

# Report of the Non-Commercial Surveys Technical Working Group

Part of the 2015–2016 Seismic Code of Conduct Review  
process



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Cover photo: Research survey. Photo: © Steve Wilcox, NIWA

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<sup>1</sup>MCDEM was also available for comment if required, but this was not necessary.

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# **Preface: background to the Technical Working Group**

## **The review of the Code**

In 2012, the Department of Conservation (DOC) developed a voluntary Code of Conduct for Minimising Acoustic Disturbance to Marine Mammals from Seismic Survey Operations ('the Code'), in consultation with international and domestic stakeholders representing industry, operators, observers and marine scientists. The Code (and its supporting reference document) aims to provide effective, practical measures to minimise the acoustic disturbance of marine mammals during seismic surveys. It was updated in 2013 after being incorporated by reference into the Exclusive Economic Zone and Continental Shelf (Environment Effects – Permitted Activities) Regulations 2013 ('the EEZ Regulations'; see SR2013/283).

At the time the 2012 Code was implemented, DOC committed to the Code being reviewed after three years. Accordingly, the review of the 2013 Code began in July 2015, with a request for feedback from numerous stakeholders (the Seismic Code Review Group; SCRG). In August 2015, this feedback was combined with that obtained during the three years since implementation

## **Role of the Technical Working Groups**

In August 2015, DOC established nine technical working groups (TWGs) to address the technical issues raised in the feedback and to provide expert advice on the most suitable methods for addressing them. It was intended that DOC would then draw on this advice when redrafting the Code. The TWGs were:

1. Marine Mammal Observer/Passive Acoustic Monitoring Requirements
2. Marine Mammal Observer/Passive Acoustic Monitoring Observer Data
3. Marine Mammal Impact Assessments/Marine Mammal Mitigation Plans
4. Consultation Requirements for Operators
5. Sound Propagation and Cumulative Exposure Models
6. Acoustic Ground-truthing
7. Non-Standard Surveys
8. Non-Commercial Surveys
9. Biologically-Relevant Sound Levels

The work of these TWGs was supplemented by two workshops co-hosted by DOC in association with scientific conferences in 2015, to discuss the appropriate mechanisms to facilitate the integration of methodological and technological advances into the revised Code.

The nine TWGs worked until January 2016 to provide feedback on the issues assigned to them. This is the report of the eighth TWG: Non-Commercial Surveys.

## Scope of work for the Non-Commercial Surveys TWG

Seismic surveys are not only used for petroleum and mineral exploration, but also for various research objectives – most notably related to natural seismic activity, and to geophysical studies on the geological evolution of continental margins and sedimentary basins. Often these activities are planned well in advance and could be subject to many of the same conditions as commercial surveys. However, they are also undertaken in emergency conditions,<sup>2</sup> which might not allow for many Code elements to be employed, or in partnership with foreign governments exempt from mandatory use of the Code under current legislation in the EEZ.<sup>3</sup>

This TWG was asked to consider the non-commercial situations in which seismic surveys are undertaken, and to recommend if and how the Code's standard provisions might be modified in each case. The TWG was also asked to consider special language to be included for non-commercial surveys only.

This report delivers the TWG's advice on how DOC might address the various issues in this area within the revised Code. Specifically, the TWG has:

- 1) Provided options to reduce potential constraints on non-commercial surveys from the mitigation required by the Code, while maintaining the required level of protection for marine mammals
- 2) Provided options for ways to minimise the impact of emergency/short-notice non-commercial surveys on marine mammals, without constraining survey deployment

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<sup>2</sup> For example, the rapid-response seismic survey following the Christchurch earthquakes.

<sup>3</sup> Although not from their obligation to avoid taking marine mammals under the Marine Mammals Protection Act 1978.

# TWG recommendations and suggestions

## 1. Context of recommendations and suggestions

Many of the concerns raised in the review of the Code relate to the cost of meeting the requirements for research operations (eg costs of training and/or contracting MMOs, or developing MMIAAs). TWG participants were asked to recommend how the objectives of the Code (eg reducing the disturbance to marine mammals) could be achieved for non-commercial surveys with less disruption to seismic survey operations.

## 2. Recommendations

The TWG recommends that:

- Code requirements should be reduced as much as possible for non-commercial surveys. Examples are:
  - Passive acoustic monitoring (PAM), because its effectiveness is questionable when used on research surveys that employ multiple sound sources
  - Marine mammal observer (MMO) requirements
  - Marine mammal impact assessment (MMIA) and planning requirements
  - Ground-truthing of acoustic propagation models

Presently the Code allows for non-commercial surveys to operate with reduced requirements based on the airgun chamber size. The TWG recommends this criterion be left within the new Code.

- Government agencies, such as the Ministry of Business, Innovation and Employment, provide extra funds, when available, for any mitigation efforts needed. The uses of such additional funds would include (but not be limited to):
  - Completion of research surveys
  - Funding opportunities to gain better knowledge about the impacts of seismic sources on marine mammals in New Zealand, including ground-truthing experiments
- The Code should be applied to 'emergency' surveys (a term that would need definition) on a case-by-case basis. However, the TWG offers no suggestions for how effects of these surveys (or other non-commercial operations) could be mitigated without constraining deployment and survey outcomes.
- Multibeam echosounders should not be incorporated into the Code. However, there is merit in DOC collecting data on their use, to help assess seismic survey impacts. True evaluations of impacts on marine mammals would require seismic surveys to be the

only sound source; in reality there are often several acoustic systems operating at once on research vessels, to maximise data collection.<sup>4</sup>

- DOC's online 'Off Seismic Survey' forms should be changed to reflect data collection during multibeam surveys and other ship operations, not just seismic surveys. In particular:
  - Within the 'Covering sheet' tab of the Off Seismic Survey form there should be a section about the acoustic equipment specifications, eg model number, sound frequency, beam angle, sub-bottom profiler details, etc.
  - The 'Off Survey Effort' tab, and the options within the 'Array status' drop-down list, assume the only activity being undertaken is 'seismic' work. There should be fields for multibeam echosounders, sub-bottom profilers, side-scan sonars, and (possibly) camera and coring/dredging deployments that use pingers or location beacons. These are all common activities during non-commercial voyages, and it is useful to gather data about these sources for evaluating the effects of research instrumentation sounds on marine mammals.
- Ground-truthing and other data from commercial surveys should be made publicly available, to allow sound propagation models to be improved.

### 3. Further suggestions

The TWG also noted:

- DOC could consider allowing officers on the vessel's bridge to be trained, and to function,<sup>5</sup> as MMOs.

The TWG acknowledged this would not always be appropriate: for example, standard practice on the RV *Tangaroa* is for there to be only one officer on the bridge, who steers the ship on survey lines, maintains station-holding and/or facilitates operations. These primary activities would degrade the efficacy of the MMO role and might themselves be compromised by an additional MMO responsibility. The extra training costs to the vessel operators would also stretch research budgets if passed on.

- The term 'wholly government-funded' needs to be better defined.
- Foreign government research vessels are exempt from the Code, while New Zealand's only research vessel, RV *Tangaroa*, is not. RV *Tangaroa* is also not 'wholly government-funded', as there is a financial imperative for NIWA to engage in commercial work with industry to ensure the long-term viability of a research vessel capability for New Zealand.
- There are logistical difficulties deploying New Zealand MMOs on ships passing through New Zealand EEZ waters (ie without berthing at port).
- Some research operations are multi-disciplinary (ie not solely focussed on gathering seismic reflection data). The cost of taking MMOs, even for the quite short periods

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<sup>4</sup> Examples include, but are not limited to, sub-bottom profilers, normal shipboard narrow, single-beam echosounders, and side-scan sonars.

<sup>5</sup> MMOs must not also be crew members under the current Code.

when the seismic gear is being operated, can therefore be prohibitive for government-funded voyages.

- It may be necessary to distinguish between coastal and 'high seas' surveys. When vessels operate near the coast with seismics, is there a potentially greater risk of affecting marine mammals (due to the shallow water and risk of animals beaching)?
- More opportunities to collect marine mammal sighting data, using RV *Tangaroa*, are needed.
- There should be an option in the 'Influence on Observations' field to account for observations before sunrise and after sunset - when light is failing but MMO observations can still be made. Presently the definitions really only allow the choice of 'clear CL' - which is rarely the case. By effectively excluding the dawn and dusk periods for MMO observations, important information may be missed.