

**Small-scale Management Programme for
Mediterranean Fanworm
(*Sabella spallanzanii*)**



**Prepared for
Nelson City Council**

July 2017

Cover photo: Mature *Sabella* with 'the fan' extended – photo courtesy of MPI files.

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1 Introduction

1.1 Background

Declaration

Nelson City Council (**The Council**) has declared by public notice, dated **1 July 2017** (refer to Appendix 1) a small-scale management programme (**SSMP**) under Section 100V of the Biosecurity Act 1993 (**the Act**)¹. This SSMP relates to the unwanted organism and marine pest Mediterranean fanworm (*Sabella spallanzanii*), known as **Sabella**.

Overview of the current situation

Sabella is an introduced, tube-dwelling fanworm that attaches itself to natural and artificial surfaces (eg, rocks, vessels and structures) in subtidal marine environments. Since 2008 it has become well established in many parts of the country (Whangarei, Waitemata, Lyttelton and Tauranga Harbours and on the Coromandel Peninsula). Surveillance in the *Top of the South* (TOS)² area from 2013 onwards has found *Sabella* on commercial and recreational vessels and marine structures. It is poised to spread to marine farms and into natural ecosystems.



Co-ordinated and timely responses are required to slow and contain the spread.

Photo: Northland Regional Council

Sabella has been found at locations in Picton/Waikawa (Marlborough), Tarakohe (Tasman) and Nelson Haven (Nelson City Council) and may already occur undetected at other locations. Infestations have been suppressed to date, by physical removal of fanworms where found, and some vessels have been treated. Responses have been led by the TOS councils, the Top of the South Marine Biosecurity Partnership (TOSMBP) and the Ministry for Primary Industries (MPI).

The implementation of this SSMP is as an interim measure that will ultimately lead to the inclusion of *Sabella* as a declared pest in the Regional Pest Management Plan for Nelson, and possibly the creation of a regional (or inter-regional) pathway management plan³.

¹ Refer to Appendix 2 for all definitions and interpretations for this SSMP, that are covered under the Biosecurity Act.

² The 'Top of the South' area refers to a marine biosecurity partnership - Top of the South Marine Biosecurity Partnership (TOSMBP) involving stakeholders with an interest in the marine environments covering the Tasman and Marlborough Districts and Nelson City Council areas. Stakeholders include: the three councils, DOC, MPI, the aquaculture industry, iwi and port companies. The goal of the partnership is to protect the Top of the South from marine invaders. More information can be found at <http://www.marinebiosecurity.co.nz/>. Refer also 3.2.

³ Both a regional pest management plan and a regional pathway management plan are developed under Part 5 provisions of the Biosecurity Act. A pest management plan is about managing an individual species (eg, *Sabella*), whereas a pathway plan deals with the ways in which a pest like *Sabella* is moved or vectored from place to place. Refer also 4.2.

1.2 Purpose

The purpose of this small-scale management programme is to set out the measures that Nelson will use to manage the impacts of *Sabella* in the city in the next 3 years. Measures include: surveillance, monitoring and information collecting, direct control of any *Sabella* found, district-wide advocacy initiatives, spread risk mitigation practices through the aquaculture industry and regulation where appropriate under the Biosecurity Act. The Council requires access to powers under the Act to effectively manage *Sabella*, in the absence of it being a named pest in the Regional Pest Management Plan. This SSMP should be read in conjunction with the SSMP Operational Plan (refer to Section 5.2).

1.3 Commencement and duration

The small-scale management programme came into effect on 1 July 2017. The programme is intended to run for a period of 3 years (until 30 June 2020). However, under Section 100V(6) Act the SSMP ceases to have effect on the occurrence of the earliest of the following:

- the Council declares by public notice that the programme is failing to control *Sabella*;
- the Council declares by public notice that *Sabella* has been eradicated or controlled;
- five years have passed after the declaration of the programme.

1.4 Document structure

Section 1 has provided some context around *Sabella* and outlined the purpose and timings of the programme. **Section 2** provides more detail of the impacts of *Sabella* in relation to its effects on: economic production, the environment (including enjoyment of the natural world) and the values of importance to Māori.

An overview of the presence of *Sabella* in the district is provided in **Section 3**, including TOSMBP work that has occurred prior to the SSMP's development and will continue, supporting the SSMP. **Section 4** addresses legislative requirements around developing SSMPs, noting the pre-requisites in the Act that Council is satisfied have been met. Options for future *Sabella* management are summarised.

Implementation of the SSMP is fully outlined in **Section 5**, including stating the programme objectives, detail of the seven key management measures to be used and 13 Biosecurity Act powers that are to be conferred and how they might be applied during the SSMP. Other matters of relevance, such as the SSMP Operational Plan between the TOSMBP parties, are also covered.

2 Background

2.1 Overview of *Sabella*

Sabella is a segmented, tube-dwelling worm which fixes itself to natural and artificial surfaces in the subtidal marine environment, living in depths between 1 - 30 metres. The leathery tube, which is often muddy looking in appearance, has a single and very prominent spiral fan (feeding tentacles) which extend out from the 'free end' of the tube, with the orange/brown/white coloured fan up to 15 cm wide when fully spread.

Sabella is the largest fanworm found in New Zealand (growing anywhere from 40 to 80 cm long) and can be differentiated from native fanworms, which are smaller and have two spiral fans. *Sabella* is a significant marine pest as it forms dense beds which will out-compete other desirable species and threaten the integrity of natural ecosystems. The photo at right (source: MPI files) shows an infestation of *Sabella* (with fans mostly retracted) creating ecosystem dominance.



A 2014 report commissioned by Marlborough District Council⁴ found that effective *Sabella* management poses many questions and concerns, due to the following factors:

- rapid rates of growth and ability to regenerate damaged body structures;
- wide environmental tolerances and a lack of predators;
- can live on most artificial and natural habitats, including shell debris in soft sediments;
- high reproductive rates and long spawning season (May to September); and
- has high potential for natural dispersal as well as human-induced spread (through hull biofouling, ballast water and movement of aquaculture equipment).

The report concluded that because of its biological and ecological characteristics, *Sabella* has a high potential risk of spreading further in Marlborough and the Top of the South (TOS) as existing populations undergo further spread. The most likely vectors of spread in the TOS area are through the marine farming sector and via recreational boating. The TOSBMP estimates that there are 3000 'resident' vessels in the TOS area and a further 2000 vessels enter each year.

Technologies and methods are available to slow the spread of *Sabella* but not to eradicate it. Unmanaged, it is possible that it could be widespread in the TOS area within a decade. The costs associated with widespread *Sabella* are unknown, but are potentially high, particularly for marine farmers and for areas of high biodiversity value (if it was possible to put a monetary value on natural ecosystems).

The following sections describe the TOS values that are at risk if *Sabella* is left unmanaged and allowed to spread with no regional intervention. Information is shown in summary form only. Readers are referred to the references cited for greater context and more complete information.

2.2 Effects on economic values

The biggest threat to the economic values in the TOS are potential impacts on the marine farming/aquaculture industry⁵. *Sabella* can quickly become established in a wide range of habitats and can attach directly to shellfish. It will readily settle on mussel grow-out lines and may reduce mussel growth by altering water flow around the lines and competing with

⁴ Fletcher, L.M. for Marlborough District Council 2014. *Background information on the Mediterranean fanworm Sabella spallanzanii to support regional response decisions*. Cawthron Report No. 2479A.

⁵ The TOS Marine Biosecurity Strategic Plan notes that the top of the South Island collective area has the largest concentration of marine farms in New Zealand.

mussels for suspended food (CSIRO 2001)⁶. The mussel industry is worth approximately \$193M per annum⁷ and is a significant contributor to the TOS economy. Mussel farmers anecdotally consider there would be a direct correlation between increasing *Sabella* density and distribution and lower mussel production (and corresponding increased costs of mussel farming through having to control *Sabella*). Fletcher (2014) noted that established colonies of *Sabella* on marine structures would be very costly to remove.

Fletcher (2014) further noted that *Sabella* has the potential to incur costs to the commercial fishing⁸ and shipping industries as more frequent hull cleaning may be necessary when vessels are docked in an infested area (eg, Port Nelson). If uncontrolled, it could become the dominant fouling species in a marina, weighing down structures and spreading to moored vessels, thereby incurring costs for owners.

2.3 Effects on environmental values

The level of *Sabella* invasiveness (distribution and density) and associated impacts are noted by Fletcher (2014) to vary considerably between locations (due to the underlying substrate) and at different times of the year. At high densities, the fanworms efficiently filter food from the water column, which could affect natural shellfish beds and could modify natural ecosystems through the exclusion of native species. Mediterranean fanworm can out-compete native suspension feeders. Some ecosystems do offer natural resilience as marine pest species often colonise bare space and newly cleared areas. If this space is not available, they may struggle to become established (Fletcher 2014).

Other studies from around New Zealand and overseas (as summarised in Fletcher, 2014) have documented ecosystem changes, ranging from alteration of benthic habitats due to the physical presence of the fanworm, growth over seagrass beds, effects on organic nitrogen recycling, effects on the interactions of microbial communities in natural situations and effects on water flow (by providing barriers to water movement and a reduction in water exchange among benthic communities).

2.4 Effects on enjoyment of the natural environment (recreation)

Sabella may impact on recreational fishing resources by altering the local ecology in infested areas and has the potential to have significant impacts on recreational boating activities due to the need for increased hull hygiene. Awareness of the risks of hull-fouling among this sector however is low. Changing behaviours of this diffuse group remains one of the biggest challenges for the TOSMB partnership. Even though *Sabella* is a marine species, and therefore more difficult to see and notice in everyday situations, people would be impacted aesthetically by the visual presence of *Sabella*, especially divers and snorkelers recreating in high value marine ecosystems. The costs of these impacts are not currently estimated.

⁶ Commonwealth Scientific and Industrial Research Organisation (CSIRO), 2001. Marine Pest Information Sheet: giant fanworm (*Sabella spallanzanii*). Summary: Overview of the establishment and impacts of *Sabella* in Australia.

⁷ Information supplied by Rebecca Clarkson, Aquaculture New Zealand - extracted from New Zealand Institute of Economic Research publication titled: The economic contribution of marine farming in the Marlborough region – A Computable General Equilibrium (CGE) analysis. NZIER report to Marine Farming Association, September 2015.

⁸ Nelson is New Zealand's busiest fishing port – source TOS Marine Biosecurity Strategic Plan, 2009.

2.5 Effects on Māori values (the relationship between Māori, their culture, and their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga)

Māori in the top of the South Island are highly connected with the marine environment⁹. This includes a culture of use and protection of marine resources embodied in kaitiakitanga. The presence of an introduced species such as *Sabella* can:

- diminish populations and diversity of valued species, such as paua, karengo and kina;
- affect the mauri and wairua of places and ecosystems;
- damage valued places;
- change the character of wāhi tapu (eg, marine burial sites).

The TOS Marine Biosecurity Strategic Plan (the strategic plan)¹⁰ outlines the role of iwi in marine biosecurity in the three districts, including listing nine iwi with interests in the TOSMBP. They are:

- Ngati Tama;
- Ngati Koata;
- Te Atiawa;
- Ngati Kuia;
- Ngati Apa;
- Ngati Rarua;
- Rangitane;
- Ngai Tahu; and
- Ngati Toa Rangatira.

Iwi have two separate and distinct roles under the strategic plan. The first relates to their desire to exercise customary rights over the TOS area by fulfilling their kaitiakitanga responsibilities. This role brings with it knowledge and experience about the sustainable use of marine resources within the area. The second role is around interests in marine farming, aquaculture, fishing and other marine industries in the TOS area.

Together, these roles give iwi a unique perspective on marine resources in the TOS area as well as a practical working knowledge of the local marine environments. The overall iwi position, through the strategic plan, is that the presence of marine pests is a direct result of commercial activities. The iwi customary role needs to be kept entirely separate but noting nevertheless that iwi have an interest in any measures or programmes aimed at marine pests that impact on customary fisheries as well as commercial fisheries. Iwi see their TOS role as being advisory, including membership of any working groups established to oversee the planning and implementation of marine biosecurity programmes, including this SSMP. Iwi are also supportive of legislation to bring certainty to how biosecurity issues will be

⁹ Draft Top of the South Marine Biosecurity Recreational Vessels Pathway Management Plan, December 2014. (Prepared as a case example for the Top of the South Marine Biosecurity Partnership Management Committee for the purposes of scoping production of a Plan).

¹⁰ See <http://www.biosecurity.govt.nz/files/pests/surv-mgmt/marine-biosecurity-strategy.pdf>.

addressed and seek involvement in the formulation of relevant policy/policies that might lead to the drafting of appropriate regulations/legislation.

3 Presence in the Top of the South

3.1 Current situation – as at January 2017

Nelson City Council

Several *Sabella* detections were made between 2012 and 2016 within Port Nelson (the commercial port and marina), costing to date \$64,000 (as summarised below):

- 2012 – first detection in marina (TOS recorded incident).
- MPI port survey in 2013, multiple incidents were reported, mostly vessel-related and one detection on a marina pontoon.
- Summer 2014 – two surveys carried out of marina area and channel markers. Survey area gradually increased.
- 2015 – vessel in port found to be infested, had not been in either Auckland or Lyttelton (focused on supplying oil drilling operations).
- Current programme (2016) saw surveys increased to twice annually. Although visibility in port area is not great, fanworm incidences/removals have decreased (from approximately 20+ per dive to approximately 4).

Sabella is thought to be suppressed in Port Nelson, with only a handful of large individuals found to date.

Tasman District Council

The first *Sabella* detection was made at Port Tarakohe in September 2016. In all, 12 adult fanworms were removed from the port structures and around the marina, funded by Tasman District Council (cost \$6,000). As at January 2017, planning was underway to determine the levels of future surveillance needed for this area (covered in SSMP Operational Plan).

Marlborough District Council

Several *Sabella* detections were made between 2014 and 2016 in the Picton/Waikawa Bay areas, costing to date \$69,000 (as summarised below):

- February 2014 – first recorded incursion in the district, on a vessel with 12 fanworms found. Owners voluntarily cleaned the vessel and no further *Sabella* has been found in relation to vessel in two subsequent surveys.
- During a marine survey (November 2014) two fanworms detected in Picton marina. A delimiting survey found one further animal.
- Intensive surveys focusing on *Sabella* primarily were carried out in 2015 at Picton and Waikawa marinas – May 2015 (one fanworm), November and December 2015 (one juvenile fanworm found on a vessel in the Picton outer marina).

- In March 2016, the first detection was made at Waikawa Bay, with one juvenile fanworm removed from a vessel (poorly antifouled, having been moored in Tennyson Inlet for 5 months).
- Two months later (May 2016) another single fanworm was detected at Picton marina. Both the above vessels had tracebacks made to Westhaven marina in Waitemata Harbour.
- September 2016 survey resulted in a further single fanworm on an outer pontoon in Picton marina.

The surveys revealed little other marine pests/growth, with good visibility in inner harbour/bay areas, worsening in outer areas. Surveys were extended to substrate areas and included port surveys, marine farms and monitoring of vessels. Other than the infested vessel at Waikawa Bay, no *Sabella* were found, although the marina was not under active surveillance at the time. One of the detections was a direct result of local educational/awareness efforts. As at January 2017, *Sabella* is suppressed and thought to be potentially eradicable.

3.2 Control and management programmes – other related work

Current work carried out by the Council outside of this SSMP is primarily undertaken through representation of the TOSMBP. The TOS Marine Strategic Plan sets out the following brief for involvement:

- undertake co-ordinated marine biosecurity education and advocacy activities;
- provide integration of regional with national marine biosecurity systems;
- provide partners with access to regional intelligence, resources and organisational structures;
- provide operational resources for nationally-led activities (eg, personnel and boats);
- co-ordinate local surveillance programmes including stakeholder involvement.

The Council will continue these programmes and initiatives to support and complement the SSMP.

4 Legal Requirements

4.1 Biosecurity Act considerations

Overview

Small-scale management programmes are the primary response tools available to regional councils for managing incursions of unwanted organisms that are not declared pests in a regional pest management plan for the region (and are not managed wholly by the Ministry for Primary Industries). Sections 100V and 100W of the Act outline the process to be followed, including pre-requisites to meet around the subject organism causing serious and unintended effects (Section 100V) and the exercise of Biosecurity Act powers that are proposed to be used under an SSMP (Section 100W).

Recent changes to biosecurity policy

In September 2015, a National Policy Direction (NPD) for Pest Management became operative, guiding the development of biosecurity policy and plans in New Zealand. In relation to small-scale management programmes, the NPD provides clear directions. These are summarised as follows:

- the objectives in the SSMP must state the adverse effects that are being addressed, from those listed in Section 54(a) of the Biosecurity Act¹¹;
- the SSMP must state the outcomes that are sought – being one of more of the following: exclusion, eradication, progressive containment or sustained control¹²; and
- in relation to each outcome above, note the geographic area covered, the extent to which the outcome will be achieved and the period in which the outcome is expected to be achieved.

SSMP pre-requisite assessments

A council may declare a SSMP if it is satisfied that the requirements of Section 100V(2) have been met, which include links with the NPD. Nelson City Council considers that the following six clauses are met, as follows:

- (a) *An unwanted organism present in the region could cause serious adverse and unintended effects unless early action is taken to control it.*

As described in Section 3, *Sabella* has been detected in the district at relatively low densities. Early action to control it is required (based on studies from around the country and overseas) due to the fanworm's ability to rapidly reproduce and spread (see section 2). Further, the impact it can have on iwi, native ecosystems, aquaculture and aesthetics means that *Sabella* could cause serious adverse and unintended effects on the marine environment, which is highly valued for its economic values, cultural values, biodiversity, tourism, recreation, harvesting of seafood, aquaculture, natural character and overall amenity value.

- (b) *The organism can be eradicated or controlled effectively by small-scale measures within 3 years of the measures starting, because:*

- (i) *its distribution is limited; and*
- (ii) *technical means to control it are available.*

There have been a small number of *Sabella* infestations detected in the past 2-3 years (limited distribution) and actions, such as hull cleaning and then applying anti-fouling paint, are available to control it (technical means). Therefore, the Council considers that small-scale measures are appropriate to eradicate or control effectively *Sabella* within 3 years, including exclusion of *Sabella* from areas not currently known to be infested.

¹¹ To provide for the eradication or effective management of harmful organisms that are present in New Zealand, by providing for the development of effective and efficient instruments and measures that prevent, reduce, or eliminate the adverse effects of harmful organisms on economic well-being, the environment, human health, enjoyment of the natural environment, and the relationship between Māori, their culture, and their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.

¹² Refer to Appendix 2 for definitions of these outcomes.

- (c) *The programme is not inconsistent with the national policy direction.*

The Council has prepared this SSMP in accordance with the directions set out in the September 2015 National Policy Direction for Pest Management. Council considers that the SSMP is not inconsistent with that direction, as outlined in (d) below.

- (d) *The process requirements in the national policy direction for declaring the programme, if there were any, were complied with.*

In relation to the three key NPD requirements (summarised in 4.1 above) the adverse effects of the subject in the SSMP objectives are covered in 5.1. Further information on the adverse effects being addressed is detailed in Sections 2.1 to 2.5. The intermediate outcomes being sought are also addressed in 5.1. Section 5.1 further states that the SSMP covers the whole district and that there are many unknown variables which will impact on the outcomes being sought and that it is not applicable to state whether they will be achieved. The duration set is 3 years, by which time it is anticipated that *Sabella* will be covered in other Biosecurity Act plans.

- (e) *The taking of the measures and, if necessary, payment of compensation is likely to cost less than an amount prescribed for the purposes of this section by the Governor-General by Order in Council.*

The Biosecurity (Small Scale Organism Management) Order 1993 prescribes the maximum amount for the purposes of Section 100V(2)(e) of the Act as \$500,000. The Council has undertaken a cost analysis and considers that the taking of the measures will cost approximately \$108,000. There is no provision for compensation in the SSMP.

- (f) *The taking of the measures is unlikely to result in significant monetary loss to any person, other than a person who has contributed to the presence or spread of the organism by failing to comply with biosecurity law.*

There is likely to be some cost to persons who own a building, craft or structure that is 'harbouring' *Sabella*, for example, where a vessel owner is directed to clean the vessel's hull. The cost of regular hull cleaning should, however, be an accepted cost of boat ownership. It is estimated that these costs are between \$500 and \$3,000 per vessel¹³, depending on the vessel size. The Council does not consider this creates a significant monetary loss to those owners, particularly given the risk that these craft pose.

4.2 Other management options

Overview

This small-scale management programme is a short-term measure to address the relatively recent incursions of *Sabella* into the district and the need to be able to access Biosecurity Act powers to undertake urgent control, or other management actions, as deemed necessary. It is likely that *Sabella* management will transition to a more medium to long-term programme, also under the Biosecurity Act. There are two options - (i) declaration of *Sabella* as a pest in the Tasman-Nelson Regional Pest Management Plan, or (ii) development of a regional pathway management plan to better manage the ways in which *Sabella* is spread. The following points highlight the key features of both options.

¹³ Figures based on known costs from Northland Regional Council *Sabella* hull de-fouling work.

Regional pest management plans

Regional pest management plans provide for consultation with communities on the control of specific organisms that are of concern to them. A Proposed Plan sets out the strategic and statutory framework for the management of these 'pests'. In the preparation of plans (as required under Sections 68-78 of the Act), councils must undertake an extensive screening process for each organism nominated to determine what (if any) regional intervention would be appropriate.

Identifying effective and practicable means of achieving control (including developing rules that occupiers are required to adhere to), satisfying cost benefit analyses, identifying exacerbators of pest problems and beneficiaries of control (and subsequently who should pay for management programmes) are among the most important criteria to consider. Plans cannot be inconsistent with other legislation, principally the National Policy Direction for Pest Management 2015 and plans prepared under the Resource Management Act 1991, and the outcomes may be challenged through Environment Court processes. Development of the Proposed Regional Pest Management Plan for Nelson is currently underway and may take up to 2 years to be finalised.

Regional pathway management plans

The ability to develop regional pathway management plans arose from an amendment to the Biosecurity Act in 2012. A pathway plan is designed to prevent marine pests from reaching new areas, rather than responding to a pest once it has arrived and had time to establish. Pest 'pathways' are generally created via human activities that transport a (marine) pest from one place to another; for example, hull biofouling, ballast water and movement of aquaculture equipment. Councils must follow a similar process in the preparation of pathway plans as for pest management plans (as required under Sections 89-98 of the Act). Regional pathway management plans may apply to areas other than entire regions, including inter-regionally.

There is currently one marine pathway plan developed under the Biosecurity Act – the *Proposed Fiordland Marine Pathway Plan*. This plan aims to greatly reduce the risk of marine pests being carried into Fiordland on local and visiting vessels. It establishes clean vessel standards that all vessels entering Fiordland must meet, regardless of their size and proposes a *Fiordland Clean Vessel Pass* to ensure vessel owners/operators understand and adhere to the standards.

The top of the South Island is highly connected to other regions of New Zealand through the movement of both commercial and recreational vessels and it is likely that new species will continue to be introduced unless effective management systems are put in place. The use of pest pathway plans instead of individual plans to control organisms may become more prevalent in the future, to help prevent the movement of pests to new areas.

5 Small-scale Management Programme Details

5.1 Programme objective

The objective of the SSMP is to provide for the control of *Sabella* in Nelson City over the next 3 years to:

- reduce the adverse effects on economic well-being; the environment; enjoyment of the natural environment and the relationship between Māori, their culture, and their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga; and
- reduce spread within the region and to other areas.

EXPLANATION

As at January 2017, Sabella is known to be present in the City. The outcomes that are being sought through the SSMP relate to:

- **Exclusion** of *Sabella* from areas in the City where it is not known or established (eg, areas that are free of *Sabella* continue to be kept free);
- **Eradication** of *Sabella* from the City where technically feasible and realistic within the time bounds of this programme; and
- **Progressive containment** and/or **sustained control** (eg, where eradication is not achievable, that steps are taken to either contain and reduce the distribution of *Sabella* or taking steps to reduce its impacts and spread to other places.

The actual or potential adverse effects of Sabella being addressed through this SSMP include:

- *degradation of endemic marine biodiversity and benthic ecosystems (natural environment values); and*
- *the aesthetics of, and perceptions around, vessels and structures that are fouled (and visibly infested) with exotic organisms; and*
- *declining mussel production in the Top of the South through direct competition for growing space (aquaculture industry values);*
- *the effects on the treasured natural resources of the area (Nga taonga tuku iho) and the sustainable use of marine resources by iwi, including customary fisheries and commercial fishing interests (Māori values and fulfilling kaitiakitanga responsibilities).*

Determining a successful or unsuccessful SSMP

The extent to which the outcomes stated above will be achieved is difficult to state, as no guarantees or judgements around success or otherwise of the SSMP can be stated prior to its implementation. As with many aspects of marine biosecurity management, there are many variables (natural and human-induced) which can occur or be introduced at any time. Notwithstanding these issues, the overall success of this SSMP might be evaluated by:

- no new infestations discovered over the 3 year period; or

- that current infestations have not expanded past their known 2016 densities.

Conversely, an unsuccessful SSMP would:

- fail to control *Sabella* (if multiple new sites were discovered); or
- high density, uncontrolled populations eventuated.

Small-scale implementation measures

Introduction

A wide range of activities will be carried out to implement the SSMP. The SSMP Operational Plan (refer to Section 5.4) outlines the nature of works, which is primarily undertaken by the Top of the South councils. It also includes involvement of, and part funding by, MPI (eg, specified surveillance, advocacy and key messaging around targeting the marine recreational boating sector).

The measures that will be used to implement the SSMP are summarised below. Some actions, such as first response dealings, surveillance and direct control may trigger the potential use of Biosecurity Act (part 6) entry, inspection and enforcement powers (as outlined in Section 5.3). Each measure below is aligned with exclusion, control or management outcomes.

Measures	Description
<p>Intelligence and information gathering</p> <p>(exclusion)</p>	<p>Joint agency collection of relevant material will focus on detecting infested vessels and tracing vessel movements (eg, through trip reports). Essentially, this activity is a ‘heads-up’ process to pre-empt problems from arising or to notice and act on issues before they can escalate.</p> <p>This activity involves extending and formalising the current level of dialogue with people from a wide range of marine-related interest areas, such as harbourmasters, marine operators, marine radio, ship brokers and slip owners.</p>
<p>Responses to <i>Sabella</i> on vessels and structures or in the natural environment</p> <p>(exclusion and control)</p>	<p>Notifications and enquiries are received chiefly in relation to potential ‘at risk’ vessels (either new to an area or ‘resident’ vessels) but also other potential incursion situations.</p> <p>The speed and nature of the first response is critical to ensure that the appropriate response action is carried out, including undertaking emergency management measures.</p>
<p>Surveillance, active and passive</p> <p>(exclusion and control)</p>	<p>Surveillance for <i>Sabella</i> is about increasing the chances of detecting individuals and infestations sufficiently early to enable effective eradication or control. Surveillance activities will target likely <i>Sabella</i> pathways (eg, likely points of vessel entry and mooring) and looking in places where it has not been previously detected.</p> <p>Surveillance around the regions’ marine area will involve a combination of active and passive surveillance. Active surveillance is</p>

where predetermined, targeted survey work using professionals is carried out to detect *Sabella* (refer to the SSMP Operational Plan).

Passive surveillance relies on 'non-experts' (eg, members of the public who are 'out and about' in the coastal/marine areas) to notice and report potential sightings of *Sabella* and risk vessels that are new to an area. Enhanced passive surveillance activities will also be carried out in a way that builds awareness and support for the SSMP (eg, providing training and tools for those involved).

Direct control (control)	Physical control measures relate to direct population management and control of infestations. Activities carried out may include: hauling out vessels, mooring ropes and buoys and cleaning them, also moving vessels to new locations, wrapping boats in situ and treatment using chemicals. Refer also to Section 5.3. The focus of this work will be on more intensive control at known sites with <i>Sabella</i> .
Advocacy (exclusion)	<p>One of the key outcomes of the implementation of the SSMP will be behaviour change among regional marine users, brought about through targeted campaigns and initiatives. Alerting commercial and recreational groups and the public to the issues, threats and solutions around <i>Sabella</i> is likely to result in more effective management overall. <i>Sabella</i> is both an unwanted organism and a notifiable organism (refer to definitions in Appendix 2).</p> <p>The Council will undertake awareness campaigns and instigate initiatives, as appropriate, in conjunction with TOSMBP partners. The focus will be on targeting specific user groups using social media and marketing methods (eg, Facebook and Twitter) in conjunction with traditional print/radio advertising. These campaigns will include: generic key messages and advice on what people (eg, boaties) should do to reduce the risk of spreading <i>Sabella</i>.</p>
Spread risk mitigation (exclusion)	<i>Sabella</i> is a significant issue and concern for the marine aquaculture industry and the owners of ports and marinas. Leaders in these commercial operations are well placed to drive industry changes to operational practices which could otherwise provide pathways of spread for <i>Sabella</i> . Spread risk mitigation methods are linked with advocacy and awareness activities but are very industry specific. For example, in the mussel industry it is critical to source ' <i>Sabella</i> -free' mussel seed and to insist on the use of new mussel lines (ropes) to grow spat and not to reuse old lines.
Administration of SSMP (control / management)	Accountability around proposed and actual activities carried out and funding (through the SSMP Operational Plan) forms part of the SSMP package. Post-operational reporting and communication is required for individual councils as well as collectively for the TOSMBP. It is

important to have centrally documented the collective SSMP implementation efforts of the various parties involved¹⁴.

SSMP administration processes also include a separate process for the identification and training of suitable Council staff / contractors / others for exercising Biosecurity Act powers. Authorised persons are to be appointed under Section 103(3) of the Biosecurity Act to carry out the functions, powers and duties, as outlined in Section 5.3 below.

5.3 Implementation measures using Biosecurity Act powers

Background

To manage and control *Sabella* successfully the Council needs to be able to access Biosecurity Act powers (without relying on MPI for powers) to carry out the following activities, for example:

- inspect and clean vessels and places (with or without prior notification to owners);
- direct vessel/place owners or occupiers to follow Council instructions;
- restrict or control access to vessels and places (or place conditions on access);
- request information about vessel movements;
- ability to remove a vessel from the water, or move it to a location of choice; and
- ability to recover costs from owners/occupiers in certain circumstances.

In most situations, it is anticipated that the vessel and structure owners (and other parties with an interest) will co-operate with Council and the parties will work together to determine appropriate actions and outcomes. Where owner(s) support is not forthcoming, the owner(s) cannot be located, or a vessel is abandoned it is necessary for Nelson City Council to have full access to Biosecurity Act powers¹⁵.

In accordance with Section 100W(2) of the Biosecurity Act, authorised persons (APs) will be appointed by the Principal Officer (Council CEO) for the purposes of this SSMP. The following table lists the sections and powers under the Act that will be utilised by the Council as the management agency and by APs. A short explanation of the power is provided and an example (where appropriate) of how it would be applied in the case of *Sabella* management under this SSMP. Other Acts which have relevance to exercising these powers include the: Search and Surveillance Act 2012 and the New Zealand Bill of Rights Act 1990.

¹⁴ The TOSMBP provides this reporting platform already, therefore no additional costs are expected. The TOS reporting framework will require altering to enable reporting back against the objectives of this SSMP and the actions contained in the SSMP Operational Plan.

¹⁵ Regardless of the level of owner/occupier support for management action for *Sabella* under this SSMP, the Council will follow all prescribed Biosecurity Act functions, powers and duties, and guidance and advice, as contained in *Biosecurity Act Enforcement Standard Operating Procedures and Guidelines Manual*, Biosecurity Working Group, 146p.

Section/Power	Explanation and SSMP Application
Section 43 – Duty to provide information	Requires any person who owns, manages or controls (for example, a business, vessel or place that is at the centre of interest) to provide information to an AP when asked, concerning the presence or distribution of <i>Sabella</i> . Includes the collection, acquisition and recording of any relevant information.
Section 106 – Power to require assistance	APs can employ or require anyone to assist them to carry out the provisions of the Act. Provides the ability for technical experts (such as commercial divers or harbourmasters) to be used for <i>Sabella</i> surveillance and control. Anyone assisting an AP also assumes the same powers, while they are under their direct management.
Section 109 – Power of inspection	An essential power for <i>Sabella</i> surveillance and control activities, in that APs can enter any place at any reasonable time to confirm the presence, former presence, or absence, of <i>Sabella</i> and to eradicate or manage <i>Sabella</i> . The definition of ‘place’ of relevance for this SSMP includes any conveyance, craft, structure and the bed and waters of any sea.
Section 112 – Duties on exercising powers of entry	Outlines requirements of APs when exercising powers of entry or inspection (Section 109). Where the owner/occupier of the place is not present the AP must leave written advice on the nature of entry and any actions carried out. An important duty where, for example, a ‘suspicious’ vessel is reported or found with no one in charge of it and <i>Sabella</i> inspection or control work is urgently required.
Section 113 – Power to record information	Authorised persons, when using powers of entry (Section 109) can take copies of or remove any information that is reasonable for the purposes of the inspection. Could be used in <i>Sabella</i> management for many activities, such as verifying boat movements and undertaking tracebacks of vessels’ prior locations.
Section 114 – General powers	Along with Section 109 powers, allows APs to do anything thought necessary to eradicate or manage an organism. A fundamental power to prevent the spread of or control <i>Sabella</i> .
Section 115 – Use of dogs and devices	Along with Section 109 powers, provides the ability to use devices to assist with Section 113 and Section 114 powers described above. Could include, for example, using underwater surveillance cameras to assess <i>Sabella</i> infestations and using tools to manually lever <i>Sabella</i> off vessels’ hulls.
Section 119 – Power to seize abandoned goods	APs may seize, treat or dispose of any abandoned goods, craft, conveyance or organism, after making reasonable attempts to find the owner. An important power to potentially seize an abandoned vessel that is harbouring <i>Sabella</i> .

Section 121 – Power to examine organisms	APs can carry out any action thought necessary to determine the presence or absence of an organism and assess management measures. Powers include: examining, inspecting, taking samples, autopsies, destroying and taking specimens, including directing people to do certain things with the organisms. Covers the ability to sample and destroy <i>Sabella</i> .
Section 121A – Power to apply article or substance to place	An AP may bring onto or leave for a reasonable time at any place, any article or substance (no greater than 1 cubic metre in volume) consequential to Section 121 actions above. May be required in the treatment of vessels with <i>Sabella</i> . It is an offence for any person to move or interfere with any article or substance left at a place.
Section 122 – Power to give directions	APs can direct (when considered necessary and by notice in writing) the occupier of a place, or owner/person in charge in relation to pests and unwanted organisms, to treat any goods, water, place, equipment, fitting or other thing that may be contaminated; destroy pests/unwanted organisms and take steps to prevent the spread of any pest/unwanted organism. An important power in the management of <i>Sabella</i> . For example, vessel and structure owners can be directed to destroy <i>Sabella</i> to certain standards at the owner's cost, remove a vessel from the water, move a vessel to a new location or to not move a vessel anywhere.
Section 128 – Power to act on default	Allows a management agency (the Council) to control a pest/unwanted organism when a Section 122 <i>Notice of Direction</i> has not been complied with and recover costs and expenses reasonably incurred. Provides for decontamination of vessels/structures that have <i>Sabella</i> , if required. Other sections of the Act apply in relation to cost recovery (Sections 135 and 136).
Section 130 – Declaration of restricted place	APs have the ability, by written notice, to restrict movement (removal of pests/unwanted organisms) or the introduction of any good of any kind to any place). Provides the ability to restrict activities, such as vessel owners who may inadequately clean hulls or who dispose of <i>Sabella</i> in places that will cause it to spread.

5.4 Other matters

SSMP Operational Plan (2017 – 2020)

This SSMP has outlined the objectives and implementation measures and tools that will be used to manage *Sabella* within the 3 year term. Operational detail is covered within a single, joint SSMP Operational Plan managed through the TOSMBP and should be read as part of the overall *Sabella* management approach. Although each Council has initiated a SSMP individually, a joint operational plan is necessary to align the activities of each council and ensure all parties operate within the guiding principles of the Top of the South Marine Biosecurity Strategic Plan.

The SSMP Operational Plan outlines what work programme components are to be delivered (based on the measures outlined in Section 5.2), by whom, the timings involved and who will

bear the costs, to ensure the objectives are met. The Operational Plan covers tasks/activities such as:

- initial appointment and training of authorised persons to implement Biosecurity Act powers;
- active surveillance plan for mapped areas where previous responses have been initiated (eg, Picton, Port Nelson and Tarkohe);
- active surveillance plan (mapped areas) for high risk places where *Sabella* is not currently known (eg, Havelock marina, Waikawa Bay moorings, Port Underwood, Abel Tasman moored vessels);
- building skills to increase passive surveillance capability among recreational boaties; and
- direct control of *Sabella* where it is found on substrates and structures – including provision for adequate resourcing to ensure an effective programme is implemented.

Compensation

There are no provisions made or inferred through this SSMP, for compensation for any losses caused by the implementation of this SSMP.

Other parties may take steps to control *Sabella*

Regarding Section 100V(3) of the Biosecurity Act, the Council may make provision for other persons to undertake control of *Sabella*. This SSMP confirms that Tasman District Council is the management agency for Nelson City Council in the exercising of Biosecurity Act powers should regulatory action be required.

Appendix 1: Public notice regarding small-scale management programme

Nelson City Council has declared by public notice, dated 1 July 2017, a small-scale management programme (SSMP) under Section 100V of the Biosecurity Act 1993 (the Act). The unwanted organism the SSMP relates to is the marine pest Mediterranean fanworm (*Sabella spallanzanii*), referred to as *Sabella*. The SSMP applies to the whole marine area of Nelson City.

Small-scale management programme details

The objective of the programme is to provide for the control of *Sabella* in Nelson City over the next 3 years to:

- reduce the adverse effects on economic well-being; the environment; enjoyment of the natural environment and the relationship between Māori, their culture, and their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga; and
- reduce spread within the region and to other areas.

The outcomes sought are:

- *Exclusion* (preventing establishment) in areas of the district currently free of *Sabella*;
- *Eradication of Sabella* from the district where it is technically feasible and realistic;
- *Progressive containment and/or sustained control* (where eradication is not achievable) - that steps are taken to either contain and reduce the distribution of *Sabella* or reduce its impacts and spread to other places.

Powers to be exercised under Part 6 of the Act to implement the programme are as follows:

- Section 43 Duty to provide information.
- Section 106 Power to require assistance.
- Section 109 Power of inspection.
- Section 112 Duties on exercising powers of entry.
- Section 113 Power to record information.
- Section 114 General powers.
- Section 115 Use of dogs and devices.
- Section 119 Power to seize abandoned goods.
- Section 121 Power to examine organisms.
- Section 121A Power to apply article or substance to place.
- Section 122 Power to give directions.
- Section 128 Power to act on default.
- Section 130 Declaration of restricted place.

This small-scale management programme can be viewed at nelson.govt.nz/Sabella or contact the Council on 03 546 0200.

David Hammond
Acting Chief Executive



Appendix 2: Definitions/Interpretation

For this small-scale management programme, unless otherwise stated:

Act – means the Biosecurity Act 1993. All definitions in the Act apply to this SSMP.

Craft –

- (a) means an aircraft, ship, boat, or other machine or vessel used or able to be used for the transport of people or goods, or both, by air or sea; and
- (b) includes –
 - (i) an oil rig; and
 - (ii) a structure or installation that is imported by being towed through the sea.

Eradication – means to reduce the infestation level of the subject to zero levels in an area in the short to medium term.

Exclusion – means to prevent the establishment of the subject that is present in New Zealand but not yet established in an area.

Notifiable organisms – pests and diseases that must be reported to Ministry for Primary Industries. Refer to link below for the current list.

<http://www.legislation.govt.nz/regulation/public/2016/0073/latest/DLM6792201.html>

Progressive containment – means to contain and reduce the geographic distribution of the subject to an area over time.

Sustained control – means to provide for the ongoing control of the subject to reduce its impacts on values and its spread to other properties.

Unwanted organism – means any organism that a chief technical officer of government departments with biosecurity interests determines to be unwanted, which is believed to be capable of causing actual or potential unwanted harm to any natural and physical resource or human health. Unwanted organisms are listed in Schedule 2 of the Hazardous Substances and New Organisms Act 1996. (Refer Sections 45 and 46 of the Biosecurity Act.)

http://www.legislation.govt.nz/act/public/1996/0030/latest/DLM386556.html?search=sw_096be8ed8140e269_schedule+two_25_se&p=1