National
SCIENCE
Challenges

**SUSTAINABLE
SEAS**

Ko ngā moana
whakauka

QUICK GUIDE SERIES: Navigating risk and uncertainty in marine management

4 Tools to help navigate perceptions of risk and uncertainty

This guide introduces tools you can use to help navigate different perceptions of risk and uncertainty when making decisions that affect the moana and the people connected to it. It's part of a series of quick guides based on Sustainable Seas National Science Challenge research.

Our research shows that 'invisible' factors like worldviews, experiences, and context (positionality), and previous learning or training (disciplines), influence what people see as risky and uncertain. The tools in this guide will help you make decisions that involve risk and uncertainty.

Tool 1: individual reflection

This tool gives questions to ask to uncover the worldviews, education, context, and experiences influencing you.

Tool 2: plan your process

This tool can be used individually or with your group and steps you through thinking about partnership, evidence, tools, processes, and balancing rights.

Tool 3: reflection on progress

The third tool shows you how to measure success against different criteria. This tool is most helpful as a prompt for discussion in a group as you assess progress during your decision-making process.

The first tool gives questions to ask to uncover the worldviews, education, and experiences influencing people. The second can be used individually or with your group and gives you 5 steps to work through these different perspectives. The third tool is most helpful as a prompt for discussion with your group, as you assess progress during your decision-making process.

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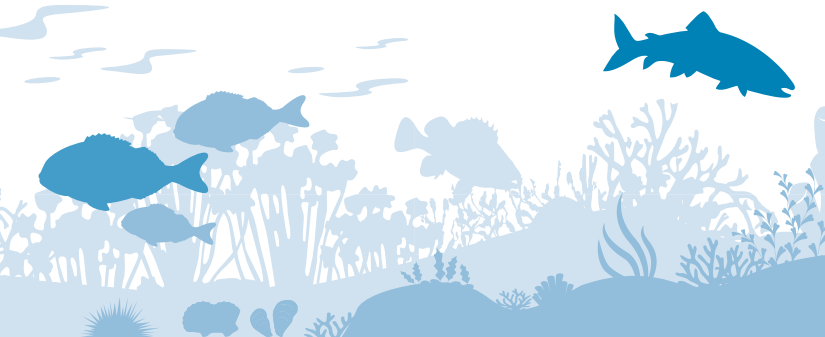
Tool 1: Individual reflection

WORLDVIEWS

Generally I think these things are risky, but those things don't bother me, in terms of how I understand the world
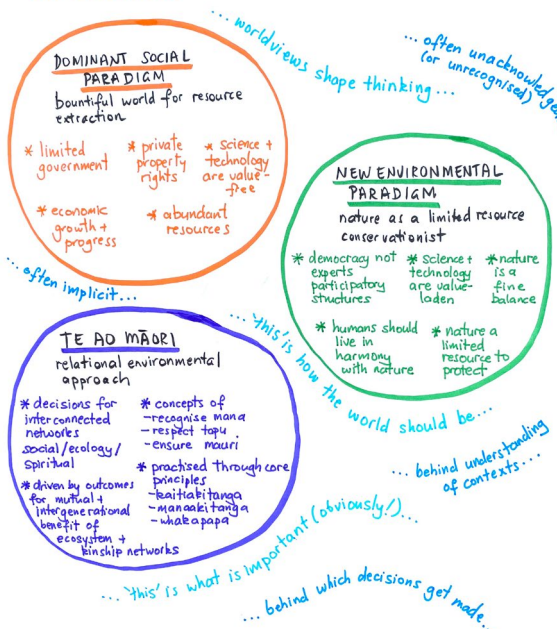
DISCIPLINES

I was taught to think about risk in this way, so that means risk must be this and not that

POSITIONALITY

My experiences and context affect what I think is risky

BUT
often I don't realise I'm thinking these things in the background.
If I was aware - maybe it would help have productive conversations with others, instead of wondering why they don't see it the same way as I do?

'INVISIBLE' NATURE OF THE THREE FACTORS

RISK and UNCERTAINTY are perceived relative to worldviews

... worldviews shape thinking ...

... often unacknowledged (or unrecognised) ...

DOMINANT SOCIAL PARADIGM
bountiful world for resource extraction

* limited government
* private property rights
* science + technology are value-free
* economic growth + progress
* abundant resources

NEW ENVIRONMENTAL PARADIGM
nature as a limited resource conservationist

* democracy not experts participatory structures
* science + technology are value-laden
* nature is a fine balance
* humans should live in harmony with nature
* nature a limited resource to protect

... often implicit ...

TE AO MĀORI
relational environmental approach

* decisions for interconnected networks social/ecology/spiritual
* concepts of
  - recognise mana
  - respect tapu
  - ensure mauri
* driven by outcomes for mutual + intergenerational benefit of ecosystem + kinship networks
* practised through core principles
  - kaitiakitanga
  - manaakitanga
  - whakapapa

... this is how the world should be ...

... behind understanding of contexts ...

... this is what is important (obviously!) ...

... behind which decisions get made ...

WORLDVIEWS

Ask: What worldviews do I identify with?

Then: What risks make sense in my worldview?

What risks make sense for other worldviews?

How have you been taught to understand risk?

Law. Has it been done before?
what is case law?
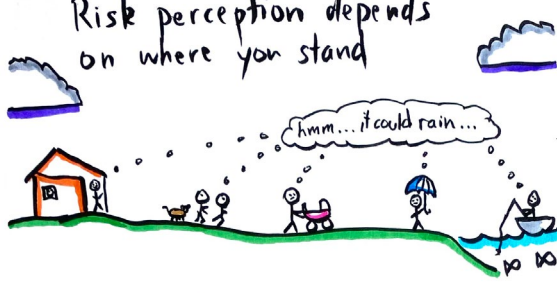
Economy.
How much will it cost to fix?

Ecology.
what might happen to the ecosystem?

Disciplinary training shapes perception of risk + questions asked

DISCIPLINES

Ask: How have I been taught to understand risk through my education and training?

Then: How does this affect the way I think about what is risky?

What might people who have been trained in different disciplines think is risky?

Risk perception depends on where you stand

hmm... it could rain...

situated knowledge of experience in place

POSITIONALITY

Ask: What positionalities do I occupy now and at other times?

Then: How does where I stand affect my perception or risk?

What might other people think is risky because of their situation?

Tool 2: Plan your process

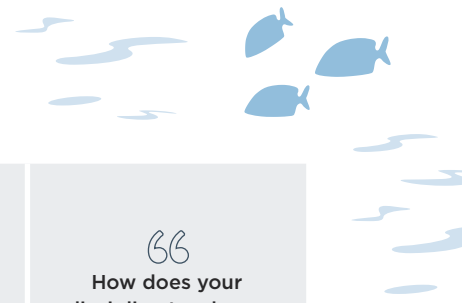|		What is 'risky' in different worldviews?	How does your positionality change risk?	How does your discipline teach you to think of risk?
Get ready: warm up!	**Make sure you've used Tool 1 to unpack perceptions of risk and uncertainty.** Apply these questions across steps >			
Ko te mahi (Step) 1	**How are Tiriti partnerships enacted?** Through process (engaging with and empowering the right group) and ethics of practice.	Multiplicity of worldviews needs to be acknowledged right up front, including Te Ao Māori. Anchor people back in Aotearoa setting – Tiriti, principles, ethics, co-governance.	People have been taught different ways to approach 'truth' and 'knowing', and power relations. This has huge impact on their ability and capability in the processes of enacting co-governance.	Be willing to learn, reflect and evolve positions. Focus on ethical decisions – equity, justice, power. What are (currently) suitable Te Tiriti partnership approaches?
Ko te mahi (Step) 2	**What is evidence?** Evidence is information presented in a way that is seen as credible to base decisions on. Reconsider what is allowed as evidence.	There are multiple versions of what is credible depending on worldview, positionality and discipline.	Positionality matters because often one assessment of 'credible' dominates the evidence, locking out other ways of knowing, eg Te Ao Māori.	What is and isn't considered evidence? Why might that be? What do I think is evidence? How do I rank these? Is the evidence place-based not universalised?
Ko te mahi (Step) 3	**What are the 'right' tools?** Tools are used to order information in a way that enables decisions to be made. What are the 'right' tools in this situation? Are there others?	There is a diversity of tools, approaches, and frameworks*, and how they are used. Who is involved impacts the tools used, and access to tools differs.	How do your experiences in place affect what you consider to be a suitable tool? Mātauranga Māori is often little understood or used. Seek out guidance, eg EPA Mātauranga Māori assessment tool.	Tools help shape the world. Lobbying, local experiences, disciplinary approaches all influence the tools picked, which then changes what is done and known.
Ko te mahi (Step) 4	**How does process constrain content?** Legislation influences how issues are presented, discussed and weighted. Often things can't be weighted properly because they 'don't fit' or aren't legislated for.	Legislation and courts have rigid processes which constrain the evidence, tools, Te Tiriti partnerships, and how conflicts are framed for consideration. Legislation and courts are direct product of worldviews (mostly DSP).	Ability to produce content for the decision-making framework varies depending on role and life experience.	Expand the content that is 'allowed' and the ways issues are discussed as risky or uncertain and important or not. Mandate taking other knowledges into consideration. How can you expose other perspectives?
Ko te mahi (Step) 5	**What balance of rights is supported?** There is a continual tension between collective rights and private property rights. What mix of rights is negotiated and adopted in any given situation?	Worldviews crucially affect how rights are perceived, and what risks may be taken with the balance of rights. Dominant worldviews have the most influence on how rights are distributed, eg private property wins in economic growth model. Shifting the balance of rights means exploring the worldviews behind them.	Are you in a position to enable or advance a particular set of rights? How does this affect risk decisions?	What is (currently) considered as an acceptable balance? Where does this weighting come from? Are the interests (that provide the weighting) being served by this, or are others?

*Tools 'perform or facilitate operations,' aiding decision-making, while frameworks can be considered 'a basic structure, plan or system, as of concepts, values, customs or rules'. However, these definitions are not rigid, as frameworks are also tools of a sort, when they are used to facilitate decision-making.

Tool 3: Reflection on progress

Assess your process for navigating risk and uncertainty in decision-making

Assessment guide: 1 Developing   2 Good   3 Excellent
Assess your performance for each step – write the appropriate number in the circle

Steps to consider in risk and uncertainty decision-making

Warm-up: unpacking perceptions of risk and uncertainty / kia whakahura te tūraru me te haurokuroku

How well have you worked through tool 1 to understand more about your own and others' worldviews, context, and learning?

Have you identified:

- your own worldview and others' worldviews in use in this context

- differences and similarities in what is 'risky and uncertain' (ask about 'risk to what') in this context for yourself and other parties

- differences and similarities in approach and experience of the situation due to your own context and experience and that of others

- differences and similarities in how your own education and training sees risks compared with others?

All parties should:

- follow the steps above

- discuss and document worldviews, positionalities, and disciplines

- identify clear points of commonality and difference

- develop a plan for making use of this knowledge.

Evidence of performance

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Future improvements

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Step 1: Enacting Treaty partnerships*

How well have you taken account of Te Tiriti o Waitangi and supported local iwi and hapū goals?

Have you:

- engaged with and empowered appropriate hapū and iwi (noting that this is an ongoing process)

- acknowledged and incorporated into decision-making a Te Ao Māori worldview and other worldviews

- anchored processes in Te Tiriti principles, ethics, and co-governance

- acknowledged and actively worked with different ways of knowing, and identified and documented your findings

- been willing to learn, reflect and evolve your positions

- focused on ethical decisions that consider equity, justice, and power

- used available tools and frameworks as appropriate, for example Tikanga Process Model, Te Mana o te Taiao Aotearoa New Zealand Biodiversity Strategy 2020, Mātauranga Māori Framework (EPA), and the National Policy Statement of Freshwater Management 2020

- discussed prompting questions like: What are currently suitable Te Tiriti partnership approaches? What does this mean in decision-making processes?

Evidence of performance

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Future improvements

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*Tiriti issues and partnerships are assigned top priority, and ideas of evidence and tools/frameworks/approaches are next, as once these have been worked through, it is easier to recognise how process constrains what is happening, and what is allowed 'in the room', and to think about balancing rights.

Steps to consider in risk and uncertainty decision-making

Step 2: Reconsidering what evidence is

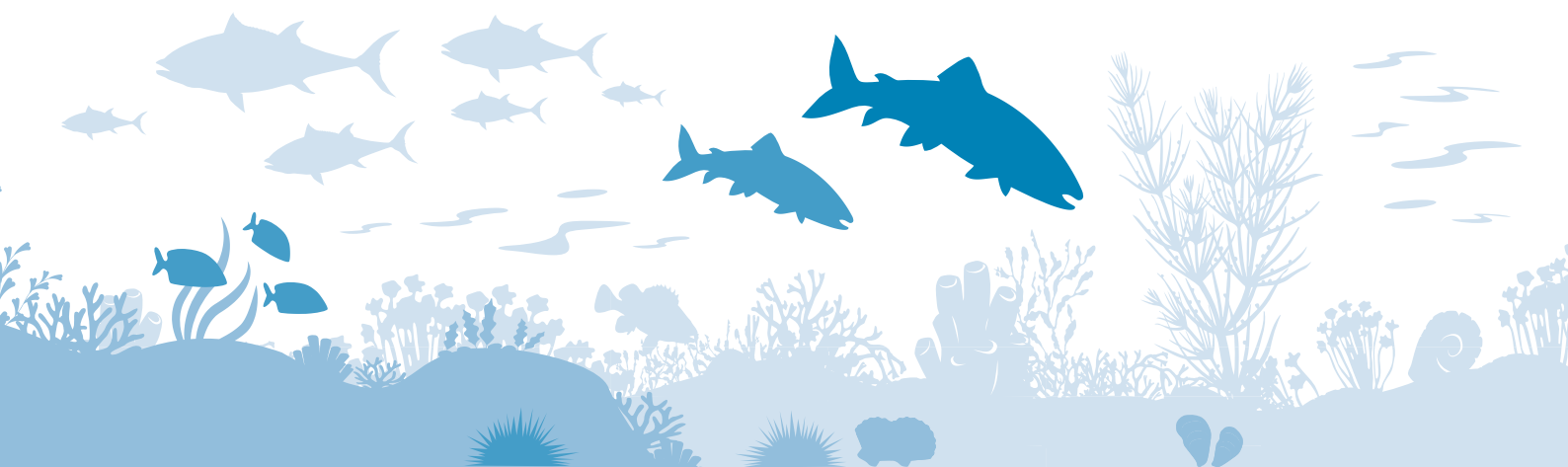How well have you explored what evidence is?

Have you:

- recognised that evidence and data come in different forms, for example data from the scientific method, numbers, mātauranga Māori data, stories, experiential knowledge, and local knowledge

- gone through a process to identify that different kinds of data are credible in different worldviews and for different purposes

- identified and documented findings

- identified dominant data biases in current processes

- identified what other kinds of data would benefit your current process

- created ways to allow multiple kinds of data into your decision-making, for example, the EPA's Mātauranga Māori Framework to better include mātauranga as evidence, risk assessment methods that support EBM, for example the *Guide to assessing risk assessment methods that support EBM*, and the *Decision tree to select risk assessment methods* in quick guide 5

- used other tools to help: *What is my worldview survey* in quick guide 2?

Have you discussed these prompting questions?

- What is, and is not, considered evidence?

- Why might that be? Think about positionality, worldviews, and discipline. For example, are some disciplines given more weight than others?

- How do individual and company positionalities influence concerns and arguments?

- What do I think is evidence?

- How do I rank these?

- What does this mean in decision-making processes?

- Are we only getting answers that fit an artificially narrow context?

- What knowledge is being left out?

- What work do the different types of evidence do for the collective for society?

Evidence of performance

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Future improvements

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Steps to consider in risk and uncertainty decision-making

Step 3: Finding the right tools, frameworks, and methods

How well have you found the right tools, frameworks, and methods?

Have you:

- considered that multiple tools, frameworks, and methods are better than one

- reviewed what tools, frameworks, and methods are available and who they are available to

- ensured that tools, frameworks, and methods are appropriate to the people involved, and that everyone has access to them

- identified relevant tools, frameworks, and methods as a group and reflected on them?

Have you discussed these prompting questions?

- What are the tools, frameworks, and methods currently considered suitable?

- Are these tools, frameworks, and methods appropriate to support ecosystem-based management and Māori aspirations and needs? If not, why are you not using more appropriate tools, frameworks, and methods?

- What types of knowledge are needed for these tools, frameworks, and methods?

- What knowledge is being collated?

- How is this knowledge being used, perceived, or weighted?

- What's the impact of these factors on natural resource management decisions being made?

- Do the tools, frameworks, and methods allow for risks, as seen by all world views, to be represented?

- What awareness of newly developed tools, frameworks, and methods is there – including for example Waka Taurua/Hourua, the Environmental Protection Authority mātauranga Māori framework, Arotakenga Huringa Āhuarangi National Climate Change Risk Assessment Framework, Mauri Compass, Māori Values and Perspectives to Inform Collaborative Processes and Planning for Freshwater Management Policy Brief for MWLR, Bayes Nets, Agent-based models, System Dynamic mapping?

Evidence of performance

Future improvements

Steps to consider in risk and uncertainty decision-making

Step 4: Understanding how your process can constrain content

How well have you understood how your process can constrain content?

Have you identified:

- legislation constraints in this context, for example what's 'allowed' to be considered and what's not

- whether natural resource management and policy is framed in a way that reflects a particular worldview

- how the issue is framed

- multiple policies and laws, each with their own constraints

- what activities and types of management actions are not being considered

- the role of education disciplines in information, for example what's seen as appropriate evidence — for example, mātauranga Māori, models, interviews etc

- appropriate information and framing for the current decision-making process and how have you supported it

- what other knowledge should be included in the process, for example changing how issues are talked about as risky, uncertain, or important

- a range of views in the process, stemming from worldviews, context and experience, and education disciplines?
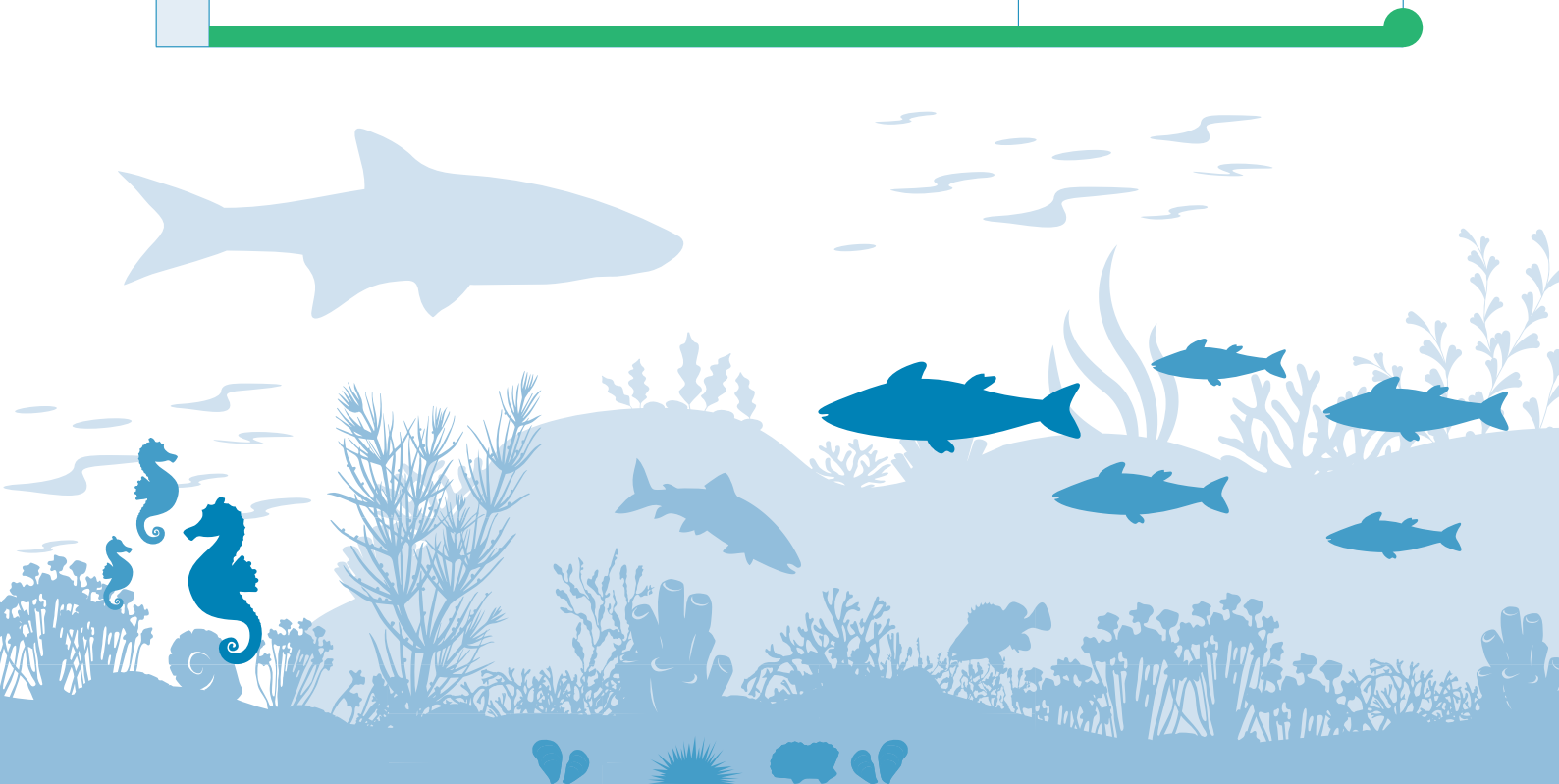
Have you discussed these prompting questions?

- What influence does how the issue is framed have?

- What does this mean in your decision-making process?

- How can we improve this situation and expose other perspectives? For Māori, this might link to co-management and co-governance arrangements.

Have you documented your findings?

Evidence of performance

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Future improvements

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Steps to consider in risk and uncertainty decision-making

Step 5: Balancing rights

How well have you balanced collective and individual rights?

Have you identified:

- the nature of any tension between collective, individual, and property rights in this context

- absent or marginalised people and included them, if possible

- the worldviews at play in your process

- the relationship between risks and rights (according to worldviews), for example, whether people see the risk to future generations, to current environment, to property rights, or to economic extraction rights

- how education discipline influences the process and what each discipline prioritises in this context – have you discussed the effect on decision-making in this context, and included broad disciplines and people

- the contexts and experiences (positionality) of people involved and noted their relative support of different rights – have you discussed the effect of this on decision-making in this context and included people with varied experiences?

Have you discussed these prompting questions?

- What is (currently) considered as an acceptable balance of rights? Where does this weighting come from, for example history, dominant players, legislation, other?

- Are the interests that provide the weighting being served by this process? Are any other interests being served?

- What lobbying is occurring, from whom and for whom?

- Can you enable or advance a particular set of rights? How does this affect risk decisions?

- Whose 'risks to what, when and where' are being left out, and why?

- What does this mean in the decision-making process?

- What is the right balance of rights in any given situation?

Evidence of performance

Future improvements
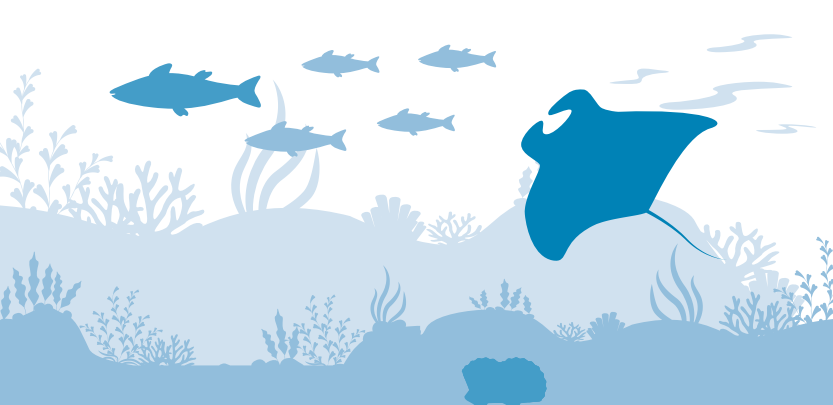
What's next?

For an introduction to different risk assessment methods and a guide to deciding the best one(s) for your needs, read Quick guide 5: How to incorporate risk and uncertainty in ecosystem-based management

1 — 2 — 3 — 4 — 5

» **Read the full research document behind these quick guides on the Sustainable Seas website**

sustainableseaschallenge.co.nz

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