

New Zealanders' views on whitebait management

Summary of findings from a
public engagement process

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Department of
Conservation
Te Papa Atawhai

Purpose and scope of this paper

This report presents New Zealanders' views on the issues that affect whitebait, and management options to address those issues. Views presented in this report were collected during a public engagement process run by the Department of Conservation. The report collates input contributed by iwi, Māori, the Whitebait Working Group, stakeholders and staff of the Department of Conservation.

This report does not necessarily reflect the views of the Department of Conservation.

Executive summary

New Zealanders are passionate about whitebait – it is part of this country’s biodiversity, its cultural heritage and a gastronomic delicacy. Some whitebait populations are landlocked but most access freshwater and marine habitats during their lifecycle. They are fished for part of each year and experience a broad range of other pressures throughout their lives.

Regional variations in whitebait abundance, annual fluctuations in the amount of whitebait present and significant knowledge gaps contribute to diverse perceptions of the status of these fish. Further, there are differences around the country in the perceptions of whether whitebait catches have declined in recent decades, as well as the extent and rate of such declines where they are thought to be occurring. However, under the New Zealand Threat Classification System, one whitebait species is classified as Nationally Vulnerable (shortjaw kōkopu), and three are At Risk – Declining (īnanga, kōaro and giant kōkopu). The remaining two species are classified as Not Threatened (banded kōkopu, common smelt).

Department of Conservation (DOC) and councils hold most of the management responsibilities relevant to whitebait. This includes two sets of regulations that apply to fishing activity: one for the West Coast of the South Island and one for the rest of New Zealand.

This report presents feedback received during a public engagement process run by DOC, to seek New Zealanders’ views on the issues that affect whitebait and management options for these species. Issues and options are framed by the management purpose of ‘ensuring healthy and restored whitebait populations and providing for a sustainable fishery’. The report summarises feedback from more than 3,000 contributors: iwi, Māori, the Whitebait Working Group, stakeholders and DOC staff. The report does not necessarily reflect DOC’s views.

Feedback was sought during 7 months of engagement as DOC implemented a process co-designed with Māori subject-matter experts. The process comprised iwi engagement, a webpage, online survey, use of Facebook and Twitter channels, regional drop-in sessions, a working group reflecting the diverse range of interests in whitebait, feedback received via email and follow up with people who had contacted the Minister of Conservation about whitebait in 2018.

There was broad agreement among most contributors across all engagement channels on the major issues for whitebait. Major issues identified by participants in this process were focused in three areas:

Habitat: Water quality/pollution, habitat loss, fragmentation (i.e. blocked fish passage), lack of spawning sites, lack of enforcement of habitat-related rules (e.g. consent conditions).

The fishery: Non-compliance with (or lack of knowledge of) regulations, inadequate enforcement of regulations, the ability to sell whitebait, an unduly long fishing season, overfishing, inadequate regulation and lack of respect for whitebait as a shared resource.

Management: No clear management goal, lack of funding for management, important knowledge gaps and a complex management framework that is inconsistent with other recreational fisheries.

Similarly, most contributors were in broad agreement on the most appropriate management options for whitebait. Again, these related to habitat, the fishery and management. The most strongly supported options included:

Habitat: Protection and restoration, mitigate barriers to fish passage, increase enforcement related to habitat (e.g. consent conditions).

The fishery: Increase enforcement of fishing regulations, temporary or permanent closures of some rivers to whitebaiting, require a license to fish for whitebait, shorten the fishing season, introduce catch limits, ban commercial sale, introduce gear restrictions, restrict the area fished on rivers, ban fishing on spring tides.

Management: Improve cohesion among management agencies/entities, manage the fishery by sector, create a legislative framework for the sale of whitebait (if it occurs), conduct science and research to address knowledge gaps.

Feedback received during the engagement process reflected a desire for better management of whitebait to improve the status of these native fish and ensure the whitebait fishery is sustainable and well-managed. It also provided a number of strongly supported management options that could be considered if improvement work was progressed. Future management models could usefully include and extend elements of the existing framework. Regulations that currently apply to whitebait fishing on the West Coast of the South Island, for example, already incorporate elements from the list of management options identified above.

Developing and implementing an improved management regime for whitebait will require changes in behaviour from people, interest groups, industries and management agencies. However, the broad agreement about the need for change among New Zealanders with an interest in whitebait provides a propitious starting point from which to progress.

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1 Introduction

1.1 A part of Kiwi life

New Zealanders are passionate about whitebait. Whitebait are taonga for Māori and a valued part of this country's indigenous biodiversity. Further, many Kiwis enjoy fishing for whitebait, for the experience of being in the outdoors, spending time with family or friends, and for the catch itself which is prized as a delicacy. Whitebait also provides an income stream for some fishers.

Inevitably, the diversity of values that people hold for whitebait gives rise to different views on what comprises appropriate use and management of these species. The following quotations exemplify ongoing concerns among New Zealanders about the future of whitebait and whitebaiting, and the importance of effective management.

‘Whitebait species are not being identified as a taonga, which is much more than a fisheries resource. They are our guardians as much as we are of them.’¹

‘If something is not done soon....Kiwis in generations to come will lament the loss of a wonderful way of life, pastime, and a beautifully subtle gastronomic treat to eat and enjoy.’²

‘Basically everything is the problem. No one wants to change their behaviour, but everyone agrees the fish are disappearing. NZers are terrible at telling people "no" but sometimes that's the right answer.’³

‘There seems little point in restoring a spawning site without concurrent fishing control to allow population regeneration. Our tiny local site had a lot of effort put in to restoring spawning sites only to see someone else come in and catch an unprecedented amount of whitebait in the stream the following season...a terrible disincentive to action.’⁴

1.2 What are whitebait?

Whitebait are the young of five species of migratory galaxiids (īnanga, kōaro, banded kōkopu, giant kōkopu and shortjaw kōkopu, Appendix 1). In addition to these five species, the whitebait fishing regulations include common smelt. The life cycle encompasses freshwater and marine habitats where fish have access to the sea (Figure 1). Landlocked populations also occur.⁵

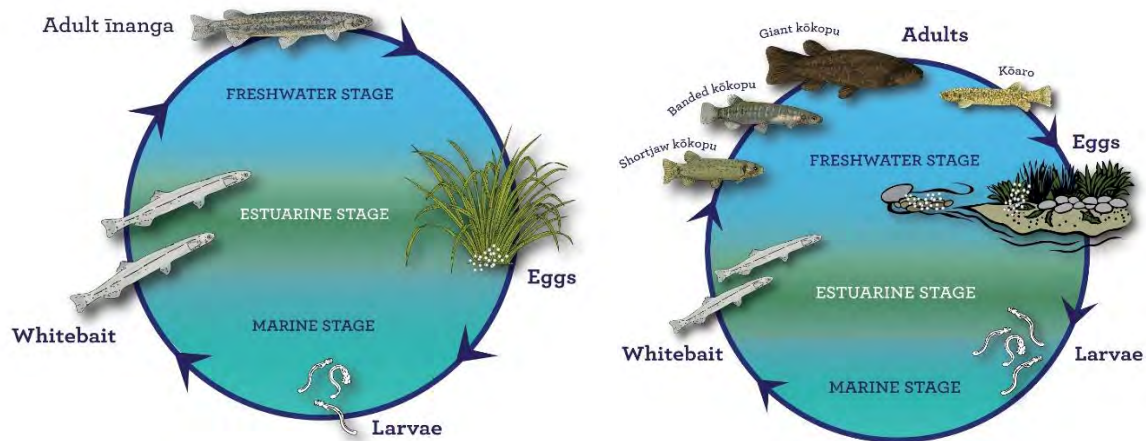


Figure 1. Lifecycles of the five galaxiid whitebait species (left: īnanga, right: kōaro and kōkopu). Note that some landlocked populations also occur. (Illustrations by S. Frimmel)

1.2.1 Whitebait populations

The conservation status of whitebait species is assessed using the New Zealand Threat Classification System.⁶ Assessing the conservation status of these species is challenging due to information gaps, including data on population trends. The conservation status of the five galaxiid whitebait species is:

- shortjaw kōkopu: Threatened – Nationally Vulnerable
- īnanga, kōaro and giant kōkopu: At Risk - Declining
- banded kōkopu: Not Threatened.

The common smelt is also classified as Not Threatened.⁷

Regional variation in whitebait abundance, and significant annual fluctuations in the amount of whitebait present, contribute to diverse perceptions of the population status of these fish. However, anecdotal information on abundance is typically focused on whitebait, not the breeding stock of adult fish. Further, such information seldom reflects the abundance of the different species that make up the whitebait catch.

1.3 Legal context

DOC's responsibilities for the conservation and management of adult and juvenile whitebait species are specified in:

- the Conservation Act 1987
- the Freshwater Fisheries Regulations 1983
- the Whitebait Fishing Regulations 1994
- the Whitebait Fishing (West Coast) Regulations 1994.

Prior to the Conservation Law Reform Act 1990, the Ministry of Agriculture and Fisheries managed whitebait fishing. Currently, the Ministry for Primary Industries (encompassing Fisheries New Zealand) issues authorisations to move fish between waterbodies or take eggs, and manages the aquaculture of these species.

Regional councils and unitary authorities also have responsibilities relevant to whitebait, including managing activities that affect habitat availability and quality (e.g. mowing and trimming overhanging vegetation around waterways) and regulating stands and associated structures (e.g. baches) used when whitebait fishing.

Regulations have applied to whitebait fishing since the 1890s. The current regulations have been in place since the 1990s. From 1990 to 1996, regulations applying to whitebait fishing on the West Coast of the South Island were reviewed. That process culminated in a complaint by the West Coast Whitebaiters' Association to the Parliamentary Regulations Review Committee regarding DOC's approach to consultation.⁸ The current whitebait fishing regulations have not been reviewed since the mid-1990s.

1.4 Scope of this report

This report presents feedback received during a public engagement process on whitebait, run by DOC. The report collates New Zealanders' views on the issues that are affecting whitebait now and will do in the future, and management options to address those issues. Issues and options are framed by the management purpose of:

‘ensuring healthy and restored whitebait populations and providing for a sustainable fishery’.

The report collates input contributed by iwi, the Whitebait Working Group, stakeholders and DOC staff. It does not necessarily reflect the views of the Department.

2 Our approach

2.1 Process design with subject matter experts

Following a request from the Minister of Conservation, DOC began work on improving whitebait management in 2018. An initial workshop was held in July 2018, involving DOC and Māori subject-matter experts (SMEs). The SME group was tasked with co-designing the process that DOC should use for the work described in this report. The group shaped the role of the Whitebait Working Group (including how it would operate), discussed approaches to engagement with Treaty partners and communities, and explored critical issues for whitebait populations, management and engagement. The record from this workshop is attached (Appendix 2).

DOC then worked to implement the process (Figure 2) and some small changes were made. The timing of some components required modification as the work rolled out (e.g. feedback from iwi and stakeholder engagement was available to the Whitebait Working Group later than initially expected). Further, the draft version of this report was not made available for review to all who contributed (e.g. more than 2,800 respondents to the online survey, as described below) and the report was provided to the members of the DOC and Māori subject-matter expert group for review if they wished, prior to its finalisation.

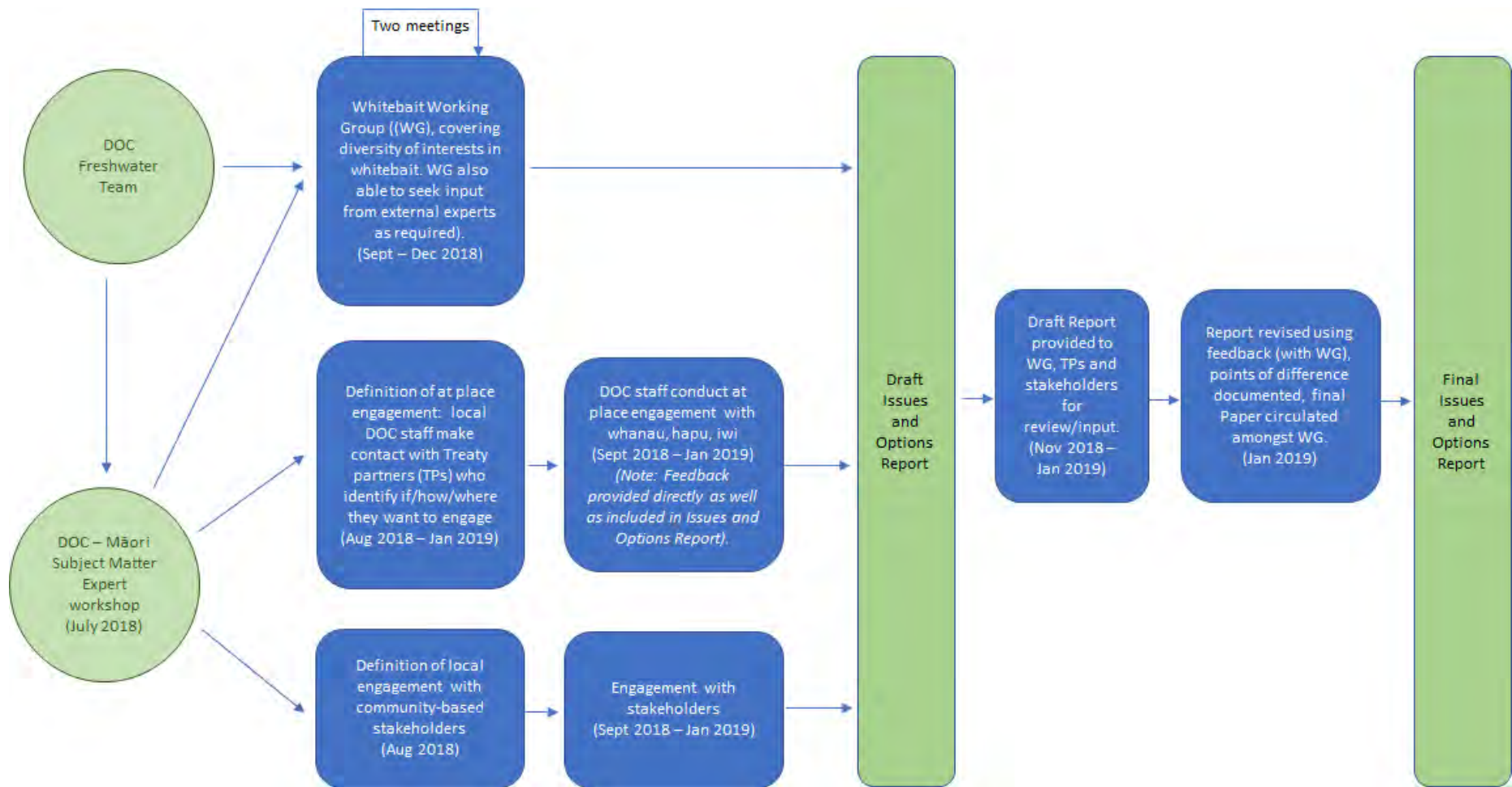


Figure 2. Process co-designed by a workshop of Department of Conservation (DOC) and Māori subject matter experts to deliver the findings described in this report.

2.2 Iwi engagement

After the July 2018 workshop involving Māori and DOC subject matter experts, DOC commenced work on iwi engagement at place. To implement the engagement process discussed by the workshop group, DOC used a new internal model developed by its Kahui Kaupapa Atawhai team. This involved the National Office whitebait team contacting senior managers in DOC Operations in the regions and requesting that they identify DOC staff owning relationships with Treaty partners at place. With the relationship owners identified, the National Office team then worked with regional staff and iwi, to seek feedback on whether iwi wished to engage with DOC on this process, what they wanted the format and scope of that engagement to be, and when they wanted engagement to occur. The National Office team then followed up with Treaty partners as appropriate, with the support of regional Operations staff.

Feedback was provided verbally (via DOC staff or by phone), by email, or by letter. In addition, five hui were requested involving DOC staff and iwi during this project (Appendix 3). DOC recognises that with a longer timeframe to conduct engagement, additional hui may have been requested.

As well as making contact with Treaty partners through DOC regional staff, the National Office team maintained ongoing contact with Te Wai Māori Trust (TWM) throughout this process. TWM shared information about DOC's improving whitebait management process through their own channels, such as their website and electronic newsletters, including the link to DOC's online survey created for this work (see below). TWM sought responses from those interested in engaging in DOC's process and shared these responses and contact information with DOC, with the agreement of the respondents. TWM provide their perspectives in the boxed text below and emphasise that engaging with them does not dilute the need for direct engagement with Treaty partners.

Some of the iwi who engaged directly with DOC cautioned against considering the views communicated by TWM as representative of iwi, hapū and whānau. Therefore, continuing both direct engagement with Treaty partners, as well as maintaining ongoing engagement with TWM, was considered necessary and prudent.

Overall, approximately 200 responses were received from those self-identified as Māori, and/or respondents who reported the perspectives of a (specified) iwi entity.

Te Wai Māori Trust and whitebait

Te Wai Māori was established under the Maori Fisheries Act 2004 to advance Māori interests in freshwater fisheries (s 94, Maori Fisheries Act) through among other things, research and promotion of habitat protection.

The Trust works on behalf of all iwi to promote the health and wellbeing of Aotearoa's indigenous freshwater fisheries. The Iwi relationship with freshwater species continues to sustain Maori identity through a range of factors including the provision of food. In order to maintain this relationship, the health of Aotearoa's freshwater species must be maintained and improved.

Te Wai Māori is concerned that the habitat of adult and juvenile whitebait species is being degraded to the extent that it threatens the health and wellbeing of the species. We recognise that there are large information gaps relating to whitebait species and habitats that need to be addressed before decisions can be made, specifically, the effects of fishing, habitat degradation, water quality, predation, and climate change on all life stages of whitebait species. Te Wai Māori would like to work with all agencies with responsibility for whitebait and whitebait habitat on how to better understand and mitigate these pressures while incorporating mātauranga Māori into solutions.

Whitebait, particularly īnanga, is a taonga for Māori and remains an important mahinga kai species providing sustenance and livelihoods. Historic abundance was such that some Iwi would trade whitebait, and it served as an important seasonal food staple. This importance is reflected in several Treaty settlements between the Crown and Iwi such as Ngāruahine, Waikato-Tainui, and Te Ātiawa (Taranaki).

Te Wai Maori is supportive of the intent of the review but maintain our initial concerns that the timeframe placed on the review is not enough to facilitate meaningful, comprehensive engagement with Iwi. In the Trust's view, the restricted timeframe limited the opportunity for Iwi feedback to be sought and incorporated into the final paper.

Te Wai Māori does not support the Minister of Conservation making any decision with regards to the management of whitebait without first having engaged comprehensively with Iwi and hapū. It is our view that inadequate consultation with Iwi and hapū fails to give effect to the Treaty of Waitangi in accordance with Section 4 of the Conservation Act 1987. Effective integration of Māori interests and values into resource management requires full Iwi and hapū participation and a commitment from agencies to collaborative, strong and enduring relationships.

Future reviews and possible changes to the management of whitebait must provide considerable time for engagement with Iwi in a mana-enhancing, Treaty-based manner. Te Wai Māori looks forward to continued participation in any future processes.

Source: Te Wai Māori Trust, 4 February 2019

2.3 Whitebait Working Group

The Whitebait Working Group was created to reflect the diverse breadth of interests and expertise in whitebait. The group brought together informed practitioners whose task was to identify issues and management options relevant to ensuring healthy and restored whitebait populations and providing for a sustainable fishery. Members contributed knowledge based on their experience of:

- commercial fishing
- recreational fishing
- fisheries science
- fisheries management
- mātauranga Māori
- conservation
- galaxiid biology, ecology and management
- habitat restoration and management
- compliance and enforcement.

The Terms of Reference for the Working Group are attached in Appendix 4. The group was not required to reach consensus during its discussions. Instead, DOC's focus was on capturing the diversity of views that group members held, due to their different interests, expertise and experience.

The Group met twice in person, first in Nelson for two days in September 2018 (attended by 15 participants), then in Wellington for two days in October 2018 (attended by 18 participants). The Working Group's meeting records are available as Appendices 5 and 6.

The role of the working group was to provide objective and informative input for this report. Group members identified issues relevant to whitebait status and the whitebait fishery, as well as identifying and characterising management options to address the pressures facing whitebait populations.

The group's discussion of issues included a prioritisation exercise to assess the importance and urgency of each issue, and the scale at which it operated. Having identified the issues, the group was required to identify and evaluate all the management options (conventional measures and unconventional approaches) that could be applied. Management options were identified using the group's own knowledge and experience, and from a targeted review of published and grey literature on the management of whitebait species.

Management options were evaluated in terms of how they would work, strengths, weaknesses, pros, cons, risks, whether the management option would/should be applied as a standalone measure or in combination with others, its likely efficacy, the appropriate timeframe for implementation, and resources required. Group members then individually expressed their support or lack of support for each management option.

Of all the management options identified, the group held particularly divergent views on nine options. These options were explored in more depth to identify the reasons for the different levels of support indicated. Group members were also asked to identify a 'plan

B' if a particular management option was not selected for implementation from this controversial list.

To explore how the group would choose to manage whitebait in an ideal world, members were tasked with constructing a 'green fields' management regime. They were also asked to identify the critical elements required to enable effective management within that regime.

Finally, the Working Group evaluated the current whitebait fishing regulations, including whether these were fit for purpose and what improvements or amendments could be made. Group members also compared the regulations for the West Coast of the South Island and the rest of New Zealand. They identified elements of the regulations that could be amended to create a more consistent approach at a national level.

2.4 Stakeholder engagement

A stakeholder engagement strategy was developed to address the issues raised by the DOC and Māori SME group. The approach was modelled on the Ministry for Primary Industries' blue cod engagement process, which appeared to be well-received by fishery stakeholders and the public.

Key components of the stakeholder engagement strategy were project webpages ([Improving Whitebait Management](#)), an online survey, regional drop-in sessions at places known to be important for people interested in whitebait, a dedicated project email address and following up on Ministerial letters about whitebait and related issues.

2.4.1 Webpage

DOC published a webpage containing background information about the project, dates and venues for the drop-in sessions, information about the survey and a link to it, and download links to resources in Māori and English that were prepared to support the drop-in sessions (and broader engagement opportunities) (Appendix 7). A page of frequently asked questions was also published.

The page was featured on the DOC homepage for 12 weeks and it received 7,792 page views, 6,637 of which were unique (from different devices).

DOC also prepared a business card with the webpage address on it, which was distributed opportunistically throughout this work (e.g. from DOC offices, at drop-in sessions, given to contacts made in person).

2.4.2 Survey

DOC used SurveyMonkey to run a survey from 15 October 2018 to 7 January 2019 to record stakeholder views on whitebait and its management. Respondents were required to provide their name and email address and only one response per email address was permitted.

Questions covered the region where a respondent lived and/or fished, their interest in whitebait, their perception of the sustainability of the fishery and the quality of fishing, the issues they believed it faced and their agreement (or otherwise) on 10 possible management options. Respondents could also make text comments to express their views.

DOC received 2,875 responses to the survey, which included 2,490 written comments. Comments were categorised (e.g. by issue or option, including as new issues or options when these were identified by contributors) for presentation in this report.

The survey was publicised using DOC's website, html newsletter, Twitter and Facebook channels, print media, whitebaiters' associations, and through DOC staff providing it directly to key contacts interested in whitebait. Third parties also publicised the webpage with the survey link via their own networks, e.g. Te Wai Māori Trust, the West Coast Whitebait Association and South Island Whitebaiters Facebook groups. Radio New Zealand included the link with the webpage version of their Insight story. Hardcopy surveys were provided at the drop-in sessions (see below) for people who were unable to access it online and these responses were entered into the online SurveyMonkey platform.

A copy of the survey is included in Appendix 8. Survey responses are provided in full in Appendices 9 and 10.

2.4.3 Drop-in sessions

These sessions provided community-based stakeholders with an opportunity to speak with DOC staff in person about whitebait management. The team staffing these sessions included at least one member of DOC's National Office whitebait team, and at least one DOC regional staff member who was knowledgeable and experienced in freshwater work. An additional DOC staff member was in place at almost all sessions to greet attendees on arrival. Sessions were supported by DOC resources relevant to whitebait (e.g. DOC's brochure about the whitebait regulations, information in English and Māori languages about whitebait and this project, and the business card with the project webpage link on it).

Drop-in sessions were advertised in the public notices section of local papers. Geographically-targeted Facebook events were set up for the sessions and the project page on the DOC website listed session times and locations. The sessions and the survey link were publicised via DOC's Twitter channel. DOC staff also provided information on drop-in sessions directly to key contacts interested in whitebait (e.g. the West Coast, Tainui, and Southland whitebaiters' associations, and members of the Whitebait Working Group).

Drop-in sessions were held during October and November 2018, in Nelson, Invercargill, Kaiapoi, Wellington, Pokeno, Napier, Westport, Hokitika, Haast, Fox Glacier, Whangarei and New Plymouth. Some stakeholders welcomed the timing of the drop-in sessions close to, or within, the whitebait fishing season. This was because whitebait was top-of-mind for interested parties, and whitebaiters come together to form transient communities in some areas during the fishing season. For others, the timing was considered inconvenient, as they preferred to be fishing. To ameliorate that concern, sessions were timed to avoid incoming tides (when many whitebaiters say they fish) as much as possible.

Drop-in sessions attracted people with a wide range of views about whitebait management, including Māori, fishers, environmentalists, restoration group members, consumers and chefs. Overall the sessions were well-received and many positive comments were offered about how people valued the opportunity to present their views

to DOC. DOC staff took notes as they talked to people, which have been collated and analysed (Appendix 11). DOC staff also followed up with attendees after the sessions by providing further information when this was requested (e.g. copies of reports relevant to whitebait).

Approximately 400 people in total attended a drop-in session with the most at one event being about 100 in Invercargill. Approximately 85 people from the West Coast of the South Island attended a session. A breakdown of the numbers of attendees is provided in Appendix 12.

2.4.4 Social media response

Overall, social media communications including the webpage, survey, and drop-in session information reached 13,217 Twitter screens and 3,665 Facebook followers. On Twitter and Facebook respectively, 282 and 82 people engaged with these posts. Twitter was also used to remind the public to complete the survey in early January.

2.4.5 Email address

DOC created an email address 'whitebait@doc.govt.nz' to manage correspondence relating to the project. This address was also advertised on the webpage and in the drop-in session advertisements. We received 22 contributions via this channel.

2.4.6 Ministerial communications

The National Office whitebait team contacted 27 people by letter or by email who had written to the Minister of Conservation about whitebait during 2018, to inform them about the status of the project and invite them to complete the survey.

3 What we heard

3.1 Overview

Overall, DOC heard from more than 3,000 people during this engagement process. Responses were received from iwi entities and respondents who self-identified as Māori and Moriori, the Whitebait Working Group, and stakeholders. Contributors lived around New Zealand. They shared a diverse range of interests in whitebait and the whitebait fishery, from commercial and recreational fishing, through mātauranga Māori, science, habitat restoration, environmental interests, and as consumers or broadly interested members of the public. There was significant congruence among much of the feedback provided by contributors.

3.2 Issues for whitebait

Across all engagement streams, the issues recognised by contributors as being most important for whitebait are shown in Table 1. Quotations from contributors (below) emphasise their perceptions of these issues. Quotes are provided verbatim.

Table 1. The most important issues for whitebait, as identified by contributors who provided feedback to this engagement process. Three groups of issues are highlighted: habitat, the fishery and management.

Major issues for whitebait		
Habitat	The fishery	Management
Water quality/pollution	Non-compliance with regulations	No clear management goal/target
Loss of habitat	Ability to sell whitebait	No dedicated funding for management
Fish passage blocked		Lack of knowledge e.g. to support/enable management
Lack of spawning sites	Fishing season is too long	Management framework complex
Inadequate enforcement (of habitat-related rules)	Fishery inadequately regulated	Management inconsistent with other freshwater fisheries
	Inadequate enforcement of regulations	
	Overfishing	
	Fishery not respected as shared resource	
	Lack of knowledge of fishing regulations	

3.2.1 Comments from contributors

Habitat

‘To this day i see vital wetlands drained for farming practices with no regard to the native wildlife and sheep/cattle grazing on sand dunes, riverbeds river edges even during whitebait season.’⁹

‘Water can't reach the grassy banks, when it does a cow eats the cover, stomps them or piss's n sh*ts on them! Farmer clears habitat for farming or pours nutrients on them!’¹⁰

‘Water pollution is a huge problem and not always the fault of farmers - urban waste and development is a huge problem that requires a lot of attention.’¹¹

Fish passages upstream have always been a problem, re perched culverts etc, and Regional & District Councils have not got the finances to monitor and or solve the problem.’¹²

The fishery

‘I have seen blatant disregard for the regulations by those that should know better and there is also a lot of ignorance of the ""regs"" by those that just don't know.’¹³

‘99% of the bullshit riverside is caused by greed and money.’¹⁴

‘I feel the season should be closed sooner so that rarer species such as kōkopu and kōaro are less likely to be caught when they travel upstream.’¹⁵

‘I have said this many times before. The SINGLE BIGGEST THREAT is the SELLING of whitebait. The next is the fact that you can catch as much as you want EVERY DAY.’¹⁶

‘One issue that has been bugging me for a very long time is that the rules are ancient and some are archaic. I have been white baiting all my life (around 65 years mainly on the one river ...) and there have been few changes in that time to the whitebait regs to meet current day practices.’¹⁷

Management

‘I think there is lots of people that don't give a dam about the rules in Wellington where I live you need more people to police the rivers I see people taking up so much of the river and it gets done about it’¹⁸

‘Stronger compliance required (haven't seen a ranger for 15 seasons.’¹⁹

‘How can a native fish be caught and sold. When trout are not native and cannot. That is so a*** about face.’²⁰

‘There is a mantra in business that if it is not measured it is not managed, this is worth remembering as the whitebait fishery is not measured in any way, neither its abundance or lack of it, catch rates or sales. So how can it be effectively managed at present?’²¹

‘The system to manage whitebait is set up for disaster. It is managed as a recreational fish and yet able to be sold commercially. And it is worth big money. What do people expect with this lack of regulation? I understand that there are numbers of contributors to whitebaits decline but the management structure itself is faulty.’²²

‘I had a conversation with some scientists who said that whitebait were ok because we could not prove they were not. This is poor logic to me. Given the situation with every other fish species in NZ and probably the world, we need to assume that they are in trouble until proven otherwise.’²³

3.3 Options for management

The management options most strongly supported by participants in this engagement process are shown in Table 2. In addition to expressing support (or lack of) for a number of possible management options, some contributors provided detailed recommendations on management options, e.g. what they considered to be appropriate gear dimensions, regional or site-specific actions, and timeframes for implementation.

Feedback received from each engagement stream (iwi, the Whitebait Working Group, stakeholders) is summarised in the next sections of this report.

Table 2. Management options for whitebait that were most strongly supported by contributors who provided feedback to this engagement process. Options are grouped under the issues they address: habitat, the fishery and management.

Management options for whitebait		
Habitat	The fishery	Management
Habitat protection and restoration	Increase enforcement of fishing regulations	More cohesive management (government, councils, iwi)
Mitigate barriers to fish passage	Temporary closure (rāhui) of some rivers to whitebaiting	Divide the fishery by sector for management
Increase enforcement relevant to whitebait habitat (e.g. consent conditions)	Permanent closure of some rivers to whitebaiting	Create a proper legislative framework for the sale of whitebait
	Require a license to fish for whitebait	Science and research to address knowledge gaps
	Shorten the fishing season	
	Catch limits (e.g. daily)	
	Ban commercial sale	
	Gear restrictions (e.g. ban sock nets, name gear)	
	Restrict fishing where whitebait aggregate	
	Restrict fishing to specific areas in rivers	
	Ban fishing on spring tides	

4 Feedback received from iwi and Māori

4.1 Overview

DOC received feedback on this work from Māori living in all regions of New Zealand, except the Chatham Islands. This was provided by Māori who self-identified as individuals affiliated with an iwi, and/or as representatives of iwi entities (Appendices 3, 13). In addition, one respondent identified as being of both Moriori and Māori descent.

Feedback from iwi highlights the importance of whitebait as taonga species, both in the context of mahinga kai and more broadly as part of te ao Māori. Iwi representatives sought further engagement should this work proceed to next steps (Appendix 3).

Some contributors specifically objected to labelling whitebait as a ‘resource’, and emphasised that their priority was protecting and enhancing populations rather than fishing. For others, cultural harvest was very important. Respondents called for more

involvement of tangata whenua in governance and management of whitebait, as DOC's partners and as kaitiaki of these species.

Around two thirds (65%) of Māori who provided survey responses (Appendix 13) identified as whitebait fishers. They reported fishing in all regions of mainland New Zealand, and 62% had been fishing for more than 20 years. Most reported fishing on Te Tai Poutini/West Coast, South Island (22%), followed by Ōtautahi/Canterbury (18%), Murihiku/Southland (12%), and Waikato and Taranaki (each 10%). Respondents also identified as consumers, scientists, mātauranga Māori experts/practitioners, having an environmental interest, or being generally interested as a member of the public.

4.2 Issues for whitebait

Feedback from iwi and Māori engagement highlighted issues for whitebait relating to habitat, the fishery, and management more broadly. These issues are summarised in Table 3, and attached for iwi representatives (Appendix 3) and Māori (Appendix 13). Water quality was the most frequently identified issue. Respondents recognised the importance of restoring both the mauri of rivers so that they are healthy and clean, and habitat connectivity so fish can move around freely. Habitat damage (e.g. from gravel extraction) and loss (e.g. wetland drainage) were also seen as significant issues (Table 3).

Feedback received also recognised the whitebait fishery as a pressure on these species. More than 90% of responses communicated the view that action needs to be taken to make the whitebait fishery sustainable. 65% of respondents identifying as fishers thought that the amount of whitebait being caught has declined in the last 10 years. Most respondents also considered that fishing is unsustainable, both where they fish (58%) and nationwide (63%). Increased fishing pressure on traditional sites is an issue (Table 3).

4.3 Options for management

Management options supported by Māori and iwi entities are summarised in Table 4. These addressed the breadth of issues identified, including options for managing whitebait habitat and the fishery, and the management framework overall. Numerous options for habitat restoration and protection were proposed. Spatial management of fishing activity, licensing, gear restrictions, catch limits and a ban on commercial sale were all well supported. Growing iwi involvement in management, and co-management approaches were also raised (Table 4).

Table 3. Issues for whitebait that were identified in feedback from iwi and Māori engagement. Issues highlighted in blue were considered major by more than 50% of responses. Green highlights major issues recognised by 25 to 50% of respondents. Issues in yellow were considered major by less than 25% of respondents. Additional issues identified, but for which the breadth of support was not assessed, are also shown below.

Major issues for whitebait that were identified in engagement feedback received from iwi and Māori		
Water quality/pollution Loss of habitat	Non-compliance with regulations	Non-locals overfishing Fishing season too short
Fish passage blocked Lack of spawning sites Fishery not respected as shared resource Overfishing Ability to sell whitebait Fishery inadequately regulated	Inadequate enforcement Fishing season is too long Lack of knowledge of fishing regulations Commercial fishing	
Other issues identified		
Illegal behaviour and criminal activity are widely known in the fishery		
Fishing gear in use (e.g. sock nets)		
Pest species		
Detailed discussions must wait until after Treaty settlement claims are completed		
Information gaps make sustainable management of the fishery impossible		
A fragmented, disconnected management regime		
No recognition of te ao Māori, mātauranga Māori or cultural values for these taonga		

Table 4. Management options and the level of support for these, as reflected in engagement feedback received from iwi and Māori. Support is the percentage of agreement, among those who expressed agreement or disagreement. Blue highlights options that were supported by more than 50% of respondents. 25 to 50% of respondents supported options in green. Yellow shows options supported by less than 25% of respondents. Additional options identified, but for which the breadth of support was not assessed, are also shown below.

Management options for whitebait that were supported in engagement feedback received from iwi and Māori		
Temporary closure of some rivers to whitebaiting	Include whitebait in Quota Management System	Ban recreational whitebait fishing
Permanent river closures to whitebaiting	Restrict fishing hours per day	
Ban commercial sale of whitebait		
Shorten the fishing season		
Require a license to fish for whitebait		
Catch limits (eg daily)		
Gear restrictions, eg ban sock nets		
Ban fishing on spring tides		

Other options identified

- Habitat restoration and protection
- Floodgate management (only open in a flood situation, otherwise allow tidal flushing)
- Restrict irrigation to November–April to prevent decline in habitat and fish passage
- Increase compliance and enforcement
- Require catch reporting
- Limit gear to scoop nets and set nets
- Prohibit stands and require removal of existing ones
- Introduce limits on the extent of fishing upstream (back-pegs)
- Rāhui / temporary ban on harvest
- Fish on one side of the river only
- Regulations for each awa or region
- Add a minimum legal distance between fishers to the regulations
- More data (including monitoring) required to support management
- Management agencies should work collaboratively (councils, DOC) to increase spawning habitat
- Ministry for Primary Industries to manage the fishery
- Education kits should be provided to consumers about pressures on whitebait and how to reduce impacts
- Involve iwi in management (including in compliance monitoring)

5 Whitebait Working Group

5.1 Issues for whitebait

The Working Group identified current and future issues in the following three categories. The number of current issues identified for each category was:

- issues affecting whitebait populations: 23
- issues with the fishery: 18
- management issues: 36.

Issues were often relevant to more than one category and made up of several smaller component issues. Therefore, the issues identified by the group are condensed and summarised here in the amended categories of habitat, fishing, management and 'other'. Issues currently affecting whitebait that the group considered to be of highest priority (in terms of importance and urgency), are summarised in Table 5. Lower priority issues are listed in Table 6.

Future issues identified by the group and assessed as being highest priority, are summarised in Table 7.

The Working Group determined that almost all the issues affecting whitebait operate at a national scale. Therefore, scale is not considered further in this report. In some cases, the group recognised regional and local differences in the nature and extent of the issues identified. For example, cumulative impacts (resulting from multiple pressures on whitebait) are expected to vary by location.

A complete list of the issues identified by the Working Group, priority attached to those issues and the scale that the group considered issues to operate on, is included in the record of the first Working Group meeting (Appendix 5).

Table 5. Summary of the issues currently affecting whitebait that were identified as highest priority by the Whitebait Working Group. (Highest priority = high urgency, high importance). For the group’s full list, see Appendix 5.

Type of issue	Issue	Description or example
Habitat	Habitat loss	e.g. loss of wetlands, riparian spawning habitat, and instream habitat
	Habitat degradation	e.g. reductions in water quality, sedimentation, pollution, macrophytes, stock trampling, altered hydrology due to water abstraction
	Habitat fragmentation	Due to fish passage barriers, e.g. dams, weirs
	Consents for structures and activities that impact habitat and associated enforcement	Conditions must be enforced throughout the terms of consents. Non-notifiable consents create situations where negative impacts occur undetected. e.g. drain clearance, pumps – alternatives with lesser impacts?
Fishing	Regulations were not designed to manage commercial activity	No clear definition of commercial activity in this fishery and anyone can sell their catch. Management by fishing sector (recreational, commercial, customary) does not occur.
	Management framework is inconsistent with other freshwater fisheries	e.g. trout, compared to whitebait, cannot be sold and requires purchase of a licence to fish, fines relating to offences are inconsistent between these two fisheries.
	Regulations are inconsistent between the West Coast (South Island), and the rest of New Zealand	e.g. only the West Coast regulations include back pegs (that limit the extent of fishing upstream).
	The basis of the current regulations and their purpose, is unclear	It is unknown if the current regulations are effective, and on what basis that would be evaluated.
	No dedicated source of funding to support fishery management	e.g. data collection, research, compliance
	Five galaxiid and one smelt species are managed as one fishery	Whitebait species have different life history characteristics (e.g. distribution, abundance, and lifespan). This is not reflected in fishery management.

	Lack of data on catch	There is minimal data available to support management (e.g. on number of fishers, catch size, fishing locations). Take by commercial, recreational and customary sectors is unknown.
	The amount of catch is unlimited	Fishing activity is limited by the regulations, not the actual amount of fish taken.
	Increasing amount of fishing activity	The number of participants in the fishery is thought to be increasing. This could increase pressure on whitebait numbers and reduces the chance of escapement.
	The fishing season is fixed in time	Whitebait (and the different species the catch comprises) may run at different times each year, but season dates are not adaptive.
	Compliance work and law enforcement is extremely challenging and can be unsafe	The enormous area that whitebait fishing can occur within precludes effective compliance activities at any scale, with current resources. Fishers alert each other when compliance staff are seen arriving at fishing sites (and before compliance staff can reach many fishers). Compliance rangers encounter criminal operators and physical threats in the course of their duties. Structures used to catch whitebait are sometimes not structurally sound.
	Compliance activities should include activity beyond just fishing	e.g. removing stands and debris from stands left in place
Management	No clear management goal or target	e.g. if whitebait populations are to be “restored”, the meaning of that term must be defined.
	Significant lack of knowledge to inform management, and not all information is available to be used/public	Knowledge gaps include elements of the life history of some species, population trends, fish stock structure, demography, dispersal, density dependence, predation, etc. Longer term research is necessary. Lack of knowledge about economic, social and cultural values. A significant body of data (of varying quality) is likely to be held by individuals, and not accessible to fishery scientists or managers.
	Conservation status	The relationship between adult and juvenile abundance, and whitebait catch, is unknown.
	The efficacy of rāhui and no-fishing reserves is unknown	e.g. how these closures would affect whitebait species within a river, and also in surrounding rivers.

	Complex management framework	There is a lack of integrated or coordinated management between DOC, regional councils and district councils, who all have responsibilities relevant to whitebait. There is also a lack of coordinated activity among community groups.
	Resources constrain management	It is not clear how revenue collected from resource consenting processes relevant to whitebait stands is used. There is no licence fee required to fish for whitebait. Capacity for management is limited, e.g. for fixing fish passage barriers, fencing, research, compliance, etc.
Other	Cumulative impacts on whitebait may occur due to multiple stressors	Impacts on whitebait from multiple stressors may be greater than the sum of impacts caused by individual stressors.
	Food safety risks	Unrestricted sale of whitebait creates food safety risks, e.g. when fish are not stored hygienically, or are caught in polluted water. Anyone can sell to anyone.
	Tax evasion	Significant tax evasion occurs when whitebait catch is sold and proceeds are not declared.
	Enabling / increasing support for education / restoration	

Table 6. Lower priority issues affecting whitebait that were identified by the Whitebait Working Group. For the group’s full list of issues, see Appendix 5. H = high, M = medium, L = low.

Type of issue	Issue	Description or example	Priority:	
			Importance	Urgency
Habitat	Habitat use	Impact of marine environment on larval fish, juveniles unknown	H	M
		Identification of spawning sites for species (except īnanga)	M	M
	Climate change	temperature, acidity, flow, sea level changes, coastal currents, ingress resilience and flexibility in habitat use by whitebait species is unknown	H	M
	Pests and introduced species	e.g. trout, gambusia	M	H - L
Fishing	Increasing fishing efficiency	Advancements in gear, technology, road access, vehicle transport, remote monitoring of fishing conditions	M	M
	Diverse fishing culture	There is precedent and peer pressure defining fishing norms [(n)etiquette], and this varies between sites	M	M
	National inconsistency in the fishing season	At each end of the season, fresh catch sourced illegally in a closed area can be identified at sale as coming from an open area.	M - L	M - L
	DOC administers regulations, not MPI		M	L
	Non-selective gear	Targeting of catch by species is not possible.	L	L
	Immobility of stands compared to other fishing methods	Mobile fishing methods can be used to follow the fish.	L	L
	Entitlement to catch	Perceived NZ birth right to a “a feed” but the size of “a feed” is not defined		
Management	Stand ownership and use	Stand ownership arrangements vary; confrontations occur (especially where money is involved).	H	M

	Targeted management is needed	e.g. as relevant to: local effects, sub-regional boundaries management tools and actions effective at the scale of stocks landlocked populations compared to migratory? management that can respond to interannual variability in whitebait populations	M	M
	Fishing at weirs	Whitebait aggregate at weirs and can be fished there.	M	M
	Management efficacy vs. expedience	Need to consider the best management approach overall.	M	M
	Fisher traceability	Gear set by individual fishers is not identifiable; stands are more traceable to owners/fishers.	M	L
	No legally-specified minimum distance between fishers		M	L
Other	Best practice guidelines lacking	Guidelines are required to ensure those active in whitebait habitat are doing the right thing (e.g. restoration, site management such as mowing)	H	M
	Fisher impact on fishing locations	e.g. pollution, rubbish, violating camping bylaws	L	L

Table 7. Future issues affecting whitebait that were identified as highest priority (in terms of urgency and importance) by the Whitebait Working Group. For the group’s original list, see Appendix 5.

Type of issue	Issue	Description or example
Habitat	Habitat loss and degradation	Water quality Changing hydrology Urban development, pollution, sedimentation Water quantity
	Habitat fragmentation	e.g. fish passage barriers (e.g. hydroelectric power)
	Climate change	Resilience of whitebait species unknown. Impacts may result from: increased frequency of extreme events changes in tidal influence, sea level, currents, flow regimes, pH, temperatures on land and water (e.g. egg desiccation) erosion food availability change in amount of effective available habitat.
Fishing	Increased fishing pressure	More people fishing Fishing tourists Fewer places to fish if species ranges contract Increasing access to fishing locations Changing ethnic make-up of fishers Cultural differences e.g. maximising take as first principle of fishing for some cultures Increased urbanisation could drive demand to purchase whitebait Technological improvements increase efficiency of harvest Potential for black market if remove commercial sale No licensing requirement
	Illegal activities within the fishery	e.g. businesses operated by organised (and recognised) criminal operators

Management	Lack of protection for whitebait species (at any life stage)	
	Fairness in access system	e.g. If permits are required, these must be distributed fairly.
	Lack of licensing, catch monitoring or long-term population datasets creates challenges for management	
	Lack of integrated management (central government, councils)	
	Capacity for engagement with fishers, farmers	
	Compliance, monitoring of existing and future regulations	e.g. new technology may assist compliance work
	Consenting processes that affect rivers, habitat	
	Increasing competition between economic and environmental interests	
	Buy-in to management needed or pushback may occur	e.g. build positive relationships between agencies, landowners, communities, and communicate effectively. Beware of creating a marginalised stakeholder group.
	Other	Next steps for improving management process
Funding		For research, monitoring, data collection (species and fishery catch), basic government operations
Rate of decline accelerates if issues not addressed		
Changes in populations and ranges of whitebait species over time		
Biosecurity		Potential for new diseases, increased spread, pests, predators

Lack of action by Government

Food safety

Potential for new contaminants (e.g. microplastics, pesticides)

5.2 Options for management

The Whitebait Working Group considered 50 management options. Options provided solutions spanning the breadth of issues identified and included regulatory and non-regulatory management tools.

5.2.1 Most strongly supported options

Management options that members of the Working Group supported most strongly were:

- habitat protection and restoration
- mitigation of barriers to fish passage
- a shorter and nationally consistent fishing season
- a licensing system
- a catch limit or quota system
- permanent closure of some rivers to fishing (as a conservation, management and restoration measure)
- prohibition of fishing in all areas where whitebait aggregate (all human-made structures, including weirs)
- requirement for nets to be named
- increased compliance and enforcement effort, and associated resourcing
- integrated and collective management involving central, regional and local government and iwi
- scientific research to address knowledge gaps.

Support expressed for these options was unanimous (except for licensing, which all but one group member supported¹). At least seven group members indicated a high level of support for each option. In addition to the support of permanent river closures as a conservation management tool, support was almost unanimous for this option as a fishery management tool. (One group member expressed a lack of support).

Three other management options were well supported by the group:

- restrict fishing activity to specific areas within rivers
- divide the fishery by sector for management (customary, commercial, recreational)
- create new legislation (at the Act or regulation level) to address the sale of whitebait (registration required for buyers and sellers; food safety requirements considered).

Support expressed for these options was unanimous and five or more members indicated high levels of support for each.

The Working Group's characterisation of the management options that were well-supported is summarised in Table 8.

¹ One group member did not support licensing because of the precedent that could set for licensing recreational marine fisheries, and the potential for impact on the historic right to catch a meal to feed a family.

5.2.2 Controversial management options

The nine management options on which Working Group members held particularly divergent views were:

- site-specific fishing licenses
- restricting fishing hours
- gear and/or fishing method restrictions
- legal requirements relating to whitebait stands
- requirement for fishers to complete catch diaries
- temporary river closures and rotational harvest
- a ban on commercial sale of whitebait
- a moratorium on all whitebait fishing
- transferring management responsibilities to another entity.

For these options, the level of support expressed by Group members ranged from high support to not supported. The group members' rationale for the views held on these management options is presented in Table 9.

A full list and evaluation of the management options discussed by the Working Group is included in the record of the Group's second meeting (Appendix 6).

5.2.3 Design of a management regime

Group members considered that the following components were most important for any green-fields management regime (reflecting the well-supported management options):

- nationally consistent core regulatory components
- habitat protection and restoration relevant to all life stages of whitebait species, managed at catchment scale (including closed rivers, mitigation of fish passage barriers)
- research to inform management
- robust fishery management, including:
 - management by sector
 - licensing fishers (with funds spent on management)
 - catch limits
 - limits on how far upstream fishing can occur
 - registration of sellers and buyers
 - prohibition of whitebait export
- compliance and enforcement.

Management models developed by group members are described in more detail in Appendix 6.

5.2.4 Analysis of current regulations

The group's evaluation of the current regulations highlighted potential amendments including:

- closing the fishing season nationwide on 31 October (and reviewing the season start date).
- amending the hours of fishing

- ensuring fishing is not permitted around weirs
- reviewing regulations relating to gear and its use, for consistency, clarity and efficacy
- reviewing offences and penalties, to clarify these and make them relevant to the current time.

Overall, there was strong support for using the regulations applying to the West Coast as a model for the rest of mainland New Zealand. Particular elements identified in this regard included:

- introducing spatial management tools, i.e. a network of river closures and areas in which special conditions apply to fishing activity
- limiting the extent of fishing upstream (introducing back pegs, prohibiting fishing above tidal waters)
- gear and method restrictions.

The group's preliminary evaluation of the regulations by section is attached at Appendix 6. Some group members expressed the need for more work to refine thinking on specific regulatory changes, including social and economic impacts, timing of any changes, and making sure any new regulations were workable, practical, readable and concise. A regulatory review group involving people experienced in using the current regulations (such as whitebait fishers, compliance personnel, legal experts) could usefully work together to refine proposals for updating the current regulations, if progressed.

Table 8. Management options that were most supported by the Whitebait Working Group.

Management option	Rationale	Key challenges
Habitat protection and restoration	More (and better quality) habitat means increased abundance of adult whitebait species. Could focus on some or all life stages. Involves addressing a broad range of issues: water quality, reduced water flow, introduced species, climate change impacts.	Resource- and effort-intensive. Requires reconciliation of land-use pressures.
Mitigate barriers to fish passage	Barriers preventing movement of fish (juvenile; adult; spawning-related) within rivers and access to upstream habitat are removed or mitigated. This enables fish to access more habitat and move freely within waterways to complete their lifecycle.	Pest fish may gain access to currently inaccessible sites. Resource-intensive.
A shorter whitebait fishing season that applies to the entire New Zealand mainland	Enables increased escapement of rarer kōkopu and kōaro whitebait that migrate later in the year, and of larger/older īnanga whitebait. Allows subadult īnanga to grow to maturity. Prevents fresh whitebait from a closed area being sold as legal catch from an open area.	Enforcing compliance with a new regime.
A licensing system	Licence required to fish for whitebait. Provides revenue stream (licence fees put into research, management and restoration of fishery). Enables collection of information on number of fishers and changes over time (i.e. broadly indicative of fishing activity, interest). Could structure by sector (recreational, commercial). Could link to other management options (e.g. diaries, catch limit, gear). Would apply at a national level.	Compliance and enforcement
A catch limit or quota system	Manages take, fishing pressure. Could structure in various ways, e.g. daily catch limit, total seasonal catch, and/or possession of whitebait. Adaptive management possible.	Insufficient information to set a biologically-based limit. Comprehensive enforcement not possible with current resources.
Permanent closure of some rivers to whitebait fishing	Reduces pressure on some river populations. Specific effects unknown but may increase whitebait numbers if closed-river populations contribute to whitebait runs in wider rivers.	Requires an assessment of which rivers to close. Should be based on benefit to whitebait species populations. Displaces any fishers using the closed rivers. Compliance, enforcement
Restrict fishing where whitebait aggregate	Expand on current regulation to restrict fishing in areas where whitebait aggregate in large numbers and may be more easily caught or caught in large quantities, e.g. <ul style="list-style-type: none"> • closure for specific sections of river downstream from weirs, or, • fish more than a legally-defined distance from weirs. Increases whitebait escapement. Addresses a weakness in the current regulations.	Compliance, enforcement
Restrict fishing activity to specific areas within rivers	Increased escapement of whitebait, e.g. if fishing only allowed in area of tidal influence (“back pegs” applied that limit extent of fishing upstream).	May create congestion among fishers in some places.
Require nets to be named	Nets and other equipment must be labelled with fisher’s name (or licence number). Enables more efficient and effective compliance interventions, when compliance activity occurs.	Administrative burden
Increased capacity and resources for compliance and enforcement (staff, training, equipment)	Compliance widely recognised as ineffective currently. More compliance and enforcement reduces the potential for illegal activities to propagate among the fishing community.	Resource-intensive. Safety issues in some cases.
Divide the fishery by sector, for management	Creates a management system that recognises key differences between the types of fishing activity, and enables management actions targeted by sector. Registered sellers and buyers are commercial operators, and only they can sell/buy (i.e. no recreational sales).	Administration, monitoring and compliance costs.

New legislation on the sale of whitebait (at the Act or regulation level)	Creates a proper legal framework for the sale of this food product, e.g., allowing only registered buyers and sellers. Helps address food safety risks resulting from unrestricted sales.	Facilitated by user buy-in and potential for black market transactions is created. Administrative and compliance burden in implementation.
Integrated and collective management, by iwi, DOC and councils	Consistent and cohesive management of the pressures affecting whitebait will enable issues to be addressed more effectively.	Requires sustained effort over time.
Science and research to address knowledge gaps	Will inform and enable better management of species populations and fishery. Funding stream (e.g. from licencing system) enables coordinated and strategic research.	Funding required. Long-term patterns vs short-term research (e.g. weather) Uncoordinated, piecemeal research is less effective than a strategic approach.

Table 9. Management options on which Whitebait Working Group members held particularly divergent views (from a high level of support to no support), and potential alternative management tools.

Management option	Rationale (and qualifiers) for:		Alternatives identified
	Support	Lack of support	
Site-specific licenses: (i.e. fishing licenses allocated to a river or region)	<p>May make compliance work easier.</p> <p>Key to controlling / limiting access to certain areas. Would allow structured management that could include temporary closures if a river showed declining populations of adult fish. Supported only for commercial take.</p> <p>Allows for regional and locally-based management. Licence money would support work in the region. (Still needs national oversight).</p>	<p>Administration intensive (time, cost)</p> <p>Challenging for compliance if lots of sites are defined.</p> <p>Likely to create confusion among fishers.</p> <p>Whitebaiters can be highly mobile.</p> <p>Need to be clear on what this will achieve.</p>	<p>National licence</p> <ul style="list-style-type: none"> • Simpler, easier to administer • Could require stipulation of which rivers are to be fished to provide information on where fishers are active. <p>Separation of commercial and recreational take. If there are site-specific licenses for commercial take, have a nationwide recreational licence.</p>
Restricting fishing hours	<p>If supported by scientific evidence, and newly regulated hours are reasonable.</p> <p>Only need to fish on the incoming tide.</p> <p>Clearly enforceable.</p>	<p>Too complex.</p> <p>Affects regions economically.</p> <p>Difficult to enforce.</p> <p>Better alternatives exist.</p> <p>Existing hours provide adequate restriction.</p> <p>Unnecessary disruption to fishers.</p> <p>Expect that only a small number of honest people would comply.</p> <p>No benefit.</p>	<p>Catch limits</p> <p>Retain <i>status quo</i></p>
Gear and/or method restrictions	<p>Regulations are old and being worked around.</p> <p>Ban screens</p> <p>Use nets only.</p> <p>Use scoop nets only.</p> <p>Support if particular gear types take disproportionate numbers of fish.</p> <p>Support if river users deem prudent. (Locals can exercise their aspirations for management).</p> <p>Support basic restrictions on screen length, net size, bank edge for setting, and limit to how far up-river fishing can occur (as per West Coast regulations – apply this model nationally).</p> <p>Support anything that increases fish escapement; unsure of detail.</p>	<p>Different rivers require different fishing methods.</p>	<p>Daily or seasonal catch limit</p> <p>Reduce length of fishing season to increase whitebait access to adult habitat.</p>
Legal requirements relating to whitebait stands	<p>Remove regional inconsistencies in the current approach (i.e. support a nationwide standard).</p> <p>Councils should consider state of the fishery in a river when renewing/granting consents for stands.</p> <p>Reduce term of consents (5-10 years maximum) to enable more responsive management.</p> <p>Need to remove illegal structures.</p> <p>Should not be able to be occupied as seasonal homes.</p>	<p>Outside DOC’s jurisdiction.</p> <p>Pushback from whitebaiters.</p> <p>Unenforceable.</p>	

Fishers required to complete catch diaries	Collectively, diaries will yield useful information over time e.g., on the fishery, migration patterns, and populations. Engages fishers in management effort. Must be part of any commercial harvesting regime. Providing catch data should be a condition of getting a licence. Could be voluntary for recreational fishers and mandatory for commercial fishers. Must be easily accessible and with accountability.	Tried on the Waikato River. Returns had no value. Would require enforcement. Don't want species to go extinct while collecting data.	Catch limits Information collected from reliable sources at a variety of rivers would provide some data.
Temporary river closures and rotational harvest	Supported for parts of seasons only. Supported if there is empirical basis for this. Should be linked to research programme to determine effects. Should be based on catch data, must be responsive in short timeframe. Allows for genetic diversity and mid-season runs.	Would only work for short-lived species. Compliance and enforcement difficult. Disruptive to fishers. Impacts on businesses and communities for questionable gains.	Reserves or closed areas
Ban on commercial sale	Many issues with violence, offending, and lack of compliance would be addressed. Enforcement is straightforward. Increased escapement of fish. Don't have the data to justify continuing sale. Need to protect the whitebait resource for the future.	Use quota and licenses to manage commercial elements.	Catch limits Commercial licence/registration to sell Allow registered commercial activity on specified rivers but ban sale of whitebait caught on all other rivers. Closed areas Moratorium on all fishing
A moratorium on all whitebait fishing	Fishing is a pressure on whitebait that can be easily managed. Moratorium could be lifted when stocks are healthy and other pressures have been addressed.	Parts of NZ have a sustainable fishery operating. Will not achieve restored or healthy fishery. Unduly reactive measure that will generate backlash and destroy dialogue. Unforeseen consequences. Diverts attention from potentially more important measures. Significant impact on small businesses for questionable gain. People should be able to harvest "a feed" if the resource is managed well. Too contentious.	River closures (for specific periods of time) Licensing Catch limits Manage/restore habitat (e.g. DOC should receive funds to purchase wetlands) Conduct research to inform future decision on whether moratorium is warranted.
Shift management to a different agency (e.g. Fisheries New Zealand (FNZ) / Ministry for Primary Industries (MPI))	FNZ/MPI has greater regulatory presence in the fishing community. DOC cannot manage the existing regulations.	No gain from doing this. Lack of trust between agencies. Lack of continuity, knowledge, and relationships if transfer. Alone, neither DOC nor MPI has sufficient compliance capacity for enforcement. Only transfer if that results in more resources for management.	Retain with DOC and boost capacity with funding for research, management, and training. Joint approach between MPI and DOC. Both agencies should have compliance and enforcement powers. Hold licensing, quota, and data management within FNZ/MPI.

6 Stakeholder feedback

6.1 Overview

More than 3,000 stakeholders provided DOC with their views on issues for whitebait and options for management. Stakeholders reported living in all regions of New Zealand, except the Chatham Islands. Most responses were provided by people living in Auckland, Wellington, Canterbury, and the West Coast of the South Island (Table 10).

For survey respondents, similar proportions (both around 45%) self-identified as fishers and having environmental interests. Respondents also identified as consumer, scientist, iwi, mātauranga Māori practitioner/expert and interested member of the public or 'other'.

For self-identified fishers, more than 50% reported fishing for over 20 years. Most said they fished on the West Coast of the South Island (28%), Canterbury (13%), Southland (8%), Taranaki (7%) and Waikato (6%).

Issues and management options were identified in the broad categories of habitat, the fishery, and management. Among survey respondents, 68% of all stakeholders and 39% of fishers thought the fishery was not sustainable nationwide. More than 90% of stakeholders thought that changes are required to make the whitebait fishery sustainable.

Themes emerging from stakeholder feedback were broadly consistent across all engagement methods: the online survey, drop-in sessions and email contributions. Therefore, feedback received from all methods is summarised together here.

Table 10. Regions where survey respondents lived.

Region	Percent of respondents
Northland/Te Tai Tokerau	3.4
Auckland/Tāmaki	9.7
Waikato	6.4
Bay of Plenty/Te Moana-a-Toi	6.6
Gisborne/Te Tai Rāwhiti	0.5
Hawke's Bay/Te Matau-a-Māui	2.8
Taranaki	4.3
Manawatu-Whanganui	3.1
Wellington/Te Whanganui-a-Tara	10.5
Tasman	3.5
Nelson/Whakatū	3.3
Marlborough/Waiharakeke	2.7
West Coast/Te Tai Poutini	9.5
Canterbury/Ōtautahi	17.3
Otago	7.5
Southland/Murihiku	6.6
Other	2.6

6.2 Issues for whitebait

Stakeholders agreed that the top five issues for whitebait are:

- habitat loss
- water pollution
- overharvesting
- inadequate regulation of the fishery
- ability to sell whitebait.

Other issues that stakeholders agreed are important for whitebait are summarised in Table 11.

Predictably, most responses were collected on issues identified in the survey questions. However, among the issues raised in stakeholder contributions (but not included in the survey questions), more than 200 responses identified an important lack of knowledge and research on whitebait.

6.3 Options for management

In their feedback to DOC, stakeholders expressed most support for the following management options (Table 12):

- introducing catch limits
- banning the commercial sale of whitebait
- introducing additional gear restrictions
- requiring a fishing licence
- shortening the whitebait fishing season.

While there was a focus among responses on improving management of the whitebait fishery, stakeholders strongly supported the continuation of recreational fishing for whitebait. Around 1,765 responses expressed disagreement with banning recreational fishing activity. (In contrast, 754 responses supported such a ban). Some stakeholders provided detailed responses on how they thought changes to recreational fishing regulations should be introduced, including by area, gear type, and as a stepwise sequence of new measures that gradually culminate in a new fishery management regime (e.g. after 5 years). Licensing was identified by some as a mechanism for funding fishery management and compliance.

Table 11. Stakeholder responses identifying issues for whitebait, collated from the online survey, drop-in sessions and email feedback to DOC’s engagement process. Issues in the first panel were included in an online survey question, and responses received through other avenues are included with survey data. Issues that more than 1,400 contributors agreed are major are highlighted in blue, issues agreed by 700–1,399 contributors are shown in green and agreed by less than 700 are in yellow. Issues in the lower panel were not included in the survey questions but were raised by contributors in survey comments or through other engagement channels. Numbers in parentheses show how many responses highlighted those issues.

Issues for whitebait that stakeholders agreed were major and that were included in the survey		
Loss of habitat	Commercial fishing	Lack of knowledge of fishing regulations
Water pollution		Non-locals overfishing
Overharvesting	Non-compliance with regulations	Season is too short
Fishery inadequately regulated	Fish passage blocked	
Ability to sell whitebait	Fishery not respected as shared resource	
Lack of spawning sites		
Inadequate enforcement	Fishing season is too long	

Issues raised by stakeholders that were not included in the survey questions
Not enough knowledge or research (201)
Predation/competition by trout and other introduced species and pests (116)
Lack of education about whitebait (112)
Whitebait stands are too numerous, too large (83)
Riverbanks or riverbeds are being damaged (70)
Object in principle to harvest of native fish (56)
Whitebaiters living near stands cause damage (21)
Climate change (12)
Customary rules need to be clarified (7)

Table 12. Stakeholder support for management options for whitebait, collated from feedback received by DOC from the online survey, drop-in sessions and email correspondence. Options in the first panel were included in an online survey question, and responses received through other avenues are included with survey data. Options supported by more than 1,700 contributors are highlighted in blue. Options with 700–1,699 supportive responses are in green. (No option received less than 700 expressions of support). Options in the lower panel were not included in the survey questions but were raised by contributors in survey comments or through other engagement channels. Numbers in parentheses show how many responses expressed support for those issues.

Stakeholder support for management options for whitebait that were included in the survey	
Catch limit	Include whitebait in Quota Management System
Ban commercial sale of whitebait	Permanent river closures to whitebaiting
Temporary closure (rāhui) of some rivers to whitebaiting	Ban fishing on spring tides
Gear restrictions	Restrict fishing hours per day
Require a license to fish for whitebait	Ban recreational whitebait fishing
Shorten the fishing season	

Management options for whitebait raised by stakeholders, not included in the survey questions

- Sock nets should be banned (161)
- Fishing rules should be consistent nationwide (e.g. West Coast as a model) (129)
- No changes are needed (61)
- Waterbodies need to be managed individually (29)
- Redesign/restructure the management regime (26)
- Introduce back pegs on every river (20)

7 Media activity

The high level of interest among stakeholders was echoed by interest from the media, generating at least 19 articles across online and printed media from late October 2018 to early January 2019.

DOC published a media release on 25 October 2018 from the Office of the Minister of Conservation, inviting the public to contribute their views about whitebait management. This information was picked up by TVNZ, Stuff, the Otago Daily Times, the Science Media Centre and other outlets.

In December, Radio New Zealand presented an Insight documentary on the topic, interviewing West Coast whitebaiters and DOC staff. The webpage accompanying the story contained background information about whitebait and a link to the survey via the DOC webpage.

A media report was created for online articles using the search terms whitebait survey OR whitebait meeting OR whitebait drop in OR whitebait management. Links to all the articles are available in that report (Appendix 14).

8 Conclusions

Taken as a whole, the feedback received during the engagement described in this report highlights the following main points:

- New Zealanders have a high level of interest in whitebait.
- There is a strong desire for changes to improve the status of whitebait and to ensure the whitebait fishery is well-managed and sustainable.
- Feedback from iwi, Māori, the Whitebait Working Group and stakeholders from all sectors illustrates broad agreement on:
 - the most important issues for whitebait
 - the most strongly supported options for whitebait management
 - the need for extensive engagement with iwi and stakeholders should this work proceed.
- Detailed and thoughtful contributions were received on possible changes to whitebait management.

The current status of whitebait and the whitebait fishery reflects the contemporary human pressures on New Zealand's natural heritage. The lifecycle of most whitebait populations requires both freshwater and the marine environment. What happens in and around those waterbodies determines their suitability for whitebait, the abundance of adult fish and therefore the future of these species and the fishery.

Improving the status of whitebait, and providing for a fishery in perpetuity, will require action: changes in behaviour from different people, interest groups, industries and management agencies. Additional engagement is recommended to enable and facilitate progress towards that. As encountered in the feedback from this engagement process, broad commonality in people's views about the need for change is a propitious starting point.

9 Acknowledgements

DOC wishes to thank all participants in this engagement process, for contributing such detailed, thoughtful and valuable feedback.

DOC thanks members of the Subject Matter Expert workshop and the Whitebait Working Group for their insight, expertise, and diligence, and for working together so constructively during this process.

The authors also thank MPI for sharing their blue cod engagement strategy.

10 References

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- 9-23. Respondents to DOC's online survey: Improving whitebait management. (*replacing letters in quotes 10, 14 and 20 were added by the authors).

11 Appendices

11.1 List of appendices

Appendix 1: Scientific names of species referred to in the text

Appendix 2: Record of the DOC – Māori subject matter expert workshop, held on 31 July 2018.

Appendix 3: Feedback DOC received from iwi representative groups during this process (excluding responses to the online survey).

Appendix 4: Terms of reference for the Whitebait Working Group.

Appendix 5: Record of the first meeting of the Whitebait Working Group.

Appendix 6: Record of the second meeting of the Whitebait Working Group.

Appendix 7: Information resources in Māori and English prepared to support drop-in sessions.

Appendix 8: Survey used during this engagement process (hard-copy version).

Appendix 9: Responses to the tick-box questions included in the survey used in this engagement process.

Appendix 10: Free-text responses to the online survey used in this engagement process.

Appendix 11: Notes taken by DOC staff at 12 drop-in sessions held during this engagement process.

Appendix 12: Numbers of participants attending the 12 drop-in sessions held during this engagement process.

Appendix 13: Survey responses contributed by Māori who self-identified as being affiliated with an iwi, and/or as representatives of iwi entities.

Appendix 14: Media activity identified by DOC during this engagement process.

Appendix 1: Scientific names of species referred to in the text

Indigenous species

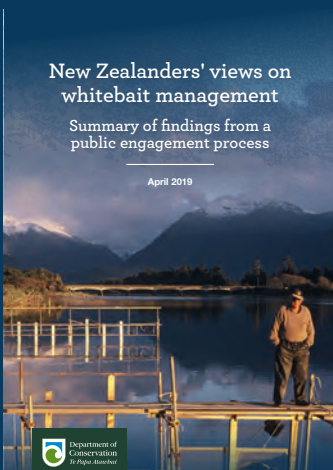
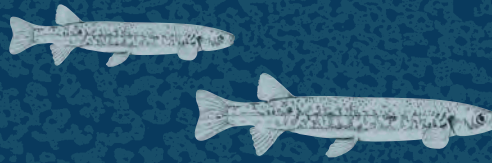
Īnanga	<i>Galaxias maculatus</i>
Kōaro	<i>Galaxias brevipinnis</i>
Banded kōkopu	<i>Galaxias fasciatus</i>
Giant kōkopu	<i>Galaxias argenteus</i>
Shortjaw kōkopu	<i>Galaxias postvectis</i>
Common smelt	<i>Retropinna retropinna</i>

Introduced species

Gambusia	<i>Gambusia affinis</i>
Trout (including brown and rainbow)	<i>Salmo trutta</i> , <i>Oncorhynchus mykiss</i>



Figure 3. Signpost to whitebait spawning sites, Hutt Road. This public art illustrates a growing interest and awareness of native fish and their lifecycles. Image: J. Pierre



For this report:

- ▶ www.doc.govt.nz/whitebait-management

For more about whitebait:

- ▶ www.doc.govt.nz/whitebait-migratory-galaxiids
- ▶ www.doc.govt.nz/inanga
- ▶ www.doc.govt.nz/whitebaiting

Or email:

- ▶ whitebait@doc.govt.nz