

### Main Areas of Activity

1. Petroleum exploration rigs and gas and oil production platforms may be encountered off the New Zealand coast. At present, the main areas of activity are off the West Coast, North Island, which is designated by the International Maritime Organisation (IMO) as a Precautionary Area.

Reference Charts: New Zealand NZ 21 (INT 641), NZ 23 (INT 640), NZ 25 (INT 648), NZ 43, NZ 45 NZ 48, NZ 443 and NZ 4432.

### Precautionary Area

2. All ships should navigate with particular caution in order to reduce the risk of a maritime casualty and resulting marine pollution in the Precautionary Area, which is defined by a line connecting the following geographical positions, the landward extent of which is determined by Mean High Water Springs (MHWS):

- (a) The charted line of MHWS at approximately 38° 31'.00 S 174° 37'.80 E
- (b) 39° 18'.50 S 173° 05'.00 E
- (c) 39° 26'.00 S 173° 01'.00 E
- (d) 40° 03'.00 S 173° 04'.00 E
- (e) 40° 10'.00 S 173° 16'.00 E
- (f) The charted line of MHWS at approximately 39° 53'.50 S 174° 54'.50 E

### Navigational Hazards in Precautionary Area

3. The navigational hazards within the Precautionary Area comprise:

- Maūi gas/condensate field westward of Cape Egmont: two manned platforms, with a subsea pipeline to shore
- Pohokura gas field northward of Cape Egmont: unmanned production platform connected by subsea pipeline to onshore processing facilities
- Maari oil field south-westward of Cape Egmont: normally unmanned oil production platform and manned (Floating Production Storage and Offloading vessel (FPSO) serviced by offtake tankers
- Tui oil field westward of Cape Egmont: subsea wells and manned FPSO serviced by offtake tankers
- Kupe gas/condensate field southwards of Cape Egmont: unmanned production platform with subsea pipeline to onshore processing facilities.

### Legislation/Regulations

4. Each surface installation is protected by a 500m-radius Safety Zone and a Protected Area for sub-surface installations and pipelines, refer to *NZ Annual Notice to Mariners 13, para 5, page 243* for relevant legislation.

For FPSOs, the baseline for the 500m Safety Zone is a circle described by the outer extent of movement around the mooring system (not including offtake tankers). Entry into these Safety Zones is prohibited to all except authorised vessels. A fine of up to \$1,000 may be imposed for navigating within the Safety Zones.

The following regulations refer:

- *Continental Shelf (Maūi A Safety Zone) Regulations 1975*
- *Continental Shelf (Maūi B Safety Zone) Regulations 1991*
- *Continental Shelf (Pohokura Platform B Safety Zone) Regulations 2006*
- *Continental Shelf (Kupe Wellhead Platform Safety Zone) Regulations 2006*
- *Continental Shelf (Umuroa Installation Safety Zone) Regulations 2008*
- *Continental Shelf (Maari Development Safety Zones) Regulations 2008*

### Keeping a Safe Margin of Distance

5. When navigating in the vicinity of production platforms and exploration rigs, an adequate safe margin of distance should be allowed. Where there is sufficient sea room, vessels should keep at least 5 nautical miles clear of these installations. Due allowance should always be given to prevailing weather conditions and the possibility of engine, steering or other mechanical failure. Mariners should be mindful of regular FPSO offtake operations involving ships of up to 75,000 Deadweight tonnage (DWT) at the Tui and Maari oil fields. The combined length of an FPSO and offtake tanker is some 850m.

**ANCHORING AND FISHING IN THE VICINITY OF THE PERMANENT INSTALLATIONS IS PROHIBITED** - For more information see *New Zealand Notice to Mariners 13* on page 243.

**Importance of Keeping Charts Up-to-Date**

6. The positions of the permanent oil and gas installations, submarine pipelines, together with the safety zones and prohibited anchoring and fishing areas, are shown on appropriate New Zealand charts. The positions of exploration rigs that change their location from time to time are promulgated in New Zealand coastal navigational warnings and *Fortnightly NZ Notices to Mariners (NM)*. Mariners should ensure that their charts and navigational warning information is up-to-date at all times.

Authorities : Maritime New Zealand; Land Information New Zealand

Certain warships cannot comply fully with the requirements of the *Collision Regulations Order 1976*, as to the number and positioning of lights, but these warships comply as closely as possible in accordance with Rule 1(c) and (e). Some vessels of 50 metres in length or over cannot be fitted with a second masthead light, or may have such lights placed in positions that differs from those normally associated with a ship of that size, owing to their special construction.

Authority: Royal New Zealand Navy

**Status**

1. The GPS constellation of 24 satellites is complete and available for civil use.
2. Mariners are advised to use GPS with the same caution they apply to other aids to navigation and to ensure that positions are checked by all available means.

**Derived Positions and Charts**

3. GPS is referenced to the World Geodetic System 1984 (WGS 84) datum. This datum relates positions on the Earth's surface, or in space, to a mathematically defined figure, in this case the WGS 84 spheroid (often referred to as an ellipsoid), which is used to approximate, or to model, the complex shape of the Earth. Its origin is the Earth's centre of mass and it provides positional reference throughout the world. WGS 84 is thereby a global, geocentric datum.
4. Local or regional datums such as the New Zealand Geodetic Datum 1949, use different, non-geocentric spheroids which provide close approximation to the shape of the Earth over a selected area but become progressively poorer beyond that region.

**It is essential**, wherever possible, that the datum to which positions are referred is compatible with the datum used for the chart on which the position is to be plotted.

5. Charts referred to the WGS 84 datum enable GPS-derived positions, referred to the WGS 84 datum, to be plotted directly.
6. Charts not referred to WGS 84 datum, having a '**SATELLITE-DERIVED POSITIONS**' note, provide latitude and longitude shift values which enable GPS-derived positions to be adjusted before plotting on the chart.
7. The remaining charts, some of which carry a note stating that a satellite-derived position shift cannot be determined, are those for which insufficient details of horizontal datum are known. It is important to note that in the worst cases, such as isolated oceanic islands or charts of great antiquity, positions may be several miles discrepant from those derived from GPS. Internal positional discrepancies in such charts are the result of horizontal control inconsistencies within, and between, sources of data used in their compilation and **MAY BE SIGNIFICANT TO NAVIGATION**. Mariners are therefore advised to make greater use of classical methods of observational position fixing when close to the shore or navigating in the vicinity of dangers. The relative positions of features may be more reliable for navigation than the use of unadjusted satellite-derived positions on a chart whose horizontal datum cannot be defined.

**Chart Scale**

8. Positions plotted on, or extracted from, a chart will contain an element of imprecision related to the scale of the chart. Thus, for example, at a scale of 1:600,000, a chart user who is capable of plotting to a precision of 0.2 millimetres must appreciate that this represents approximately 120 metres on the ground. A position shift, say from one datum to another, of this magnitude is therefore meaningless at such a scale. Similarly, at 1:25,000, the plotting error may be about 5 metres.
9. Thus, if WGS 84 positions could be defined only to an accuracy of 10 metres, this would not be plottable at the smaller scale in the example, (the chart could effectively be said to be on WGS 84 Datum) but would be plottable (and therefore significant) at the larger scale. This explains why it is not uncommon for small and medium scale approach charts to be referenced to the WGS 84 datum, while the larger scale port plans have no quoted horizontal datum.

Authority: Land Information New Zealand