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# Spencer Gulf Ecosystem & Development Initiative

## 2014 Stakeholder Input and Structured Decision Making

Research  
Partners



Spencer Gulf Ecosystem & Development Initiative  
2014 Stakeholder Input and Building the Decision Support System Report Simon Divecha<sup>1</sup>, Bronwyn M. Gillanders<sup>1</sup>

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# Spencer Gulf Ecosystem & Development Initiative 2014 Stakeholder Input and Structured Decision Making Report

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## Executive Summary

A second set of stakeholder workshops and meetings was held in 2014 as part of the *Spencer Gulf Ecosystem Development Initiative*. This report for initiative partners and stakeholders summarises these workshops involving around 100 people from the region.

The 2014 stakeholder meetings highlighted

- Broad cross sector, industry, NGO and stakeholder group agreement around the priority of vibrant society, development and better environmental outcomes.
- A rising awareness and discussion of climate change considerations such as implications for fisheries.
- A continued focus on high profile issues of concern such as cuttlefish and shipping.
- Additional, wide ranging discussion of the whole of the Gulf and consideration of it as an interconnected marine system. This includes discussion of the stresses on it and how these may change into the future.
- Considerable discussion on topics related to governance, how best to coordinate across multiple government departments and enable use of the Initiative's science for government decision-making.

## Background

This document summarises the feedback from stakeholder workshops and meetings and how input from these is assisting the *Spencer Gulf Ecosystem and Development Initiative* to structure research and on-going work. This report is for all initiative partners and stakeholders.

There are a wide range of potential future scenarios and development pressures that Gulf users, and stakeholders, would like to manage. Doing this is difficult, especially in the face of substantial knowledge gaps about the environmental resources we seek to protect.

A primary aim of the initiative is to help address the above issue. Traditionally, we struggle to avoid cumulative and chronic impacts on valuable ecosystems. Industries that are dependant on them - such as fisheries, recreation, local workforces for mining, economic diversity and tourism - can suffer as a result. Consequently, this initiative seeks to enable positive decision making for groups, and individuals, associated with the Gulf by filling knowledge gaps such that evidence is available to inform decisions.

The Initiative is 17 months into an anticipated five-year program. Through Phase I significant stakeholder engagement has taken place, early model development has been achieved, the key knowledge gaps have been identified and interested parties have been engaged through the establishment of a Board and Science Committee. Phase 1 brought together twelve partners, half a million dollars of funding and consulted more than 100 people to achieve these outcomes.

Participation in the latest set of workshops and meetings is helping to shape the forward program - Phase 2. The input is being used to structure the initiative's decision-making process. Credible and relevant science to inform evidence-based outcomes for the Gulf is a high priority. In tandem with this, social considerations, perspectives and the discussions from stakeholders play an important role - this helps to inform environmental research choices and deliver science that is likely to be used.

## Outline of this Document

In the *Stakeholder views* section below is a summary of the feedback we received in the workshops. It includes input from nearly 100 people across the Spencer Gulf region and from stakeholders in Adelaide. Formal workshops were held in Port Lincoln, Whyalla and Adelaide. There were also a range of less formal individual and group meetings in Port Lincoln, Whyalla, Port Augusta and Port Pirie as well as with key industry and local, state and federal government politicians. We received feedback from the community, industry, non-government and environmental organisations, local and state governments, South Australian government agencies and statutory bodies as well as other interested individuals. This section summarises the substantial themes and key issues from these engagements.

Also, in this document, is a short description of the '*structured decision-making*' process that is being used by the initiative. Knowledge of the Gulf's environment and a range of models, will play a critical role in delivering good evidence-based outcomes. However, at the same time, this evidence is influencing the values and preferences of those who engage in decision-making on the Gulf - preferences of all users and everyone involved may change, partly as a result of the initiative. Similarly, the priorities of the community and users of the Gulf are important considerations - policy makers, business, fishing, government and groups like Natural Resource Management agencies all pay attention and act on such viewpoints.

Consequently, the initiative uses the structured decision-making process to inform the work so that it is as relevant as possible. There are real constraints that have to be managed alongside multiple factors that need to be considered and are relevant for the Gulf. The figure below illustrates some of the multiple environmental issues. In addition, there are a number of subjective social issues such as a variety of values held for specific parts of the Gulf and differing future orientations (e.g. are distant problems discounted to prioritise current outcomes?). The *Structured Decision Making* section outlines the process to help manage this complexity.



## Stakeholder Views

Input from the workshops and stakeholders is structured to show issues according to whether they are physical and objective considerations or of a more subjective nature – that is, relating to the values and concerns relevant for the community, sectors and environment.

At meetings and workshops, we formally and informally asked people about issues of importance. At workshops, we were also able to ask about what the participants valued and what they felt were shared concerns representative of the community and/or their organisations. A government specific

workshop also sought further specific input on how the initiative’s work, and government processes, could best support good outcomes across Spencer Gulf.

In general, across all of these meetings and workshops, there is strong support for the initiative’s evidence based approach. There was wide recognition that the processes engaged in - such as structured decision-making and considering the whole of the Gulf’s ecosystem - were important. The interfaces and interplays between stakeholders, government and the initiative’s research are the important areas to develop next.

## Stakeholder feedback

The formal stakeholder meetings used an integrated process so that values and influences are understood alongside physical variables. The structure used, as shown in Figure 1 using issues highlighted in the 2013 stakeholder consultations, displays internal, subjective perspectives, explicitly alongside physical, objective and quantifiable measures. In the top-right corner, specific issues highlighted by the stakeholders are shown. The diagram also details those of a more general nature - such as global impacts and considerations - on the bottom-right. On the left-hand side are prominent values and cultural foci. The top-left corner contains viewpoints that generally summarise an individual’s feedback. On the bottom-left are those of a community or group nature.

Figure 1 below illustrates these categories.

	Subjective	Objective
Individual / specific issue	<p><b>Aspirations; Values; Ethics; Quality perspectives</b></p> <ul style="list-style-type: none"> <li>e.g. Cuttlefish to survive and increase values; No impact on the environment; People are most important part of system; value of Clean Green image; feel there are opportunities for work in the region</li> </ul>	<p><b>Specific environmental knowledge gaps:</b></p> <ul style="list-style-type: none"> <li>Cuttlefish</li> <li>Shipping</li> <li>Biosecurity</li> <li>Desalination</li> </ul>
Group / collective issue	<p><b>Community expectations</b> e.g. jobs, aesthetics, biodiversity values, recreation, vibrant communities</p> <p><b>Industry sustainability values</b></p> <ul style="list-style-type: none"> <li>e.g. workforce, reputation, environmental protection</li> </ul>	<p><b>Global drivers:</b></p> <ul style="list-style-type: none"> <li>Sea level rise, Water temperature</li> </ul> <p><b>Regulation</b></p> <ul style="list-style-type: none"> <li>Federal ‘Matters of National Environmental Significance’ State Environmental and Planning Law; Other regulations</li> </ul> <p><b>Development Jobs Economy</b></p> <ul style="list-style-type: none"> <li>Need for industry, services, jobs</li> </ul> <p><b>Whole of Gulf Environment</b></p> <ul style="list-style-type: none"> <li>The system is more than the sum of its parts</li> <li>A lot is unknown about these interactions</li> </ul>

Figure 1 - Stakeholder workshop input framework

The table below shows the areas of significant input from the stakeholder consultation. It should be read in conjunction with feedback from other consultations. A summary of this feedback, along with

the initiative's review of science knowledge gaps in the Gulf is available online:  
<http://www.adelaide.edu.au/environment/water/spencer-gulf>

## Detailed Feedback

### Values

- Lifestyle – coast and marine environment, fishing, surfing
- Maintained growth (preferably increase)
- All species in Gulf to remain sustainable / maintain healthy environment
- Community expectations to take priority over commercial / recreational use should be priority / biodiversity protection for its own right
- Long term view should override short term / best shape possible for future generations
- Worry development occurring at any cost, short term thinking
- Community value often discounted
- Jobs a paramount paradigm, what about liveability and environment?
- No need for science or planning if system is ruined
- Open information / transparent decision-making / misinformation
- Healthy Spencer Gulf ecology is good for community, fisheries, tourism, and State's image
- Viable, clean and thriving Spencer Gulf for me and my children / children experience Gulf as I do or better / provide for future generations / want my children to be able to swim in the middle of the greatest cuttlefish aggregation in the world – wonderful!
- Critical strong decisions need to be made at cultural level
- Economic prosperity for all industries in the region
- Plan for the future

### Outlooks

- Majority expectations must override the 'noisy' few vested interests
- We have sustainable fisheries for future
- Marine parks – don't want to revisit, "not happy but comfortable" with outcome
- Clean environment, vibrant region
- What's really meant by 'remove the green tape'
- Marina's may override environmental issues (perverse outcomes given focus of users)

### Species issues

- Key species e.g. King George whiting inadequate study (SARDI every three years?); stripy trumpeter; little penguins; multi-species overall slow decline?
- Cuttlefish (extensive feedback)
- Non commercially important species research lacking
- Seals & their potential impacts
- Productivity: Keystone species / Indicators of community health
- Gaps in EPBC species + process for removal of EPBC species
- Long term population trends (e.g. cuttlefish) / cause of cuttlefish decline
- Marine debris / fishing and shipping interactions
- Stranded shingle beach dunes
- Seagrass species change
- Aquaculture and marine mammal interactions / nutrient loads / beach pollution
- Tuna - going further offshore
- Marine mammal heavy metal concern
- Prawn by-catch

### Ecosystem issues

- Baseline models, thresholds, data and hydrology, trends, flushing rates, water quality
- Turbidity and impact of large vessels / bottom disturbance / impact on fisheries/species diversity / dredging
- Indirect impact - water quality on benthic habitat
- Large scale events e.g. urban, stormwater or other flowing to fish habitat
- Coastal dwelling ↑ impact with ↑ sea level / localised nutrient impact / habitat, cumulative stress
- Saltmarsh input into food chain / important driver in food chain, carbon sink etc.
- Potential need for industry to shift SG with change in fishery location
- Cumulative impact particularly as seen on fish
- How does biodiversity change across stress

- Preservation of unique features
- Wish to advance society's living standard in a sustainable way
- Business interest in the most responsible / environmentally conscious and potentially more cost effective options
- Change of mind set: earth as a garden not engineered (wasteland)
- Past tipping point – is historic change too great already?
- Land and sea biodiversity aesthetic value
- Ecotourism's importance (undervalued?)

- gradients
- Desalination
  - Agricultural nutrient loads
  - Algae blooms
  - Overall key environmental factors of concern

#### Process issues

- Fisheries as a barometer - sardine size & upwelling
- Recreation fishing licence \$ for research
- These sessions are valuable > building database of input / need to understand what is happening to be able to comprehend potential impacts
- Decision making about ports in SG vs other locations / multiple vs single ports / coastal planning
- Industry diversity and vibrancy that could result from this
- Super-trawler debate as case in point
- Marine species regulation (different silos) / legislative tools
- Alternatives such as slurry pipeline / one port vs several
- Co-operation between resource developments

#### Community expectations

- Food security
- Localism – jobs
- Regulatory control on major risks versus don't over regulate / local, state and federal government role to oversee mining
- Healthy fresh seafood
- Balanced view not economy or environmental costs
- Access for recreation – valuing emotionally visually and the use of it
- Value clean marine coastal environment as a source of food, supporter of industry and recreational
- For some level of localised control
- Ongoing research and scientific approach
- Productivity, shelter, food based in ecosystems services

#### Sector expectations

- Professional fishing - Cultural heritage, Food security, access, viable and diverse region,

#### Global Drivers

- Climate change
- ↑ Sea temperatures, changes in upwelling
- ↑ Sea level
- High sea surface temperatures
- Changes in sea temperature, changes in upwelling

#### System wide

- Coastal planning
- Whole of food chain
- Sustainable growth - If no growth lose hospitals, schools - need prosperity for this – healthy ecosystems = long term growth

#### Process issues

- Ongoing research to understand impacts
- Highlight cumulative additive synergistic impacts
- Planning department responsibility for implementation or action / whole of government / integrated legislative framework



#### Sustainable development

- Research - Curiosity about natural history and web of life, Want to see evidence and balanced argument
- Aquaculture- Cultural heritage, transparency of impacts / water quality and clean-green, cooperation/coordination of stakeholders, biodiversity, sustainable communities and jobs, profitable
- Conservation- The value of species to persist, the belief that we as a society can do better, we can reduce our impacts but not without encouragement
- Mining - Encouraging all key stakeholders in exploration process / community and stakeholder acceptance, access, sustainable development / minimal impact
- Recreational fishing - Sustainable access to healthy fisheries (social benefit), intact ecosystems for resilience of fisheries

#### **Cultural / knowledge processes**

- Historic cultural legacy from primary production and (some) prior poor practise
- Political lobbyist concern
- Community understanding of issues that are important to the health of the system
- Industry: to maintain social license to operate, to enable meaningful and trusted dialogue with communities to focus resources on real environmental risks rather than on perceived risks (without coming under scrutiny) and to allow collaboration)
- Value economic, social and environmental factors in all decision making / the natural environment of the Spencer Gulf sustains industry and the economy
- Facing climate change reality

#### / legislative failures

- Collaboration and knowledge sharing
- Improved understanding of the ecosystems/evidence based decisions required

#### ***Some additional key points***

Port Lincoln: climate related impacts had a significantly higher focus during this set of meetings than was the case in earlier meetings.

Fisheries: growing concern with regard to the potential large increase in shipping and possible impacts arising from this.

## General Observations

There are regional differences. However, these were less pronounced than in Phase 1. The focused input and feedback from the knowledge review, and research to date, was expected to help inform discussion and this effect was noticeable in the wide ranging informed commentary - e.g. discussion of broad system plus specific issues.

The priority placed on global drivers has shifted. This could be partially the explicit framework of the workshops although, given Phase 1 asked individuals to prioritise issues including climate change concerns and global drivers, the observed priorities represent a shift. Noticeably, climate change and its impacts are far more prominent - previously this was a lower focus in Port Lincoln.

Cuttlefish remain a high profile, high priority issue. The topic was universally raised, and discussed, throughout all formal workshops and formal/informal group and individual meetings.

Sustainable development, the underpinning value of the environment, and the social and economic values are emphasised and broadly shared across sectors and the community. How people perceived environmental and social values – the bigger picture of what stakeholders, regardless of background or industry/government/non government group saw as important – was similar. The similarity was sufficient for several people to highlight this commonality of outlook in conversation resulting in wide agreement.

## Government Input

The stakeholder workshops included a specific South Australian government agency forum (in addition to participation from such individuals at other meetings). The workshop targeted input from multiple departments to consider the usefulness of this program and how it can best address cross government priorities in line with the overall aims of the initiative.

Feedback, from the workshop, focuses on the potential for the initiative's work to enable good decisions across government. Participants considered how decision-makers could use the work of the Initiative, the important role information plays within agencies and discussed regulation alongside some model case examples that should be considered so that the Gulf's environment and uses are managed optimally.

## Good Decisions

The initiative, its research and structured decision-making process was generally viewed as strong positive input for cross government agencies. Outcomes may include:

- Red tape reduction for government and stakeholders
- Forward planning potential particularly on shipping and aquaculture
- Transparency - arising from data quality and provision of justification for decisions
- A process that enables adaptive management for government to respond to continually evolving circumstances
- If we can get this right it gives the State a competitive advantage
- A strong stakeholder map
- Long term sustaining of data and information – this creates knowledge
- It develops understanding around current baseline and values alongside the tipping points (thresholds, values – social, economic, environmental) that affect these values
- Consistent set of information across agencies for them to evaluate existing and new proposals and evaluate trade-offs of values for each agency

## How will this be used by Decision Makers

To realise the outcomes outlined by government a range of discussion focused on how the initiative's information, tools and processes can be utilised by decision makers. There is scope for this to be integrated with agencies and for this to deliver substantial benefits. However, there are many questions around how best to operationalise such integration – both between the initiative and agencies and across agencies.

Considerations within government include:

- Who would be the lead agency to drive and maintain framework – DPC? Each agency does own job – but needs someone overseeing. Should there be an inter-government working group (e.g. similar to cuttlefish working group)? Used to be group – Marine Managers Forum – drive decision-making across State (integration/coordination – framework to come together across agencies). Would such a model be suited for current circumstances?
- Possibly need an overarching organisational structure or review board whose job it is to be accountable and responsible for delivering outcomes across the whole of government for proposals. Or, need a top down review process that goes beyond the individual projects to treat the region of concern as a whole across jurisdictional boundaries
- Agencies can bring this to the project, but resources in agencies difficult to set aside (in kind resources to interface with project required upfront and now!)
- Align government agencies (DPTI focusing on building ports, EPA saying take care – do we understand impacts yet)
- The issue of compartmentalisation of proposals means that they are all considered on individual merit independent of other proposals – the initiative addresses cumulative stress but how is this best considered in the government regulatory framework

## Good Information

Specific points about the usefulness of good information were commonly raised during the workshop. These include:

- Shared datasets critical
- Recognise need more information into pre-competitive data space (e.g. minerals exploration – submit cores and once lease lapsed can use)
- Legacy of data – ensure data is in long-term databases, baseline information – modelling, policy, cumulative impacts /risk areas
- Where is social and economic inputs to evaluate different scenarios for new development applications? Baseline assumption that the environment is an asset and it needs to be maintained, need to identify all the costs of decisions that lead to change and what the consequences of reaching a threshold, i.e. changing the system past a tipping point
- Values for ecosystem services e.g. loss of seagrass leading to loss of beaches and beach remediation program

## Other

Other discussion centred around the GBRMPA model and usefulness of looking at it. The BP GAB project was discussed noting it had one core investor (BP) and consequently less complex cumulative and competing considerations. Specific regulation and data points included:

- The need for a database like SARIG database
- A legislative requirement for information to be deposited in government databases for this to work
- EPBC Act 1999
- Animal Health Act (Aquatic animal disease)

- Spencer Gulf – cross jurisdictional boundaries
- NSW – Marine estate agency

## Structured Decision-making Overview

In order to prioritise and engage in effective research the Spencer Gulf Ecosystem Development Initiative has adopted an approach known as *structured decision-making*. This is adopted as the initiative is engaging in environmental challenges that are not always clear – we don't know all the likely consequences of many potential stresses on the Gulf's systems. Consequently, we are faced with a set of choices. The correct choices are fuzzy, which is to say the science is inherently uncertain although a great deal can be researched to enable wider understanding of the system. However, an additional factor is that stakeholders, and the community, have a range of emotional connections with the Gulf and activities based on it, as well as differing values. We not only prioritise different outcomes, over different timescales, but humans are known to make sense of evidence, environmental and social information in markedly different ways.<sup>1</sup>

As a result of human nature, some of what we value may be entrenched and fixed. Many perspectives, however, are likely to change as knowledge is developed enabling a greater understanding of the Gulf. Consequently, the initiative needs informed decision-making such that the evidence it develops is useful, is seen as relevant and, it addresses community and stakeholder needs.

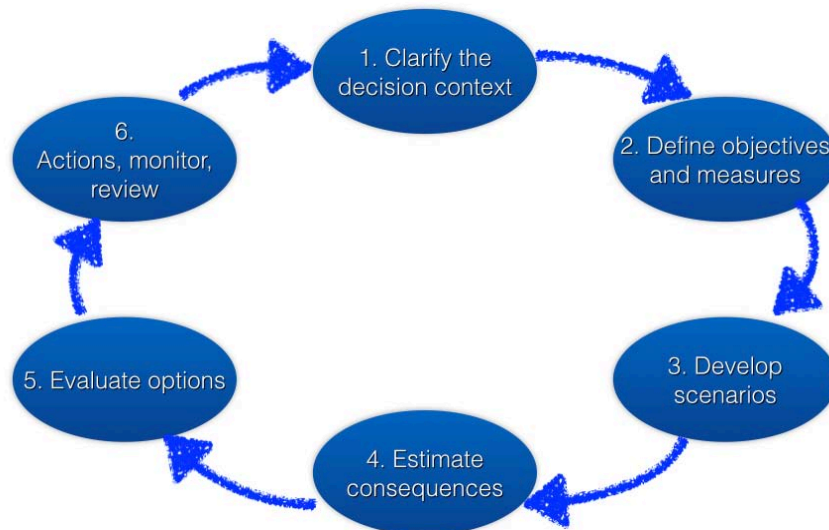
To cater for this diversity the initiative uses the structured decision-making steps below:

1. What is the context for (scope and bounds of) the decision?
2. What objectives and performance measures will be used to identify and evaluate the alternatives?
3. What are the alternative actions or strategies under consideration?
4. What are the expected consequences of these actions or strategies?
5. What are the important uncertainties and how do they affect management choices?
6. What are the key trade-offs among consequences?
7. How can the decision be implemented in a way that promotes learning over time and provides opportunities to revise management actions based on what is learned?

This process is illustrated in the figure below.

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<sup>1</sup> See constructed and worldview perspectives such as Slovic 1995; O'Brien and Wolf 2010; Divecha and Brown 2013.



*Structured Decision Making: A Practical Guide to Environmental Management Choices. Adapted from Gregory et al. (2012)*

## Progress

### ***The context for (scope and bounds of) the decision***

This first stage is largely complete. Context is described, with the stakeholder and community input outlined, in the science and knowledge review<sup>2</sup>. It is expected that the outcomes from a successful process will include:

- Clearer development pathways with potential to reduce costs and time delays while ensuring the likelihood of better outcomes;
- Information, data, tools, capabilities and networks to assist management and decision making in the Gulf - especially as its environment will change regardless of local human and development activities;
- Community and public awareness and evidence to allow independent understanding of the Spencer Gulf - including through University of Adelaide researchers, Marine Innovations South Australia and open information; and,
- Collaborative development across research, industry, community, government, non-government and other stakeholders such that a vibrant sustainable economic and environmental future for the region can be realised.

### ***Objectives and performance measures***

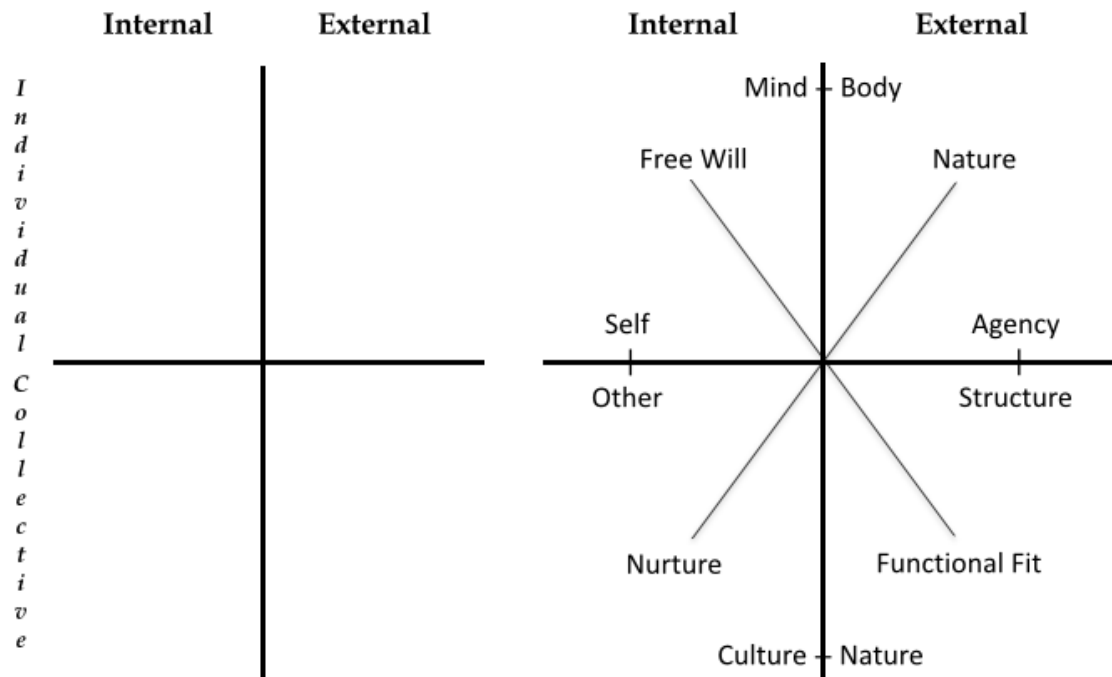
The second step is the current process. These workshops and meetings have been part of making clear and explicit subjective bases for any future difficult choices. This step is seeking to explicitly articulate the subjective values as this is essential for an effective decision-making process. The analytical framework to assist this is the quadrant structure (outlined in the previous section) that

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<sup>2</sup> Gillanders et al. (2013) Spencer Gulf Ecosystem & Development Initiative: Report on Scenario development, Stakeholder workshops, Existing knowledge & Information gaps.

shows individual and collective, subjective and objective perspectives explicitly. This structure highlights such values. This is intended to enable consideration of values along with transparency. The structure additionally helps to highlight some of the key tensions between the perspectives represented by each quadrant. Such differences are often involved with environmental decision-making and implicit in conflicts surrounding some decisions.

These quadrants and tensions are illustrated in the figure below.



Source: Esbjörn-Hargens, *TetraDynamics: Quadrants in Action* (2014)

## Next Steps

Outcomes from this process will be used to inform the program - steps 3 to 6 as above. As is illustrated by the structured decision-making circular diagram however this process is an iterative one. We expect to continue to engage all stakeholders to inform the work of the initiative throughout the life of the program.

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