
First Review Report

21 AUGUST 2014



Hauraki Gulf
Marine Park
Ko te Pataka kai
o Tikapa Moana
Te Moananui a Toi



Hauraki Gulf Forum
Tikapa Moana
Te Moananui a Toi

In partnership with mana whenua and the following agencies:



Department of
Conservation
Te Papa Atarewhai



INTRODUCTION

1. Sea Change – Tai Timu Tai Pari is a significant stakeholder-led marine spatial planning ("**MSP**")¹ project for the Hauraki Gulf.
2. The Hauraki Gulf is a very significant area to mana whenua, the communities of the Gulf and to New Zealanders more generally. The Hauraki Gulf is a taonga, and MSP provides an opportunity for a structured and collaborative approach to planning for the protection and use of that taonga.
3. The Sea Change – Tai Timu Tai Pari Independent Review Panel ("**Panel**") was appointed by the Project Steering Group in July 2014. The composition of the Panel is set out in Appendix One.
4. The Panel has used the *UNESCO - Marine Spatial Planning – A Step-by-Step Approach* as the guide for good practice in MSP, and is very fortunate to have Professor Charles Ehler, one of the two authors of that UNESCO Guide, as a Panel member.
5. A project such as Sea Change – Tai Timu Tai Pari requires significant vision, leadership, commitment and resources. The Panel acknowledges the collaborative and supportive approach taken to this project by mana whenua, the Hauraki Gulf Forum, Auckland Council, Waikato Regional Council, Department of Conservation ("**DOC**") and Ministry for Primary Industries ("**MPI**"). One significant aspect is the co-governance approach reflected in the Project Steering Group which is comprised of half mana whenua members and half members from relevant agencies.
6. The Panel has been asked to review certain aspects of the Sea Change – Tai Timu Tai Pari process to date, and to provide three reports to the Project Steering Group. This is the first of those reports.
7. In undertaking this initial review the Panel is mindful that Sea Change – Tai Timu Tai Pari is a novel and ambitious process, including in particular the level of stakeholder engagement, which has been tailored for the New Zealand context. The stakeholder working group ("**SWG**") is still in the relatively early stages of the process, and there will be lessons to be learnt and adaption required as the process evolves. The Panel is also mindful that its role is to add value to the process and make recommendations where it considers that to be appropriate.
8. In undertaking this first review the Panel has had the opportunity to consider a range of documentation and to speak to some of the people involved in the process. This report is based on the information derived from those sources. The Panel appreciates the time taken by those people to assist the Panel in its work. This initial review and report has been completed in a relatively short timeframe to reflect the fact that the process is in its early stages. For that reason, the report focuses on key areas and is not a comprehensive report on all aspects of the process to date.

¹ In this report, "MSP" is a reference to 'marine spatial planning' or a 'marine spatial plan', as the context requires.

EXECUTIVE SUMMARY AND RECOMMENDATIONS

Executive Summary

9. The Panel's overall conclusion is that Sea Change – Tai Timu Tai Pari is an exciting and visionary process for the Hauraki Gulf. It has required real leadership from mana whenua, central and local government, and commitment from the many people involved in and supporting the process.
10. The work done to date has been of a high standard. There are opportunities and challenges ahead, and we make recommendations in relation to areas that may need to be addressed or considered moving forward.
11. One fundamental and relatively unique feature of this MSP process is the degree of empowerment for the SWG. There has been significant responsibility devolved to the SWG to identify its own goals, objectives, issues and options, and to prepare and recommend the MSP. This is beyond the extent of collaboration envisaged in the UNESCO Guide. The Panel considers this approach to be commendable and appropriate in the New Zealand and Hauraki Gulf contexts.
12. The process for the establishment of the SWG was well-designed and robust. There is a strong emphasis in the SWG on engagement with the communities of the Hauraki Gulf, including through mechanisms such as the RoundTables. There is an ongoing need to ensure that all communities are engaged with and remain involved in process.
13. In terms of mana whenua, the Panel strongly supports the co-governance approach at the Project Steering Group, and the appointment of four mana whenua members to the SWG. There remains some uncertainty about how mātauranga Māori will actually be incorporated into the MSP process, although the Panel understands that steps are being taken to clarify this, such as the July 2014 mātauranga Māori hui and the proposed engagement plan.
14. One challenge will be the effective use of a 'next-generation' decision support tool 'SeaSketch' to enhance the collaborative planning process. While acknowledged to be a state-of-the-art decision support tool, its use requires a significant amount of data, some of which is not currently available or is incomplete. Incorporating the appropriate data into SeaSketch in a timely manner will require careful planning and management. Learning to use SeaSketch appropriately and effectively will also require a significant investment of user time, although tutorials to date appear to have been effective. The Panel recognises that the time remaining to complete the MSP is very limited and that the collection and incorporation of some of the desired data layers into SeaSketch may not be possible within the time remaining. A plan for this contingency should be considered.
15. The provision and use of information is extensive and impressive given the project has been running for such a short time. There are some gaps, but this is to be expected

and the Panel is comfortable that these gaps will be addressed given the ongoing process of discussion and consultation.

16. The quality of the scientists delivering information to the project is exceptional as is the information. The key scientists have been able to synthesise a large volume of information in a balanced and concise manner for digestion by the RoundTables. This is an essential function which will need to continue as the SWG moves into the detailed planning process.
17. It is critical that the final MSP delivered by the SWG is able to have a meaningful influence on statutory frameworks and institutions moving forward. One consequence of devolving significant authority to the SWG is that the entities responsible for implementing the MSP (such as central and local government) are not a formal part of the SWG decision-making process. While the Panel supports the autonomy of the SWG, strong links between the SWG and the agencies responsible for implementation are critical. The ultimate success of Sea Change – Tai Timu Tai Pari will be determined by the extent to which the MSP is adopted and implemented by agencies such as DOC, MPI, Auckland Council and Waikato Regional Council.
18. There is clearly a challenge for the SWG to be able to deliver a quality MSP by September 2015. The Panel acknowledges that a well-defined and disciplined timeframe is likely to produce a better result. Experience overseas has been that where timeframes are ill-defined or too long, a successful outcome is unlikely. However, there is a significant amount of work to do by September 2015 and careful attention must be given to project milestones and the tracking of progress against those milestones. Further, ongoing consideration must be given to what level of detail can reasonably be expected in a MSP produced in this timeframe.

Recommendations

19. The recommendations of the Panel in relation to **Stakeholder Working Group establishment and function** are as follows:
 - (a) identify and remedy any adverse effects of developing goals and objectives later in the MSP process on both the use of SeaSketch and on the work of the RoundTables; and
 - (b) monitor attendance at SWG and RoundTable meetings, engagement of participants and community support to identify any need for remedial action to maintain momentum.
20. The recommendations of the Panel in relation to **Stakeholder Working Group engagement** are as follows:
 - (a) test connections to ensure there is sufficient engagement with relevant stakeholders. In particular assess connections with long-term large-scale economic development opportunities, with future tourism opportunities, with youth, with Asian and Pacific Island communities and with future education or

scientific institute opportunities that might use or be located within the Hauraki Gulf;

- (b) ensure processes are in place to secure direct and effective mātauranga Māori input to the RoundTables;
- (c) consider the time that will be required for the RoundTables to complete their work given the current level of engagement and knowledge of RoundTable members, the information sourcing and processing requirements of the RoundTables (including the need for them to develop goals and objectives relatively early in Phase 2), and the highly collaborative process chosen. Identify risks to timing and to quality of output and develop mitigation strategies; and
- (d) consider the value of providing negotiation training or support to SWG and RoundTable members.

21. The recommendations of the Panel in relation to the **development of SeaSketch** are as follows:

- (a) the appropriate use of SeaSketch requires the best available data. A clear specification of data needs from the SWG and RoundTables is required as soon as possible. This is only possible if and when a clear statement of the priority problems and/or the goals and specific objectives to be addressed in the MSP are available;
- (b) since the time for planning is limited, a schedule should be developed of when goals and objectives together with outstanding data will be available for incorporation into SeaSketch;
- (c) similarly, since the SWG and RoundTables will need several iterations of SeaSketch applications to identify and select desirable spatial alternatives, a schedule of meetings for this purpose should be clearly specified;
- (d) since all SWG and RoundTable participants may not be satisfied with the use or limitations of SeaSketch, it will be important to evaluate its value to participants as the process progresses;
- (e) IP agreements should be reviewed to ensure information is freely available to SeaSketch; and
- (f) the UNESCO Guide lists the key elements of 'good practice' for the use of decision support tools. Statements are made later in this report in relation to best practice, and these should be communicated to the RoundTables and other prospective users of SeaSketch.

22. The recommendations of the Panel in relation to **the provision and use of information** are as follows:

- (a) longer term prediction scenarios will be required to allow the MSP to survive the test of time. There is a need to integrate data layers and provide trajectory information for the major ecological drivers of the entire Gulf. The current lack of

critical components of information will delay the implementation of SeaSketch mapping (for example localised commercial fishing data). Information on cultural values and vulnerable habitats is also required. There are plans to complete the necessary data layers, however, and as much projection planning as is possible is recommended;

- (b) the relationships with DOC and MPI are vital and will need to be resourced appropriately as the time approaches for detailed spatial planning. Linkage or awareness/use of the MPI devices for planning (NABIS) would be useful into the future as alignment of long term strategic planning of these agencies is important given the collaboration that has occurred;
- (c) the science that has been produced to date is exceptionally good. It is comprehensive in terms of the habitats and environmental issues it addresses. The information on trajectories of the ecological state of many key habitats and species is also present. This needs to be brought together and aligned with information on land use and likely scenarios for sediment and pollutant input as well as matters such as coastal margin development and reclamation. In the medium to long term 'climate' and 'urban growth-proof' MSP of the Hauraki Gulf will be needed. The ability to create a scenario assessment tool is viewed as highly desirable, noting the very significant technical difficulties in this process; and
- (d) the acquisition and uptake of cultural and historical information is viewed as being important not only to provide balance in value assessments of resources, but also to provide background information of the state of the environment in the Hauraki Gulf before modern development. This information can be used to produce a 'baseline' for monitoring responses to management and in providing a target for enhancing environmental health.

SCOPE OF REVIEW

23. The Project Steering Group provided the Panel with a scope for this first review. That scope requires the Panel to consider the following four aspects of Sea Change – Tai Timu Tai Pari:
- (a) establishment and function of the SWG;
 - (b) SWG engagement;
 - (c) development of SeaSketch; and
 - (d) provision and use of information.
24. The Panel has been asked to consider these four aspects in light of the following criteria:²
- (a) does the process reflect best practice for MSP?
 - (b) does the process reflect effective co-governance with iwi?
 - (c) does the process recognise mātauranga Māori?
 - (d) does the process reflect best use of available information?
 - (e) is the consultation and representation consistent with a best-practice, collaborative approach?
25. The structure of this report reflects that scope as follows:
- (a) Part A: Stakeholder Working Group Establishment and Function;
 - (b) Part B: Stakeholder Working Group Engagement;
 - (c) Part C: Development of SeaSketch; and
 - (d) Part D: Provision and Use of Information.

² There are other criteria that will be more relevant to subsequent stages of the project, such as when a marine spatial plan has been prepared. The Panel has refined the criteria to reflect the context and purpose of this first review.

PART A: STAKEHOLDER WORKING GROUP ESTABLISHMENT AND FUNCTION

Summary of what has been undertaken in this project

26. The SWG was designed to be a group of competent people brought together for the purpose of developing the MSP. Fourteen members were selected, four members by mana whenua using a tikanga Māori process and ten members by a participative public process drawing from other sections of the Hauraki Gulf community.
27. The mana whenua process entailed invitations to all 26 mana whenua groups to send mandated representatives to attend a hui to discuss the SWG, its role, the criteria required for its members, and ultimately to select the four mana whenua participants. In accordance with tikanga Māori, the four mana whenua participants were selected by consensus by those at the hui based upon criteria deemed appropriate by the group assembled. Two key groups of criteria were used:
 - (a) skills and attributes used to select the other 10 SWG participants; and
 - (b) a consideration of geographic spread.
28. We understand that the public process for the selection of SWG members began with a general list of around 12,000 people and organisations identified by Waikato Regional Council, Auckland Council, DOC and MPI. This was reduced by agency staff to between 1500 and 2000 people. Subsequently, over 700 interested organisations were invited to two meetings, held in Auckland and Thames.
29. Approximately 80 people attended the Auckland meeting, and approximately 70 people attended the Thames meeting. Attendees at these two meetings nominated potential SWG members to attend the later Gordonton selection meeting.
30. At the Gordonton meeting, approximately 64 attendees were led by a professional facilitator through a structured process to select 10 SWG members. The process involved identifying themes that would be important for development of the MSP and associated groups of individuals with each of the themes.
31. Attendees were told what would be required of them as SWG members, including the requirement to commit around 700 unpaid hours to the MSP process over a two year period. They were also provided with guidance about what characteristics would be best suited to participation. The characteristics included not only what each member would bring to the SWG but also how they would behave as collaborators developing the plan.
32. Those who wanted to put themselves forward as SWG members were asked to provide a brief statement of why they thought they should be members of the SWG. A structured voting process was used to select the members.

33. Although members were selected based on their association with important Hauraki Gulf interests, they were asked to participate in the interests of the Gulf as a whole, seeking the best available environmental, economic, social and cultural outcomes.
34. The result is a SWG that has representation from mana whenua and other interested groups and is responsible developing the MSP.
35. An independent and paid Chair of the SWG, with extensive project leadership experience, and a similarly skilled executive facilitator for the SWG were appointed. The Chair is responsible for leading the SWG to complete development of the MSP.
36. The SWG has developed a draft 'vision and principles' for the plan. The SWG has not been provided with 'goals and objectives' as it is expected that goals and objectives will be developed by the SWG during the plan development process.
37. Once the MSP is complete it will be considered by the various agencies that have decision-making authority and they will conduct their own assessment and consultation processes. The SWG's intention is to provide a plan that can be put forward as a complete proposal rather than a series of recommendations able to be adopted by agencies on an item-by-item basis.

What is best practice for SWG establishment and function?

38. The Terms of Reference for the Panel state that the UNESCO Guide is to be used as the standard for best practice.
39. The UNESCO Guide uses the expression 'good practice' rather than 'best practice' because there are many effective ways to develop a MSP, in particular the level of involvement of stakeholders, and the method chosen for each planning process should be customised to local conditions. We refer to best practice here as practice that has been well-customised to Hauraki Gulf circumstances and is consistent with the UNESCO Guide. There is no statement of 'best practice' to refer to.
40. The UNESCO Guide specifies that stakeholders should be involved in MSP to build understanding of the complexity of the marine management area, to understand human influences on the area and to deepen understanding about the problems and challenges. Stakeholder participation also encourages ownership of the plan and develops trust among stakeholders and decision-makers. It encourages compliance with the rules and regulations established when the plan is implemented.
41. The stakeholders chosen should be those who are or will be affected by MSP decisions and those who have a special interest in the management of the area. The group of stakeholders chosen should be well-balanced, reflecting the environmental, economic, social and cultural interests in the management area.

42. The UNESCO Guide specifies that a core group of stakeholders should be engaged in the analysis and selection of the plan alternatives and that it may be valuable to form sub-groups of stakeholders to focus on specific topics.
43. The UNESCO Guide refers to the importance of a process that is 'reflective of cultural interests' and 'adaptive to local conditions'.
44. The UNESCO Guide also suggests that professional facilitators be employed to support stakeholder engagement.

Does SWG establishment and function reflect best practice?

45. Overall, there is a good fit with the establishment and selection process specified in the UNESCO Guide. Where there are differences, these are reasonable responses to the Hauraki Gulf circumstances.
46. The public process identified stakeholders who fitted the criteria and who represent a wide range of stakeholder interests. The process was well-designed and robust. We have been advised that the process has been viewed as open, transparent and legitimate.
47. In the New Zealand context, it is critical that the role of mana whenua is appropriately recognised and reflected in the MSP process, in a manner that reflects the Treaty of Waitangi / Te Tiriti o Waitangi. In SeaChange – Tai Timu Tai Pari, mana whenua participation is guaranteed by the design of the SWG, which includes four mana whenua participants. Mana whenua were given the authority to select the four mana whenua SWG participants. The process is 'reflective of cultural interests' and 'adaptive to local conditions'. Therefore, we consider both the overall process of giving mana whenua the authority to select SWG participants, as well as the process employed by mana whenua, which followed tikanga, to be best practice.
48. We have considered the possibility that some important interests may not be represented on the SWG. The invitation process and the requirement to commit around 700 hours, might have resulted in some groups being left out.
49. It is almost inevitable that when a small number of members must be selected from a large group of aspirants, some interests are likely to be under-represented. We were informed that there may have been some expressions of dis-satisfaction with the process and outcome. However, we note that the overall design of the SWG recognises that possibility and aims to address any gaps through the RoundTables and other engagements.
50. The design of the selection process for SWG members has ensured that participation of stakeholders occurred. The selection design used is the most participatory MSP process that the Panel is aware of. The final self-selection step to determine the

members of the SWG was designed to achieve maximum collaboration. In the absence of specific MSP legislation, or a single authority with responsibility to undertake MSP, a process designed to ensure greatest participation and achieve significant collaboration would result in a MSP that is most likely to be supported by communities, and therefore has a better chance of being implemented by relevant authorities.

51. One fundamental and relatively unique feature of this process is the level of authority, autonomy and responsibility given to the SWG. The collaborative approach adopted goes beyond what is envisaged in the UNESCO Guide, with the SWG being given the mandate to develop and recommend the plan as a group, but this is considered to be an appropriate adaptation to the Hauraki Gulf circumstances.
52. The Hauraki Gulf MSP process is itself a collaboration among agencies. Those agencies are able, and expected upon invitation, to contribute to the SWG deliberations.
53. Attempting to develop a plan with a high level of collaboration and with several agencies directly involved would have been very challenging. The Panel considers that giving the SWG the mandate to develop the plan is a sound way to respond to the Hauraki Gulf's special circumstances.
54. In this process, officials from agencies, governance and project groups are responsible for supporting the process, not for developing the MSP. However, one key issue that will have to be managed is that the SWG, as the entity responsible for developing and recommending the MSP, does not have authority or responsibility for its implementation. The implementation role falls to central and local government agencies (for example Auckland Council and Waikato Regional Council under the RMA; the Department of Conservation under conservation legislation such as in relation to marine reserves; and the Ministry for Primary Industries in relation to fisheries, aquaculture and biosecurity).
55. While the Panel acknowledges and supports the empowerment of the SWG, it is critical that the SWG maintains strong relationships and dialogue with those agencies with the ultimate authority for its implementation. Without that, there is a risk that the MSP may not be implemented effectively.
56. The UNESCO Guide specifies that goals and objectives be provided to MSP developers. In the Sea Change - Tai Timu Tai Pari planning process goals and objectives are expected to be developed during the planning process. Later development of goals and objectives will delay assessment of options by the SWG because they are required to use decision support tools, including SeaSketch.
57. Recruiting a professional Chair for the SWG and providing facilitation support is sound. If the SWG has the mandate to develop the MSP then it needs to be well-led and

supported. The panel acknowledges the intensive work being undertaken by the SWG Chair and facilitator.

Does the SWG establishment and function reflect effective co-governance with iwi?

58. While the primary co-governance mechanism is the Project Steering Group, the SWG establishment design discussed above that guaranteed mana whenua participation does reflect a broader co-governance approach with iwi in the project. In addition, the freedom for the mana whenua groups to select their participants with no caveats, other than the process used to follow tikanga Māori, reflects effective co-governance with iwi. The inclusion of mana whenua views and values in both the branding of the process (Sea Change – Tai Timu Tai Pari), and the vision "healthy ecology, economy and mauri" are manifestations of effective co-governance with iwi.

Does the SWG establishment and function recognise mātauranga Maori?

59. In terms of establishment of the SWG, the Panel is satisfied that the provision for four mana whenua members facilitates the consideration of mātauranga Māori in the work of the SWG.
60. The process the SWG will undertake to develop the MSP is being carried out in phases of listening/learning, identification of issues and options, analysis of options and drafting of the plan, then finalising the plan. The SWG has recently completed the listening/ gathering knowledge phase, although feedback loops are expected to continue in subsequent phases of the project. Knowledge encompasses three threads - science and technical information, community and local knowledge, and mātauranga Māori. Therefore the SWG function recognises mātauranga Māori.
61. Mātauranga Māori specific technical officers, who would effectively be part of the project team, are being identified and appointed to help support the activities of the SWG members and the RoundTables.
62. The collaborative SWG process seeks consensus decisions. While such an approach is not unique to Māori, in this instance its use is at least partially in recognition of its employment by mana whenua, and therefore the SWG's function recognises mātauranga Māori.
63. There remains some uncertainty about how mātauranga Māori will actually be incorporated into the MSP process, although the Panel understands steps are being taken to clarify this, such as the July 2014 mātauranga Māori hui and the proposed engagement plan.

Does the SWG establishment and function make best use of available information?

64. Recruitment of all members of the SWG was based on a systematic search for potential candidates based on the interests that should be included in the MSP

development. The criteria for selection of SWG members were appropriate. The process for selection made use of the relevant communities' knowledge about the candidates.

Is the SWG establishment and function consistent with a best practice, collaborative approach?

- 65. SWG establishment and function are both highly collaborative.
- 66. There is also effective collaboration between the SWG and other groups participating in plan development. Strong goodwill, attention to process and effort to remedy issues as they arise are all signals that the SWG is functioning well, within a wider collaborative project environment.

Recommendations

- 67. Identify and remedy any adverse effects of developing goals and objectives later in the MSP process on both the use of SeaSketch and on the work of the RoundTables.
- 68. Monitor attendance at SWG and RoundTable meetings, engagement of participants and community support to identify any need for remedial action to maintain momentum.

PART B: STAKEHOLDER WORKING GROUP ENGAGEMENT

Summary of what has been undertaken in this project

69. The SWG has engaged key stakeholders and sectors through several mechanisms, including information presentations, RoundTables, the Hauraki 100, Listening Posts, the 'Love Our Gulf' campaign, online communications and the AUT Use and Values Survey.
70. A programme of presentations has been used to provide the SWG with information relevant to their planning task. That programme begins with information about the status of the Gulf, progressing to the uses made of the Gulf today and then to the future of the Gulf.
71. RoundTables have been established to cover six topic areas identified as important for the planning process;
 - (a) Gulf Infrastructure for the Economy and Communities of the Gulf;
 - (b) Water Quality and Catchments;
 - (c) Accessible Gulf;
 - (d) Fish Stocks;
 - (e) Aquaculture; and
 - (f) Biodiversity and Biosecurity.
72. Each RoundTable is co-chaired by two SWG members, selected to represent interests that are relevant for the topic.
73. RoundTable members were invited based on ensuring the best available information is provided in the topic areas covered by each RoundTable. Invitees were selected in part to bring perspectives that could not be accommodated within the SWG.
74. The RoundTables are receiving information on the Gulf status, use and future that is relevant to their topics. They are being asked to identify issues and options and refer these to the SWG.
75. RoundTables are getting under way now and are expected to have seven meetings each by the end of the year. There is a significant amount of work to do in a short space of time, given that the RoundTables are just getting started and arrangements for broader mana whenua participation in the RoundTables are still being developed.
76. A process has been established to allow the RoundTables to request information and analysis from the GIS data layers that are available via SeaSketch. While project officials have had some training in SeaSketch, to date stakeholders have had only initial briefings. Further training for stakeholders is scheduled and should be

completed as soon as possible. Expectations of this 'decision support tool' are high, but there is limited experience with its application to a planning context as complicated as the Hauraki Gulf.

77. The Hauraki 100 is a wider forum made up of community stakeholders who have been involved with the project. Many were present at the SWG selection meetings, but were not selected as SWG members. It is intended that the Hauraki 100 will meet quarterly.
78. Listening Posts are meetings of local people, held at 25 locations within the Gulf. These meetings allow for provision of information about the MSP to a wider group of stakeholders and an opportunity to hear their views.
79. The project's 'Love our Gulf' campaign visited 11 local communities between January and April 2014. It has established a Facebook page (www.facebook.com/loveourgulf) and instagram ([#loveourgulf](https://www.instagram.com/loveourgulf)). The MSP website has been launched, providing a means for communication with the wider Hauraki Gulf community and securing input from the wider public.
80. An e-newsletter is produced monthly, with readership of approximately 800 per issue.
81. During March and April 2014 a Hauraki Gulf Use and Values survey was conducted, attracting 1567 completed responses.
82. Other outreach efforts are designed to connect with a larger number of stakeholders and reach those who are not reached via the mechanisms above. For example, the Sea Change – Tai Timu Tai Pari team has presented at community events including Pasifika, the Sea Week Family Day, ASB Polyfest, the International Cultural Festival, the Hutchwilco Boat Show and the recent New Zealand Marine Sciences Society Conference.
83. This wide engagement process provides the opportunity to hear many different viewpoints and also helps people understand that the MSP process is collaborative and is taking account of a wide range of stakeholder views. It is intended that the wide engagement will improve the quality of the MSP and increase perceived legitimacy, creating momentum for adoption and implementation.
84. The wider project governance and management group, including representatives of the participating agencies and the project team, is monitoring progress and identifying issues as they arise. We were provided with several examples where emerging issues have been identified and remedied early and effectively. One example of a response to a perceived gap was the mātauranga Māori hui held at Auckland Museum in July 2014.

85. The absence of direct responsibility for MSP content development appears to be focusing the attention of the project team on process, ensuring that the SWG is provided with what it needs to do its work.

What is best practice for stakeholder engagement?

86. The UNESCO Guide recommends that stakeholders should be engaged early, and often in the planning process.
87. The UNESCO Guide also states that stakeholders could be empowered by provision of information, workshops with local communities, and training sessions to ensure they are well-prepared with content knowledge. Stakeholders should be provided with education to develop and improve "much needed negotiation skills". It states that these mechanisms are possible ways to empower stakeholders, but are not compulsory.
88. The UNESCO Guide also recommends providing professional facilitation support to assist the stakeholders to form and articulate their positions in dialogue with others.
89. The UNESCO Guide does not specify a single way that stakeholders should participate in MSP. It offers a range of possible participation modes including communication with stakeholders, consultation, dialogue and negotiation.
90. The most participative model considered in the UNESCO Guide is negotiation, where stakeholders and the responsible authorities have equal power in decision-making.
91. Best practice in MSP does not allow more time than is needed to develop the plan. If the time allowed is too long, then the project may drift and participants may suffer 'participation fatigue' and may not remain engaged, creating a need to bring new members up to speed.

Does the SWG engagement reflect best practice?

92. The Sea Change – Tai Timu Tai Pari project reflects a strong emphasis on engagement with the wider community of Hauraki Gulf stakeholders, providing information and gaining their contributions and support.
93. The RoundTable selection and information provision process seems sound both in the formation of the RoundTables and in the intended provision of information. A large amount of relevant information is being provided to the RoundTables in a structured way.
94. However, there is potential for some interests to be less recognised than they could be. Specific groups mentioned to us were Asian and Pacific Island communities, youth, future tourism opportunities and wider economic interests.

95. SWG members and RoundTable participants have been provided with the support mechanisms recommended in the UNESCO Guide to facilitate engagement, with the exception that negotiation training has not yet been provided. We note, however, that the RoundTable facilitators are likely to bring some negotiation skills.
96. One consequence of empowering the SWG and RoundTables is that knowledgeable agency staff members are less able to contribute content to the planning process than they would be if directly responsible.

Does SWG engagement reflect effective co-governance with iwi?

97. As noted above, co-governance with iwi is primarily reflected at the Project Steering Group level of the project. Mana whenua membership of the SWG and the opportunity for broader mana whenua input through the RoundTables reflects more generally a co-governance approach with iwi within the project.

Does SWG engagement recognise mātauranga Māori?

98. We understand that, as one option, consideration is being given to a separate mātauranga Māori RoundTable. That may well have merit but is a matter for the SWG and mana whenua to explore further.
99. Irrespective of whether that approach is adopted, we consider it critical that channels are developed to ensure mātauranga Māori is brought directly into the work of the individual RoundTables. We have not seen confirmation that these channels have been implemented as yet, and consider this to be an immediate issue for action.
100. A proposed mana whenua engagement plan is under consideration.

Does SWG process make best use of available information?

101. There is a substantial amount of information available about the Hauraki Gulf and a systematic process is being used to provide that information to the SWG and the RoundTables. The division of workload into RoundTables and the sequencing of information provision seems sound.
102. There are some issues with the readiness of the RoundTables to specify what information they will need and these will be discussed in the section of this report on provision and use of information.

Is SWG engagement consistent with a best-practice, collaborative approach?

103. The SWG's engagement is 'super-collaborative', for good reason.
104. One challenge with a highly collaborative process is that it may take longer to form agreements than would be the case with less collaborative approaches. The

RoundTables are expected to understand a significant amount of information and work together to develop their issues and options by the end of the year.

Recommendations

105. Test connections to ensure there is sufficient engagement with relevant stakeholders. In particular assess connections with long-term large-scale economic development opportunities, with future tourism opportunities, with youth, with Asian and Pacific Island communities and with future education or scientific institute opportunities that might use or be located within the Hauraki Gulf.
106. Ensure processes are in place to secure direct and effective mātauranga Māori input to the RoundTables.
107. Consider the time that will be required for the RoundTables to complete their work given the current level of engagement and knowledge of RoundTable members, the information sourcing and processing requirements of the RoundTables (including the need for them to develop goals and objectives relatively early in Phase 2), and the highly collaborative process chosen. Identify risks to timing and to quality of output and develop mitigation strategies.
108. Consider the value of providing negotiation training or support to SWG and RoundTable members.

PART C: DEVELOPMENT OF SEASKETCH

Summary of what has been undertaken in this project

109. SeaSketch, as the decision-support tool ("**DST**") for Sea Change – Tai Timu Tai Pari, was selected partly based on its international reputation as being one of the more robust tools for enhancing collaborative spatial planning. It allows stakeholders to access large numbers of data layers from a geographic information system and to “sketch” and compare the effects of alternative uses of marine space.
110. DSTs are increasingly becoming part of MSP initiatives around the world and an understanding of good practice is developing. SeaSketch is one of the more recent DSTs to be developed and marketed. In the world of DSTs it is acknowledged to be state-of-the-art 'good practice'.
111. Over the past five to six years SeaSketch has been used mostly for analyses of alternative marine protected area configurations, for example in implementing the Marine Life Protection Act in the state waters of California and in analysing marine sanctuary proposals in Barbuda. It has also been used in MSP programs with multiple objectives over large marine areas such as the Marine Planning Partnership for the North Pacific Coast (British Columbia, Canada) and the Northeast (USA) Ocean Data Portal.
112. SeaSketch was commissioned in 2012 by DOC in association with Auckland Council and Waikato Regional Council. The decision was based on an information services concept paper in July 2011 reviewing SeaSketch and the Councils’ requirements. SeaSketch is supported operationally by DOC and is to be linked into DOC’s PlanBlue, which is in turn part of the Coastal Spatial Planning Policy and the five year planning process. DOC has purchased a 12-year SeaSketch licence from the University of California Santa Barbara. It therefore has a solid and continuing support base which is essential.
113. The original developer of SeaSketch, Will McClintock of the University of California Santa Barbara, has provided personal training to DOC and Council staff on the installation and development of the tools for the Hauraki Gulf and Sea Change – Tai Timu Tai Pari purposes. A number of workshops were held in the lead-up to full SeaSketch engagement and subsequently. A Training Manual was released in March 2014.
114. SeaSketch is considered at a 'draft stage' in terms of operability. At this point in the process there are no 'goals and objectives' which are essential for the DST to evaluate options. Further, in the absence of goals and objectives the Panel is aware of approximately 80 data layers as of August 2014.

115. From a review of data layers listed in available information and from discussions with key stakeholders and technical staff, a number of important datasets are not yet available. Specifically, commercial fishery information and information on aquaculture and ecosystem services is not currently available for SeaSketch uptake. One key omission is information on mātauranga Māori, cultural resources and valuation, although an engagement plan to capture cultural information has been submitted to the Project Steering Group and SWG mana whenua representatives.
116. The DOC contract for SeaSketch states that Phase 2 of SeaSketch will involve "developing complex geo-processing scripts to provide additional reporting metrics such as bio-economic models and optimisation/trade-off analyses, and cumulative ecosystem impact reports." This enhanced functionality is highly desirable, although we understand there have been significant technical challenges internationally in seeking to achieve these added capabilities.

What is best practice for SeaSketch?

117. Best practice in the use of DSTs in MSP processes in the New Zealand context should provide the capability for the integration of cultural, economic, social and ecological (biological and physical) information in mapped form. The tool should ideally support projection into the future, where environmental change can be examined against various 'use' or 'development' scenarios (underpinned by the likely implications of climate change). In addition, there is a need to examine spatial planning alternatives under varying cultural, conservation and economic interactions and trade-offs.
118. MSP is a continuous activity. Its process should be organised to generate information at various points in time to inform participants in the process, including stakeholders and decision-makers. Therefore, there should be a continuous activity of planning to generate information for the development of management actions that respond to changing conditions, i.e., changes in information, technology, the economy, and so on. DSTs can be used to assist in the provision of information to the MSP process. However, evaluations about how DSTs have been used effectively in multi-objective MSP processes such as the Sea Change – Tai Timu Tai Pari are limited.
119. There does not appear to be a shared understanding among managers and stakeholders about what these tools can realistically provide, and among technical experts on how DSTs may offer an advantage in any MSP process. When used correctly, DSTs can save users time and resources, act as a guide for moving from data to decision-making, reduce the need for some human expertise, help explore a wider range of alternatives and trade-offs, document decisions about data inputs and help integrate planning across diverse sectors. However, these benefits cannot be realised if DSTs are used without the proper data.
120. The use of DSTs is seldom a quick or easy process and it comes with a steep learning curve. Furthermore, using DSTs in regions where data are inconsistent and/or scarce

will often simply highlight the few areas that contain the most data, and cannot take into consideration features for which there are no data. This uneven and/or inadequate coverage of a planning region may miss important ecological features or socio-economic information that could dramatically influence results. In these cases, it could be beneficial to incorporate facilitated and structured discussion, which for 'simpler problems', i.e., those with few data layers and well-specified objectives, can often lead to similar results with less time and technical effort spent. In these situations, if planners decide to also use a DST, the tool should play a secondary role in the decision-making process.

121. One of the most difficult challenges of any MSP process is working with a diverse range of stakeholders. Most conflicts in MSP planning processes stem from stakeholder engagement, especially concerning socio-economic and cultural issues. The acceptance of DSTs depends to a large degree upon stakeholder acceptance of the overall planning process. Cultural context is particularly important in this regard, as the levels of engagement and mana whenuatanga expected from groups such as resource users, indigenous groups, industry associations and non-governmental organisations, depend largely on the historical and cultural context of where a process takes place. Furthermore, stakeholder expectations can vary greatly across different groups. Sea Change – Tai Timu Tai Pari goes beyond good practice as defined in the UNESCO Guide in terms of stakeholder collaboration and the empowerment of stakeholders to develop the MSP. The central role of SeaSketch in supporting this 'bottom-up' planning process will require constant attention to the details of its management.
122. A strategy to successfully engage stakeholders through the use of DSTs such as SeaSketch is to keep any analysis simple initially, adding complexity iteratively as the discussion progresses, when new data become available, when new stakeholders join the process, and/or when initial results are reviewed. Iterations of analyses, the interactive involvement of stakeholders, creative uses of SeaSketch and using criticism and feedback to improve analyses, should help stakeholders and decision-makers view the process as legitimate.
123. Ultimately, successful stakeholder engagement in MSP depends more on a clear understanding of the context and trusting the planning process than on the specifics of the tool being used. However, it remains important that participants hear an explanation of why SeaSketch is being employed. Common reasons for using SeaSketch include:
 - (a) the ability to explore more potential solutions than could be comprehended manually;
 - (b) finding unforeseen good solutions;
 - (c) comprehensively including stakeholder uses and values; and

- (d) helping to systematically explore and potentially resolve controversy through trade-off options analysis.

- 124. It will be important that stakeholders believe that the use of SeaSketch delivers on these outcomes.
- 125. It is also important to temper expectations for SeaSketch to address contentious issues and resolve conflicts. SeaSketch can help users change the focus to exploring trade-offs and informing conflict, but it cannot resolve differences in values or world views. A clear set of goals and objectives, incorporation of the best available information, inclusion of stakeholders, transparent analysis and reporting, and iterative decision-making all characterise good MSP practice. The use of SeaSketch in the Sea Change – Tai Timu Tai Pari process appears to be a promising example of good practice.

Does the development of SeaSketch reflect best practice?

- 126. It is an early stage in the process in relation to the application of SeaSketch in the Sea Change – Tai Timu Tai Pari process.
- 127. In the absence of goals and objectives, technical staff have been identifying the most likely data layers, anticipating potential goals and running tutorials with key participants in the process. Technical staff supporting the RoundTables are being trained in the use of SeaSketch.
- 128. Given the early stage in the process for SeaSketch, the Panel has described in some detail above what is considered to be best practice and other matters for consideration in relation to DSTs, and recommends these are considered carefully and communicated to the RoundTables and other users of SeaSketch.

Does the development of SeaSketch reflect effective co-governance with iwi?

- 129. As noted above, co-governance with iwi is primarily reflected in the Project Steering Group level of the project. Mana whenua membership of the SWG and the opportunity for broader mana whenua input through the RoundTables, and in relation to SeaSketch, reflects more generally a co-governance approach with iwi within the project.

Does the development of SeaSketch recognise mātauranga Māori?

- 130. The process inherently recognises mātauranga Māori as the need was communicated to all involved in the development of SeaSketch for the Hauraki Gulf from the outset. In addition, the SWG and RoundTables also insisted that mātauranga Māori be included as an underpinning source of information. A limited amount of cultural data layers have been developed for the area, which include cultural heritage indices and marae locations. There is a need for further mātauranga Māori information to support SeaSketch, and a process has been proposed to address this.

Does the development of SeaSketch reflect best use of available information?

131. To date, the compilation of an enormous body of information drawn from the public domain has been effective. In addition, RoundTable members may be able to contribute further information. SeaSketch needs urgent input from the SWG and/or RoundTables on goals and objectives to define the relevant data layers for application to the MSP process.

Is the development of SeaSketch consistent with a best-practice, collaborative approach?

132. Understandably, to date the development of SeaSketch appears to have been undertaken within the agencies. However, SeaSketch is about to be delivered into the collaborative RoundTable environment. The next stage in the process will be the real test for the uptake and implementation of SeaSketch.

Recommendations

133. The appropriate use of SeaSketch requires the best available data. A clear specification of data needs from the SWG and RoundTables is required as soon as possible. This is only possible if and when a clear statement of the priority problems and/or the goals and specific objectives to be addressed in the MSP are available.
134. Since the time for planning is limited, a schedule should be developed of when goals and objectives together with outstanding data will be available for incorporation into SeaSketch.
135. Similarly, since the SWG and RoundTables will need several iterations of SeaSketch applications to identify and select desirable spatial alternatives, a schedule of meetings for this purpose should be clearly specified.
136. Since all SWG and RoundTable participants may not be satisfied with the use or limitations of SeaSketch, it will be important to evaluate its value to participants as the process progresses.
137. IP agreements should be reviewed to ensure information is freely available to SeaSketch.
138. The UNESCO Guide lists the key elements of good practice for the use of DST's. Detailed statements are made in the best practice section above and these should be communicated to the RoundTables and other prospective users of SeaSketch.

PART D: PROVISION AND USE OF INFORMATION

Summary of what has been undertaken in this project

140. The following discussion focuses on the provision and use of information primarily for the purpose of facilitating thinking and decision-making across the Sea Change – Tai Timu Tai Pari project and the development of a MSP for the Hauraki Gulf, but also specifically for uptake by the SeaSketch tool. There are thus two pathways of provision and use for the information gathered:
- (a) informing community participation and enhancing their contributions; and
 - (b) in the development of the required data layers for use by SeaSketch.
141. The ultimate purpose of the provision and use of information is to support the work of the RoundTables and the SWG. It is important to recognise the multiple uses of information as it needs to be presented in a form that can be readily digested by the general public and other stakeholders, yet also be of very high technical quality to be of use in SeaSketch.
142. An extensive process has been entered into to obtain as much information as possible, so that the SWG has access to a broad range of information sufficient to inform analysis of the issues. Similarly, for SeaSketch to work properly, a balanced range of biophysical information together with socio-economic information is needed. All this has to be achieved in a very short timeframe.
143. The SWG has formed six RoundTables, each of which examines information through three lenses (indigenous, economic and ecological). The RoundTables are supported by a Technical Support Group drawn from the relevant agencies. Each RoundTable has a dedicated technical support person, whose role is to provide technical information to the RoundTable in an understandable form.
144. In addition, information and feedback has been provided through the development and implementation of Listening Posts, Hauraki 100, 'Love our Gulf', and the results of the AUT Use and Values survey, together with a reasonable amount of independent correspondence amongst stakeholders, the Technical Support Group, RoundTables and the SWG. Engagement with the public is now ramping up and increasing use of Facebook and other public and social media is planned.
145. There is ongoing work being undertaken in relation to obtaining information on, for example, fisheries (at the appropriate scale for MSP) and mātauranga Māori. The need to enhance the progress of acquisition of this information has been recognised and action is being taken.
146. Information for SeaSketch is accompanied by a national standard metadata sheet to ensure consistency and in order to identify any limitations on data use and also to

identify the quality of information. This process is administered by DOC. The SeaSketch tool is now poised for use pending input of goals and objectives and any other data layers requested by the RoundTables. Most data layers are present although as noted there are some gaps.

147. Publically directed Fact Sheets were released in December 2013 covering: aquaculture; coastal water quality; communities; commercial and recreational fishing; natural heritage; marine industry; recreation and tourism; land use; and pressures on the Hauraki Gulf. These Fact Sheets are of excellent quality, are highly informative and unbiased in detail.
148. As of August 2014, 54 science presentations are listed from over 100 contributors, which have or are to be delivered to the RoundTables. The scientists delivering these presentations are drawing on over 2,000 scientific research articles, book chapters, reports and other forms of peer reviewed scientific commentary relevant to the Hauraki Gulf.
149. With the wealth of scientific information available, it could be overwhelming for any group to assimilate everything, no matter how much experience that group has in dealing with technical information. In this regard, the summaries and synthesis provided to the RoundTables by the technical support staff are invaluable. These include some exceptionally good examples of the synthesis of large volumes of relevant scientific information. This work will have greatly advanced the process of information sharing and understanding by RoundTables.

What is best practice for the provision and use of information?

150. 'Provision and use of information' in a New Zealand context relevant to the Sea Change program must be considered both in the context of community participation and in the development and application of SeaSketch. Best practice would incorporate the following:
 - (a) mātauranga Māori;
 - (b) a range of relevant information from all sectors and stakeholders;
 - (c) information that had both spatial and temporal components to permit identification of trends or trajectories;
 - (d) peer reviewed, reliable and citable information wherever possible;
 - (e) multi-disciplinary information;
 - (f) geo-referenced information;
 - (g) environmental and 'valuation' based information; and
 - (h) information on risks, resilience, vulnerability, stress and cumulative effects (to the extent available).

Does the provision and use of information reflect best practice?

151. In summary, the provision and use of information is extensive and impressive given the project has been running for such a short time. The quality of the scientists delivering information to the project is exceptional as is the information.
152. The project has taken full advantage of the store of scientific knowledge as well as the knowledge of the public. As identified above, there are gaps, but this is to be expected and the Panel is comfortable that these gaps will be addressed given the ongoing process of discussion and consultation. It is significant that key scientists have been able to synthesise a large volume of information in a balanced and concise manner for digestion by the RoundTables. This is an essential function which will need to continue as the SWG moves into the detailed planning process.
153. The 'PRIOR' criteria³ can be satisfied for most of the information presented to the RoundTables and the SWG.

Does the provision and use of information reflect effective co-governance with iwi?

154. As noted above, co-governance with iwi is primarily reflected in the Project Steering Group level of the project. Mana whenua membership of the SWG and the opportunity for broader mana whenua input through the RoundTables reflects more generally a co-governance approach with iwi within the project.

Does the provision and use of information recognise mātauranga Māori?

155. The project does recognise mātauranga Māori.
156. Mātauranga Māori is an essential component of the store of information in itself, as well as underpinning the fundamental approach to the project.
157. As noted above, the SWG and RoundTables need to develop a process with mana whenua to enable mātauranga Māori to be provided and used in those processes.

Does the provision and use of information reflect best use of available information?

158. Given the relatively short time period for assimilation of a very large body of information, the process does reflect best use of available information to date. There are areas of improvement that have been identified and are being acted upon. These include closer alignment of the process with the Communications Plan and, for example, engagement with Asian and Pacific Island communities, and youth through social media.

³ "PRIOR" in relation to information refers to peer review, relevance, integrity, objectivity and reliability.

Is the provision and use of information consistent with a best-practice, collaborative approach?

159. Engagement with stakeholders has been very good. Listening Posts were used to good effect in Phase 1 (outreach) and the RoundTables (Phase 2) have now been actioned with most RoundTables having had two meetings. Proposed engagement plans seek to ensure that mātauranga Māori will be more readily available as the project progresses.
160. RoundTables appear to be well-serviced with direct presentations from information providers in easy to understand formats. The role of the RoundTable technical support staff is critical. Those staff are responsible for technical report preparation for the RoundTables and act as the pathway for synthesis of information to the SWG. The primary literature that underpins this process has been well synthesised and interpreted. This summary and synthesis role will be essential as the complexity of the planning process increases.

Recommendations

161. Longer term prediction scenarios will be required to allow the MSP to survive the test of time. There is a need to integrate data layers and provide trajectory information for the major ecological drivers of the entire Gulf. The current lack of critical components of information will delay the implementation of SeaSketch mapping (for example localised commercial fishing data). Information on cultural values and vulnerable habitats is also required. There are plans to complete the necessary data layers, however, and as much projection planning as is possible is recommended.
162. The relationships with DOC and MPI are vital and will need to be resourced appropriately as the time approaches for detailed spatial planning. Linkage or awareness/use of the MPI devices for planning (NABIS) would be useful into the future as alignment of long term strategic planning of these agencies is important given the collaboration that has occurred.
163. The science that has been produced to date is exceptionally good. It is comprehensive in terms of the habitats and environmental issues it addresses. The information on trajectories of the ecological state of many key habitats and species is also present. This needs to be brought together and aligned with information on land use and likely scenarios for sediment and pollutant input as well as matters such as coastal margin development and reclamation. In the medium to long term 'climate' and 'urban growth-proof' MSP of the Hauraki Gulf will be needed. The ability to create a scenario assessment tool is viewed as highly desirable, noting the very significant technical difficulties in this process.
164. The acquisition and uptake of cultural and historical information is viewed as being important not only to provide balance in value assessments of resources, but also to

provide background information of the state of the environment in the Hauraki Gulf before modern development. This information can be used to produce a 'baseline' for monitoring responses to management and in providing a target for enhancing environmental health.

APPENDIX ONE

INDEPENDENT REVIEW PANEL BIOGRAPHIES

Paul Beverley (Chair)

Paul is a partner at Buddle Findlay lawyers where he leads the resource management and Māori law team in Wellington. Paul specialises in resource management, Māori law and conservation law, with a particular focus on coastal issues.

From 2008-2012 he was appointed by the Ministers of Conservation and Fisheries as Chair of the Subantarctic Marine Protection Planning Forum, which made recommendations resulting in three new marine reserves in that area.

Paul has been a member of the core Crown design, negotiation and drafting team for over 30 Treaty of Waitangi settlements, and advises the Crown and local authorities on a wide range of Māori law issues and relationships. His particular specialty is designing and negotiating co-governance and co-management arrangements between the Crown/local authorities and Māori.

He also advises widely on RMA planning and consenting processes and a range of coastal legal issues including in relation to fisheries, aquaculture, ports and marinas, marine reserves, marine mammals and wildlife. Paul recently appeared in the Supreme Court in the NZ King Salmon case, as Counsel representing the Board of Inquiry.

Professor Charles Ehler

Professor Charles Ehler works in Paris, France, as a marine spatial planning consultant to UNESCO's Intergovernmental Oceanographic Commission (IOC), other international organisations, national governments, and non-governmental organisations.

Before moving to Paris in 2005, he was a senior executive for the U.S. National Oceanic and Atmospheric Administration (NOAA) and US Environmental Protection Agency for 32 years.

He previously taught regional planning and natural resources management at the University of Michigan, the University of California at Los Angeles (UCLA), and the State University of New York at Stony Brook. He was the Marine Vice-Chair of IUCN's World Commission on Protected Areas from 2000-2005.

In 2007 he received an award from the Intergovernmental Panel on Climate Change for his work on coastal adaptation and its contribution to the award of the Nobel Prize to the IPCC. He is the author of over 100 publications on coastal and marine planning, including the 2009

UNESCO Guide to the new field of marine spatial planning and a 2014 UNESCO Guide to evaluating marine spatial plans.

Dr Chris Battershill

Dr Chris Battershill became the inaugural Professor and Chair of Coastal Science with the University of Waikato in January 2011, following twelve years as leader of the Marine Resources and Biodiversity Teams at the Australian Institute of Marine Science (AIMS).

From an MSc start in petrochemical development and environmental toxicology funded by the Shell, BP and Todd Maui Environmental Program, he completed his PhD at Auckland University in reef ecology in 1986 then undertook a 3 year Research Fellowship funded through the National Cancer Institute (US) based at the University of Canterbury, leading the cancer drug discovery field program.

This was followed by post-doctoral work in Australia, a senior scientist role at DOC and program leadership at NIWA over 12 years, focused on conservation and sustainability of marine resource use.

Recent work includes leadership of the Rena Long Term Environmental Recovery Program. Publications include co-authorship of 3 books and over 100 international peer reviewed research articles.

Dr Dan Hikuroa

Dr Daniel (Dan) Hikuroa is an Earth System Scientist with interests in the integration of mātauranga (Māori knowledge) and science to realise indigenous development.

Dan has been the Research Director of Ngā Pae o te Māramatanga since July 2011, and has established himself as a world expert on integrating indigenous knowledge and science.

Dan has undertaken many projects including State of the Hauraki Gulf Environment Report 2014, geothermal developments, hazard and vulnerability assessment and industrial waste site rehabilitation.

Dr Rick Boven

Dr Rick Boven leads Stakeholder Strategies, a company that works with public and private organisations and NGOs on strategic issues in the commercial, economic, social and environmental domains. He has worked as a social scientist, market researcher and business strategist. He was the founding partner of the Boston Consulting Group in New Zealand and was the Director of the New Zealand Institute from 2007 to 2010.

He has worked with leading companies in Australia, New Zealand and USA in a wide range of industries including financial services, retailing and distribution, energy, telecommunications, information technology, transport, manufacturing and agriculture.

Rick is a Chartered Fellow of the Institute of Directors. He has been a director of ASB Bank and Sovereign Insurance and of several internationalising technology companies.

Rick's qualifications include an MA in psychology, an MBA and a PhD in environment management. He is published across a wide range of subjects, including social welfare, mathematical psychology, educational sociology, strategic management, business ethics and economic development. He is an advisor to several environmental organisations and a frequent speaker on environment topics.

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