

**Template for the compilation of information describing fisheries and
related species information in the southern Pacific Ocean**

Note: In developing the fisheries and species descriptions, a broad set of information sources should be explored including FAO datasets, international scientific literature, Fishbase, and participants own information. Also, where possible, maps, graphs, tables and relevant pictorial information should be used in the profile.

OUTLINE OF THE TEMPLATE

1.	Overview.....	2
2.	Taxonomy	2
2.1	Phylum.....	2
2.2	Class	2
2.3	Order.....	2
2.4	Family.....	2
2.5	Genus and species.....	2
2.6	Scientific synonyms.....	2
2.7	Common names.....	2
2.8	Molecular (DNA or biochemical) bar coding.....	2
3.	Species characteristics	3
3.1	Global distribution and depth range.....	3
3.2	Distribution within South Pacific area	3
3.2.1	Inter-annual and/or seasonal variations in distribution	3
3.2.2	Other potential areas where the species may be found	3
3.3	General habitat	3
3.4	Biological characteristics	3
3.5	Population structure.....	3
3.6	Stock productivity	4
3.7	Role of species in the ecosystem	4
4.	Fisheries characterisation	4
4.1	Distribution of fishing activity	4
4.2	Fishing technology	5
4.3	Catch history	5
4.4	Stock status	5
4.5	Threats	6
4.6	Fishery value	6
5.	Current Fishery Status and Trends.....	6
5.1	Stock size	6
5.2	Estimates of relevant biological reference points	6
5.2.1	Fishing mortality	6
5.2.2	Biomass	7
5.2.3	Other relevant biological reference points	7
6.	Impacts of Fishing	7
6.1	Incidental catch of associated and dependent species	7
6.2	Unobserved mortality of associated and dependent species	7
6.3	Bycatch of commercial species	7
6.4	Habitat damage.....	7
7.	Management	7
7.1	Existing management measures.....	7
7.2	Fishery management.....	8
7.3	Ecosystem Considerations	8
8.	Research	8
8.1	Current and ongoing research.....	8
8.2	Research needs	8
9.	Additional remarks.....	8
10.	References	8

Common name (*Species name*)

<INSERT PICTURE HERE>

1. Overview

A brief abstract/executive summary of the profile provided in the sections below. This should be a comprehensive one-page summary for the key target species.

2. Taxonomy

2.1 Phylum

2.2 Class

2.3 Order

2.4 Family

2.5 Genus and species

2.6 Scientific synonyms

Only include relevant synonyms.

2.7 Common names

Fishbase and FAO list of names should be starting points. If possible, give common name for all areas (e.g. *Trachurus murphyi* is Murphy's mackerel in New Zealand, or Chilean jack mackerel and jurel in Chile).

2.8 Molecular (DNA or biochemical) bar coding

If available, refer to the Bar Coding of Life Project, GENBANK accession number and/or the FishBOL (<http://www.fishbol.org/>) accession number.

3. Species characteristics

3.1 Global distribution and depth range

One paragraph general summary.

3.2 Distribution within South Pacific area

This should include descriptions of distribution within EEZ(s) where possible and details of discrete high-seas stocks and straddling stocks. Identification of the EEZ(s) in which potential straddling stocks occur should be identified.

3.2.1 Inter-annual and/or seasonal variations in distribution

Where relevant include information on spawning related aggregations, and other geographic changes in distribution within or between years.

3.2.2 Other potential areas where the species may be found

3.3 General habitat

For example, is its habitat benthic, pelagic, seamount, sedimentary, oceanic ridge, biogenic habitats (e.g. coral reefs, mussel beds) etc?

3.4 Biological characteristics

Morphology, growth, life history, life-history characteristics with respect to vulnerability or resilience to fishing (e.g. endemism, discrete stocks), diet, pre-exploitation stock size etc – see also the FAO-Cites document available at www.fao.org/DOCREP/MEETING/003/Y1455E.HTM section 3.5.

Information on sympatric species and species that may occur in the same area at the same time should also be included.

3.5 Population structure

This should clearly describe the understanding of any distinct sub-populations within the population, and any distinct management units (e.g. stocks). Note that a sub-population is a biological unit whereas a management unit may be based on spatial or jurisdictional parameters, or some other distinction relevant to the management regime.

3.6 Stock productivity

A general relative measure of the potential productivity of the fish stock in relation to biological characteristics, on the following scale:

- Very low – onset of maturity is late, fecundity is very low, annual growth rate is relatively slow and the species is very long lived, all of which indicates that the proportion of the total biomass that can be harvested is very small (e.g. orange roughy);
- Low – onset of maturity is late, fecundity is low, annual growth rate is relatively slow and the species is long-lived, which indicates that the proportion of the total biomass that can be harvested is small (e.g. toothfish);
- Medium – onset of maturity is moderate, fecundity is moderate, annual growth rate is moderate and the species is moderately long lived, which indicates that the proportion of the total biomass that can be harvested is moderate (e.g. jack mackerel);
- High – onset of maturity is early, fecundity is high, annual growth rate is relatively rapid and the species is short-lived, which indicates that the proportion of the total biomass that can be harvested may be large (e.g. anchovy); and
- Very high – onset of maturity is early, fecundity is high, annual growth rate is relatively rapid and the species is very short lived, which indicates that the proportion of the total biomass that can be harvested is very large (e.g. arrow squid).

Note that the combinations of factors that comprise these categories are simplifications. Not all factors may apply and there may be other relevant information that is not included within the category. Fish stock productivity should be considered in the context of all available information about the species. This should include a general understanding of the biology of the species, and information for other closely related species. When characterising the relative fish stock productivity it is important to consider all relevant parameters in combination, rather than in isolation (see also see also the FAO document available at www.fao.org/DOCREP/MEETING/003/Y1455E.HTM section 3.1).

3.7 Role of species in the ecosystem

Is the species a key prey species? Is it a predator?

4. Fisheries characterisation

4.1 Distribution of fishing activity

Include details of historic activity. Map series could be especially useful.

4.2 Fishing technology

Categorised by fleet, gear, boats, fleet size, flag state etc. Again, include details of historic changes. Include technological details such as the use of fish aggregation devices where appropriate.

Fishing effort by method, area, time and fleet.

4.3 Catch history

Catches should continue to be reported by flag and FAO Statistical area. However, smaller fisheries unit scales are essential, especially in relation to geographical/oceanographic features, stock structures and future possible management areas (e.g. Tasman, western Pacific, and eastern Pacific). Wherever possible inside/outside EEZ catches should be separated. Ideally, shot-by-shot data should be collated if confidentiality issues can be resolved. If the fishery is multi-sectorial, catches should be collated by fishing method.

Also any knowledge of qualitative and/or quantitative IUU information should be incorporated.

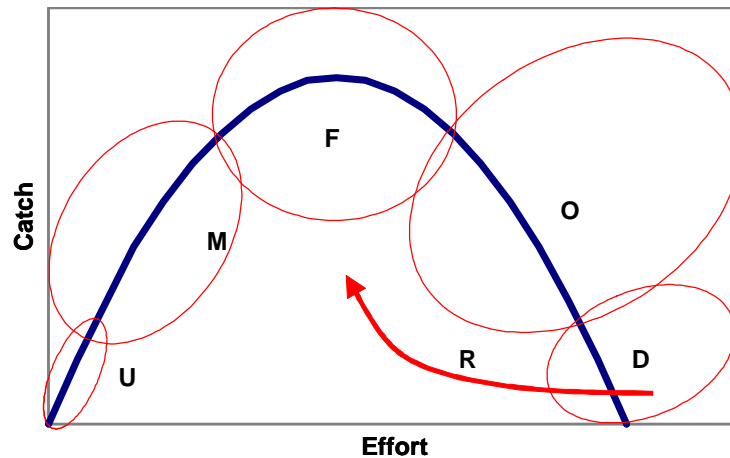
Associated target species should be cross-referenced.

4.4 Stock status

A general measure of the current degree of exploitation of the stock, based on the following scale from FAO:

- Not known or uncertain – Insufficient information is available to make a judgment;
- Underexploited, undeveloped or new fishery – Believed to have a significant potential for expansion in total production;
- Moderately exploited, exploited with a low level of fishing effort – Believed to have some limited potential for expansion in total production;
- Fully exploited – The fishery is operating at or close to an optimal yield level, with no expected room for further expansion;
- Overexploited – The fishery is being exploited at above a level which is believed to be sustainable in the long term, with no potential room for further expansion and a higher risk of stock depletion/collapse;
- Depleted – Catches are well below historical levels, irrespective of the amount of fishing effort exerted; and
- Recovering – Catches are increasing after previous depletion or collapse.

In a catch/effort diagram the descriptors would correspond more or less to the areas shown below.



4.5 Threats

Threat classification status or listing (e.g. CITES, CMS, IUCN) where available.

4.6 Fishery value

Market and non-market values should be provided, if available.

Details such as the intended use of the landings (e.g. fresh human consumption, canning, fish meal) and the different values for different landing states (e.g. whole fish versus fillets) should be given, if available.

5. Current Fishery Status and Trends

5.1 Stock size

Estimates of relative or absolute biomass should be given wherever possible. Historical information should be incorporated where relevant (graphs if available).

5.2 Estimates of relevant biological reference points

5.2.1 Fishing mortality

Estimates of $F_{\text{current}}/F_{\text{ref}}$, $F_{\text{current}}/F_{\text{MSY}}$, $F_{\text{current}}/F_{\% \text{SPR}}$ or $F_{\text{current}}/F_{\text{limit}}$ (or similar relevant quantitative reference points for current fishing pressure).

5.2.2 Biomass

Estimates of B_{current}/B_0 , $B_{\text{current}}/B_{\text{MSY}}$, or $B_{\text{current}}/B_{\text{ref}}$ (or similar relevant quantitative reference points for current stock biomass).

Note that definition of B may vary from fishery to fishery, e.g. B_{current} may represent the recruited biomass or the spawning stock biomass. Care needs to be taken to specify the units.

Changes in distribution of biomass should be noted.

5.2.3 Other relevant biological reference points

Indices related to CPUE, recruitment and spawning biomass per recruit.

6. Impacts of Fishing

6.1 Incidental catch of associated and dependent species

Details of known bycatch of non-target species (includes fish and non-fish commercial species e.g. crustacea) and non-fish catch (includes birds, mammals and benthic invertebrates).

Attention should be paid to bycatch of threatened species, marine mammals, seabirds, benthic invertebrates, etc. Are bycatch mitigation techniques being used?

6.2 Unobserved mortality of associated and dependent species

Is this likely to be occurring? Covers unobserved mortality of associated and dependent species e.g. fishing gear impacts on species.

6.3 Bycatch of commercial species

Discards or retained catch, includes capture of juvenile (target) commercial species.

Detail known mitigation approaches and mitigation methods in use.

6.4 Habitat damage

Details of pertinent observations should be provided – e.g. bycatch of coral and other benthic organisms, underwater observations, etc.

7. Management

7.1 Existing management measures

Fisheries management by area/sub-area/jurisdiction, such as spatial management (e.g. spawning closures) and harvest limits (e.g. total allowable catches).

7.2 Fishery management

Given the fisheries productivity, population size, current exploitation rate and the current status of the stock, is the stock below, at or above key reference points? Is that status changing, and if so on what timescale?

This section is also intended to summarise information such as: the implications of known climate variations given the biology of the species; current levels of exploitation; and current stock status. This information should be synthesised into a succinct prognosis. For example:

An important caution on this information may be that regular patterns of perturbation (e.g. the impacts of water temperature on recruit success in a particular season) will impact on the fish stock potential and need to be considered when utilising relative measures of fish stock production as management information (e.g. a fish stock may have very high productivity but due to ENSO patterns may be easily over exploited).

Harvest strategy options to be identified where available.

7.3 Ecosystem Considerations

Are habitat issues being addressed? Trophic and community implications should be considered. Species bycatch information should expand on section 6 to cover other associated and dependent species issues.

What technology / practices are currently employed to reduce environmental impacts (e.g. mitigation approaches for preventing incidental seabird mortality)? If none, what technology/ practices should be implemented?

How can current technology/ practices be improved?

8. Research

8.1 Current and ongoing research

Include target fisheries research and research relating to protecting species, biodiversity, effects of fishing, and the ecosystem.

8.2 Research needs

This should identify research gaps and list priorities where appropriate. How would such research address the identified gaps?

9. Additional remarks

10. References