

Conservation and Environment Science Roadmap

SUBMISSION FORM

The Government is seeking public input for the development of its proposed conservation and environment science roadmap. The roadmap will identify the areas of scientific knowledge needed over the next 20 years to support decision-making for conservation and environmental policy and management to achieve the most desirable future for New Zealand.

For more information about the Government's proposals read our [Conservation and Environment Science Roadmap discussion paper](#).

Submissions close at 5.00pm on Wednesday 7 September 2016.

Making a submission

You can provide feedback in three ways:

- 1 Use the online submission form available at:
<http://www.mfe.govt.nz/consultation/conservation-and-environment-science-roadmap>. This is our preferred way to receive submissions.
- 2 Complete this submission form and send to us by email or post.
- 3 Write your own submission and send to us by email or post.

Publishing and releasing submissions

All or part of any written submission (including names of submitters) may be published on the Ministry for the Environment's website www.mfe.govt.nz. Unless you clearly specify otherwise in your submission, we will consider that you have consented to website posting of both your submission and your name.

Contents of submissions may be released to the public under the Official Information Act 1982 following requests to the Ministry for the Environment (including via email). Please advise if you have any objection to the release of any information contained in a submission and, in particular, which part(s) you consider should be withheld, together with the reason(s) for withholding the information. We will take into account all such objections when responding to requests for copies of, and information on, submissions to this consultation under the Official Information Act.

The Privacy Act 1993 applies certain principles about the collection, use and disclosure of information about individuals by various agencies, including the Ministry for the Environment. It governs access by individuals to information about themselves held by agencies. Any personal information you supply to the Ministry in the course of making a submission will be used by the Ministry only in relation to the matters covered by this consultation. Please clearly indicate in your submission if you do not wish your name to be included in any summary of submissions that the Ministry may publish.

Submission form

The questions below are a guide only and all comments are welcome. You do not have to answer all the questions. To ensure your point of view is clearly understood, please explain your rationale and provide supporting evidence where appropriate.

Section 1: Contact information

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Submitter type*	Individual	<input type="checkbox"/>
	NGO	<input type="checkbox"/>
	Business / Industry	<input type="checkbox"/>
	University	<input type="checkbox"/>
	Crown research institute	<input type="checkbox"/>
	Local government	<input checked="" type="checkbox"/>
	Central government	<input type="checkbox"/>
	Iwi	<input type="checkbox"/>
	Other (please specify)	<input type="checkbox"/>

* Questions marked with an asterisk are mandatory.

Section 2: Comments on overall discussion paper

1 Have we identified the major drivers, trends and issues Government will need to address over the next 20 years?

Yes

No

Your comments

Christchurch City Council (the Council) thanks the Ministry for the Environment and the Department of Conservation for the opportunity to provide feedback on the Government's Conservation and Environmental Science Roadmap Discussion Paper.

This submission has been approved by the Council's Submissions Panel on behalf of the Council.

The Council would like to make the following comments:

- The identification of the challenges and opportunities is comprehensive and the issues are clearly expressed. However the timeframe of 20 years is rather too short particularly when considering the need for ‘under pinning science’ and monitoring the state of our environment and trends over time. While a focus on the next 20 years is understandable in terms of setting priorities the need for certainty of funding for longer term scientific research programmes and associated data and information resources is a key challenge.
- The Primary Sector Science Direction Roadmap will have closely related themes as environmental changes within the urban environment and on primary production land can influence each other positively and negatively. These themes will need to be considered together to avoid an unthinking acceptance of trade-offs between primary production and associated economic returns, on the one hand, and conservation efforts for environmental gains, on the other. Focusing effort on finding innovative approaches to achieve gains for both the economy and the environment on both conservation and production lands should be an underlying principle.
- While the emphasis of most research questions is primarily around ecological matters, it would be useful to have associated environmental indicators referred to that will be used to determine “tipping points”.
- It would be useful to set out how the roadmap could inform the development of national policy statements (under the Resource Management Act) on freshwater, marine and land environments.
- Ecosystem services is referred to throughout this roadmap and while it is a useful conceptual framework the roadmap should also take into account the intrinsic value of ecosystems in order to provide a holistic approach for this discussion.

2 Have we identified the most important key themes to address in the roadmap?

Yes

No

Your comments

- Biodiversity should be established as separate theme.
- While the Primary Sector Science Direction Roadmap will deal with the rural environment, the Conservation and Environment Science roadmap should include a rural ecosystems and processes theme to complement Urban Ecosystems and Processes.
- A cross-cutting theme of Science Transfer should be considered as this would assist with ensuring that science informs decision making by central, regional and local government. It would also assist with communicating outcomes with the general public.

Section 3: Comments on themes

Theme 1: Climate change

3 Do you agree with the proposed enduring question?

Yes

No

Your comments

The Council has a critical role in working with communities on adapting to the impacts and risks of climate change and in particular sea level rise and storm surge. How coastal towns and cities can adapt over the next 50 to 100 years and beyond is a key question given the concentration of our population close to the coast. This work should also include analysis of impacts from other natural hazards, both individually and collectively through a multi hazard approach.

4 Do you agree with the proposed vision/goals?

Yes

No

Your comments

Practical approaches need to be developed and promoted so that “adaptation” is simply part of “ongoing business” and an integral part of land-use planning processes.

5 Do you agree with the proposed emerging ideas?

Yes

No

Your comments

It would be useful to identify as part of the emerging ideas that short-term, medium-term, and long-term adaptation measures are needed, and particularly in relationship to urban development and planning in coastal areas.

The following emerging ideas seem to be more appropriate for the Primary Sector Science Direction Roadmap:

- Plant breeding and biotechnologies to address crop vulnerabilities to climate change (eg, drought resistance, heat/cold tolerance) and increase nutrient use efficiency (eg, nitrogen).
- Innovative techniques and management practices to reduce methane emissions from ruminant animals.

6 Do you agree with the proposed research questions?

Yes

No

Your comments

- Modelling and understanding the risks of coastal erosion and coastal inundation is an essential input to adaptation strategies and understanding the long term implications of infrastructure and land use planning decisions. How to best identify and quantify these increasing risks from coastal hazards, including the uncertainties, would be useful addition to the research questions.
- The research questions should also include, or make explicit if it is intended, not only the current and new exotic pests and diseases, but also the current apparently benign existing exotic plants (>25,000) in urban areas, and the myriad of other organisms, fungal, animal etc.
- Given current regional climate change predictions of increasing droughts, particularly in eastern areas, an additional question is suggested on potential impacts on both demand and supply of potable water for urban centres.

7 Do you agree with the new or expanding capability needs?

Yes

No

Your comments

Support, in particular, the need for expertise on climate change mitigation and adaptation and learning from overseas approaches.

8 Do you have any other comments you wish to make about the climate change theme?

Your comments

Theme 2: Integrated ecosystems and processes

9 Do you agree with the proposed enduring question?

Yes

No

Your comments

The interface between riparian/coastal margins and development should be identified in this theme. This would acknowledge the pressure of land use intensification on these urban environments. For example, the community often want to build and carry out earthworks within riparian margins, and it would be beneficial to have national support for the importance and maintenance of these areas, to inform key measures such as education programmes and legislation.

10 Do you agree with the proposed vision/goals?

Yes

No

Your comments

See above re interface between environments and development being included.

11 Do you agree with the proposed emerging ideas?

- Yes
 No

Your comments

The phrase 'green infrastructure' needs expansion. Many infrastructure strategies and plans deal with the hard, built environment as if the green element were the awkward bits in between. Instead the green (and blue) infrastructure is the base fabric over which patterns of built are placed. It would be better to view the whole landscape, including the urban elements, as the ecosystem for study.

12 Do you agree with the proposed research questions?

- Yes
 No

Your comments

See above re interface between environments and development being included.

13 Do you agree with the new or expanding capability needs?

- Yes
 No

Your comments

14 Do you have any other comments you wish to make about the integrated ecosystems and processes theme?

Your comments

Theme 3: Freshwater ecosystems and processes

15 Do you agree with the proposed enduring question?

- Yes
 No

Your comments

16 Do you agree with the proposed vision/goals?

- Yes

No

Your comments

17 Do you agree with the proposed emerging ideas?

Yes

No

Your comments

Emerging ideas and research questions should also cover:

- National education programmes with respect to communities changing their practices to reduce contaminants in waterways (e.g. for urban streams - not washing cars on the driveway, not feeding ducks, and not using stormwater drains as waste disposals)
- National level guidance and research on technologies that mitigate or remove the impacts of farming activities on waterways e.g. grasses that nitrogen fix, reducing the need for fertiliser.

18 Do you agree with the proposed research questions?

Yes

No

Your comments

Suggest an additional question on contaminant load modelling in urban catchments and options to reduce/eliminate sources (including building materials and products) of key contaminants such as zinc (roofing) and copper (brake pads).

Would like to also see a question similar to Theme 5 – do we have appropriate western science and Mātauranga Māori/cultural monitoring methods, indicators and management tools for freshwater environments? For example, Council is required through stormwater consents to monitor cultural values, but there is no national/regional protocol or index to measure values. The regional approach is critical in order to reflect differences in mahinga kai/resource gathering between Māori tribes.

19 Do you agree with the new or expanding capability needs?

Yes

No

Your comments

20 Do you have any other comments you wish to make about the freshwater ecosystems and processes theme?

Your comments

Theme 4: Land ecosystems and processes

21 Do you agree with the proposed enduring question?

Yes

No

Your comments

22 Do you agree with the proposed vision/goals?

Yes

No

Your comments

23 Do you agree with the proposed emerging ideas?

Yes

No

Your comments

24 Do you agree with the proposed research questions?

Yes

No

Your comments

25 Do you agree with the new or expanding capability needs?

Yes

No

Your comments

26 Do you have any other comments you wish to make about the land ecosystems and processes theme?

Your comments

Theme 5: Coastal and marine ecosystems and processes

27 Do you agree with the proposed enduring question?

Yes

No

Your comments

28 Do you agree with the proposed vision/goals?

Yes

No

Your comments

29 Do you agree with the proposed emerging ideas?

Yes

No

Your comments

30 Do you agree with the proposed research questions?

Yes

No

Your comments

31 Do you agree with the new or expanding capability needs?

Yes

No

Your comments

32 Do you have any other comments you wish to make about the coastal and marine ecosystems and processes theme?

Theme 6: Urban ecosystems and processes

33 Do you agree with the proposed enduring question?

Yes

No

Your comments

This question should also include impacts on freshwater environments – urban streams and groundwater. This is particularly pertinent to Christchurch given the Council’s ongoing investment in improving urban waterway quality.

34 Do you agree with the proposed vision/goals?

Yes

No

Your comments

35 Do you agree with the proposed emerging ideas?

Yes

No

Your comments

36 Do you agree with the proposed research questions?

Yes

No

Your comments

There needs to be economic modelling undertaken to support a number of these research questions. In face of climate change and shifting urban populations, knowing the financial/viability trigger points of when to implement sustainable infrastructure options, such as light rail in cities, requires economic modelling.

37 Do you agree with the new or expanding capability needs?

Yes

No

Your comments

38 Do you have any other comments you wish to make about the urban ecosystems and processes theme?

Your comments

Theme 7: Populations and species

39 Do you agree with the proposed enduring question?

Yes

No

Your comments

We also need to be mindful and conserve Red List threatened species introduced from outside New Zealand under the NZ Biodiversity Strategy, Global Strategy for Plant Conservation and Convention on Biological Diversity.

40 Do you agree with the proposed vision/goals?

Yes

No

Your comments

41 Do you agree with the proposed emerging ideas?

Yes

No

Your comments

42 Do you agree with the proposed research questions?

Yes

No

Your comments

43 Do you agree with the new or expanding capability needs?

Yes

No

Your comments

44 Do you have any other comments you wish to make about the populations and species theme?

Your comments

Theme 8: Biosecurity

45 Do you agree with the proposed enduring question?

Yes

No

Your comments

46 Do you agree with the proposed vision/goals?

Yes

No

Your comments

47 Do you agree with the proposed emerging ideas?

Yes

No

Your comments

48 Do you agree with the proposed research questions?

Yes

No

Your comments

49 Do you agree with the new or expanding capability needs?

Yes

No

Your comments

50 Do you have any other comments you wish to make about the biosecurity theme?

Your comments

Theme 9: Mātauranga Māori

51 Do you agree with the proposed enduring question?

Yes

No

Your comments

52 Do you agree with the proposed vision/goals?

Yes

No

Your comments

53 Do you agree with the proposed emerging ideas?

Yes

No

Your comments

54 Do you agree with the proposed research questions?

Yes

No

Your comments

55 Do you agree with the new or expanding capability needs?

Yes

No

Your comments

56 Do you have any other comments you wish to make about the mātauranga Māori theme?

Your comments

Theme 10: Social and economic dimensions

57 Do you agree with the proposed enduring question?

Yes

No

Your comments

58 Do you agree with the proposed vision/goals?

Yes

No

Your comments

59 Do you agree with the proposed emerging ideas?

Yes

No

Your comments

60 Do you agree with the proposed research questions?

Yes

No

Your comments

Research should be focused on the fundamental drivers of human behaviours. Urban communities need to be better connected with the natural environment so that they understand the environmental degradation occurring to bring consumer products to store, whether they be food or technological goods. Since consumers are being aggressively marketed to, to purchase consumables, they need to see how their own consumer habits are having an impact on environmental bottom lines. It is therefore necessary for scientists and policy decision makers to engage urban communities (through education programmes) so they understand and decide the environmental, quality, bottom lines that communities will accept. At the same time communities need to appreciate how these bottom lines are being threatened and what consumer behaviour changes they need to undertake in order to stop this degradation of the environment.

In Christchurch there is an opportunity to undertake the above approach with communities involved with the future use of the residential red zone on the flat land.

61 Do you agree with the new or expanding capability needs?

Yes

No

Your comments

62 Do you have any other comments you wish to make about the social and economic dimensions theme?

Your comments

Theme 11: Informatics, modelling and monitoring

63 Do you agree with the proposed enduring question?

Yes

No

Your comments

64 Do you agree with the proposed vision/goals?

Yes

No

Your comments

65 Do you agree with the proposed emerging ideas?

Yes

No

Your comments

66 Do you agree with the proposed research questions?

Yes

No

Your comments

67 Do you agree with the new or expanding capability needs?

Yes

No

Your comments

68 Do you have any other comments you wish to make about the informatics, modelling and monitoring theme?

Your comments

- It would be useful to develop an understanding of the state of knowledge across each theme, the gaps in data collection, monitoring and data management systems, and new technology that that could be underpinned by this theme. This would lead to additional research, innovative solutions, new tech and advances in modelling.

- How does this theme intersect with e-GIF? The New Zealand e-Government Interoperability Framework 2002 (e-GIF) governs how public sector organisations achieve electronic interoperability of their information, technology and business processes. Inter-operability of information and communications technology between government agencies (territorial authorities, Ministry for the Environment, Biosecurity New Zealand, Department of Conservation (DOC) to monitor the state of the environment, and to communicate trends to decision makers and the public is therefore essential.

Theme 12: New and emerging technologies

69 Do you agree with the proposed enduring question?

- Yes
 No

Your comments

70 Do you agree with the proposed vision/goals?

- Yes
 No

Your comments

71 Do you agree with the proposed emerging ideas?

- Yes
 No

Your comments

72 Do you agree with the proposed research questions?

- Yes
 No

Your comments

73 Do you agree with the new or expanding capability needs?

- Yes
 No

Your comments

74 Do you have any other comments you wish to make about the new and emerging technologies theme?

Your comments

Some level of 'blue sky research' should be supported with no need to demonstrate direct links to economic, social, cultural or environmental benefits.

Section 4: Other comments

75 Do you agree with the proposed criteria for establishing research priorities?

Yes

No

Your comments

76 What benefits do you see a conservation and environment science roadmap providing?

Your comments

Key methods and national support for Science transfer into decision making for integrated long term social, economic, cultural and environmental benefit need to be provided.

77 Do you have any other comments you wish to make?

Your comments

Releasing submissions

Your submission may be released under the Official Information Act 1982 and may be published on the Ministry's website. Unless you clearly specify otherwise in your submission, we will consider that you have consented to website posting of both your submission and your name.

Please check this box if you would like your name, address, and any personal details withheld.

Note that the name, email, and submitter type fields are mandatory for you to make your submission.

When your submission is complete

If you are emailing your submission, send it to cesroadmap@mfe.govt.nz as a:

- PDF
- Microsoft Word document (2003 or later version).

If you are posting your submission, send it to Conservation and Environment Science Roadmap, c/- Ministry for the Environment, PO Box 10362, Wellington 6143.

Submissions close at 5.00pm on Wednesday 7 September 2016.