

Can salmon farming in the Marlborough Sounds be improved without increasing space?

It is important to the Government, the council, iwi, the public and the aquaculture industry that the effects of salmon farming on the marine environment are managed well.

The recently developed Best Management Practice Guidelines: *benthic environmental quality standards and monitoring protocol* (Benthic Guidelines) were a key step. Marlborough District Council, MPI, and New Zealand King Salmon are committed to implementing them.

These guidelines provide a framework, endorsed by the community, science experts and industry leaders, to ensure the sustainable management of salmon farming in the Marlborough Sounds.

Current situation:

- King Salmon has resource consents for 11 salmon farms within the Marlborough Sounds. Some of these farms were established about 30 years ago, and as a result of evolving knowledge and technologies, have a variety of differing consent conditions, standards, and requirements.
- Six of these salmon farms are in locations with lower current flows not ideally suited for sustainable salmon farming.
- Salmon farming results in organic matter accumulating on the seafloor and nutrient enrichment of the water column. These effects are greater in lower-flow areas which limits productivity.

What is the issue?

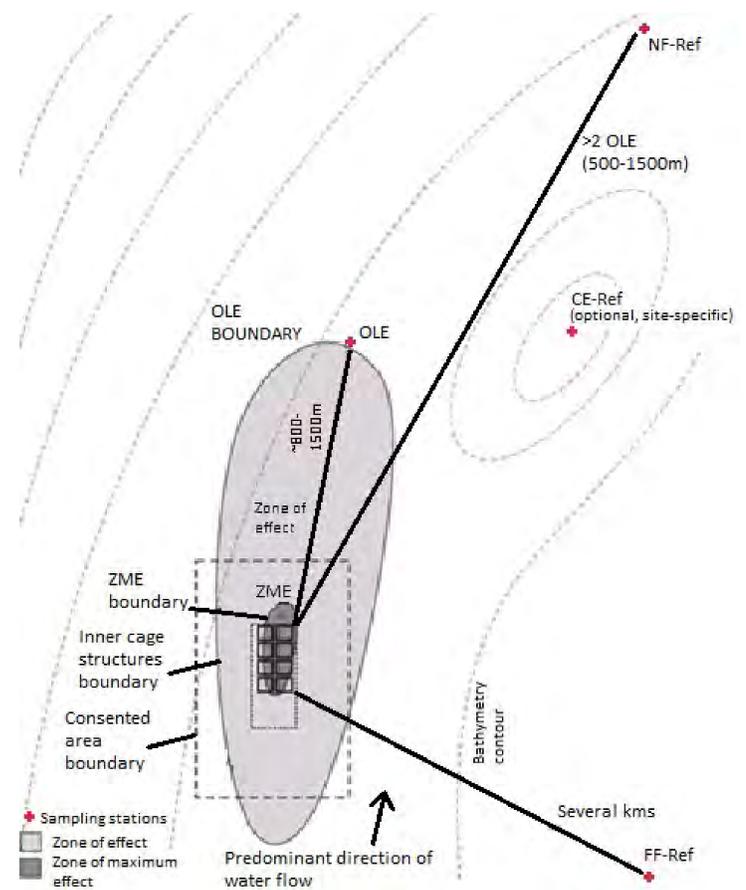
- The six lower-flow farms will have difficulty complying with the *Benthic Guidelines* without significantly reducing production.
- Moving these farms to deeper locations with higher water flows would provide a more sustainable, productive, and resilient industry without increasing the total amount of surface space occupied by salmon farm structures.
- The Government is committed to building and supporting a strong aquaculture industry. This relocation proposal is consistent with the Government's policy for aquaculture, which includes increasing the productivity of natural resources while reducing environmental effects.
- The Minister for Primary Industries proposes relocating up to six of these farms. Existing sites would be closed down and any consents held at those sites would be relinquished as part of this process.



What are the benthic guidelines?

- In 2014, local and central government, industry, scientists and the local community worked together to develop the Best Management *Practice guidelines for salmon farming in the Marlborough Sounds: Benthic environmental quality standards and monitoring protocols (Benthic Guidelines)*.
- These provide clear and consistent requirements for independent benthic (seabed) monitoring and management responses. They specify environmental quality standards that provide environmental “bottom lines” to assess the effects of salmon farming on seabed enrichment.
- A key element of the Benthic Guidelines is the use of an Enrichment Scale of 5 (ES5) in the Zone of Maximum Effect (ZME) and less than Enrichment Scale 3 (ES3) in the Outer Limit of Effect (OLE) to set a maximum permitted level of enrichment beneath a salmon farm.
- The guidelines set out a framework for monitoring effects close to farms and further away, but where you might still expect to see reduced effects from marine farming.

Figure 1. Zones concept with theoretical positions of sampling stations in relation to the farm and potential distortion of the footprint shape due to currents.



ZME = zone of maximum effect, OLE = outer limit of effects, NF-Ref = near-field reference, FF-Ref = far-field reference



Why relocation?

- Evolving science and improving salmon production technology means that we now know more about salmon farming, including how to better site salmon farms to reduce environmental effects.
- In 2012, Professor Kenneth Black of the Scottish Association of Marine Sciences, an internationally recognised authority on aquaculture, reported that higher-flow sites are better for growing healthy salmon, and reducing environmental effects in the Marlborough Sounds.
- Relocating up to six farms to more suitable locations where the *Benthic Guidelines* will be met is expected to result in:

better sustainability outcomes

- reduced seafloor effects
- reduced effects on water quality
- improved salmon health and greater resilience to increasing sea temperatures
- opportunities for improved management of biosecurity risks
- improved environmental monitoring and adaptive management

potential better social outcomes

- farms moved out of areas with high recreational use and amenity
- improved visual effects from new low profile structures in colours that blend into the background
- reduced noise, lighting, and odour effects
- farms moved away from populated bays

and improved economic outcomes

- up to \$49 million annually to regional GDP
- up to 511 Full Time Equivalent jobs.

Economic gains would occur over about 10 to 15 years as the sites are relocated and then developed in stages. These values are based on all six farms relocating.

If relocation of all the lower-flow farm sites proceeds:

- The number of residential dwellings in Queen Charlotte Sound/Tory Channel within one kilometre of a salmon farm would reduce from 21 to 3. In Pelorus Sound, there would be no residential dwellings within one kilometre of a salmon farm.
- New modern low profile structures in recessive colours would be used at the relocation sites, replacing existing farm structures that are decades old and visually intrusive, improving the visual effects within the overall Sounds landscape.
- The proposed Waitata Mid-Channel site is positioned away from the coast and is a new concept for salmon farming in New Zealand. It would not have a large accommodation and feed barge attached. A low-profile feed receptacle would be secured next to the net pens, and the farm would be remotely monitored.
- Consents issued for the relocation sites would include consistent conditions to ensure salmon farms implement the *Benthic Guidelines* and best farming practice.
- King Salmon would be required to provide advanced real-time monitoring buoys to ensure cumulative water quality effects are well monitored and managed. This technology could be applied to benefit the wider Sounds state of the environment monitoring.
- Any relocated farms would have to follow a staged adaptive management plan of gradually increased feed and production. Each increase would be subject to monitoring and feedback loops to ensure farms are managed well within environmental limits.
- Marlborough District Council is developing a coastal occupation charge as part of the Proposed Marlborough Environment Plan. King Salmon supports this initiative.

The decision about how many potential relocation sites will proceed will not be made until after public consultation on the proposal.

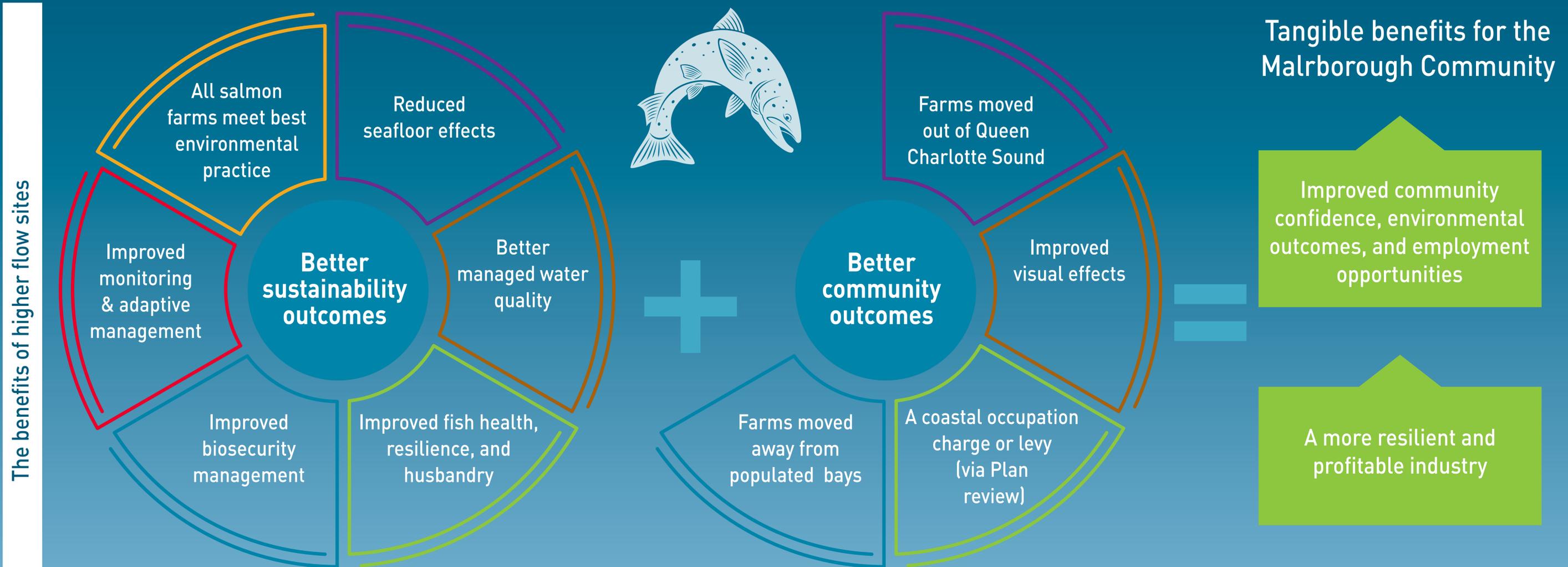
Marlborough could benefit from relocating some existing salmon farms to more suitable locations

We know more about salmon farming than we did even 5 years ago. We already manage salmon farming to a high standard, but should always try to improve.

New Best Management Practice Guidelines developed by MDC, MPI, community, experts

Forecasted warming sea temperatures

New Hydrodynamic Water-Quality Models developed by NIWA



CONSISTENT CONSENT CONDITIONS

CONSISTENT MONITORING

CONSISTENT MANAGEMENT

Continual environmental improvement

Monitoring technology

Feed efficiency

Waste capture

Future offshore aquaculture

Which farms could be moved?

The six existing lower-flow sites being considered for relocation are listed below and appear in **RED** on the maps:

Tōtaranui/Queen Charlotte Sound

- Ruakaka Bay
- Otanerau Bay

Te Hoiere/Pelorus Sound

- Forsyth Bay
- Waihinau Bay
- Crail Bay (two farms, not stocked since 2011)

Where are the potential relocation sites?

The six higher-flow potential relocation sites are listed below and appear in **BLACK** on the maps:

Te Hoiere/Pelorus Sound

- Blowhole Point North
- Blowhole Point South
- Waitata Mid-Channel
- Richmond Bay South
- Horseshoe Bay

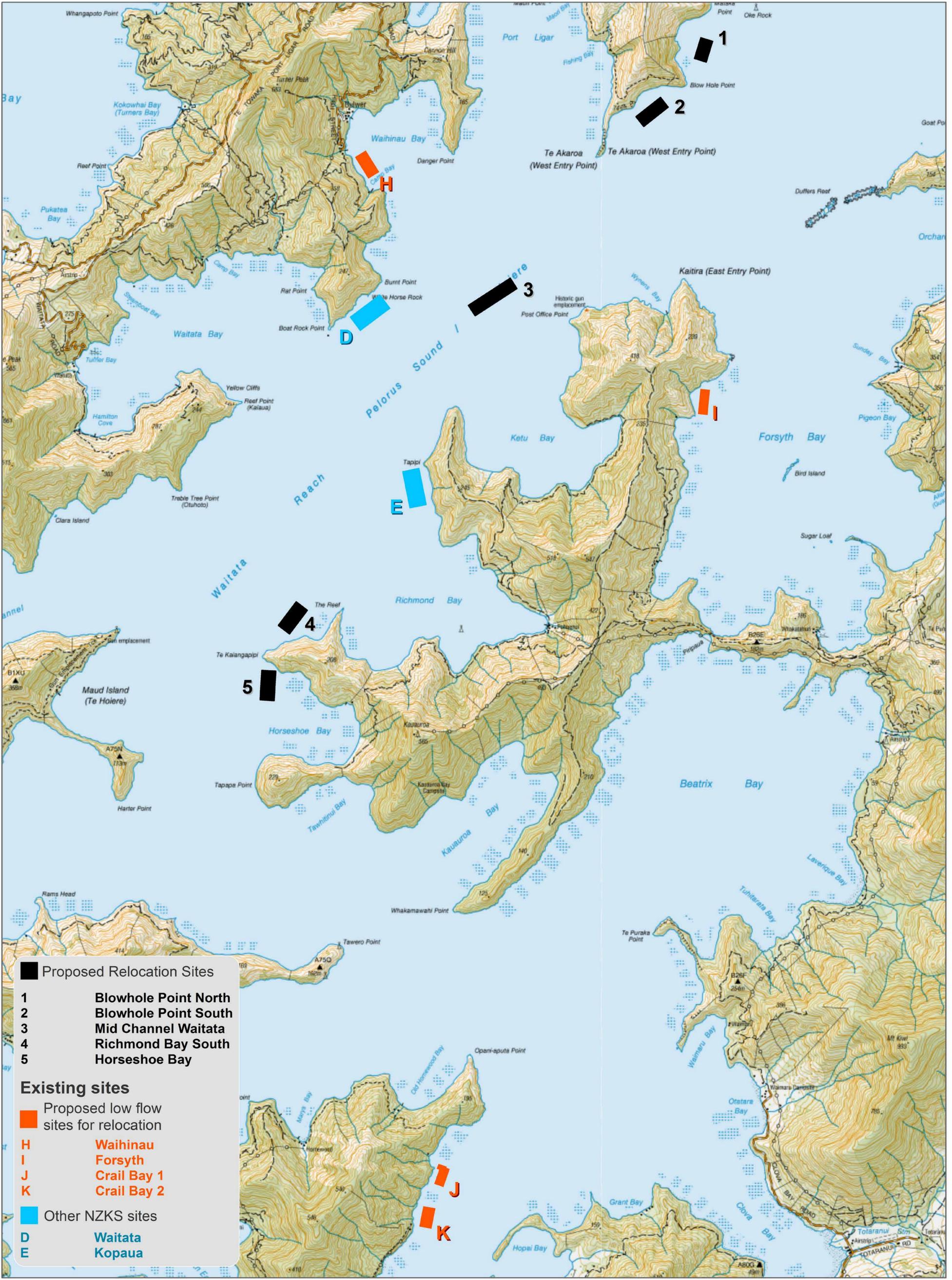
Kura Te Au/Tory Channel

- Tio Point

Existing salmon farms which are **NOT** being considered for relocation appear in **BLUE** on the maps.



Disclaimer: This map and all information accompanying it (the "Map") is intended to be used as a guide only, in conjunction with other data sources and methods, and should only be used for the purpose for which it was developed. The information shown in this Map is based on a summary of data obtained from various sources. While all reasonable measures have been taken to ensure the accuracy of the Map, MPI, (a) gives no warranty or representation in relation to the accuracy, completeness, reliability or fitness for purpose of the Map, and (b) accepts no liability whatsoever in relation to any loss, damage or other costs relating to any person's use of the Map, including but not limited to any compilations, derivative works or modifications of the Map. Crown copyright ©. This map is subject to Crown copyright administered by Ministry for Primary Industries (MPI).



Proposed Relocation Sites

- 1 Blowhole Point North
- 2 Blowhole Point South
- 3 Mid Channel Waitata
- 4 Richmond Bay South
- 5 Horseshoe Bay

Existing sites

- Proposed low flow sites for relocation
 - H Waihinau
 - I Forsyth
 - J Crail Bay 1
 - K Crail Bay 2
- Other NZKS sites
 - D Waitata
 - E Kopaua

Ministry for Primary Industries
Manatū Ahu Matua



1:55,000

Coordinate System: NZTM

**Map 1: Existing and Potential Relocation Sites
Pelorus Sound, Marlborough**

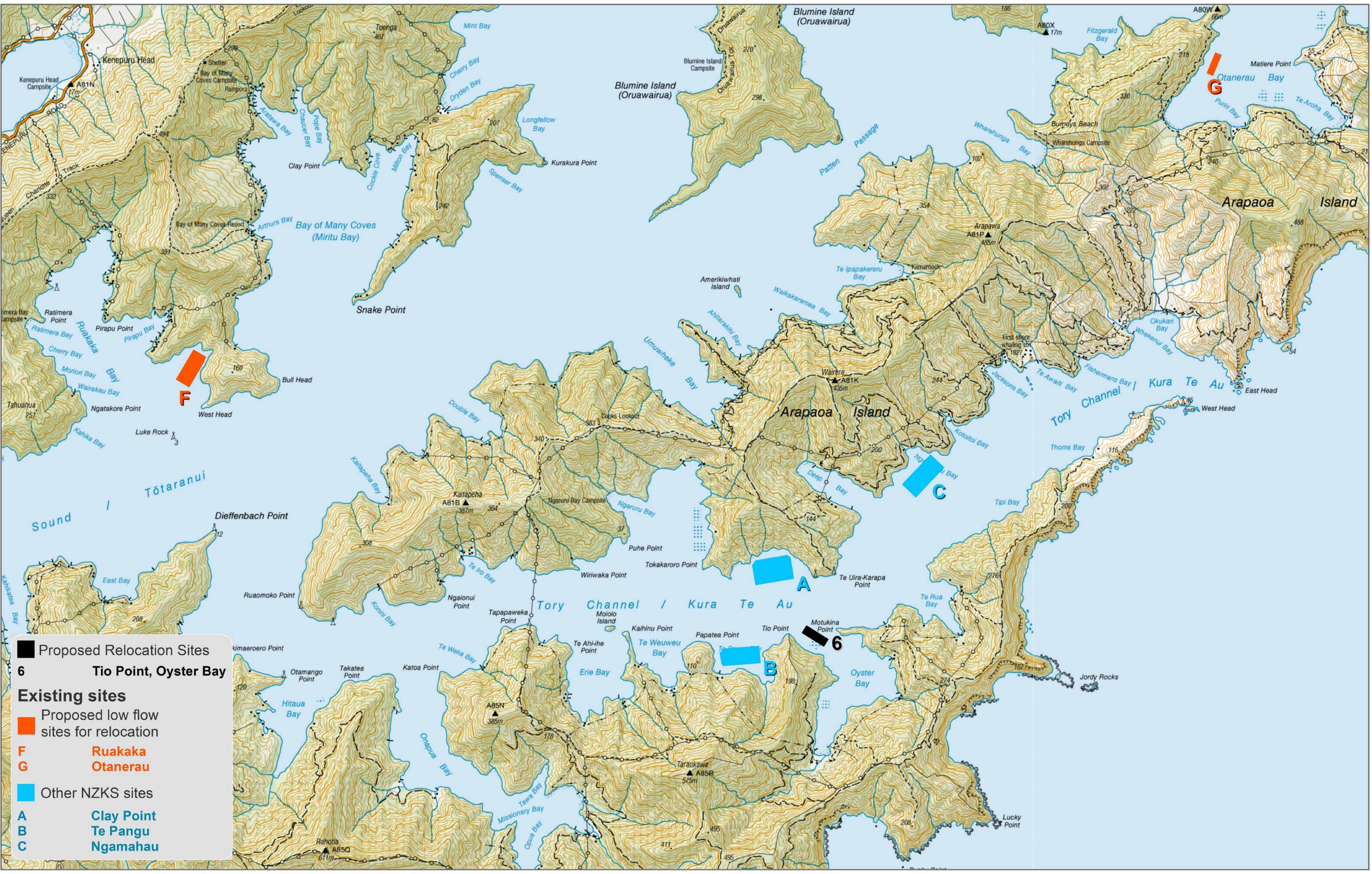
Date: 11/11/2016

Produced by: Spatial Analysis Solutions

Ref: r160467

Data Attribution:
This map uses data sourced from LINZ under CC-BY and Hillshade data, 2003, Geographx.

Disclaimer: This map and all information accompanying it (the "Map") is intended to be used as a guide only, in conjunction with other data sources and methods, and should only be used for the purpose for which it was developed. The information shown in this Map is based on a summary of data obtained from various sources. While all reasonable measures have been taken to ensure the accuracy of the Map, MPI (a) gives no warranty or representation in relation to the accuracy, completeness, reliability or fitness for purpose of the Map, and (b) accepts no liability whatsoever in relation to any loss, damage or other costs relating to any person's use of the Map, including but not limited to any compilations, derivative works or modifications of the Map. Crown copyright ©. This map is subject to Crown copyright administered by Ministry for Primary Industries (MPI).



Proposed Relocation Sites

6 Tio Point, Oyster Bay

Existing sites

F Proposed low flow sites for relocation

G Ruakaka

F Otanerau

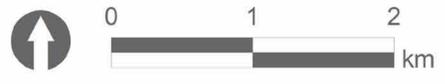
A Other NZKS sites

B Clay Point

C Te Pangu

C Ngamahau

Ministry for Primary Industries
Manatū Ahu Matua



1:50,000 @ A3
Coordinate System: NZTM

**Map 2: Existing and Potential Relocation Sites
Queen Charlotte Sound, Marlborough**

Data Attribution:
This map uses data sourced from LINZ under CC-BY and Hillshade data, 2003, Geographx.

Date: 11/11/2016
Produced by: Spatial Analysis Solutions
Ref: r160467

How were the six potential relocation sites selected?

- An initial list of potential sites prepared for Treaty aquaculture settlement obligations in 2012 was refined to a very small number of suitable sites, after considering a range of ecological, bio-physical, hydrological, fisheries and landscape/natural character information, in addition to social and cultural factors.
- The refining process to identify suitable sites aimed for locations that would best balance the potential costs and benefits.
- This reduced the list to just 9 potentially suitable relocation sites, highlighting the fact that opportunities for growth of salmon farming in the Marlborough Sounds is extremely limited.
- Recognising the value of early community engagement, the Marlborough Salmon Working Group (MSWG) was set up to consider options to implement the *Benthic Guidelines*. The MSWG included individuals from local and central government, community and interest groups, iwi, and the aquaculture industry.
- The MSWG considered a range of options to implement the benthic guidelines, and concluded that there were just two viable short-term options at this time; reducing stocking density and farm relocation to higher-flow sites.
- Other options such as improved feed efficiency, waste capture, and offshore farming have potential for the long-term future, but there are questions or constraints identified around their economic viability, logistics and timeframes for technological development.
- The MSWG concluded that 3 of the potential relocation sites were suitable to proceed for public consultation, there were differing views on the suitability of 3 sites, and 3 other sites were eliminated from further consideration.

Site swap scenarios

An exact proposal for swapping specific lower-flow farms to specific higher-flow sites has not been determined.

The Minister is interested in obtaining your views about the existing sites and the potential relocation sites to help inform his decision.



What happens if the lower-flow farms are not relocated?

- If relocation does not proceed, King Salmon is still committed to improving environmental management by implementing the *Benthic Guidelines* at all its farms.
- This would require initial fallowing of lower-flow farms for between 2 to 5 years to allow the seabed to recover before restarting production at reduced levels.
- Over the fallowing period it is estimated \$10m GDP per annum and 105 FTEs would be lost. After the fallowing period, there is scientific uncertainty about the exact stocking levels required for farms to meet the Benthic Guidelines. Therefore, GDP and FTE implications under both minimum and maximum stocking levels are based on estimates.
- Under modelled minimum potential feed levels, all four of the currently active lower-flow sites (Ruakaka, Waihinau, Forsyth, and Otanerau) would become commercially unviable resulting in a sustained loss of \$10 million GDP and 105 FTEs.
- Under the modelled maximum potential feed levels, three of the four sites (Waihinau, Forsyth, and Otanerau) would remain commercially viable at reduced production levels. Reduced production at these three sites is estimated to result in an ongoing loss of \$3.6 million GDP and 38 FTEs.
- There would be more exposure to climate change risks and limited opportunities to improve fish health since farms would remain in higher temperature, lower-flow sites. This could impact on Marlborough's global reputation for providing sustainable and premium products in competitive export markets.
- Social and amenity benefits would not be realised, as salmon farming would continue in the more populated bays.

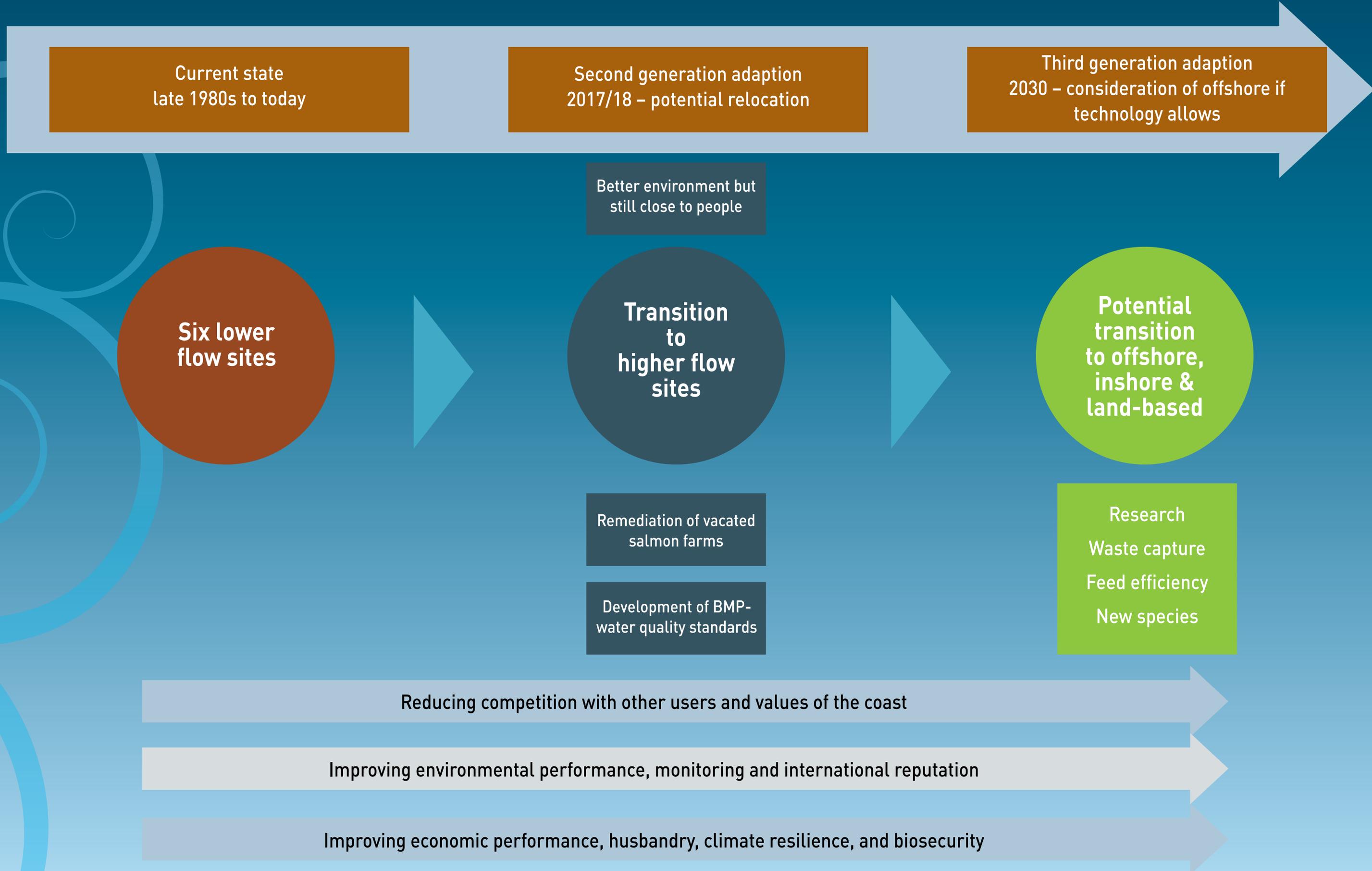
What are the potential outcomes of this consultation?

The Minister for Primary Industries seeks your views on which potential sites you consider appropriate for salmon farming. He also seeks feedback on which existing sites should be prioritised for relocation. The full consultation document contains further information, and questions to help you with your comments. There could be three outcomes from this proposal:

Outcome One	Make regulations under section 360A to change the Marlborough Sounds Resource Management Plan to enable relocation of all six existing lower-flow farms to the potential higher-flow relocation sites
Outcome Two	Make regulations under section 360A to change the Marlborough Sounds Resource Management Plan to enable relocation of some lower-flow farms to potential higher-flow sites, while others remain in their present location
Outcome Three	Not make regulations under section 360A and all existing lower-flow farms remain at their present location

Note that new resource consents will still be required for each relocated farm.

Conceptual framework for developing a vision for salmon farming in Marlborough



Where to find more information

The following background and supporting information is available to view or download from the Ministry for Primary Industries website. The consultation document includes the proposed regulations to change the Marlborough Sounds Resource Management Plan. To view hard copies in Marlborough, please visit the Marlborough District Library (Blenheim), the Havelock Community Centre, or the Marlborough District Council offices in Blenheim and Picton.

Document	Description																		
Consultation Document- including Draft Plan Change	Broad overview of proposal, highlighting key information including options considered and assessment of environmental effects (AEE). The Draft Plan change outlines changes required to the Marlborough Sounds Resource Management Plan to facilitate relocation.																		
Best Management Practice Guidelines	The benthic environmental quality standards and monitoring protocols developed for Salmon Farms in the Marlborough Sounds																		
Summary Assessment of Environmental Effects (AEE)	Summary of all AEE reports for relocation sites, with more detail than the consultation document.																		
Assessment of Environmental Effects Reports	All full AEE reports and associated expert peer reviews covering: <table border="0"> <tr> <td>Water Quality</td> <td>Seabirds</td> </tr> <tr> <td>Landscape</td> <td>Biosecurity</td> </tr> <tr> <td>Navigation</td> <td>Underwater lighting</td> </tr> <tr> <td>Benthic</td> <td>Discharges (greywater, Cu, Zn)</td> </tr> <tr> <td>Disease</td> <td>Heritage</td> </tr> <tr> <td>Noise</td> <td>Tourism/recreation</td> </tr> <tr> <td>Economics</td> <td>Social</td> </tr> <tr> <td>Marine mammals</td> <td>Operations</td> </tr> <tr> <td>Pelagic Fish</td> <td>Engineering</td> </tr> </table>	Water Quality	Seabirds	Landscape	Biosecurity	Navigation	Underwater lighting	Benthic	Discharges (greywater, Cu, Zn)	Disease	Heritage	Noise	Tourism/recreation	Economics	Social	Marine mammals	Operations	Pelagic Fish	Engineering
Water Quality	Seabirds																		
Landscape	Biosecurity																		
Navigation	Underwater lighting																		
Benthic	Discharges (greywater, Cu, Zn)																		
Disease	Heritage																		
Noise	Tourism/recreation																		
Economics	Social																		
Marine mammals	Operations																		
Pelagic Fish	Engineering																		
Cultural Impact Assessments	AEE for tangata whenua.																		
Photo Simulations	Photo Simulations of Proposed NZKS Salmon Farm Sites at Blowhole Point North, Blowhole Point South, and Waitata Mid-Channel																		
Marlborough Salmon Working Group (MSWG) advice report	MSWG advice on the proposal to government.																		
Cabinet Paper	Decision making document for Cabinet.																		
Regulatory Impact Statement (RIS)	MPI's analysis of the issue and possible options to address it.																		
Social and Community Effects Report	A case study of the top of the South Island on the social and community effects of salmon farming and rearing.																		

Have your say

The Minister for Primary Industries would like your feedback on the proposal to make regulations under section 360A of the Resource Management Act to amend the Marlborough Sounds resource management plan to enable the relocation of up to six salmon farms.

In addition to these public drop-in sessions, MPI will also hold hui on the proposal with iwi authorities. There will then be an opportunity for people who make written comments to attend public hearings and talk about their comments with the Marlborough Salmon Farm Relocation Advisory Panel, comprised of three independent resource management experts.

All comments must be received by MPI before 5pm on Monday 27 March 2017. A feedback form is available online.

Email to: aquaculture.submissions@mpi.govt.nz

Post to:
 Salmon Farm Relocation
 Ministry for Primary Industries
 Private Bag 14
 Port Nelson 7042

Please refer to the Ministry for Primary Industries website for confirmed dates, times and venue(s) of public hearings.