

# NATIONAL ESD FRAMEWORK PROJECT

## Case Study Information Package

FRDC PROJECT TEAM

VERSION 3

October 2003



**This set of Case Study Guidelines is part of an on-going process to develop a reporting framework for ESD and fisheries within Australia. It is not the final version and changes are made regularly after case studies have shown areas where improvements can be made.**

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**Whilst this project is being run under the auspices of the SCFA, it should not be seen as being the policy of any one fisheries management agency.**

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Version 3 October 2003**

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## Overview

### ESD

Ecologically Sustainable Development (ESD) is defined as:

*‘using, conserving and enhancing the community’s resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased’*

ESD recognises the need to integrate short and long term economic, social and environmental aspects and is now in most fisheries legislation in Australia. Management agencies are, therefore, accountable for achieving these objectives a fundamental component of which is the measurement and reporting of performance against the objectives of ESD.

The urgency to develop a comprehensive and practical reporting system for ESD has increased substantially in recent years. A reporting system will be needed to meet jurisdictional responsibilities and community expectations. In doing it should also assist in meeting the requirements of other agencies (e.g. assessments under Schedule 4 of the *Wildlife Protection (REI) Act* and the *Environmental Protection and Biodiversity Conservation Act*) and assist satisfying various certification and market access schemes. As a consequence, the SCFA<sup>1</sup> initiated a process to begin the full implementation of ESD for Australian fisheries

### SCFA

The Standing Committee on Fisheries and Aquaculture (SCFA) comprises the heads (i.e. Directors – Chief Executive Officers) for each state, territory and commonwealth fisheries agency. It has the primary coordinating role for fisheries management at the national level which included the establishment in October 1999 of a Sustainability Indicators Working Group. This group is tasked with facilitating the development of a nationally agreed approach to ESD reporting on fisheries. This Working Group identified 3 key research tasks:

- Application of draft ESD objectives and indicators using case studies
- A Workshop based around the case studies
- An “Initial National Application” report of the ESD criteria and indicators for Australian fisheries

The SCFA reports to the Ministerial Council on Forestry, Fisheries and Aquaculture (MCFFA). This council includes all relevant fisheries Ministers from the state, territory and federal government levels. The MCFFA is being fully briefed on the ongoing progress of the ESD working group in the development of nationally agreed sustainability criteria and indicators.

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<sup>1</sup> The Standing Committee on Fisheries and Aquaculture (SCFA) is now the Australian Fisheries Management Forum (AFMF).

## **Geelong Workshop**

Strong support was obtained from all stakeholder groups for the SCFA approach at an FRDC funded workshop on ESD and Fisheries held in Geelong during March 2000. There was also a clear endorsement for the development of an ESD Reference Group to ensure that there was ongoing stakeholder involvement which would allow national agreement on ESD assessments to be obtained. Consequently, an ESD Reference Group has been established which comprises representatives from the commercial seafood industry (ASIC), indigenous interests (ATSIC), recreational fishing (RecFish), aquaculture (WACA), Environment Australia (EA), FRDC and environmental groups (Traffic, WWF) and experts in economic and social research.

Following funding by FRDC, the ESD Reference group met with the SCFA working group in early June 2000 to discuss and agree on the terminology, the conceptual framework – including the identification of 8 key components of ESD for fisheries – and a draft reporting framework. This reporting framework was “road tested” during the first series of 8 case studies and modified following a workshop review of the outcomes.

## **Case Studies**

The purpose of the case studies is to test the application of the ESD reporting framework. The report that will be developed for each case study should be viewed as the beginning of a process of continual improvement, not the completion of the task. It will not be feasible or sensible during a case study meeting to fully develop all the agreed objectives, indicators and performance measures for issues. The reports from each of the meetings should identify the issues within each of the 8 key ESD component areas, have completed at least a partial risk assessment on these issues and provided some examples of performance reports including specific objectives, indicators, performance measures. This will need subsequent development and endorsement.

Consequently, the case study meetings will:

1. Adapt the “generic components” agreed to by the SCFA-ESD Reference group (see Appendix 1) into an agreed set of component trees specific to the fishery being examined.
2. Conduct a Risk Assessment on the Environmental issues and prioritise the social and economic components
3. Provide examples on the performance report sections.
4. Demonstrate how this information can be used to generate an application to EA under their guidelines.

It is expected that each case study meeting will be held over two days to develop and explore the issues for a fishery. The participants at these workshops should include the project team, a local case study manager and relevant stakeholders in the case study fishery. These should include representatives of the commercial fishery, research, management, compliance, local conservation, indigenous groups, recreational groups and other relevant government agencies (e.g. state EPA and EA).

## Background

### *What is ESD?*

The concept of sustainable development dates back to the 1987 report of the World Commission on Environment and Development *Our Common Future*. In 1990, the Commonwealth Government embarked on a process of defining ESD (Ecologically Sustainable Development) and established nine ESD Working Groups, including one on Fisheries. The reports of these groups provided the foundation for the National Strategy for Ecologically Sustainable Development (NSESD), which is the major policy document for ESD. The strategy was endorsed by all Australian Governments in 1992.

*The definition of ESD recognises the need to integrate short and long term economic, social and environmental aspects such that we should be:*

**‘using, conserving and enhancing the community’s resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased’.**

The core objectives of the National Strategy on Ecologically Sustainable Development are:

- To enhance individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations
- To provide for equity within and between generations
- To protect biological diversity and maintain essential ecological processes and life-support systems

### **The Strategy embraces the following guiding principles:**

- Decision making processes should effectively integrate both long and short-term economic, environmental, social and equity considerations
- Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation
- The global dimension of environmental impacts of actions and policies should be recognised and considered
- The need to develop a strong, growing and diversified economy which can enhance the capacity for environmental protection should be encouraged
- The need to maintain and enhance international competitiveness in an environmentally sound manner should be recognised
- Cost effective and flexible policy instruments should be adopted, such as improved valuation, pricing and incentive mechanisms

- Decisions and actions should provide for broad community involvement on issues which affect them

These guiding principles and core objectives need to be considered as a package. No objective or principle should predominate over the others. A balanced approach is required that takes into account all these objectives and principles to pursue the goal of ESD.

### *Why are we Reporting on ESD?*

Since the national strategy for ESD was developed in 1992, ESD has become, either explicitly or implicitly, a major objective within most fisheries acts in Australia and therefore management agencies are accountable for achieving these objectives. A fundamental component of this accountability is the measurement and reporting of progress against the objectives of ESD.

Whilst the objectives of ESD, which include intergenerational equity and the maintenance of ecosystem functions, are simple in concept, the development of a comprehensive set of working definitions has proved difficult to complete. Most fisheries agencies have measures for some components, particularly those related to the target species but without clear definitions and measures for all aspects of ESD, agencies risk being unable to demonstrate that they are achieving or even pursuing ESD objectives. This proposal by the SCFA, to develop a national system to assist the reporting of ESD for Australian fisheries, forms a major turning point in fisheries management. The project has been signed off by all fisheries agencies and, importantly, received strong support from the stakeholders present at the recent Geelong workshop on ESD and fisheries. The case studies from an integral part of the SCFA scheme to develop the ability to report on ESD and it is important to describe how it relates to and, more importantly, compliments other activities.

The increasing levels of activity and proposals being generated and the breadth of issues associated with ESD have combined to make the situation difficult to put all aspects into perspective. The recent ESD Workshop provided the opportunity to clarify the situation and show how the various elements fit together. The elements fall into three main categories – **Issues and Needs** (why we need to work on ESD?), **Reporting Requirements** (what needs to be reported, and how we go about it?) and the **Response - Improvements** (what can we do to get better in our fishing/management practices).

The urgency to develop a comprehensive and practical reporting system has increased substantially in recent years (Table 1). The requirements for assessment include the need for third party Government Auditing that result from Environment Australia (EA) amending Schedule 4 of the *Wildlife Protection Act (1982)*, which now requires assessment against a set of guidelines to allow continued export approvals, plus the introduction of the *Environment Protection and Biodiversity Conservation Act* in July 2000, each of which was implemented as part of the Oceans Policy strategy.

There are also requirements within each jurisdiction to meet government commitments to ESD. In particular, some jurisdictions are required to report on the

performance of fisheries to other agencies within their government (e.g. EPA, Audit Office).

Finally there are also developments associated with gaining market access or increased leverage for industry by obtaining environmental accreditation for their products. Consequently, there are a large number of reasons why ESD assessments need to be completed, but an even greater need to ensure that the reporting schemes developed are sufficiently comprehensive to restrict the level of duplication.

**Table 1. Summary of Issues/Policies**

<b>Pressure</b>	<b>Requirements</b>	<b>Agency Responsible</b>
Legislative Commitment to ESD and Fisheries	Government Policy	Each Fisheries Jurisdiction
Community Expectations and Auditing	WPA, EPBC, EPA, Oceans, SCFA, Policy etc	Other Govt. Agencies, NGOs and Industry
Market Access/Leverage	Environmental Accreditation	MSC, ISO, NGOs, Markets Industry

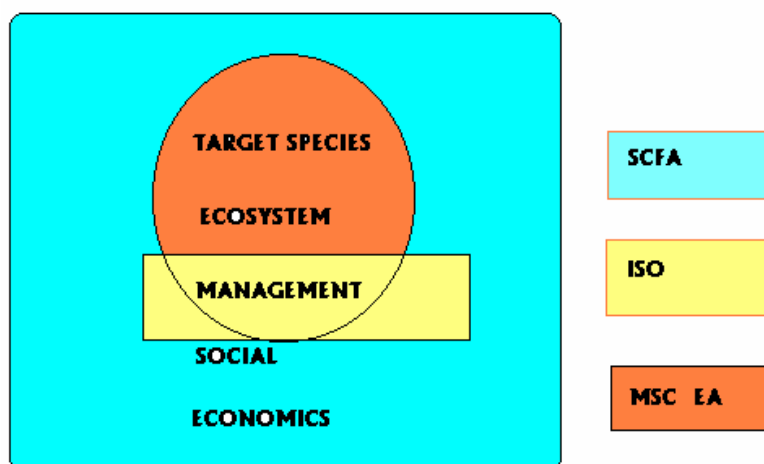
The SCFA has, therefore, embarked on a program to develop a nationally agreed system for ESD reporting system on Australian fisheries and aquaculture. A central part of the development of this reporting system will be to conduct a series of case studies. This package provides the basic information on how each of these case studies will be completed.

### *What Components need to Assessed by ESD Reporting?*

ESD covers a very broad range of issues, so much so that it can be argued that everything fits within these principles. Consequently, there is a clear need to define ESD within the context of fisheries management. This clarification includes subdividing ESD into a number of components which includes the target (retained) species, the ecosystem (e.g. non-retained species, trophic level/habitat impacts), social and economic issues and also management/governance arrangements. The SCFA conceptual framework covers all these components to fully meet the commitment to ESD. The other requirements listed in Table 1 do not cover all these components. Thus, assessments for ISO 14000 and Codes of Conduct largely focus on management arrangements, they assume user nominated objectives/targets. Assessments completed under the Marine Stewardship Council address the target species, the ecosystem and some management arrangements. A similar subset of issues is assessed by Environment Australia for the both the *WPA* and *EPBC*.



**Figure 1. Comparison of Assessment Schemes and the ESD Components**



### **History of the SCFA - FRDC Project on ESD**

At its planning session of 19-20 July 1999, the Standing Committee on Fisheries and Aquaculture (SCFA) agreed to establish a Sustainability Indicators Working Group to facilitate the development of nationally agreed criteria and sustainability indicators, building on the previous work of the SCFA Research Committee which had begun this process in mid 1998. The Working Group is composed of a mix of members from the SCFA, Policy Committee and Research Committee, to ensure the rapid development of a unified approach across jurisdictions.

The SCFA Working Group endorsed 3 key research tasks based upon the July 1999 Research Committee report:

1. Application of draft ESD objectives and indicators using case studies
2. A workshop based around the case studies
3. An "Initial National Application" report of the ESD criteria and indicators for Australian fisheries

This workplan of closely related tasks was designed to enable the efficient development of an effective ESD reporting system. These activities have been developed to compliment the ESD work that has already occurred (e.g. CSIRO review), is currently underway (e.g. ISO 14000 assessments) or is planned (e.g. FRRF & other FRDC applications).

To achieve the desired result within the timeframe available, it was recognised that it will be necessary to take the pragmatic approach of utilizing existing data and information sources. Furthermore, the case studies will be completed using the appropriate fisheries management entity as the unit being examined (i.e. not species or regions). Reporting at the fishery level allows a direct link between reporting on performance and the taking of management actions to improve performance (Chesson et al. 2000)

The first series of case studies concentrated on commercial fisheries. Nonetheless, it was recognised that even within this sector it is impractical to expect that a single set

of indicators will be appropriate for all fisheries. Rather, a variety of issues will need to be addressed with a variety of operational objectives, indicators and performance measures needed for different fishery types. It was deemed logical that a suite of options be developed; one for each of the main fishery types (e.g. trawling, line, potting, netting mixed – data rich and data poor). This matrix approach should maximise the relevance of the issues assessed and the indicators that will need to be measured. A similar series of options will be developed later using case studies for aquaculture, recreational fisheries and traditional<sup>2</sup> fisheries.

The relationships between this proposal and other ESD related activities were outlined at the ESD Workshop held at Geelong in March 2000. Specifically, it was highlighted where obvious synergies could be developed between this study and other proposals, such as FRDC Project 2000/146, which seeks to provide assistance to the commercial fishing industry to improve their environmental management standards.

There was strong support from all stakeholder groups at the Geelong Workshop for the SCFA approach. There was also clear endorsement given for the development of a Reference Group to ensure that adequate stakeholder involvement continued. A high level of stakeholder involvement was considered crucial to ensure that there would be national agreement on the development of any system for ESD assessment.

To facilitate this involvement an ESD 'Reference Group' has been established to work with the SCFA Working Group. This reference group is one of the main mechanisms being used to ensure that there is adequate stakeholder involvement at all levels for this project. The other mechanism will be to involve local stakeholders in each of the case studies.

## **Stakeholder Involvement**

### **The ESD Reference group**

The composition of the ESD Reference Group was discussed at the Geelong ESD Workshop and subsequent meetings. The ESD Reference Group now includes representatives from other relevant areas of government (EA), commercial industry (ASIC), indigenous interests (ATSIC), recreational fishing (RecFish), aquaculture (WACA), FRDC and environmental groups (Traffic, WWF) and experts involved in social and economic research. The national peak body representatives on this reference group are expected to report to their relevant state affiliates.

The ESD Reference Group will continue for at least the duration of the current project (18 months) and will meet at least twice a year. The first meeting was held in early June 2000.

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<sup>2</sup> A traditional fishery is defined as fishing/collecting by Aboriginal and Torres Strait Islander people in accordance with their traditions.

## Local Stakeholders

Along with the project team, local stakeholders will play the key role in completing each case study. The local participants at these workshops will include a local case study manager (most likely to be the relevant fisheries manager) with other relevant stakeholders including representatives from the fishery/industry being assessed (e.g. Management Advisory Committee members), researchers, management and compliance staff, local conservation groups, relevant indigenous groups and recreational groups. In addition other relevant government agencies (e.g. state EPA) should be involved. There should also be participation by EA in each of these case studies.

The local case study manager will have the primary role in identifying which stakeholder groups need to be invited but where appropriate, the assistance of the Reference Group could be sought to help identify the appropriate participants.

A strong level of local involvement is vital to ensure that the results of each case study will be relevant to local conditions/regulations/issues etc. It will also assist in the transfer of this methodology and increase awareness of the ESD project.

## Agreed Terminology

ESD is a very complex issue that is made more confusing by the large reliance on terms and jargon. This confusion can be even greater if terms used are not defined adequately. Thus, the many terms associated with ESD are often used interchangeably, sometimes in the same document. In particular, terms such as principles, objectives, goals and criteria are often used to mean the same thing. Moreover, confusion in terminology also arises when the adjective ‘sustainable’ is combined with other words to give terms such as “sustainable fishery”, “sustainable stock”, “sustainable fishing”, “sustainable management”, and “sustainable catch”. The word “sustainable”, can however, have very different meanings to different people and such terms are therefore useless unless they are defined precisely to avoid misunderstanding.

It was considered vital to develop a list of definitions that included simple, minimalist terminology to assist communication during the implementation of the ESD initiative of the SCFA. Whilst alternative definitions are possible, for the purpose of this exercise the SCFA Working Group and the Reference Group have agreed on the following definitions that were developed by BRS.

**Table 2. Standard Definitions for ESD Terms**

<b>Sustainable development/ ecologically sustainable development</b>	Using, conserving and enhancing the community’s resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased (National Strategy for Ecologically Sustainable Development, Council of Australia Governments, 1992).
<b>Sustainable fishery</b>	A fishery that is consistent with ecologically sustainable

	development (i.e. a fishery that uses, conserves and enhances the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased.)
<b>Fishery</b>	A unit determined by an authority or other entity that is engaged in raising and/or harvesting fish. Typically the unit is defined in terms of some or all of the following: people involved, species or type of fish, area of water or seabed, method of fishing, class of boats and purpose of the activities.
<b>Component</b>	A major area of relevance to fisheries with respect to ESD (e.g. Target species, bycatch species, marine environment, resource use/allocation, employment, income, lifestyle/culture, governance)
<b>Sub-component, sub-sub-component, etc</b>	Further sub-divisions of the components
<b>Core objectives</b>	Core ESD objectives for fisheries (also sometimes called principles)
<b>Operational objective*<sup>3</sup></b>	An objective that has a direct and practical interpretation in the context of a fishery and against which performance can be evaluated (in terms of achievement)
<b>Indicator*</b>	A quantity that can be measured and used to track changes with respect to an operational objective. The measurement is not necessarily restricted to numerical values. For example, categorical values may be used.
<b>Performance measure*</b>	A function that converts the value of an indicator to a measure of management performance with respect to the operational objective (can be a limit, a target a trend etc.)
<b>Reference point</b>	The value of an indicator that can be used as a benchmark of performance against an operational objective.

\*Note: the operational objective, indicator, and performance measure (or some other form of interpretation) are a package. Each of the three elements of the package is essential to properly define and interpret an indicator. One or more reference points may form part of the description of the performance measure.

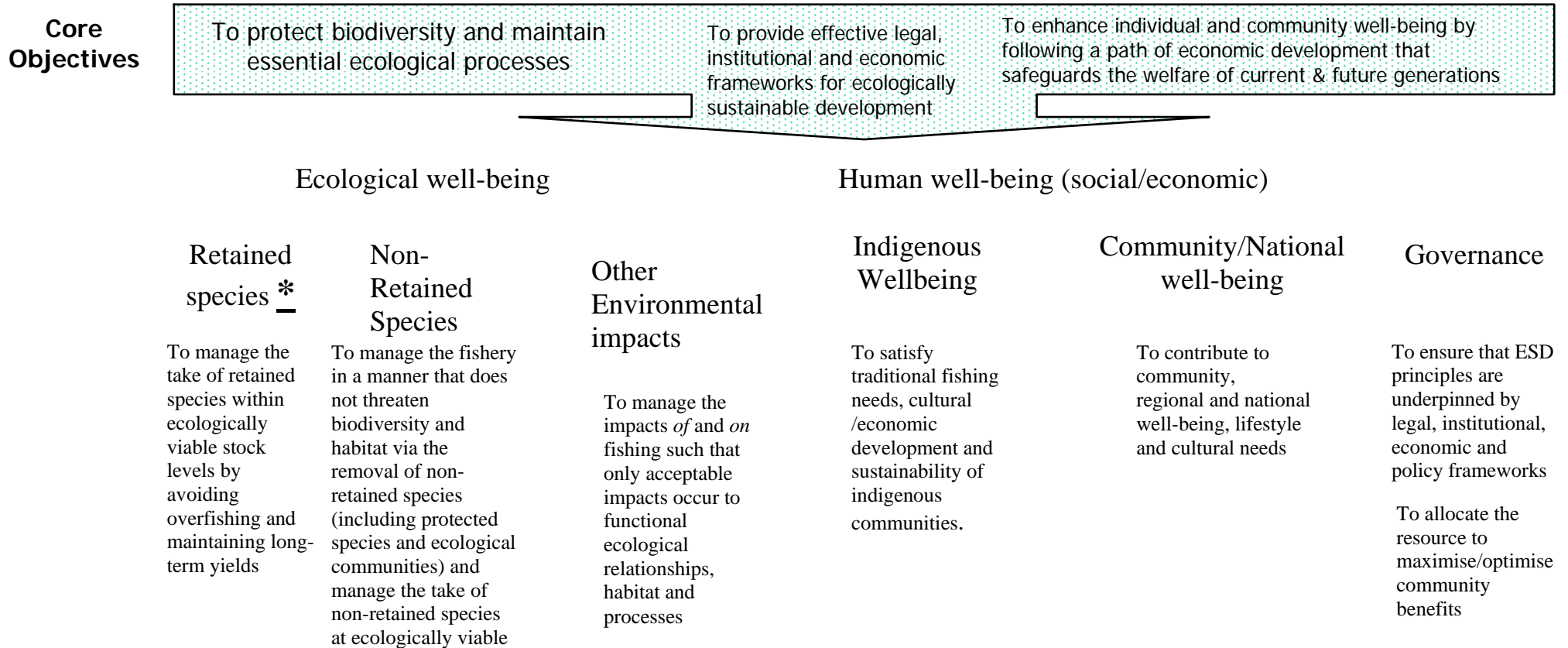
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<sup>3</sup> An objective can be made into a criterion by re-wording and replacing "to .. " with "should" or "must"

**Diagram of the National Conceptual Framework For ESD**

**Conceptual Framework for the Ecologically Sustainable Development of Australian Fisheries**

The core objectives for sustainable fisheries are:



\* note: these components/objectives will have little application to the aquaculture sector

## National ESD Reporting Framework

### Ensuring Reporting Consistency

A major factor in determining the successful development of a national system for reporting on ESD is the reporting framework that will be used. The system needs to be sufficiently flexible to allow for the variations in issues that affect each fishery to be included whilst recognising the need to ensure that where possible, issues are treated in a consistent manner.

The reporting arrangements that have been developed for this project incorporates the information and processes already available from previous studies. Thus we have drawn heavily on the work that has been done on ESD reporting by the Bureau of Rural Sciences (see Chesson and Clayton 1998, Whitworth and Chesson 2000) and the FAO report on sustainability indicators for fisheries (FAO, 1999). Where relevant, we have also included aspects of the reporting arrangements already in place within many jurisdictions. To assist in this process, the SCFA and the ESD Reference group agreed on a number of factors that need to be considered when reporting on any of the components in an assessment. These are listed in Table 3.

**Table 3. Factors to be considered/addressed when reporting on issues**

- **Does performance on the issue ensure that the options available to future generations are not unreasonably constrained?**
- **What information/understanding do we have about the issue?**
- **What research/monitoring system do we have in place to address the information/understanding gaps?**
- **What management systems are in place to address the issue in the light of existing information/understanding?**
- **What external drivers impact upon this issue, for example, habitat degradation, water quality and exotic species and how are these impacts addressed through the management system for the fishery, or other management systems?**

Additional issues that also need to be considered include:

- Determining the relative risk and prioritisation of issues.
- The cost effectiveness of undertaking any proposed management action – including collecting research information and the costs associated with compliance.

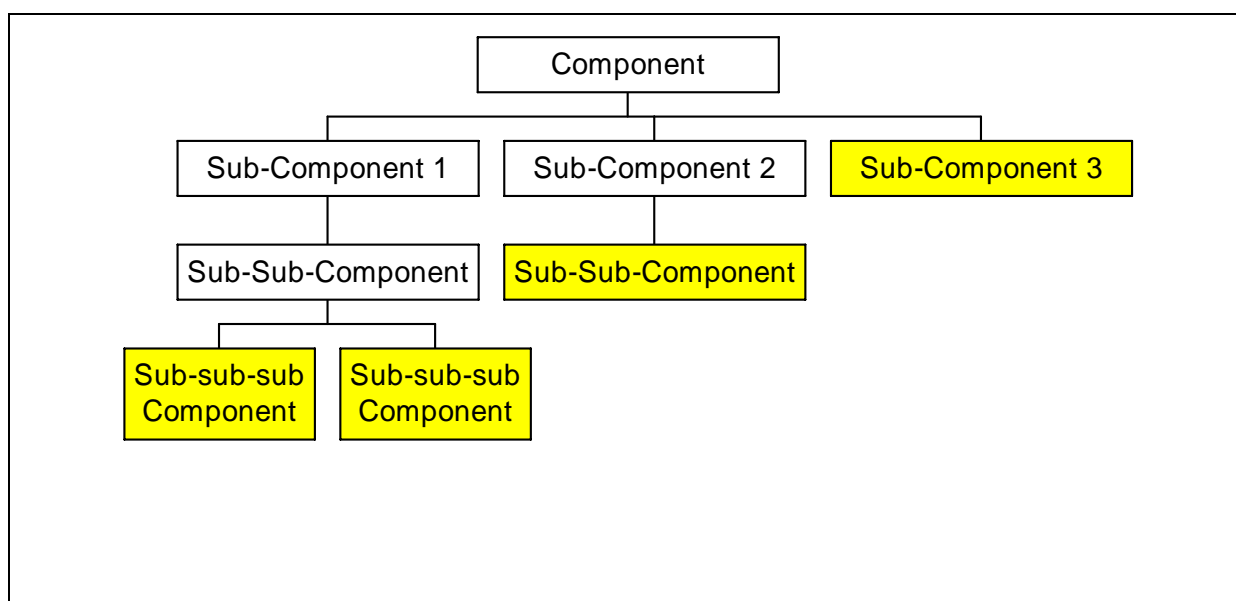
There are now three actions required to complete an ESD report:

1. Adapt the 8 generic component trees into a set of issues specific to a fishery.
2. Conduct a Risk Assessment on each of the Environmental issues identified and prioritize social and economic components
3. Complete a performance assessment report for each of the identified issues using a standard set of report headings or provide the justification as to why this was not required (e.g. for the low risk, low priority issues).

## Component Trees

In order to develop sensible indicators, the components/criteria will have to be further broken down into more specific sub-components for which ultimately operational objectives can be developed. The method adopted to facilitate this flexibility is the BRS component tree design. This design is very flexible and has already been shown to be applicable to completing reports on ESD for commercial fisheries (Whitworth and Chesson 2000).

**Figure 2: BRS Component, Sub-component Tree Structure**



The eight major components fall into three categories of the “contributions to ecological wellbeing”, “contributions to human wellbeing” and the “management arrangements” available to achieve the objectives (see Fig 3). Each of these 8 major components is broken down into more specific sub-components for which ultimately operational objectives could be developed.

*Figure 3: The Eight Main ESD Reporting Components*

Contribution to Ecological Wellbeing
1. <i>Retained Species</i>
2. <i>Non-Retained Species</i>
3. <i>Other Environmental Issues</i>
Contribution to Human Wellbeing
4. <i>Indigenous Community Issues</i>
5. <i>Community Issues</i>
6. <i>National Social and economic Issues</i>
Ability to Achieve
7. <i>Impact of the environment on the fishery</i>
8. <i>Governance</i>

To maximize the consistency of approach amongst different fisheries, the issues that were raised by the SCFA and the ESD reference group under each of the eight main components were arranged into a series of “generic” component trees (Appendix 1). These generic trees are used as the starting point for each assessment and are subsequently adapted into trees specific for each fishery during an open consultative process involving all stakeholder groups.

This is achieved by expanding (splitting) or contracting (removing/lumping) the number of sub-components as required. For example, an abalone fishery is unlikely to require a number of the generic sub-components (e.g. bait collection, ghost fishing). Whereas a trawl fishery may require the impacts on benthic biota to be assessed by dividing this issue into different habitat categories.

### **Risk Assessment/Prioritisation Process**

After the components/issues are identified, a process to prioritise each of these needs to be completed. For all of the environmental issues in the 4 relevant component trees, this should be done using a formal risk assessment process. The risk assessment framework that could be applied at the workshop should be consistent with the Australian Standard AS/NZS 4360:1999 Risk Management, concentrating on the risk assessment components.<sup>4</sup> This RA process is well documented but in summary, it considers the range of potential consequences of an issue/activity and how likely those consequences are to occur. The combination of the level of consequence and the likelihood is used to produce an estimated level of risk associated with the particular hazardous event/issue in question.

A realistic estimate should be made by the group of the possible consequence level of an issue. This level can be from 0-5, with 0 being negligible and 5 being catastrophic/irreversible (see Appendix 3 for details). This assessment needs to be

<sup>4</sup> Almost universally, however, the target species should be classified as at least a moderate risk because some form of management response will be needed and hence performance assessed.



based upon the combined judgement of the participants at the workshop who collectively should have considerable expertise in the areas examined.

The level of consequence needs to be determined at the appropriate scale for the issue. Thus for target species you assess the consequence of a fishery on the population not at the individual level, obviously catching one fish is always catastrophic for the individual but not always for the population. Similarly, when assessing possible ecosystem impacts this should be done at the level of the whole ecosystem or at least in terms of the entire extent of the habitat, not at the level of an individual patch or individuals of non-target species.

The likelihood of a consequence occurring is assigned to one of six levels from remote to likely. In doing so, the workshop group should again consider the likelihood of the “harzardous” event (consequence) actually occurring based upon their collective wisdom which includes an understanding of the scale of impact required.

From these two figures (consequence and likelihood), the overall risk level, which is the mathematical product of the consequence and likelihood levels ( $\text{Risk} = \text{Consequence} \times \text{Likelihood}$ ), can be calculated. Finally each issue can then be assigned a *Risk Ranking* within one of five categories: Extreme, High, Moderate, Low and Negligible (see Table 4)

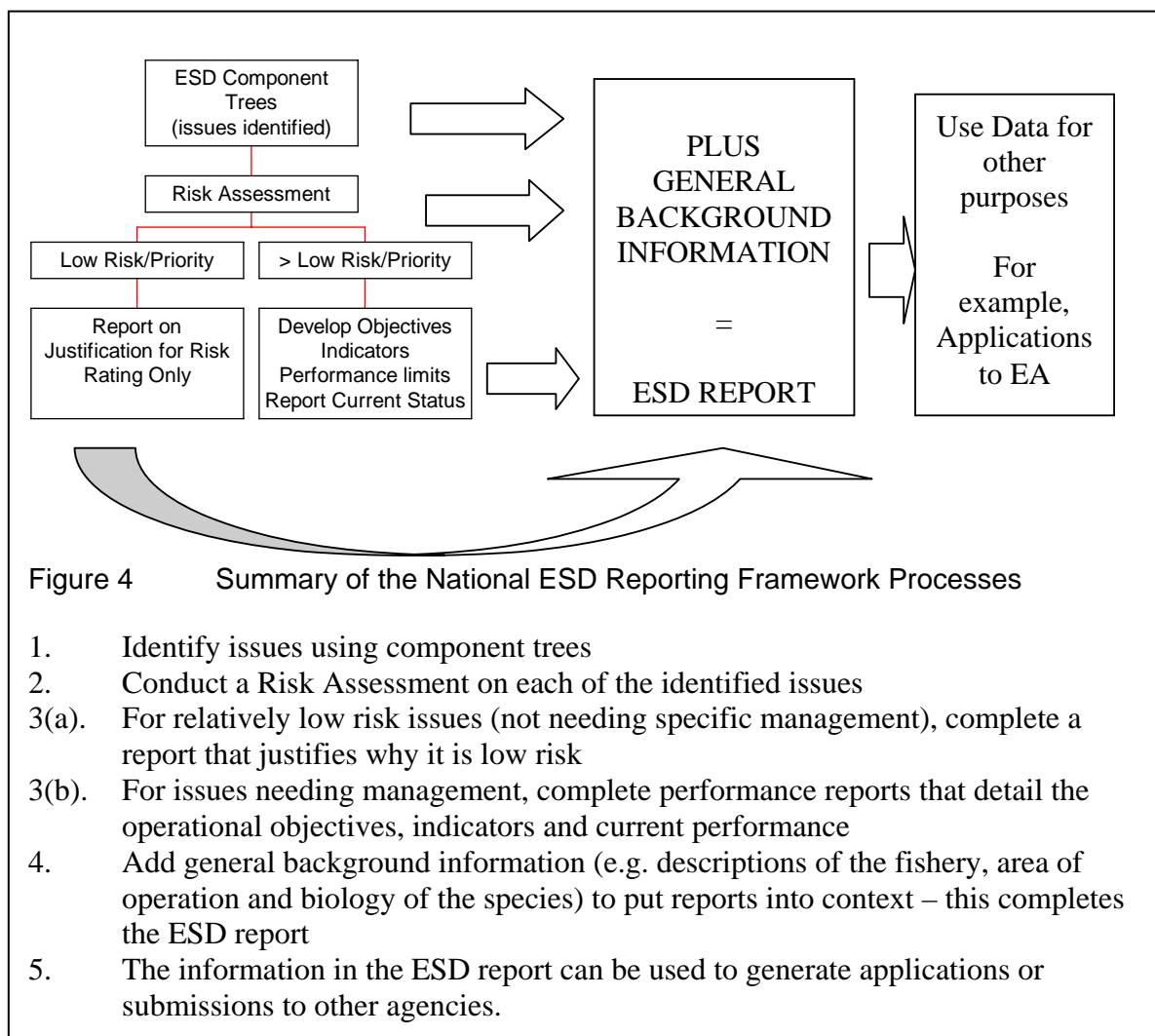
**Table 4– Risk Ranking Definitions**

<b>RISK</b>	<b>Reporting</b>	<b>Management Response</b>
Negligible	0 Short Justification Only	Nil
Low	1 Full Justification needed	None Specific
Moderate	2 Full Performance Report	Continue Current Arrangements
High	3 Full Performance Report	Probable Increases to management
Extreme	4 Full Performance Report	Substantial additional management needed

This process should be completed for each of the identified issues with a risk ranking developed and the rationale for assigning these rankings recorded.

Only the issues of sufficient risk or priority (M, H E), and those that require specific management actions to achieve a low risk ratings will need to have a full performance

report completed. Nonetheless, the rationale for classifying issues as low risk/priority should also be documented and form part of the ESD report so that stakeholders can see why these issues were accorded these ratings. This is summarized in Figure 4



### Component/Performance Report Headings

For each of the lowest level or terminal sub-components identified as greater than a low risk/priority<sup>5</sup>, a detailed assessment report needs to be generated. The SCFA Working Group in conjunction with the ESD Reference Group has agreed upon a set of 10 standard headings that each needs to be completed (Table 4).

<sup>5</sup> Note, some low risk issues may still need to be reported because they are of high public concern

**Table 4: The list of agreed report headings**

1. Operational Objective (plus justification)
2. Indicator
3. Performance Measure/Limit (plus justification)
4. Data Requirements
5. Data Availability
6. Evaluation
7. Robustness
8. Fisheries Management Response
  - Current
  - Future
  - Actions if Performance Limit exceeded
9. Comments and Action
10. External Drivers

[A full description of these headings is located in Appendix 2](#)

Using the same reporting headings for each of the sub-components should:

- Assist in a consistency of focus and attention across all components/sub-components (especially into components/criteria where there is little existing experience with assessment).
- Allow for the separation of the discussions concerning performance measures from the discussions about the actual indicator.
- Allow for separation of what indicators can be used from the discussion of the adequacy of their measurement etc.
- Require a specific consideration of the management response. This should allow treatment for the situations where little data are being collected and assessed under a management strategy that can be shown to be safe (e.g. precautionary or robust).

It also provides a direct comparison between:

- • the level of understanding of an issue,
- • the risks associated with alternative management actions
- • the level of precaution currently being applied

The first step is to specify an operational objective for each sub-component (noting that by setting one objective you are probably influencing the performance of a number of other components). This objective needs to have a direct and practical interpretation in the context of the management of the fishery and, most importantly, performance needs to be measurable and auditable. This objective should also be consistent with, and clearly linked, to higher-level objectives that might appear in legislation, policy statements or management plans (i.e. provide the justification for selecting this objective compared to any other given the higher level objectives).

The indicator is the measure that is to be used to track changes with respect to an operational objective. The performance measure provides the information to enable interpretation of the indicator and can be expressed in terms of one or more reference points (e.g. biomass should remain as close as possible to x but no lower than y) or simply in terms of a trend (e.g. increasing is desirable, decreasing is undesirable).

The operational objective, indicator and performance measure are a package. All three are needed before any one of them is useful. Indicators by themselves (as used in some reporting schemes) are of little value because without an objective and performance limit, you cannot interpret performance.

In addition to stating the operational objective, indicator and performance measure, there are headings for data quality and availability, robustness of the indicator, management response, and external drivers. The inclusion of 'management response', particularly when it is discussed in relation to the data available, makes the explicit link between the operational objective, the measurement and reporting of performance and the action to be taken to maintain or improve that performance. This is an important distinction, and advantage of the SCFA framework, compared to other systems (Chesson et al., 2000).

In summary:

**Can you justify that the management actions you currently have in place are appropriate given the level of risk and current knowledge of the issue.**

It is envisaged that this reporting scheme for fisheries and aquaculture will evolve over time as experience and understanding of the issues increases. This process is unlikely to end quickly given that having been underway for over half a century, the standards and policies used to report on financial issues are still being modified to make them more relevant and effective. Effective fisheries indicators are unlikely to be less elusive.

## **Relationship of ESD Report with the Requirements of EA**

As stated above, there have been a number of changes made to Commonwealth environmental legislation that has implications for fisheries. The change to the *Wildlife Protection (Regulation of Exports & Imports) Act*, 1982 has resulted in the marine fish species which were previously exempt from any requirements under this act, now having to undergo environmental assessment to determine if continued exporting will be allowed. Similarly, the *Environment Protection & Biodiversity Conservation Act*, 1999 now affects all commonwealth fisheries requiring them to undergo a strategic assessment of their environmental performance. State and Territory fisheries may also be affected by this EPBC act if they impact upon "matters of national environmental significance", "commonwealth waters" and "protected species". The definitions for what will trigger these three issues are, however, rather vague.

The assessments that will need to be completed for each of these Acts requires submission of applications to EA against a set of guidelines for Sustainable Fisheries which were based largely on the MSC principles (see Appendix 8). The information required for these guidelines (if relevant) is covered by the retained species, non-

retained species, general ecosystem and a subset of the governance components within the SCFA framework.

To complete the applications to EA, one possible method is to use the ESD report as the general “CV” of the fishery and include a relatively short (10 page) application to EA as a “front-end” which specifically addresses each of their guidelines, principles and objectives (in a similar fashion as is normally used when applying for a job). These responses should provide a clear summary of the information required on each of the guidelines, referring, where necessary, to the more detailed description within the ESD report. Alternatively the text should explain why this criterion is irrelevant for this fishery (e.g. having a by-catch indicator species in an abalone fishery).

A generic EA application “front-end” has been drafted and is included in Appendix 8 as a starting point and can be modified according to the specific circumstances of the fishery. It is important to appreciate that completing this application to EA section should be a relatively quick activity (< 1 day) if an ESD report has already been completed.

The other alternative is to use the material generated in the ESD report as the basis for the completion of a stand alone report to EA.

## Local Case Studies

### Introduction

#### *Who do the local case study reports “belong” to?*

Each of the reports generated from the case studies belong to the specific jurisdictions where they are conducted, they do not belong to the project team, nor are they produced just for the project. The project team is largely providing a facilitating/advising role to assist jurisdictions complete the ESD reports that they need presumably for a variety of reasons (see Table 1).

Similarly, the ultimate decisions concerning what objectives, indicators and performance measures etc, and the outcomes generated, are the responsibility of the local stakeholders (this includes the local management agency). Thus, most of the preliminary and follow up work should be conducted locally. It also needs to be stressed that completing these reports should be seen as the start of a process of continual improvement.

#### *What do we want to complete during the meetings?*

What ultimately needs to be completed is a comprehensive report that should gather the information that can be used to satisfy as many external and internal requirements as possible (e.g. fishery legislation, local EPA, Schedule 4, EPBC etc.). It is, however, not feasible, nor even sensible to expect that we will be developing a complete ESD report for a fishery during a 2-day meeting. The general experience so far has been that there are few fisheries that have explicit operational objectives developed, especially outside of the retained species.

The processes that will be undertaken during the case studies will be to promote an orderly discussion and identification of the issues, try and assist in the prioritization of these issues and provide the framework for reporting on those that are of high priority. To this end, we are also not expecting to complete all sections of the report by the end of the case study meeting, much of this work will need to be completed out of session.

#### **During the case study meetings we want to:**

1. Adapt the “generic components” agreed to by the SCFA-ESD Reference group (see Appendix 1) into an agreed set of component trees specific to the fishery being examined.
2. Conduct a Risk Assessment on the Environmental issues and prioritise social and economic components.
3. Provide examples on the other sections of the report.
4. Demonstrate how this information can be used to generate an application to EA (MSC) under their guidelines.

**It is important to remember that the reports developed during the case studies should be viewed as the beginning of a process of continual improvement, not the completion of the task.**

## **Completion of Case Studies**

*How are these activities going to be completed?*

It is expected that each case study meeting will be held over two days to get the process of developing an ESD report off to a good start. The participants at these meetings should include the project team, the local case study manager and relevant stakeholders in the case study fishery including representatives of the commercial fishery, research, management, compliance, local conservation, indigenous groups, recreational groups and other relevant government agencies (e.g. state EPA).

### **Prior to Case Study Meeting**

The following tasks need to be completed prior to each case study to ensure that the maximum benefit and progress is made during the meeting.

#### *Project Team*

- Identify Local Case Study Manager
- Send Case Study Packages (both hard copy and electronic copies) to Local Case Study Manager
- Have initial meeting/phone link with Local Case Study Manager

#### *Instructions for Local Case Study Manager*

- Arrange Venue and facilities
- Arrange for a high quality computer projector (1000 dpi resolution), electronic whiteboards etc.
- Develop attendee list (see above list of suggested attendee categories) and facilitate their attendance.
- Provide copies of the Case Study Package to all stakeholder attendees along with covering letter.
- Arrange for the collation of all relevant material - obtain copies of any relevant assessments, research data, management plans, regulations, codes of conduct etc.
- Provide summary material that could be forwarded in advance to the project team and to the other local stakeholders (e.g. any recent reviews, status reports etc).
- Organise a 15 minute talk on the fishery (could be either the manager, a fisher or both)

### *Instructions for All Attendees*

- Identify the SPECIFIC issues relevant to this fishery and compare these with the generic component trees - look for areas where additions or deletions will be necessary.
- If possible lodge any suggestions with the project team and/or the Local Case Study Manager otherwise bring these to meeting.
- Collate/ bring/ distribute any relevant material for identified issues to assist with the risk assessment.

## **Case Study Meetings**

### **Day One (until morning tea)**

#### **Task 1:** *Provide an Overview of ESD*

1. What is ESD?
2. How does ESD fit into Fisheries Management
3. What is the ESD reporting Framework
4. How does it relate to other initiatives (EA Schedule 4, EMS systems).

### **Day One (until lunch)**

#### **Task 2:** *Develop component trees for this fishery (do not attempt to define the specific objectives and indicators at this stage)*

1. Overview of the fishery given by local representatives.
2. Discuss each of the generic frameworks as outlined in Appendix 1. These discussions will be more fruitful and efficient if each of the attendees has examined the component trees before the meeting and comes along with their suggestions as to what amendments will need to be made.
3. The group will need to modify the generic framework to meet specific issues for the fishery by adding sub-components that are not covered adequately by the sub-components already showing and deleting sub-components that are not relevant. If any of the generic sub-components are removed, you should provide written justification as to why they are not applicable to this fishery. For a sub-component to be removed this requires the issue to not be significant, not just that you have no data.
4. The discussions to adapt each of the 8 generic component trees should be restricted to no more than 30 minutes each. One of the project team members will provide a 5-minute introduction to the component to assist in the efficiency of the discussions.



## **Day One (late) and Day Two**

### **Task 3: *Complete Risk Assessment for Identified Issues***

Using the component tree developed earlier in the day, we then begin to step through each of the issues and determine risks associated with the operation of the fishery.

This process is designed to determine which issues require specific management actions and hence specific objectives and measurement of performance. Consequently, all target species are likely to require ongoing assessments because some management actions are likely to already be in place (e.g. effort controls, biological restrictions – size limits etc). The risk assessments therefore, only need to be completed for the by-product components, but all the non-retained, and ecosystem components.

A prioritization process can be applied to the social and economic issues based upon the importance to future management/access.

### **Task 4: *Completion of Example Performance Reports***

It is important to provide at least a few example reports for a number of the component trees. This may involve developing a report where there is already an objective/indicator/measure available from a current management plan/arrangement. In many cases, however, it will first need to involve discussions with the stakeholder group present as to what these might be.

Wherever possible, it will be helpful to get agreement during the meeting about what should be in each of these headings. Any proposed objective and performance measure would, in most cases, require subsequent ratification. If, however, agreement cannot be reached during the meeting on a specific objective or performance level, then each of the propositions can be recorded (along with any justifications) and used as the basis for later consultation. This should not be seen as a failure, but as a means of identifying the specific issues that will require future attention.

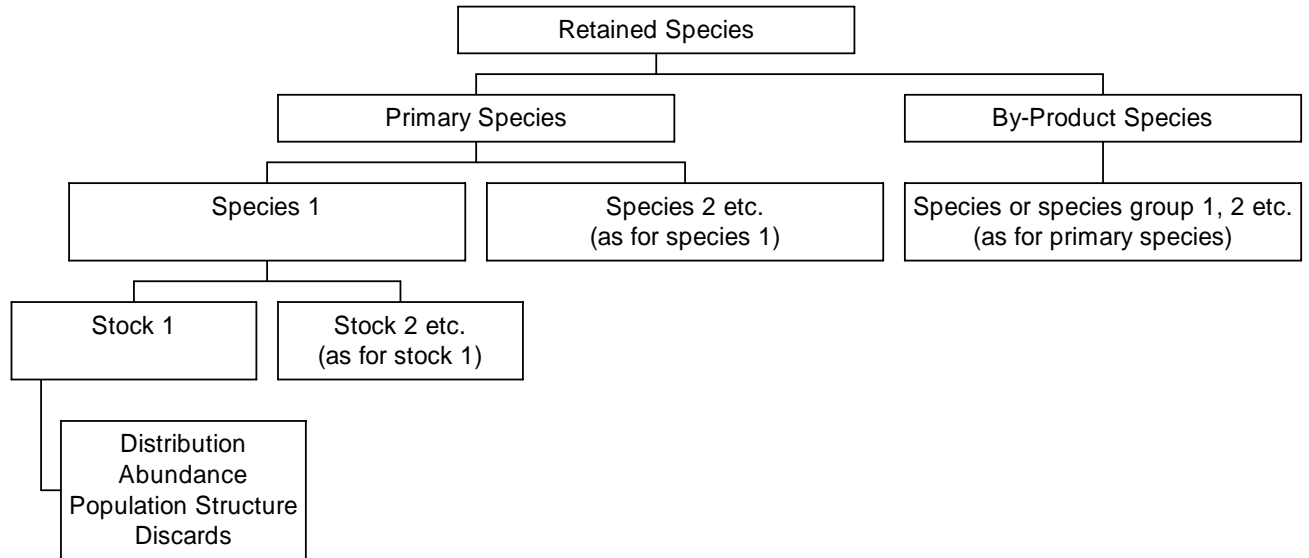
It is expected that at best only brief notes would be made for the other headings (headings 4 – 10). These would need to be fleshed out subsequently.

### **Task 5: *Comparison of ESD report to that required by EA and others***

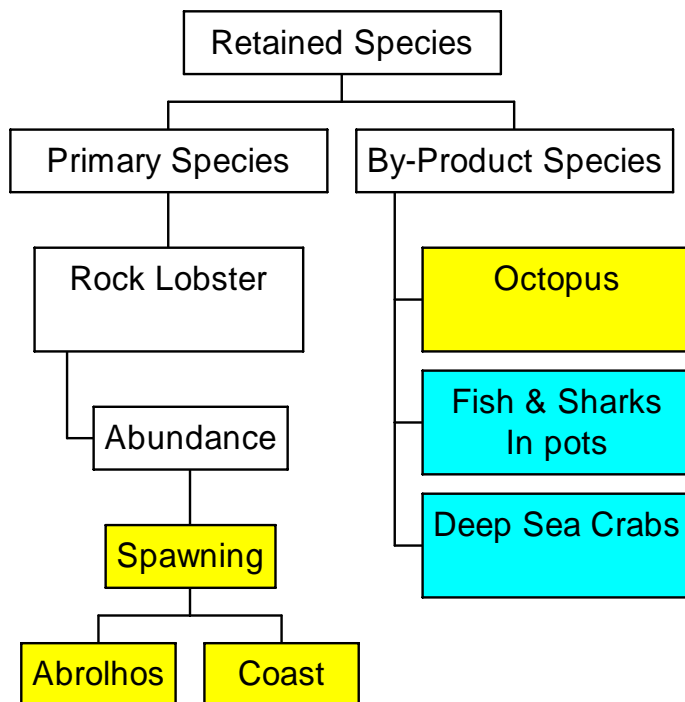
Go through the generic EA application “front end” and discuss the issues specific to this fishery how they may affect an application to EA.

## Appendix 1. COMPONENT TREES

### 1. GENERIC COMPONENT TREE for IMPACTS OF THE FISHERY ON RETAINED SPECIES



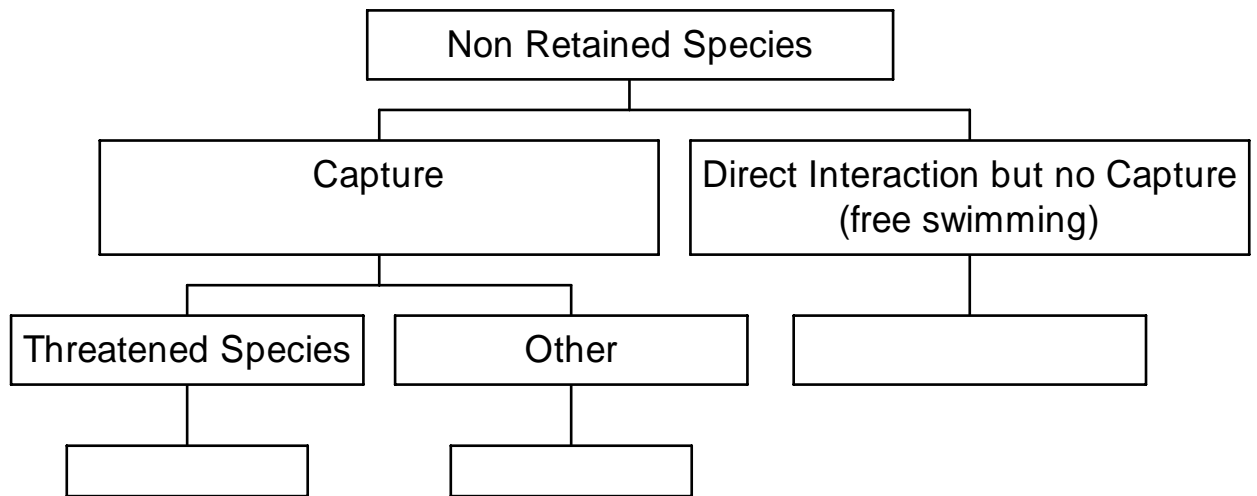
#### Example of Completed Tree



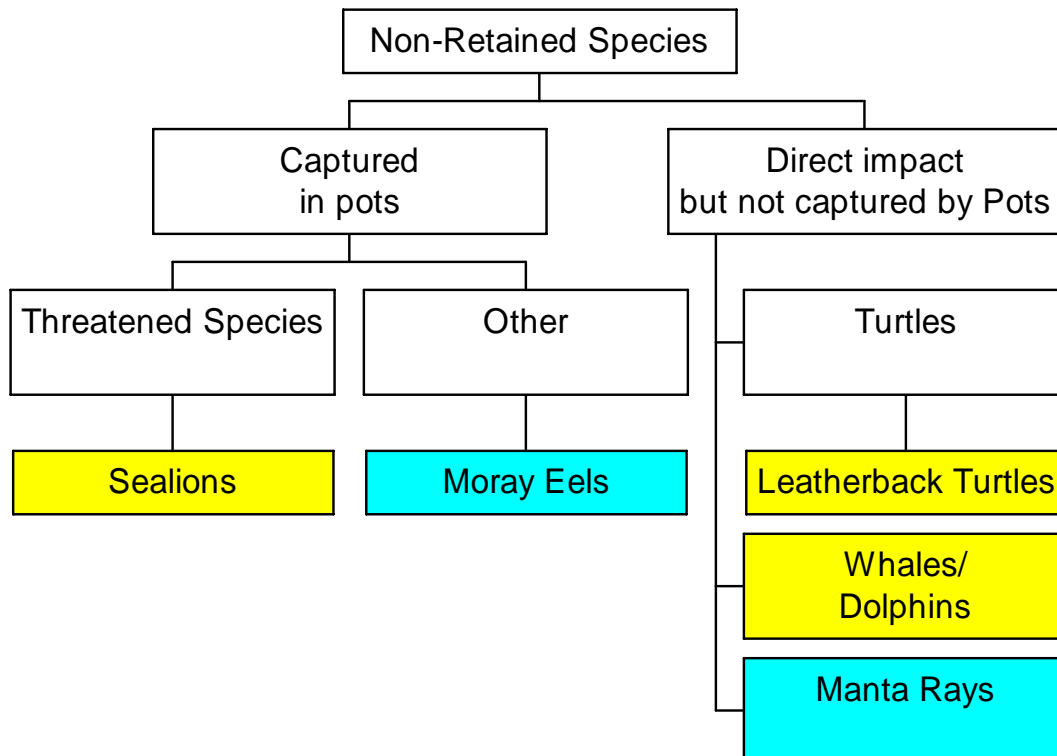
No major Generic Components were deleted from this tree when it was developed at the August 2000 workshop.

Yellow boxes indicate that the issue was considered high enough risk at the January 2001 Risk Assessment workshop to warrant having a full report on performance, Blue boxes indicate the issue was rated a low risk and only this justification is presented.

**2 GENERIC COMPONENT TREE for IMPACTS OF THE FISHERY ON NON-RETAINED SPECIES (May need separate trees for the different catching sectors)**



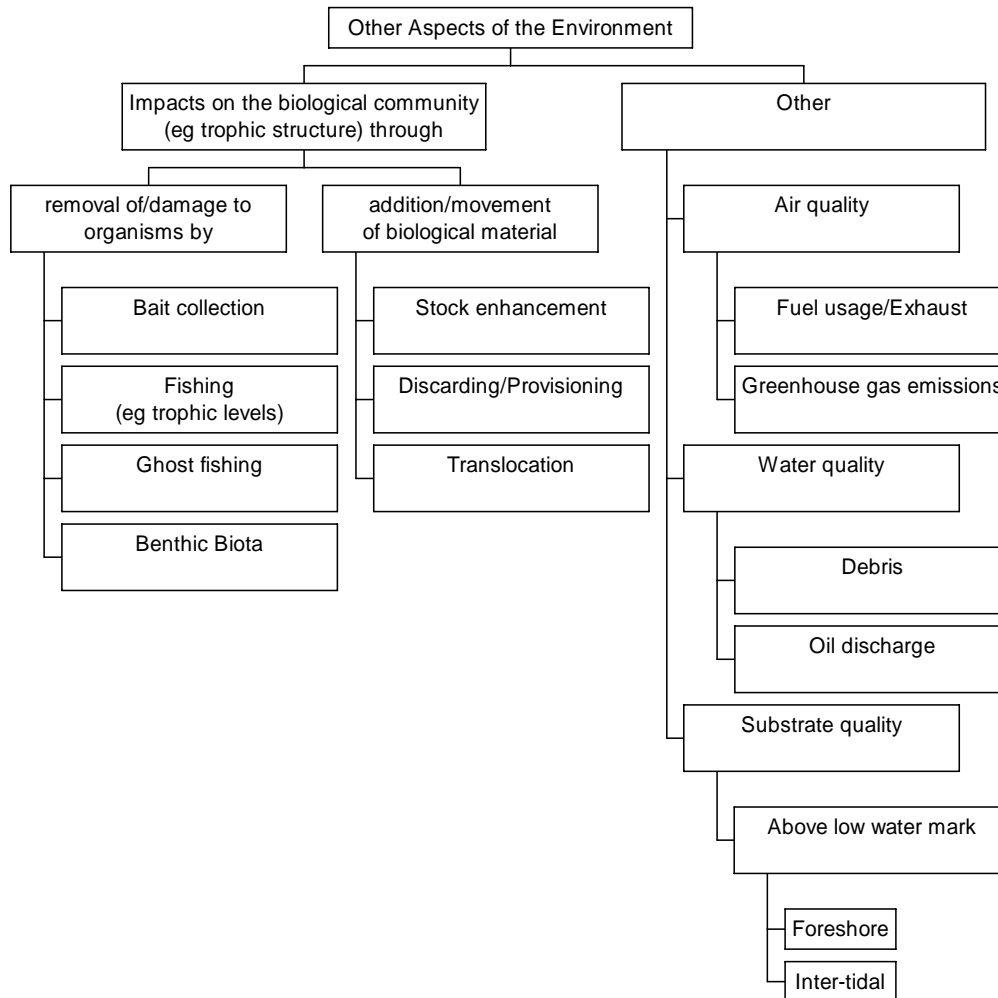
Rock Lobster Example



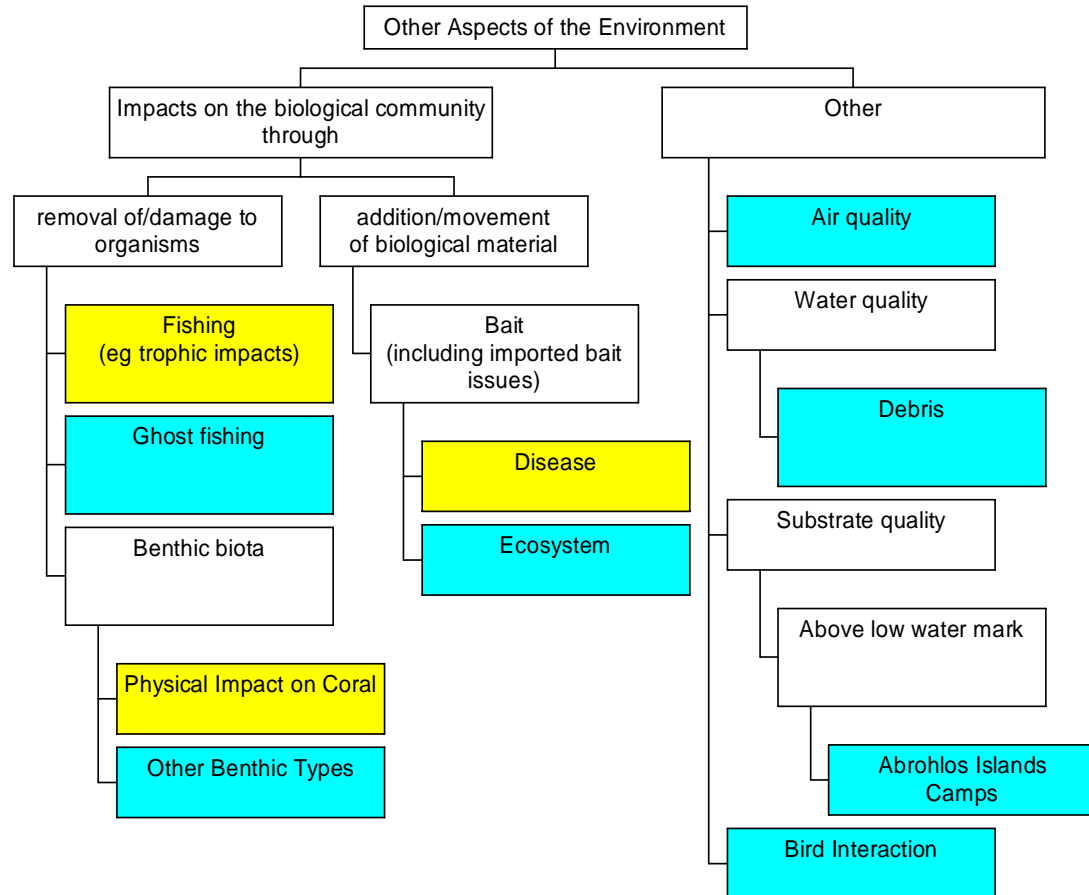
(nb - No major Generic Components were deleted from this tree when it was developed at the August 2000 workshop).

Yellow boxes indicate that the issue was considered high enough risk at the January 2001 Risk Assessment workshop to warrant having a full report on performance, Blue boxes indicate the issue was rated a low risk and only this justification is presented.

### 3. GENERIC COMPONENT TREE FOR IMPACTS OF THE FISHERY ON OTHER ASPECTS OF THE ENVIRONMENT (May need separate trees for different catching sectors)

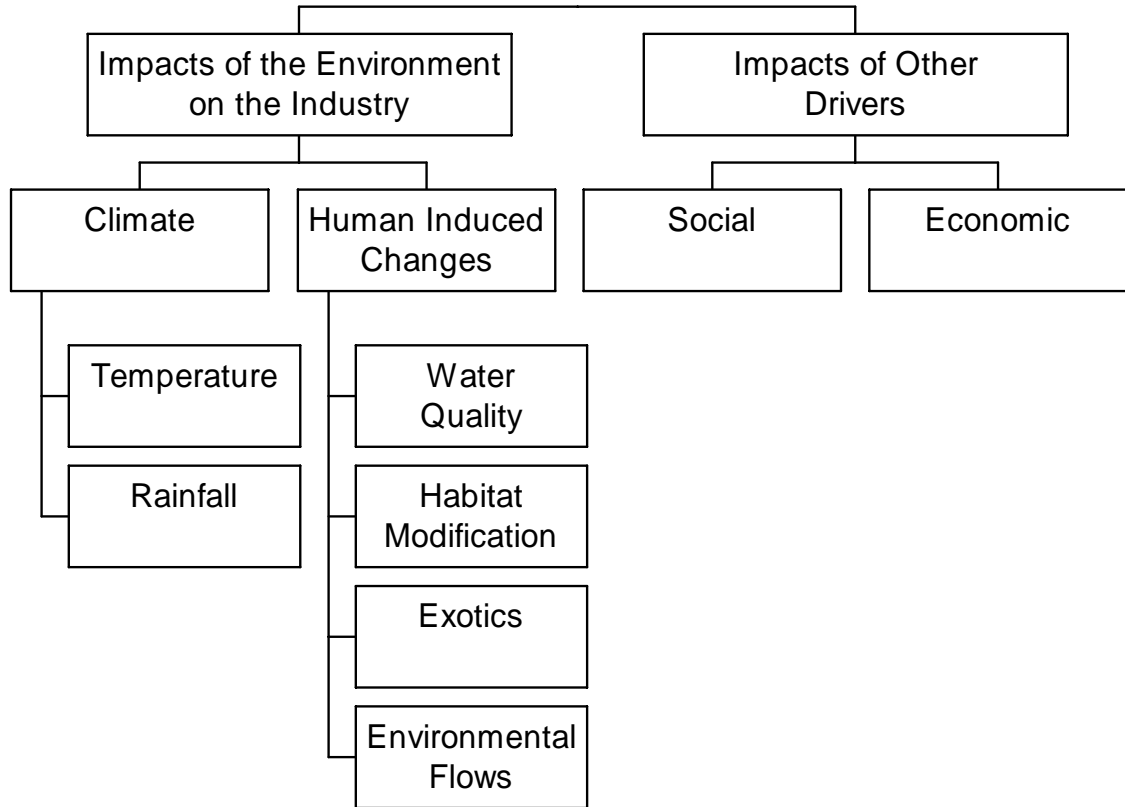


3b. Specific Example for the impact of the “Rock Lobster Fishery” on other aspects of the environment



nb The Generic Components deleted from this tree included impacts of Bait collection (another fishery), Stock Enhancement (does not occur), Translocation (does not occur). **Yellow boxes** indicate that the issue was considered high enough risk at the January 2001 Risk Assessment workshop to warrant having a full report on performance, **Blue boxes** indicate the issue was rated a low risk and the justification for this rating is presented.

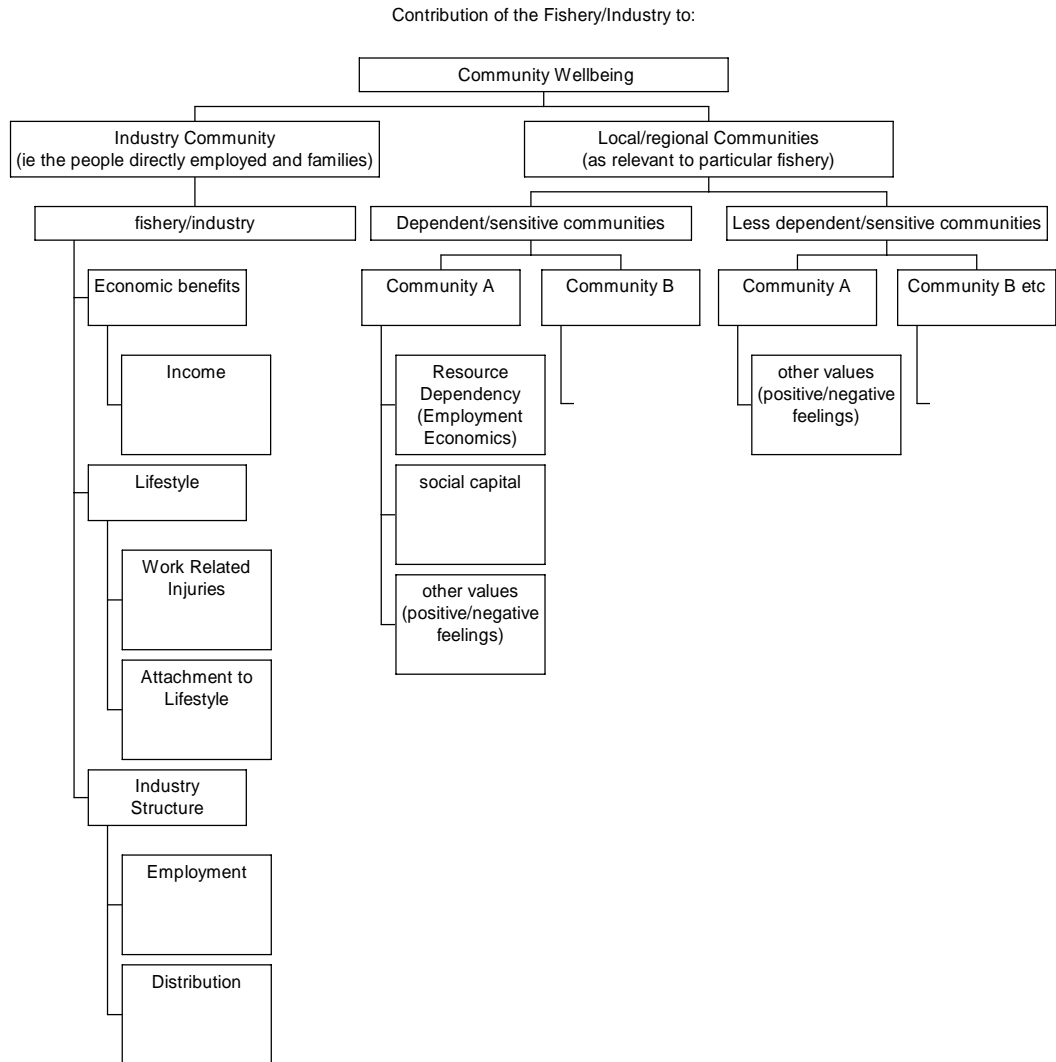
#### 4. IMPACTS OF THE ENVIRONMENT AND OTHER ISSUES ON THE INDUSTRY



## 5. GENERIC COMPONENT TREE FOR THE IMPACTS OF THE FISHERY ON TRADITIONAL FISHING



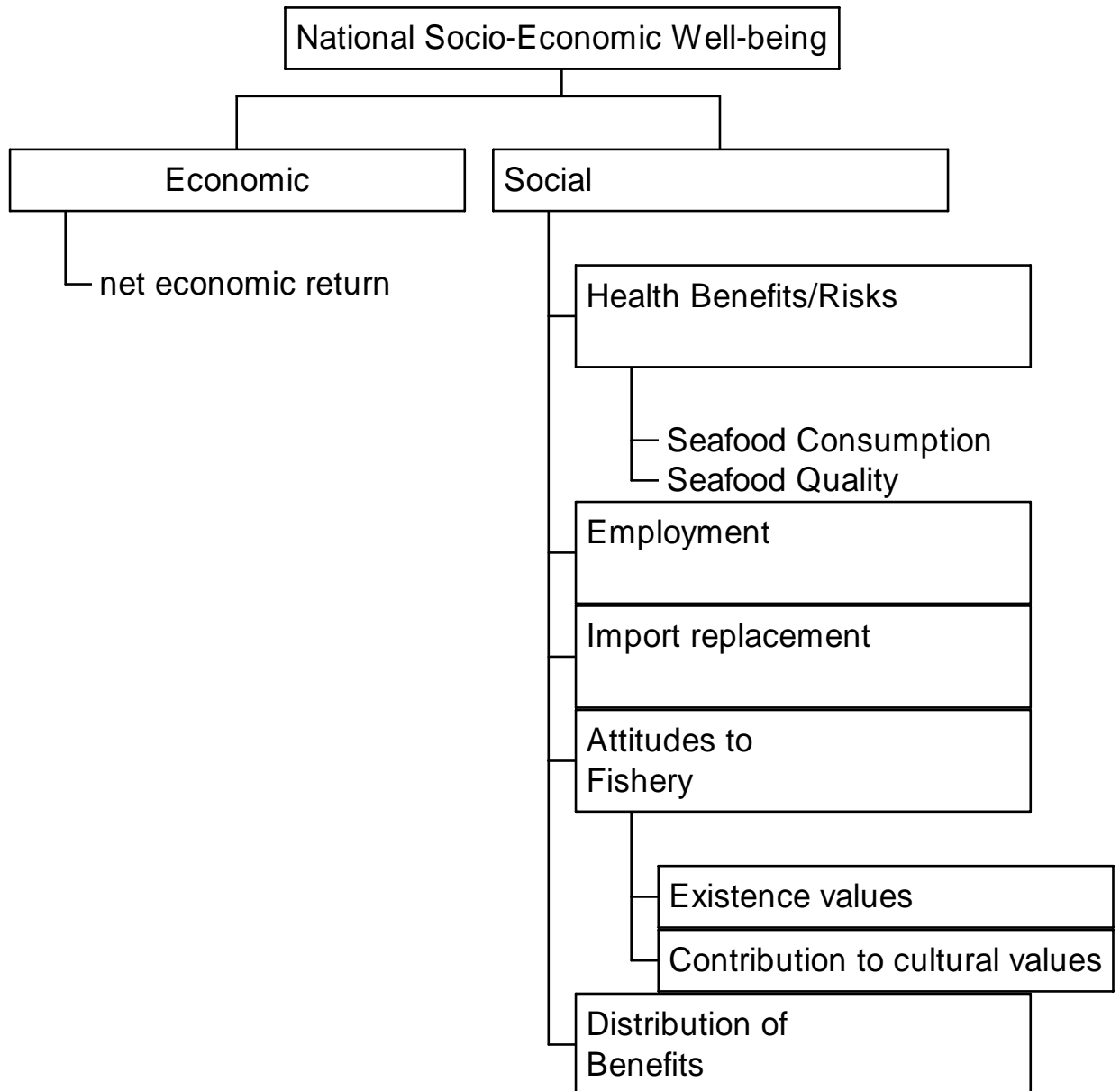
## 6. GENERIC COMPONENT TREE FOR IMPACTS OF THE FISHERY ON COMMUNITY WELLBEING



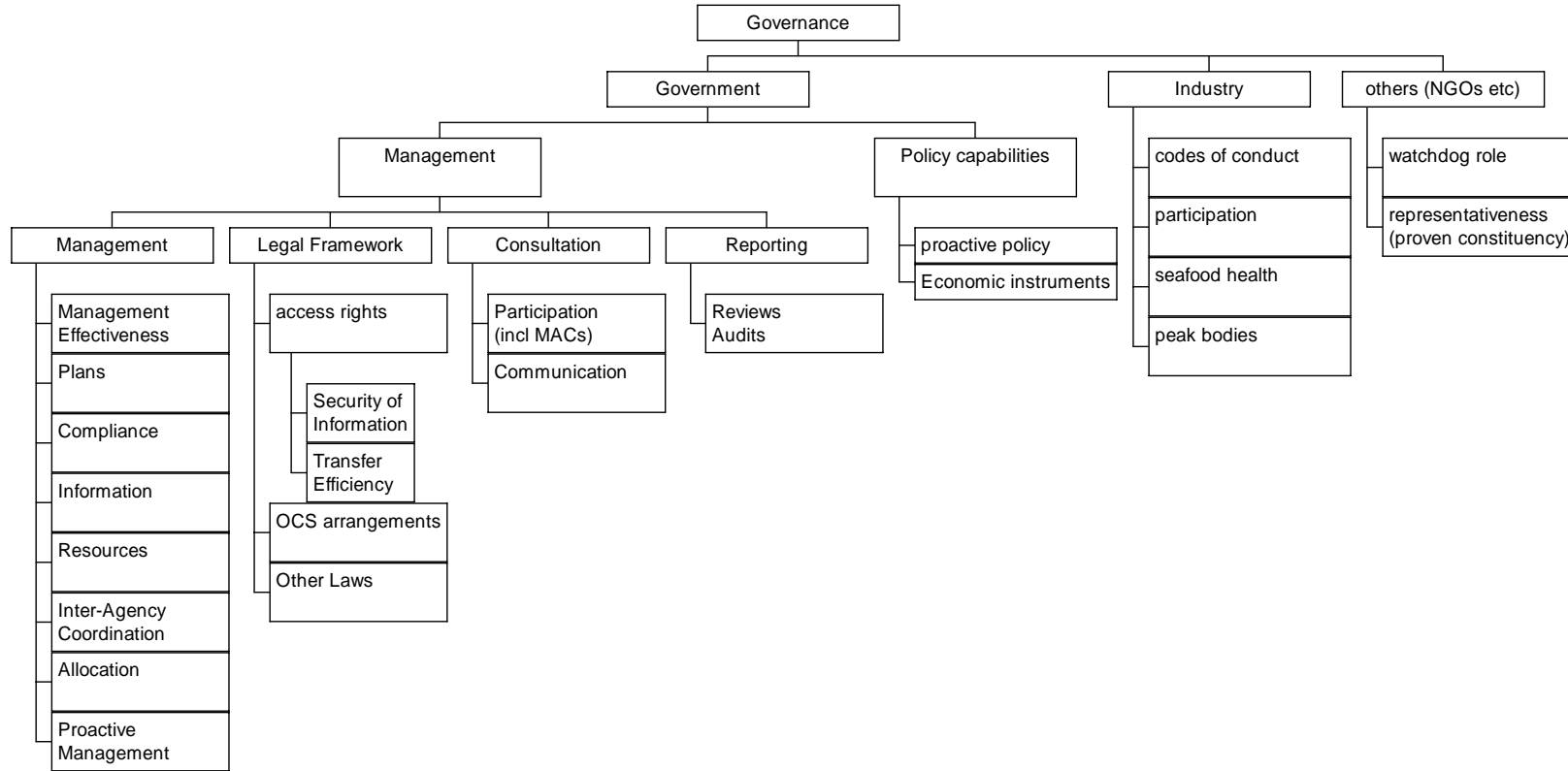


## 7. GENERIC COMPONENT TREE FOR: IMPACTS OF THE FISHERY ON NATIONAL SOCIO-ECONOMIC BENEFIT

Contribution of the Fishery/Industry to:



### 8. GENERIC COMPONENT TREE FOR:ISSUES RELATED TO THE GOVERNANCE OF THIS FISHERY



## Appendix 2. Agreed Report headings

### 1. Operational Objective

Each of the sub-components requires an agreed operational objective. What, specific to this component for this fishery, do you wish to achieve? Thus, it is not how you will achieve it, nor what you will need to achieve it. Most importantly, performance against this objective must be able to be measured.

*During the meeting:*

- This could involve just the recording of an existing objective listed in current management arrangements
- This may involve turning an implicit objective into an explicit objective
- The meeting may develop a proposed objective for later ratification
- The meeting may prepare a series of alternative objectives for consideration and consensus at a later stage.

Irrespective of which method is used to generate the objective, the justification for choosing this objective must be recorded. This justification should also provide specific information as to how it relates to the higher-level objective.

### 2. Indicator

For each operational objective under each of the components there should be an indicator developed. This can be a direct measurement of performance (e.g. employment numbers) or a surrogate (e.g. catch for abundance). Generally having more than one indicator is often not helpful because they would need to be combined somehow to form an assessment but often a composite indicator can be used to provide greater confidence of the result.

In some cases having more than one indicator indicates that different aspects are being addressed, hence you need more operational objectives – one for each indicator.

There is no definitive limit to the number of sub-components and hence operational objectives that can be developed.

### 3. Performance Measure

Defines whether performance against the objective is acceptable or not – i.e. how do you interpret what the indicator is suggesting. Again this may involve:

- Recording a performance measure already available from a current management plan/arrangement
- Agreeing to a proposed performance measure for later ratification
- Listing a series of potential measures for later consultation (if possible recording the justification for the proposals made).

It is vitally important that the justification for choosing the level/limit/trend is provided. This ultimately is the most important decision made for the management of this issue and hence the reasons why it was chosen, including any assumptions used, needs to be articulated clearly.

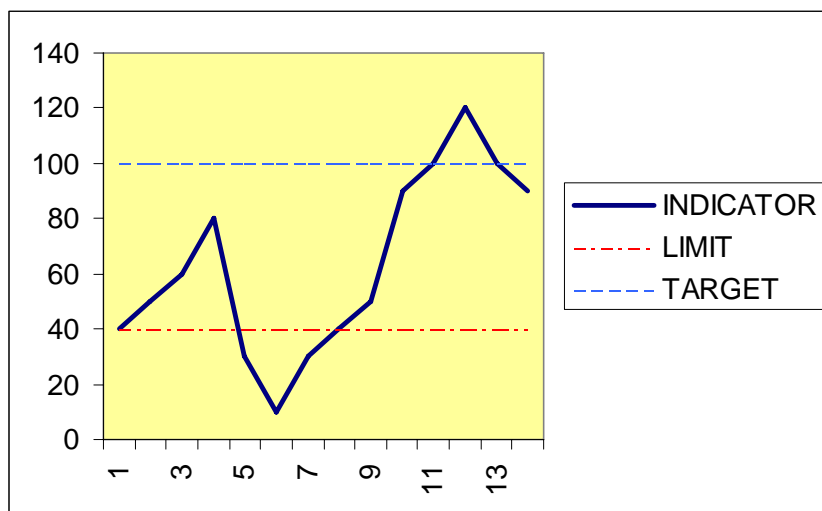


Figure 10 A summary of the relationships between the indicator with limit and target performance measures.

#### 4. Data Requirements for Indicator

What data do you need to measure the indicator?

#### 5. Data Availability (past - current – future)

What data are currently available and how accurate are the data that will be used?  
 What data will be available in the future?

#### 6. Evaluation

If data are available what did the indicator tell us about the objective?

Usually a graph such as in Figure 10 is needed. This should be accompanied by a description of the information and an explicit statement as to the current performance of the fishery

#### 7. Robustness

What is the robustness of the current indicator/evaluation? This should involve both a textual description and choosing the summary level (High/Medium/Low) from Table 4 (see below for more details)

#### *Evaluation/Indicator Robustness*

An attempt will be made to develop a generic classification system to assist in the assessment of robustness for each of the evaluations. The classification will use the level of robustness and precision of the indicator in measuring the operational objective and the way it has been used during the evaluation. It is an assessment of how well the indicator is measuring what you want to know. Thus if your objective relates to levels of employment and your indicator is employment numbers then this is

robust. If, however, your objective relates to bycatch but the indicator available is only fishing effort, then this will be less robust.

Having robustness scores for all sub-components would enable an overall score for the entire assessment such as, for example, the percentage of indicators with scores > Low

**Table 4. Robustness Classifications**

<b>Level</b>	<b>Description</b>
HIGH	The indicator is a direct measure of the objective, or if indirect, is known to closely reflect changes in the issue of interest.
MEDIUM	The indicator is suspected to be reasonably accurate measure against the objective, or the known error is in the conservative direction.
LOW	The degree to which the indicator measures against the objective is largely unknown, or known to be low. Often this will involve surrogate indicators.

## 8. Fisheries Management response

### - Current

What are the current management arrangements that are in place to affect the level of the indicator against the objective and ensure adequate performance? The types of responses should particularly note the level of information available and the reliability of the evaluation.

### - Future

What, if any, are the proposed (i.e. extra or different) management arrangements/options (e.g. harvest strategies etc), including any possible changes to current arrangements. These should again note the current level of the indicator (i.e. current performance), the level of information available and reliability of the evaluation.

### - What will be done if Performance Measure is exceeded (i.e. Performance Unacceptable)

What will be the management/industry response if the performance targets/limits etc indicate that performance is unacceptable?

### - Issues for other agencies

Some indicators may require informing other relevant government agencies.

## 9. Comments and Action

Provides an overview for this indicator including what are the future actions that need to be done (e.g. begin new monitoring, alter management plan etc.). In particular this section should include an explicit demonstration as to how the intergenerational equity issue is being addressed.

## 10. External Driver Check List

External drivers (e.g. currency exchange rates; land based pollution, etc.) affecting this indicator need to be noted here. NB: The impacts of environmental external drivers are also a major component within the generic tree structure.

## Appendix 3 Risk Assessment Tables

Table A3.1 Suggested consequence categories for the Major Retained/Non-Retained Species

Level	Ecological (Retained: target/Non-retained: major)
<b>Negligible (0)</b>	Insignificant impacts to populations. Unlikely to be measurable against background variability for this population.
<b>Minor (1)</b>	Possibly detectable, but minimal impact on population size and none on dynamics.
<b>Moderate (2)</b>	Full exploitation rate, but long-term recruitment/dynamics not adversely impacted.
<b>Severe (3)</b>	Affecting recruitment levels of stocks/or their capacity to increase.
<b>Major (4)</b>	Likely to cause local extinctions, if continued in longer term (i.e. probably requiring listing of species in an appropriate category of the endangered species list (eg IUCN category).
<b>Catastrophic (5)</b>	Local extinctions are imminent/immediate

Table A2 Suggested consequence categories for the By-Product Species/Minor Non-retained species

Level	Ecological (RETAINED: By-product/Non-retained: other)
<b>Negligible (0)</b>	Area where fishing occurs is negligible compared to where the relevant stock of the species resides (< 1%)
<b>Minor (1)</b>	Take in this fishery is small (< 10%), compared to total take by all fisheries and these species are covered explicitly elsewhere. Take and area of capture by this fishery is small, compared to known area of distribution (< 20%).
<b>Moderate (2)</b>	Relative area of, or susceptibility to capture is suspected to be less than 50% and species do not have vulnerable life history traits.
<b>Severe (3)</b>	No information is available on the relative area or susceptibility to capture or on the vulnerability of life history traits of this type of species Relative levels of capture/susceptibility suspected/known to be greater than 50% and species should be examined explicitly
<b>Major (4)</b>	N/A Once a consequence reaches this point it should be examined using Table A1.

<b>Catastrophic (5)</b>	N/A (See Table A1).
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Table A3 Suggested consequence levels for the impact of a fishery on Protected species.

Level	Ecological
<b>Negligible (0)</b>	Almost none are impacted.
<b>Minor (1)</b>	Some are impacted but there is no impact on stock
<b>Moderate (2)</b>	Levels of impact are at the maximum acceptable level
<b>Severe (3)</b>	Same as target species
<b>Major (4)</b>	Same as target species

Table A4 Suggested consequence levels for the impacts of a fishery on habitats.

Level	Ecological (HABITAT)
<b>Negligible (0)</b>	Insignificant impacts to habitat or populations of species making up the habitat – probably not measurable levels of impact. Activity only occurs in very small areas of the habitat, or if larger area is used, the impact on the habitats from the activity is unlikely to be measurable against background variability <i>(Suggestion- these could be activities that affect &lt; 1% of <u>original</u> area of habitat or if operating on a larger area, have virtually no direct impact)</i>
<b>Minor (1)</b>	Measurable impacts on habitat(s) but these are very localised compared to total habitat area. <i>(Suggestion – these impacts could be &lt; 5% of the original area of habitat)</i>
<b>Moderate (2)</b>	There are likely to be more widespread impacts on the habitat but the levels are still considerable acceptable given the % of area affected, the types of impact occurring and the recovery capacity of the habitat <i>(Suggestion – for impact on non-fragile habitats this may be up to 50% [similar to population dynamics theory] - but for more fragile habitats, to stay in this category the percentage area affected may need to be smaller, e.g. 20%)</i>



<b>Severe (3)</b>	<p>The level of impact on habitats may be larger than is sensible to ensure that the habitat will not be able to recover adequately, or it will cause strong downstream effects from loss of function.</p> <p><i>(Suggestion - Where the activity makes a significant impact in the area affected and the area &gt; 25 - 50% [based on recovery rates] of habitat is being removed)</i></p>
<b>Major (4)</b>	<p>Substantially too much of the habitat is being affected, which may endanger its long-term survival and result in severe changes to ecosystem function.</p> <p><i>(Suggestion this may equate to 70 - 90% of the habitat being affected or removed by the activity)</i></p>
<b>Catastrophic (5)</b>	<p>Effectively the entire habitat is in danger of being affected in a major way/removed.</p> <p><i>(Suggestion: this is likely to be in range of &gt; 90% of the original habitat area being affected).</i></p>

Table A5 Suggested consequence levels for the impact of a fishery on the general ecosystem/trophic levels.

<b>Level</b>	<b>Ecological (ECOSYSTEM)</b>
<b>Negligible (0)</b>	<p>General - Insignificant impacts to habitat or populations, Unlikely to be measurable against background variability</p> <p>Ecosystem: Interactions may be occurring but it is unlikely that there would be any change outside of natural variation</p>
<b>Minor (1)</b>	<p>Ecosystem: Captured species do not play a keystone role – only minor changes in relative abundance of other constituents.</p>
<b>Moderate (2)</b>	<p>Ecosystem: measurable changes to the ecosystem components without there being a major change in function. (no loss of components).</p>
<b>Severe (3)</b>	<p>Ecosystem: Ecosystem function altered measurably and some function or components are locally missing/declining/increasing outside of historical range &amp;/or allowed/facilitated new species to appear.</p> <p>Recovery measured in years.</p>
<b>Major (4)</b>	<p>Ecosystem: A major change to ecosystem structure and function (different dynamics now occur with different species/groups now the major targets of capture)</p> <p>Recovery period measured in years to decades.</p>
<b>Catastrophic (5)</b>	<p>Ecosystem: Total collapse of ecosystem processes.</p> <p>Long-term recovery period may be greater than decades.</p>