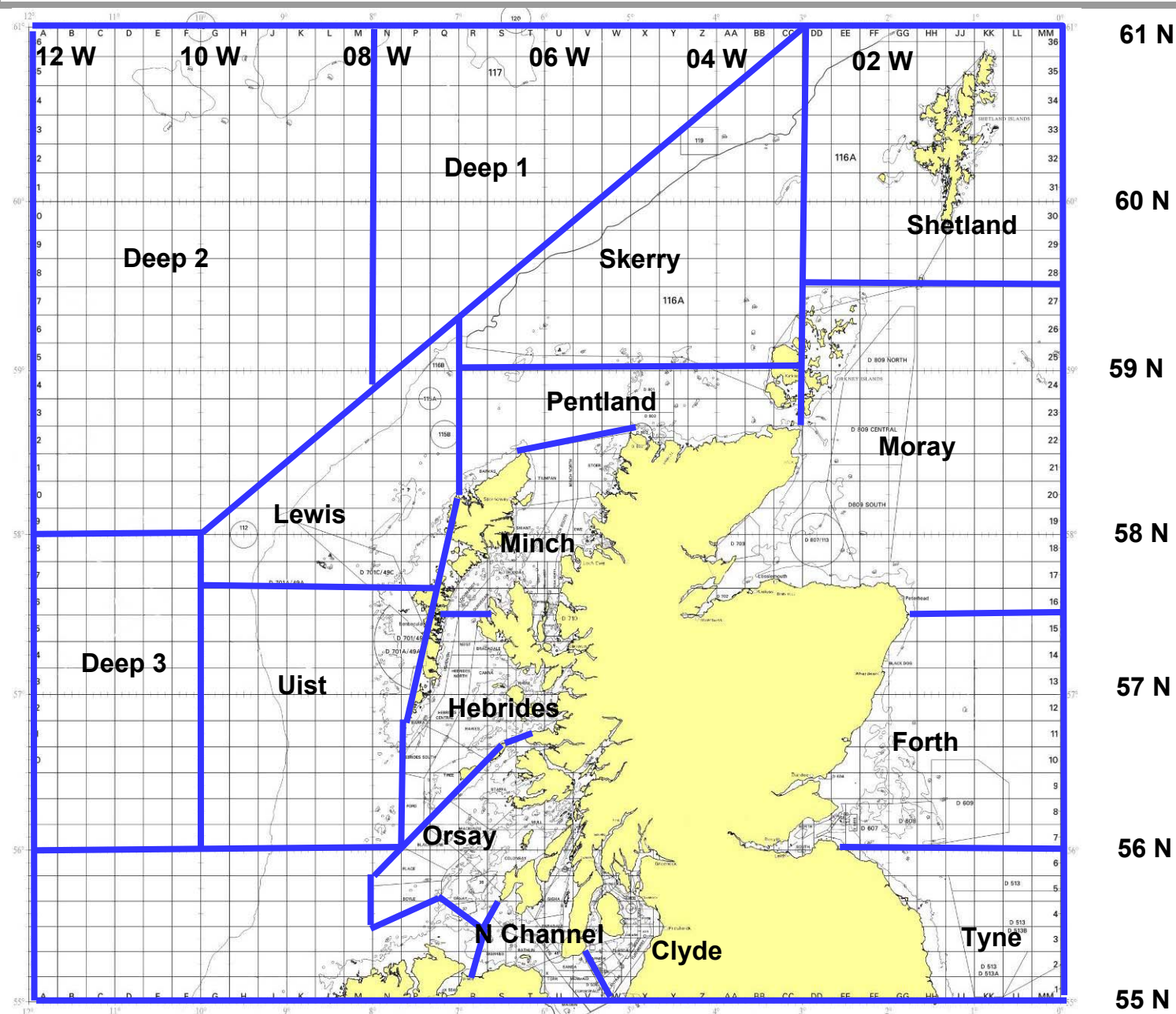
Exercise Joint Warrior 152

SUBFACTS AREAS ACTIVATION GRID

	4 OCT			5 OCT			6 OCT			7 OCT			8 OCT			9 OCT			10 OCT			11 OCT			12 OCT			13 OCT			14 OCT			15 OCT		
	SUN			MON			TUE			WED			THU			FRI			SAT			SUN			MON			TUE			WED			THU		
Active Time Period BST	0001 - 0800	0800 - 1600	1600 - 2359	0001 - 0800	0800 - 1600	1600 - 2359	0001 - 0800	0800 - 1600	1600 - 2359	0001 - 0800	0800 - 1600	1600 - 2359	0001 - 0800	0800 - 1600	1600 - 2359	0001 - 0800	0800 - 1600	1600 - 2359	0001 - 0800	0800 - 1600	1600 - 2359	0001 - 0800	0800 - 1600	1600 - 2359	0001 - 0800	0800 - 1600	1600 - 2359	0001 - 0800	0800 - 1600	1600 - 2359	0001 - 0800	0800 - 1600	1600 - 2359			
ORSAY			A	A	A	A																														
N.CHANNEL																																				
HEBRIDES			A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A											
MINCH																A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A				
UIST			A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A											
LEWIS																								A	A	A	A	A	A	A	A					
PENTLAND																							A	A	A	A	A	A	A	A	A	A	A	A		
SKERRY																								A	A	A	A	A	A							
DEEP 1																																				
DEEP 2																																				
DEEP 3															A	A	A	A	A	A	A	A	A													
SHETLAND																																				
MORAY																																	A	A	A	A
FORTH																																				
TYNE																																				

The planned activity in the JW SUBFACTS AREAS is indicated by the letter **A** in the grid above. There may be changes to this planned activity. Daily SUBFACTS Broadcasts will contain the most up to date information regarding the activation of the areas.

Submarine Activity



JW SUBFACTS
Area Groupings

Submarine Activity

SCOTTISH EXERCISE AREAS – JW SUBFACTS GROUPING

CLYDE

BALLANTRAE
AILSA
STAFNISH
PLADDA
TURNBERRY
DAVAAR
LAMLASH
GOIL
COVE

AYR
BRODICK
IRVINE
LAGGAN
GARROCH
LOCHRANZA
SKIPNESS
ROSNEATH

TARBERT
MINARD
FYNE
WEST KYLE
EAST KYLE
CUMBRAE
STRIVEN
GARELOCH

ORSAY

STAFFA
MULL
BLACKSTONE
MACKENZIE

EIGG
JURA SOUND
PLACE
ORSAY

COLONSAY
LINNHE
BOYLE

NORTH CHANNEL

ISLAY
EARADALE
RATHLIN
MAGEE
PEEL
TORR

OTTER
KINTYRE
MAIDEN
BEAUFORT
MERMAID

GIGHA
SKERRIES
CORSEWALL
ARDGLASS
SANDA

HEBRIDES

USHENISH
CANNA
HEBRIDES NORTH
TIREE
BARRA

NEIST
RHUM
HEBRIDES CENTRAL
HAWES
FORD

BRACADALE
SLEAT
HEBRIDES SOUTH
EIGG

MINCH

RONA NORTH
RAASAY
SHIANT
MINCH SOUTH
LOCHMADDY

RONA SOUTH
TIUMPAN
EWE
PORTREE
DUNVEGAN

RONA WEST
STOER
MINCH NORTH
TRODDAY
CROWLIN

VHF Challenges

1. In light of ever changing threats to our Armed Forces, military ships maintain a detailed plot of maritime activity in their vicinity, which includes establishing the identity of small fishing vessels. This can be achieved visually from helicopters or by challenges on IMM VHF radio by ships. Mariners are advised that warships from various Allied Nations will be conducting such reconnaissance and challenges. Areas likely to be affected are the Clyde, North Channel, South of the Sea of Hebrides, the Sea of Hebrides, the Little Minch, North Minch, the area near Cape Wrath, Loch Eriboll, the Outer Hebrides and in the North Sea near Wick. Mariner's co-operation during this time would be much appreciated. A small number of contracted civilian vessels including high speed craft will be operating in the vicinity of the Minches and the Firth of Clyde in support of this training task. Every effort will be made to avoid interference to fishing vessels.

Minewarfare Activity

1. Mine Countermeasures (MCM) vessels will conduct mine hunting exercises using sonar to look for exercise inert mines both on the seabed and moored to the seabed. These may then be investigated by remote controlled submersible vehicles and divers.
2. Towed sweeps for minesweeping will not be used during JW 152.
3. All participating MCM vessels will be thoroughly briefed on local fishing operations in advance of the exercise and are instructed to make early liaison calls to fishing vessels on VHF. Skippers of fishing vessels operating in the vicinity of these ships are encouraged to talk to them and discuss intentions.
4. If any difficulty is experienced a call should be made to the Duty Submarine Controller at CTF 311 OPS ROOM on the “**Fishermen’s Hotline**” number: **01923 956366**. This line is permanently manned.
5. The following MCM vessels will participate in Exercise JW 152:

Name	Nationality	Pennant No
HMS HURWORTH	British	M 39
HMS MIDDLETON	British	M 34
HMS PEMBROKE	British	M 107
HMS RAMSEY	British	M 110

6. Exercise inert mines have been laid for JW 152, in the following areas:

a. **LOCH EWE** (see chartlet 1)

All areas within Loch Ewe between latitudes 57 54.30N and 57 48.20N

b. **GRUINARD BAY** (see chartlet 1)

- A. 57 54.68N 005 29.38W
- B. 57 52.80N 005 29.38W
- C. 57 52.80N 005 32.00W
- D. 57 54.68N 005 32.00W

c. **LITTLE LOCH BROOM APPROACH** (see chartlet 1)

- A. 57 54.92N 005 24.70W
- B. 57 54.38N 005 23.09W
- C. 57 54.10N 005 23.31W
- D. 57 54.64N 005 25.36W

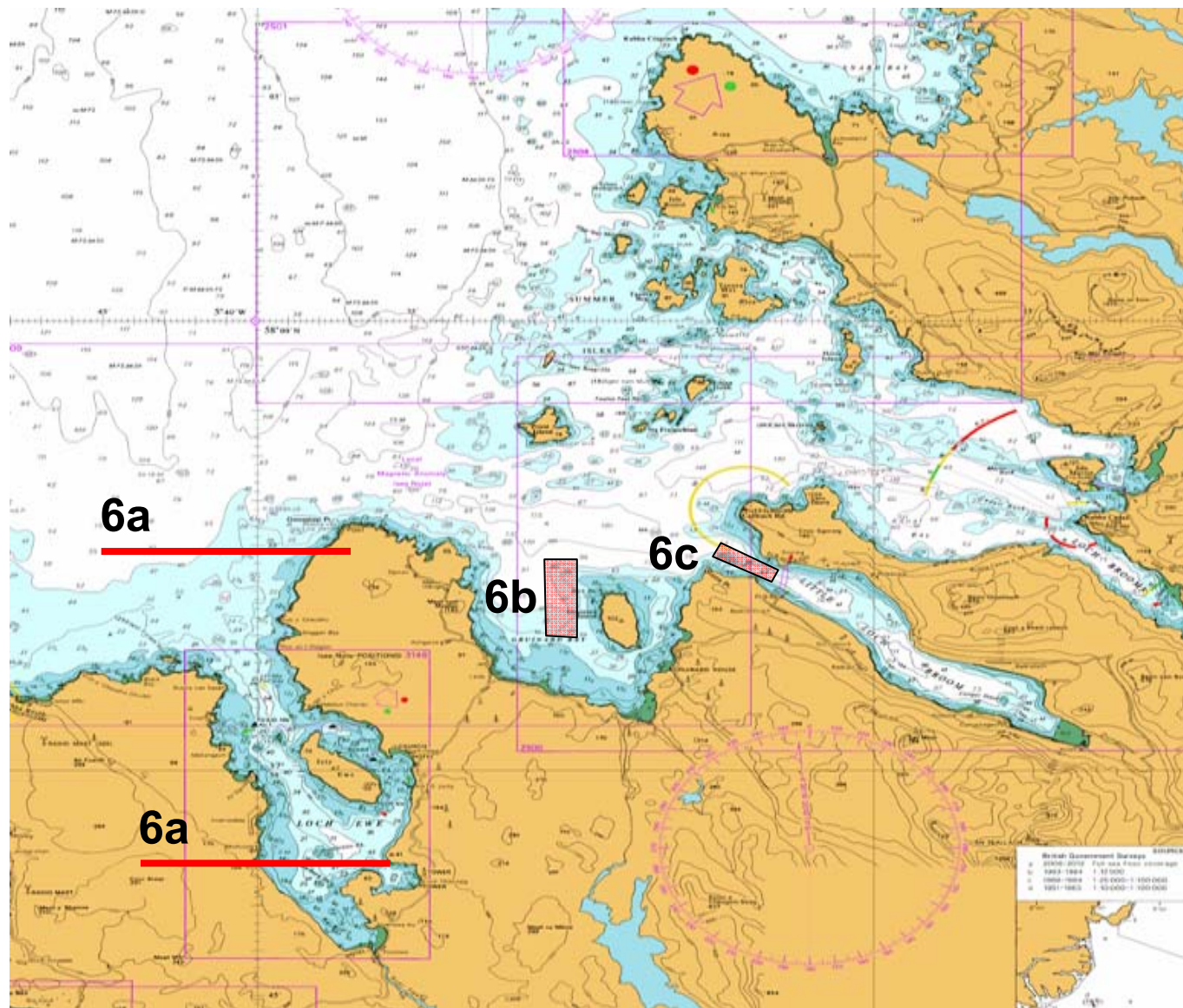
d. **BROAD BAY** (see chartlet 2)

- A. 58 16.60N 006 14.60W
- B. 58 16.60N 006 12.20W
- C. 58 15.40N 006 12.20W
- D. 58 15.40N 006 12.20W

Minewarfare Activity

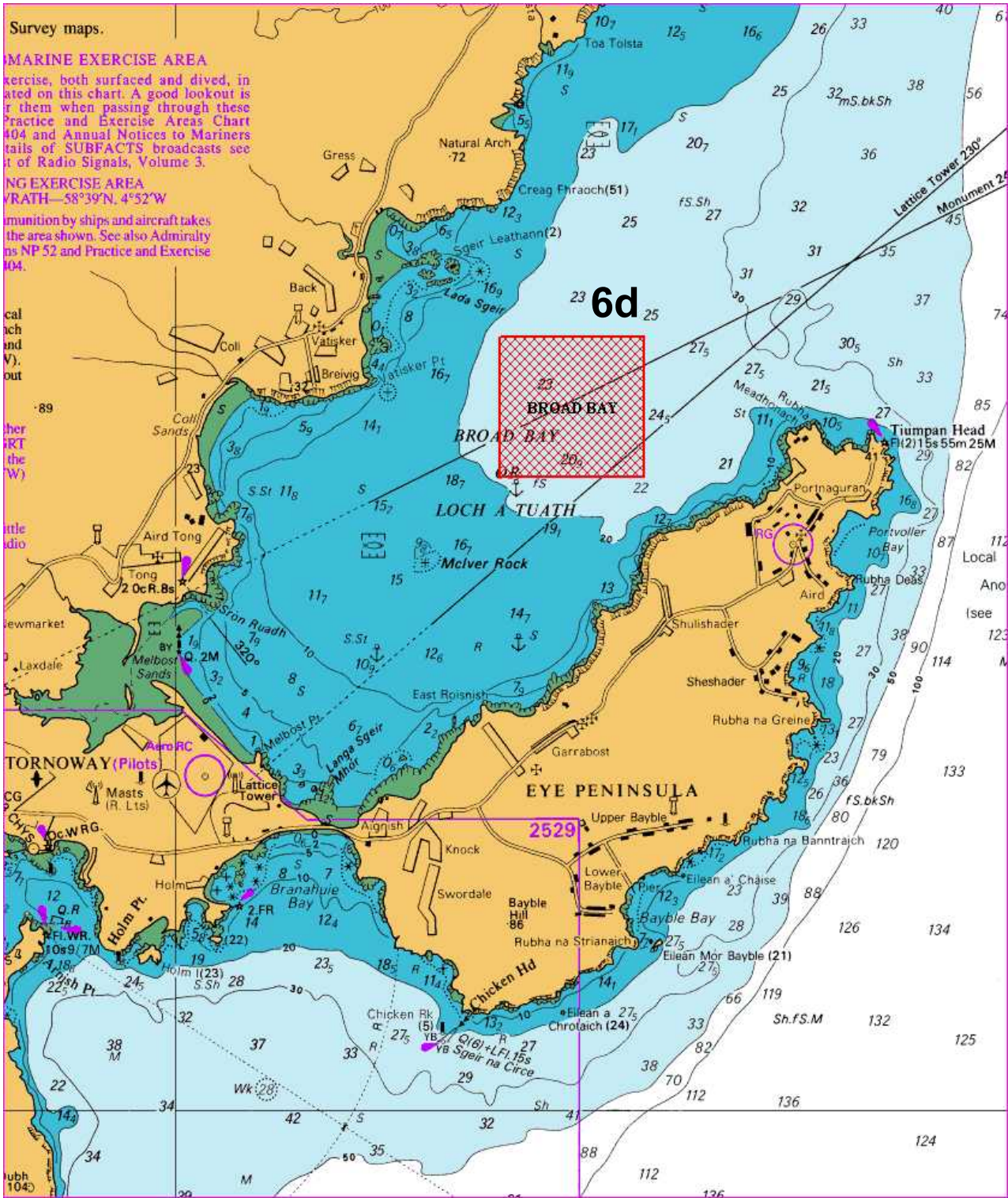
7. The planned mine lay and recovery programme is as follows:
 - a. **Mine lay.** No additional mine targets will be laid without further Notice to Fishermen. All the above areas are established exercise areas with existing targets on the sea bed.
 - b. **Mine recovery.** There is no dedicated mine recovery period during JW 152. This will occur throughout the exercise.
8. Liaison between the MoD and appropriate fishermen's associations/organisations, in some cases with individual owners/skippers, HM Coastguard and Marine Scotland have been made to use the above areas. Should anyone consider that their organisation/association should be included in this process in future please contact Lieutenant Commander David Smith (FASFLOT SOO) on 01436 674321 Ext 8421.

Minewarfare Activity



Chartlet 1

Minewarfare Activity



Chartlet 2

Live Firing and Gunnery

1. During Joint Warrior, Cape Wrath Range, including Garvie Island (An Garbh-eilean) will be active with various combinations of air bombardment, naval gunfire support and helicopter operations. In addition a Joint Warrior Firing and Danger Area will be activated for offshore gunnery. The Gunfacts and JW Offshore Firing Areas Activation Grid on the following page shows the areas and time periods where gunnery associated with Joint Warrior is forecast to take place. The daily GUNFACTS Broadcast by the Coastguard and Cape Wrath Range will provide notification of the actual areas where all the gunnery activity is taking place.
2. Joint Warrior Firing and Danger Area coordinates are in the accompanying chartlet.
3. It is mandatory that vessels in the vicinity of the Cape Wrath Range keep a listening watch on VHF Channel 16. Further information regarding firing at can be obtained by telephoning:

**Cape Wrath Information Line on
FREEPHONE 0800 833300**

or 01862 892185

The number will provide specific information about active/non-active periods and when the Range road (U70) will be open/closed for public access.

Live Firing and Gunnery

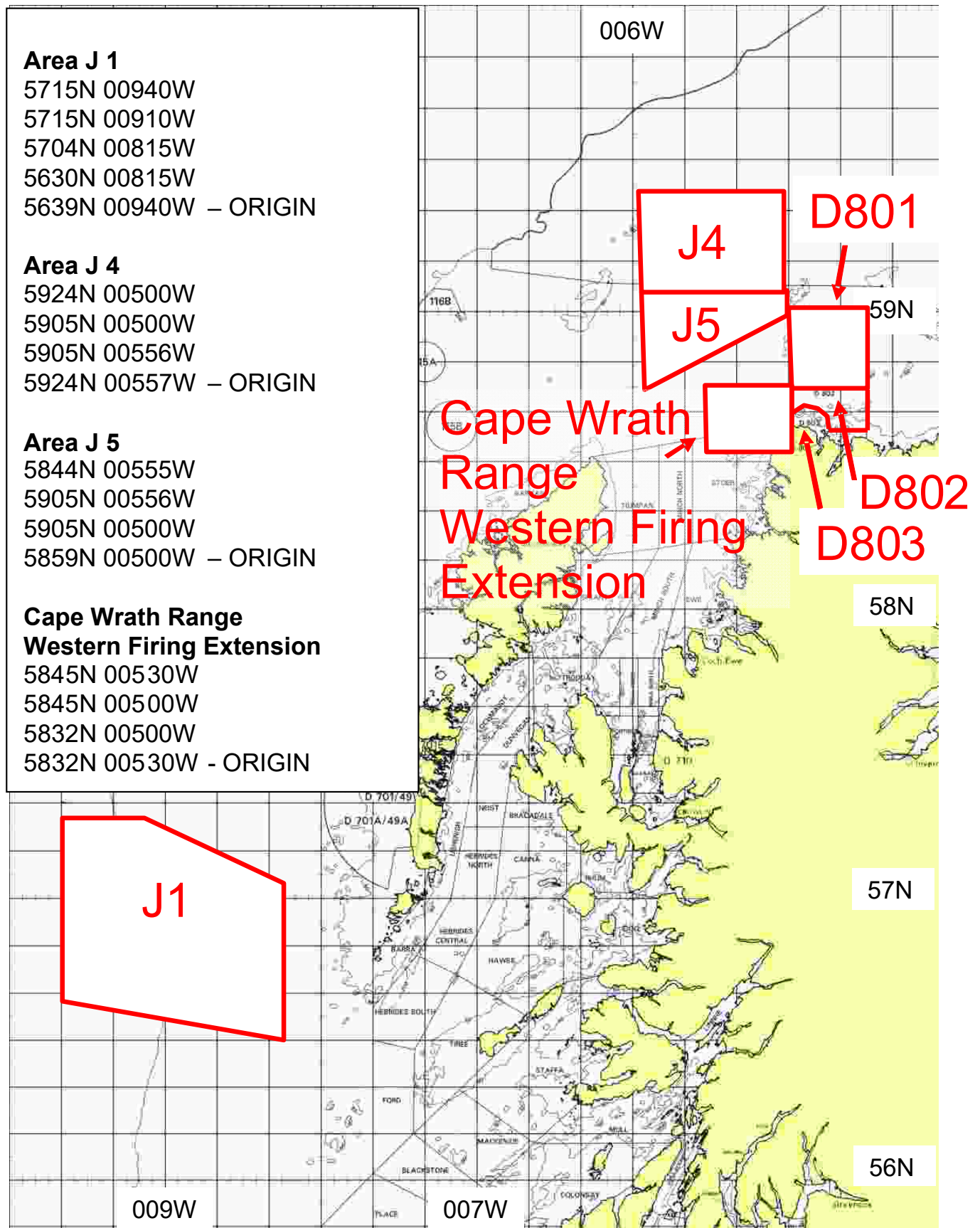
Exercise Joint Warrior 152

GUNFACTS AND JW OFFSHORE FIRING AREAS ACTIVATION GRID, ALL TIMES IN LOCAL

	4 OCT	5 OCT	6 OCT	7 OCT	8 OCT	9 OCT	10 OCT	11 OCT	12 OCT	13 OCT	14 OCT	15 OCT
	SUN	MON	TUE	WED	THU	FRI	SAT	SUN	MON	TUE	WED	THU
Cape Wrath Range (Ashore)	0001-2359	0001-2359	0001-2359	0001-2359	0001-2359	0001-2359	0001-2359		0001-2359	0001-2359	0001-2359	0001-2359
Cape Wrath D801												
Cape Wrath D802			0800-2230	1200-2230		0800-2359	0800-2359		0800-2359	0800-2359		
Garvie Island D803			0800-2230	1200-2230		0800-2359	0800-2359		0800-2359	0800-2359		
JW Danger Area J1		0800-1800	1100-1500	1030-1630	0800-1400							
JW Danger Area J4			1030-1600	0900-2000								
JW Danger Area J5												
Cape Wrath Western Firing Extension												
Clyde Areas D 509	1530-1900		0800-1900	0800-1900	0800-1900							

The planned times of firings at Cape Wrath Range and Joint Warrior Firing areas is indicated in the grid above. There may be changes to this planned activity. Daily GUNFACTS Broadcasts and Cape Wrath Range Broadcasts will contain the most up to date information regarding the activation of the areas. Times are Local.

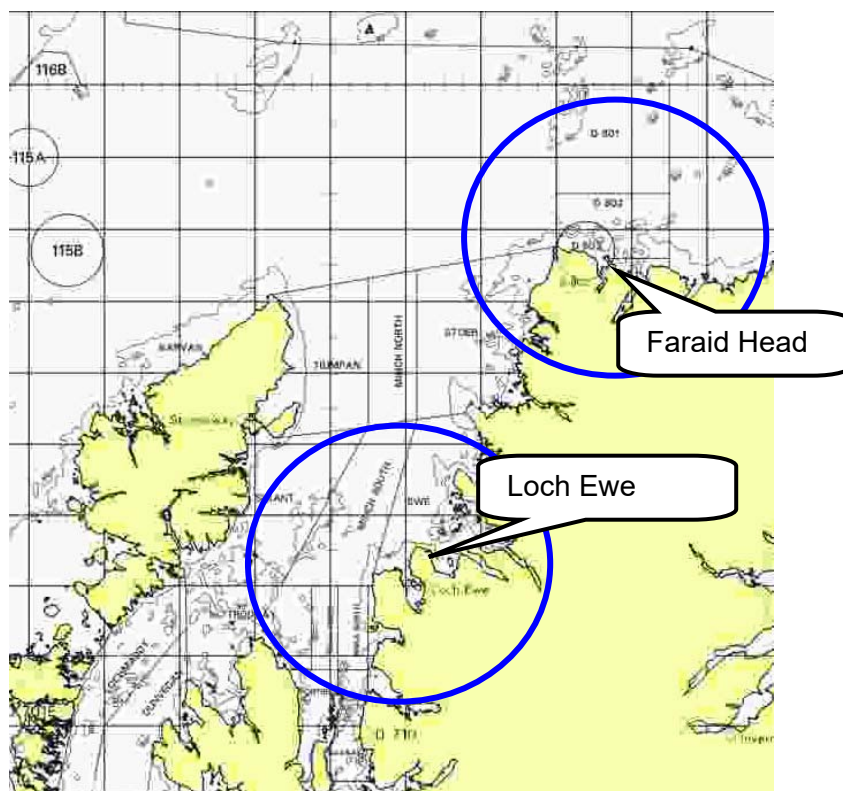
Joint Warrior Firing and Danger Areas



Denial of GPS Service

1. Denial of GPS services through the jamming of the GPS signal is an essential part of preparation for military operations and the training is likely to impact on both military and civilian users on land, sea and in the air. The ability to conduct jamming is spread throughout the modern world. Consequently, Military Forces are required to train under such conditions in order to demonstrate the effects it has on systems and to train personnel in other modes of operating. The jamming equipment is located at:

- a. Faraid Head - 58 36.2N 004 46.4W
- b. Loch Ewe - 57 51.9N 005 41.1W



2. Jamming of GPS signals may affect equipment using GPS within the North Minch northwards from Rubha Réidh 57-52N 005-48W to Stoer Head 58-14N 005-24W and within 35 nautical miles line of sight from the Faraid Head jamming site, depending on receiver antenna height. Plots showing predictions of areas where interference can be expected are included at the end of this section.

3. Subject to approval from the MOD to conduct GPS denial training, the planned times of GPS Denial are shown in the time table on the next page. A sécurité message will be broadcast by Stornoway and Shetland CG prior to and on completion of the jamming period, during which time GPS receivers and any related equipment may not function, or may give incorrect position info or default to DR mode. If this occurs, positional assurance will have to be determined by other means and manually updated at regular intervals. Crews should be aware of these limitations and use alternative means of navigation during jamming periods to confirm their position and check the equipment on completion. Military vessels in the Faraid Head jamming area are, as part of their Gunnery

Denial of GPS Service

clear range procedure, to inform civilian vessels in their vicinity via VHF that GPS jamming is taking place and that they should manually update their DSC position.

4. All military vessels and aircraft will be ordered to maintain a lookout for any abnormal vessel behaviour during jamming periods and warn vessels as required

5. Stopping the jamming in the event of an emergency can be achieved via VHF to Stornoway CG or Joint Warrior duty controller 01436 674321 Ext 6469.

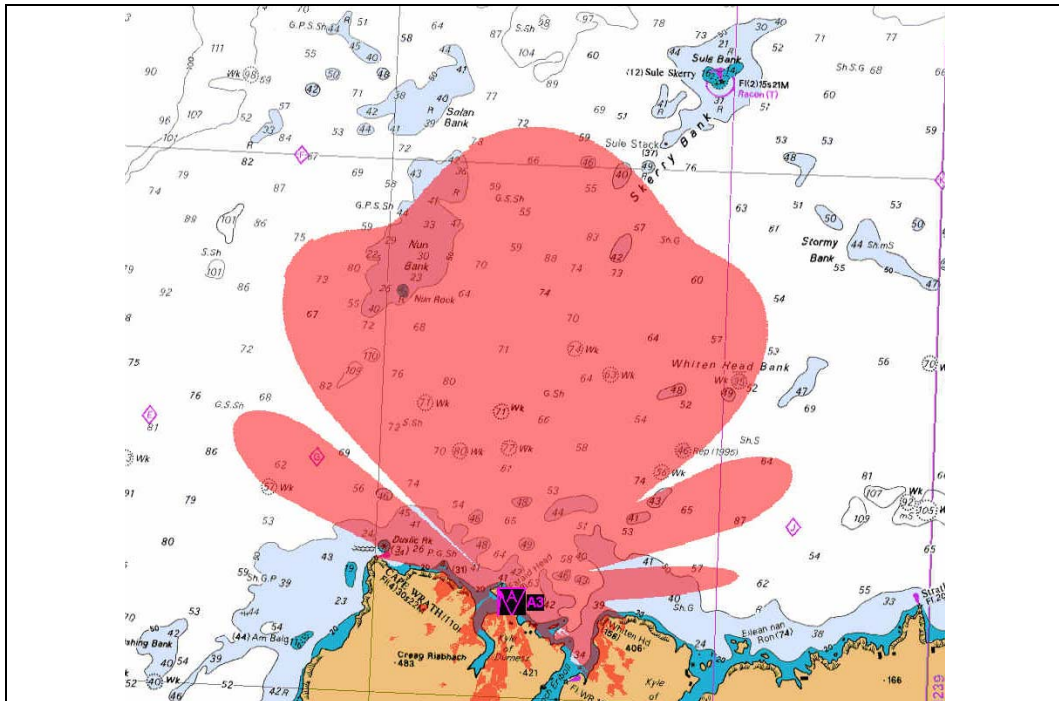
GPS DENIAL TIME TABLE

Date	Loch Ewe N57 51.9 W005 41.1	Faraid Head N58 36.2 W004 46.4
Mon 5 Oct 15	-	-
	-	-
Tue 6 Oct 15	0830-0930	-
	1700-1800	-
Wed 7 Oct 15	0830-0930	-
	1700-1800	-
Thu 8 Oct 15	-	-
	-	-
Fri 9 Oct 15	-	1500-1700
	-	-
Sat 10 Oct 15	-	1500-1700
	-	-
Sun 11 Oct 15	-	-
	-	-
Mon 12 Oct 15	0830-0930	-
	1700-1800	-
Tue 13 Oct 15	0830-0930	-
	1700-1800	-
Wed 14 Oct 15	0830-0930	-
	1700-1800	-
Thu 15 Oct 15	0830-0930	-
	1700-1800	-

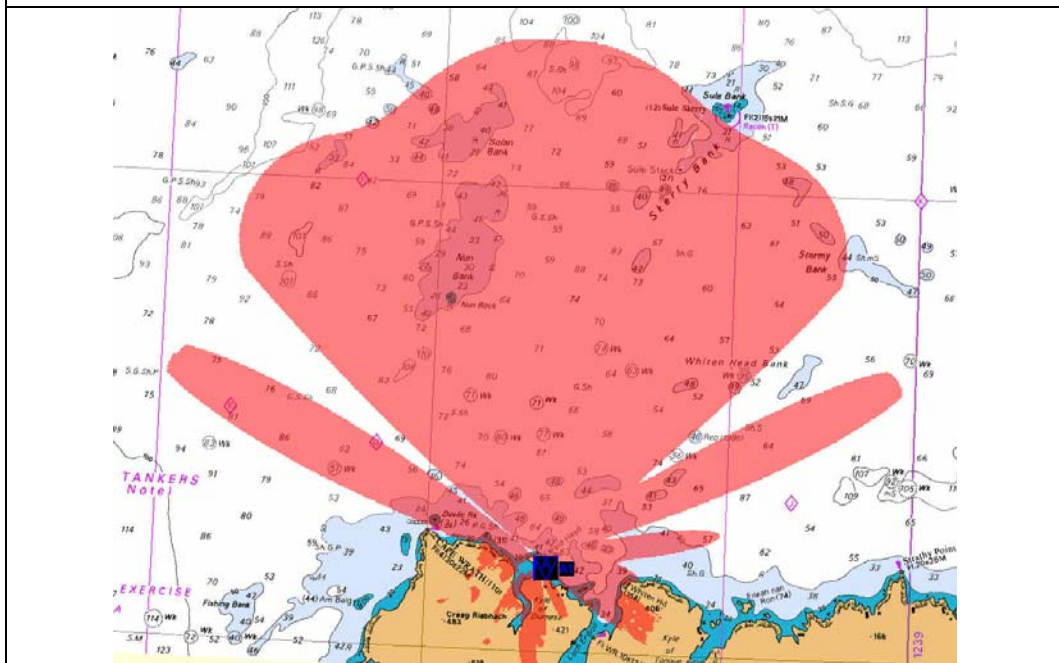
Denial of GPS Service

GPS RECEIVER INTERFERENCE PREDICTION PLOTS FOR FARAIID HEAD

The shaded areas represent the 30dB J/S threshold vs the minimum GPS L1 C/A-Code measured signal strength of -157dBW.



Faraid Head. Receiver antenna height 4m



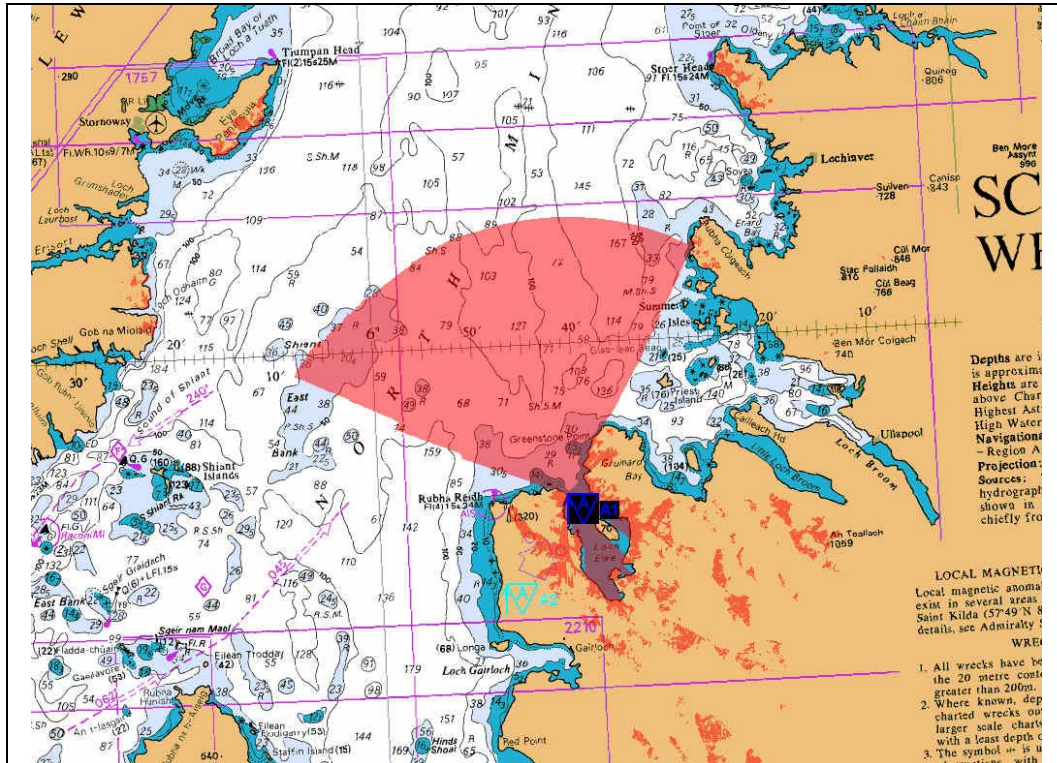
Faraid Head. Receiver antenna height 25m

Plots reproduced with permission of DSTL.

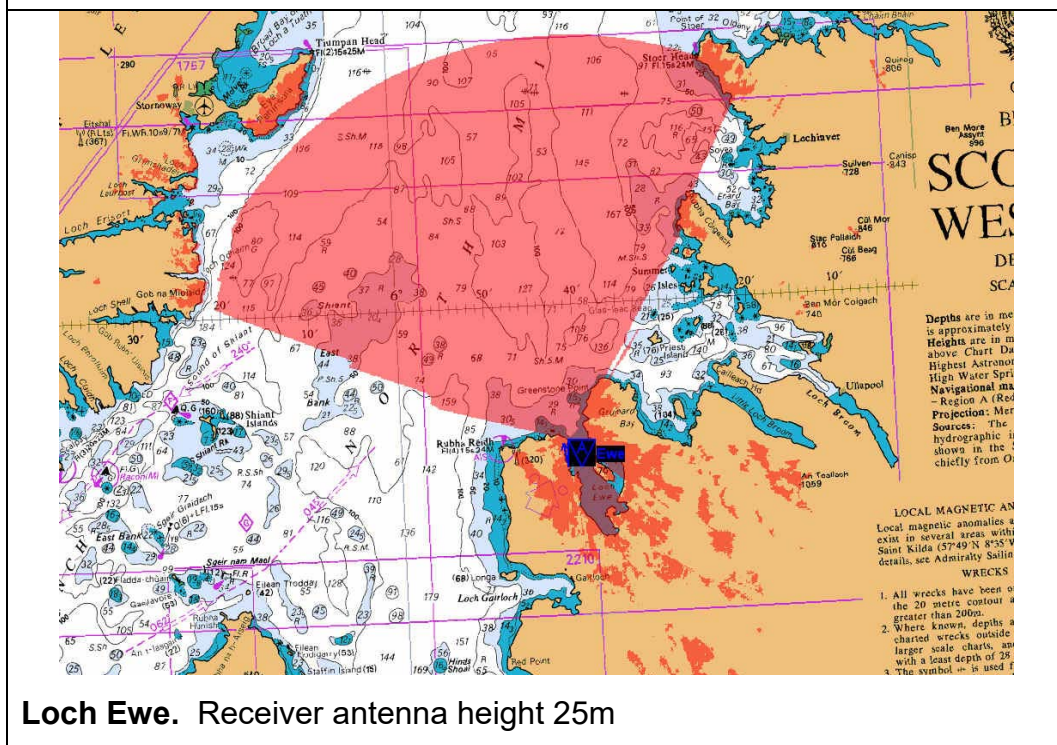
Denial of GPS Service

GPS RECEIVER INTERFERENCE PREDICTION PLOTS FOR LOCH EWE

The shaded areas represent the 30dB J/S threshold vs the minimum GPS L1 C/A-Code measured signal strength of -157dBW.



Loch Ewe. Receiver antenna height 4m



Loch Ewe. Receiver antenna height 25m

Unexploded Ordnance Advice

1. The following general advice is offered to anyone discovering anything believed to be unexploded ordnance:

DIVERS	DO NOT TOUCH
FISHERMEN	Contact the coastguard. If this is not possible, lay the item in about 60ft of water, away from shipping routes and mark the position with a float.
EVERYONE	DO NOT TOUCH – dial 999 for coastguard or Police.

Contact Telephone Numbers

UNEXPLODED ORDNANCE (FLEET DUTY CONTROLLER)	01923 956367
FISHERMANS' HOTLINE (FLEET DUTY CONTROLLER) SUBMARINE RELATED	01923 956366
HOTLINE (JOINT WARRIOR DUTY CONTROLLER) GPS JAMMING RELATED	01436 674321 Ext 6469
JOINT WARRIOR CONTROLLER	01436 674321 Ext 3401
CAPE WRATH INFORMATION LINE	FREEPHONE 0800 833300

Joint Tactical Exercise Planning Staff, JHQ Room 501, Northwood Headquarters,
Sandy Lane, NORTHWOOD, Middlesex HA6 3HP

Telephone: 01923 958788.

E-Mail: JTEPS-SM-SO2@mod.uk