



Form 3: Initial environmental assessment and sensitive environments contingency plan

Regulation 11(c), Exclusive Economic Zone and Continental Shelf (Environmental Effects– Permitted Activities) Regulations 2013

How to use this form:

This form should be completed by organisations planning to carry out marine scientific research, prospecting, or exploration. It fulfils the initial environmental assessment and contingency plan requirements of Schedule 2 of the Exclusive Economic Zone and Continental Shelf (Environmental Effects – Permitted Activities) Regulations 2013.

This form must be provided to the Environmental Protection Authority (EPA) at least 5 working days before commencing the activity.

Note: Items marked in italics are non-compulsory fields; however, inclusion of this information will assist the EPA in processing this form.

Please note that this completed form, once received and processed by EPA, will be posted on the EPA website.

Submitting in hard copy:

If you wish to provide this form in hard copy, please post your completed form to: Environmental Protection Authority, Private Bag 63002, Wellington, 6140.

Submitting electronically:

If you wish to provide this form electronically, please email your form to: eez.compliance@epa.govt.nz

Any form submitted electronically should be attached to an email that sets out:

- The details of the person undertaking the permitted activity (the operator);
- The name of the person supplying the completed form; and
- A statement that the person is authorised to supply the form on behalf of the operator.

Note: there is an 8 MB limit on electronic files submitted via email.

All forms prescribed by the Exclusive Economic Zone and Continental Shelf (Environmental Effects – Permitted Activities) Regulations 2013, as well as suggested templates for providing other information, may be viewed and downloaded from our website at www.epa.govt.nz or requested by contacting us:

Private Bag 63002, Wellington, 6140

Email info@epa.govt.nz

Ph +64 4 916 2426

Fax +64 4 914 0433

Operation name:

Name used by operator to reference the activity described in this form: **HOBITSSII**

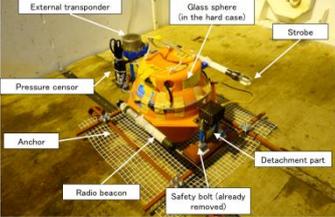
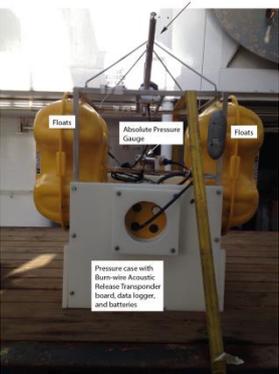
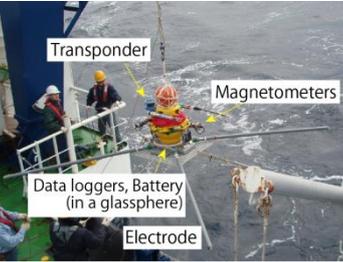
Details of person undertaking permitted activity

Company name:	GNS Science		
Contact person:			
Phone number:	+64 4 570 4832		
Mobile number:		Fax number:	+64 4 570 4600
Physical address:	1 Fairway Drive, Avalon. Lower Hutt, 5010	Postcode:	5010
Postal address (if different):	PO Box 30368	Postcode:	5040
Email address:			

General description of permitted activity

Type of activity: <i>(e.g. marine scientific research, prospecting)</i>	<p>Marine scientific research.</p> <p>We will undertake research offshore the East Coast of the North Island from north of Poverty Bay to south of Wairarapa and in water depths from 100 m to 4400 m.</p> <p>Our aim is to document seafloor deformation and seismicity at the Hikurangi subduction zone where land instruments have recorded tectonic activity crossing the coastline and extending offshore. We have identified sites where ocean bottom seismographs, pressure gauges, acoustic GPS, electromagnetic, and temperature mooring instruments will monitor active tectonic processes for up to 6 years in rolling deployments.</p>
Description of methods to be used to undertake the activity:	<p>Seafloor instruments</p> <p>A range of independent seafloor observatory geophysical instruments will passively monitor tectonic processes. Instruments will be dropped over the side of the Research Vessels during the duration of this activity. A range of instruments are being deployed and some of these will be collocated. In general, they each have a buoyant sphere containing the instruments, or a steel frame with a pressure-resistant case holding the instruments, floats, an anchor, and release mechanism (Figures 1 to 4). All components of the instruments are released by transponder communication and float back to the surface apart from the anchor, which remains on the seafloor at the end of deployment cycle (up to 1 year). The anchors that hold the instrument to the seafloor are also variable depending on instrument but some are about ~1 m square and comprise 4 metal bars bolted in the corners (Figures 1, 2, and 4). Other anchors comprise two small steel cylinders (figure 2). The weight of the instruments and anchor at deployment varies but are up to 250 kg and the anchor is about 30-50 kg depending on the type of instrument. The anchors are released from the instrument when we recover them, to make them positively buoyant so the instrument will float to the surface.</p>

The weights remain on the seafloor and will rust over a few tens of years but will likely be buried by mud before that.

	<p>Figure 1. Typical ocean bottom seismograph (OBS). The metal sphere containing the instruments and data logger is recovered. The metal anchor frames (35-50 kg) remain on the seafloor. Some OBSs also have Pressure Gauges attached.</p>
	<p>Figure 2. Tohoku University (Sendai) Ocean Bottom Pressure Gauge (OBP). The sphere containing the instrument is recovered. The metal anchor frames (35-50 kg) remain on the seafloor.</p>
	<p>Figure 3. University of Texas Absolute Pressure Gauge (APG). Floats and instrument casing are recovered. Anchor weights (not visible, small steel cylinders) remain on the seafloor.</p>
	<p>Figure 4. Ocean Bottom Electromagnetometer (OBEM). The sphere containing the instrument and arms of the magnetometer are recovered. The metal anchor frames (35-50 kg) remain on the seafloor.</p>
	<p>Figure 5. Tohoku University Ocean Bottom Acoustic GPS – set of 3 deployed within 1 km of each other. The sphere containing the instrument is recovered (see image). The metal anchor frames similar to Figure 2 (35-50 kg) remain on the seafloor.</p>

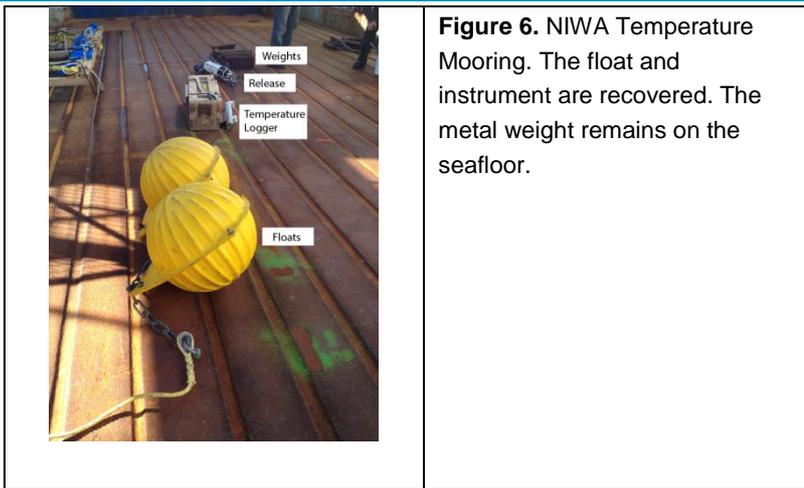


Figure 6. NIWA Temperature Mooring. The float and instrument are recovered. The metal weight remains on the seafloor.

The locations of all deployed instruments will be gazetted in the Notice to Mariners.

Location of permitted activity

Co-ordinates of area where activity will be undertaken:
(latitude and longitude)

Activity will be undertaken in the area offshore East Coast Figure 7).
Bounding coordinates - 37.8°S 178.6°E, -38.2°S 179.9°E, 41.9°S 175.1°E, 42.2°S 177.0°E

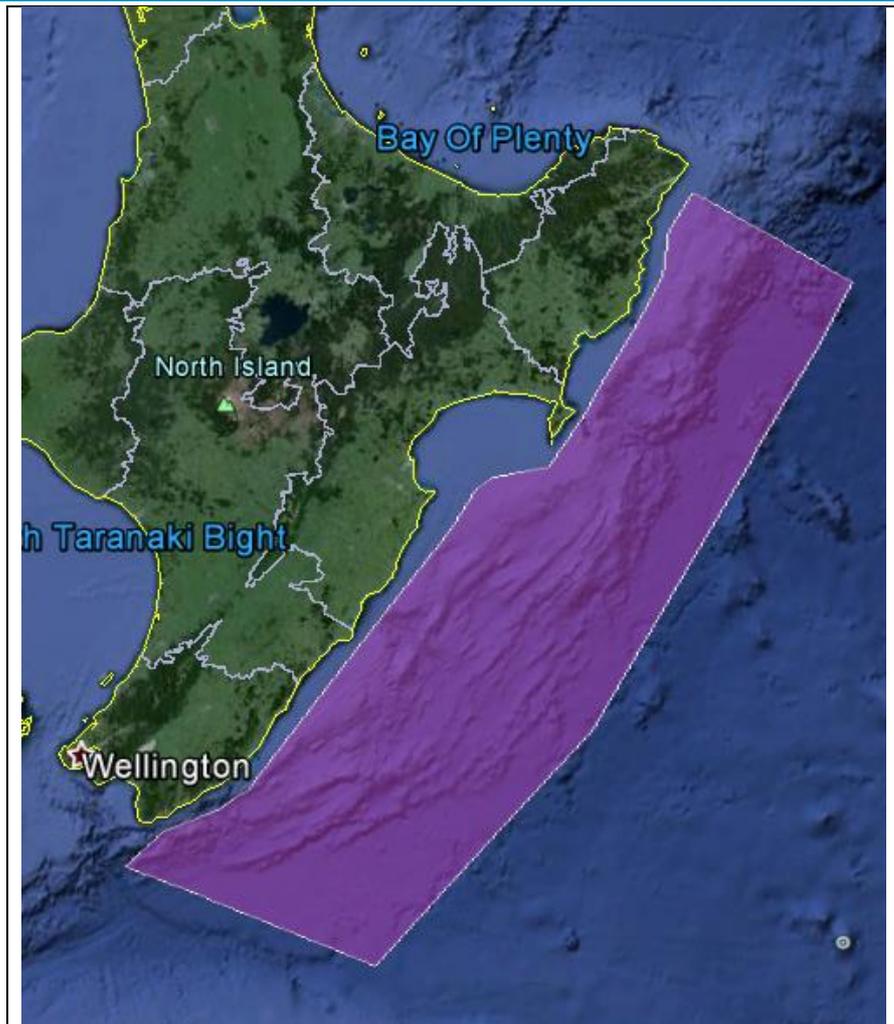


Figure 7. Location map, region encompasses East Coast of the North Island from north of Poverty Bay to offshore Wairarapa. Instruments will be deployed at locations within the polygon to monitor seafloor deformation,

Description of the current state of the area and the surrounding environment, including any known sensitive environments:

Mixed rocky and soft sea bottom. Reefs, thickets, gardens or beds of organisms are not expected (not obtained in previous seabed sampling in the region).

Description of the likely effects of the activity on the environment:

Transient and very localised seabed disruption at the point of instrument deployment on the seabed. Sediment and any organisms will immediately settle and the likely effects of our proposed activity are less than minor. Anchors, which remain on the seabed, will rust over a few tens of years but will likely be buried by mud before that.

Identification of sensitive environments

Describe any sensitive environments likely to exist in the area where the activity will be undertaken:

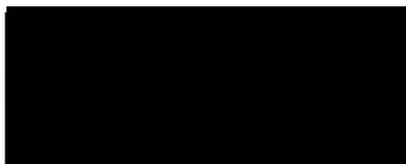
From previous dredging experience in the area (for example during TAN1114) the seafloor comprises grey mud and more compacted mudstone on ridge tops. Biological samples recovered during TAN1114 were a mixture of seaweed, tubeworms, and gastropods. None of the samples were identified as coming from sensitive environments. Previous voyages on the East Coast have identified seafloor cold seeps and vent fauna at some of these sites have been catalogued. Although a few of the ephemeral vents have been observed on the shelf in water depths < 200m depth, these have not been systematically mapped nor have their fauna been studied.

Contingency plan

Specify measures that could be taken to avoid, remedy, or mitigate the adverse effects of the activity on sensitive environments:

<p>a) Can the activity be undertaken in another place?</p>	<p>Yes / <u>No</u>*</p> <p>Explain: The type of seismicity and earth deformation that occurs offshore Gisborne is unique. Our seafloor array will give scientific insight about that specific region. No other area can be monitored to undertake this research.</p>
<p>b) Can the activity be undertaken in a way that reduces the amount of contact with the seabed?</p>	<p>Yes / <u>No</u>*</p> <p>Explain: Our instruments comprise an anchor that has a foot print of 1m² and will impact the seabed at each instrument site only, but, has overall less than minor impact on the environment. This is currently the only method available to record earth deformation and seismicity offshore East Coast.</p>
<p>c) Can different methods be used in undertaking the activity to lessen its effects on the sensitive environment?</p>	<p>Yes / <u>No</u>*</p> <p>Explain: There are no known sensitive environments in the survey area. However, we will locate instruments away from vent sites if we observe tell-tale vent plumes on ships echo-sounder.</p>
<p>d) Can the activity be undertaken in a way that lessens its effects in the sensitive environment?</p>	<p>Yes / <u>No</u>*</p> <p>Explain: There are no known sensitive environments in the survey area.</p>

* Select one



15 June 2014

Signature of authorised contact person

Date

Name:

Title: Head of Department of Marine Geoscience

Note: A signature is not required for electronic (email) forms.