

FRESHWATER WILD CAPTURE FISHERY METHODOLOGY



Version 1.0

ASSESSMENT DETAILS

Date of Assessment:

WWF Office:

Assessor - Organisation:

Cross-checker - Organisation:

Network Comment:

Assessment Methodology:

Re-Assessment:

Date of Previous Assessment:

Score of Previous Assessment:

Previous Assessor - Organisation:

Previous Cross-checker - Organisation:

ASSESSMENT HISTORY/RATIONALE

ASSESSMENT SCORING

Total Assessment Score:

Total Rating Score (1-5):

Category 1: Stock Status and Biological Characterization::

Category 2: Ecological Characterization:

Category 3: Management and Governance Characterization:

UNIT OF ASSESSMENT

Scientific Name:

English Name:

(FAO) Area of capture:

(FAO) Country, Province, State (within EEZ):

Capture method:

Capture method (Additional Info):

Vessel type(s) used:

Vessel size range (m) used:

Season of capture (indicate if capture is year-round):

Size of fishery, larger-scale, or small-scale or indeterminate:

Annual revenue generated by fishery activity in the assessment area:

Management or Governance Authority:

Catch figures: (in t)

PRELIMINARY CHARACTERIZATION

Characteristic	Yes	No	unknown	N/A
This fishery targets a species...				
1 ...listed as threatened or endangered on a local, national or international list of threatened species	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2... from an enhanced or otherwise linked to (through food web of life history interactions) an enhanced population	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3...with known crucial life history and habitat needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4...that exhibits migratory* behaviours				
*For these assessment purposes, a species should be considered migratory if it spends a portion of its lifespan or significant stages of its life history transitioning from marine to freshwater environments, vice versa, or across freshwater environments (diadromy, anadromy, or catadromy).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5... that is at known risk for climate change impacts, such as predicted range shift, decreased oxygen availability, and/or increased water temperatures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6...that is endemic to the assessment area or to a similarly narrow range	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. This fishery represents a highly important cultural activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8 This fishery provides a significant portion of local nutritional or food security	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9 This fishery's products are mainly consumed on a local household basis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10 This fishery's products are sold or traded using traceable* market channels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
*For our purposes, 'traceable' refers to known production chains, local, or international markets.				

If the 'Not Applicable' response was chosen for any of the characteristics above, please describe in the space provided below why the characteristic does not apply to the fishery in question.
Not Applicable Rationale (Please include the characteristic number with each rationale)

ASSESSMENT SUMMARY

MAIN REFERENCES

BACKGROUND INFORMATION SECTION

References

ASSESSMENT IMAGE

PREAMBLE

A Guidance Document with comprehensive additional information as well as useful links and references is available as a separate document. The Guidance Document provides detailed information on the interpretations of the questions.

PLEASE NOTE: Assessors **must** take **the entire Guidance Document** into due consideration!

Disclaimer

This assessment is carried out by a qualified assessment team composed of experienced fisheries biologists from the nature conservation organizations WWF, NSF, and associated institutions. The information provided in this assessment has been collected according to high scientific standards. All judgments are delivered independently of commercial interests. This is an assessment methodology to indicate the relative sustainability of a fishery. This methodology is not a certification of sustainability, nor does it allow the fishery or retailer to make any claims about the species or stock or a certain product. This is a desk-based assessment. Each assessment undergoes a quality control (cross-check) regarding consistency by a member of the assessment team. However, no rights whatsoever can be based upon the advice. This methodology is not to be used by third parties without consulting the WWF Global Seafood Coordinator.

CATEGORY 1: TARGET STOCK

Depending on the available amount of information, there are two possible tracks on which the stock status is rated. Question 1 sets the course which track is applicable.

Q1 Are adequate* stock assessments of the target stock available? Or is the available fishery data sufficient to describe or estimate the stock status and fishing pressure?

- A YES a recent stock assessment is available and/or the available fishery data suffices to adequately describe the stock [stock is monitored] → **Track A** (QA2-A6)
- B NO this is a data deficient fishery, stock status can only be evaluated by a risk-based approach → **Track B** (QB2-B5)

* Adequate: recent (within 5 years) and reliable, but not necessarily traditional stock assessment methods (e.g., using complex modelling).

TRACK B – RISK BASED APPROACH FOR DATA DEFICIENT FISHERIES

QB2 Is the species considered as threatened or endangered on any international or domestic list OR do fishery-specific data or expert opinion indicate that the target stock is at biological risk?***

- NO - The species is not listed as threatened or endangered on any international or domestic list* AND there are no other indications that the species is at biological risk
- YES - The species is listed as threatened on at least one list*
- YES - The species is listed as endangered* on at least one list*
- UNKNOWN – there is not enough information (e.g. species is not assessed by IUCN)

Custom Score, see *Annotations*

**List Examples: IUCN Red List, CITES Appendices, OSPAR, China Red List, US Endangered Species Act, Canadian Species at Risk Act, European Habitat Directive, national or domestic lists.*

QB3 Do experts or available data indicate that the species exhibits growth or reproduction characteristics that reduce the stock's resilience to fishing pressure?

- NO - Species has a high resilience to fishing pressure
- YES - At least 2 of the listed factors indicate that the species is moderately resilient to fishing pressure
- YES - At least 1 of the listed factors indicate that the species has a low resilience to fishing pressure
- YES - At least 2 of the listed factors indicate that the species has a low resilience to fishing pressure
- UNKNOWN - 3 or more of the listed life history parameters are unknown or not applicable.

Custom Score, see Annotations

Parameter	Resilience		
	High	Moderate	Low
V. Bertalanffy Growth parameter k (yr^{-1})	$k \geq 0,30$	$0,15 < k < 0,30$	$k \leq 0,15$
Maximum age T_{max}	<8 years	8-20 years	> 20 years
Age at maturity T_m	<3 years	3-6 years	> 6 years
Fecundity	>20,000 eggs per year	100-20,000 eggs per year	<100 eggs per year
Trophic level	<2.75	2.75-3.25	>3.25
Reproduction			Semelparous OR viviparous reproduction OR Sequential hermaphroditism
Free watershed access	The stock has unhindered access to all vital watersheds.	Access to vital watersheds is obstructed but management measures maintain integrity of watershed connectivity (e.g. by built fish stairs, bypasses.)	The stock does not have access to all watersheds required for its natural life cycle & reproduction.

QB4 Do experts or available data indicate that the species exhibits distinct life history characteristics that make it particularly vulnerable to fishing practice?

- NO – The species exhibits none or 1 of the listed parameters [species is not vulnerable to the fishing practise]
- The species exhibits 2 of the listed parameters [species is possibly vulnerable to the fishing practise]
- The species exhibits 3 or of the listed parameters [the species is moderately vulnerable to the fishing practise]
- YES - The species exhibits more than 3 of the listed parameters [the species is highly vulnerable to the fishing practise]
- INSUFFICIENT INFORMATION – Relevant details on the species's biology and behaviour are missing

Custom Score, see Annotations

Traits to consider: reliance on a scarce limiting factor, limited range, schooling, temporary aggregations, migrations, encounter probability with the gear, vulnerability for the particular gear, brood care, etc.

QB5 Is the stock under assessment subject to restocking mechanisms/stock enhancement?

- NO, the stock is not enhanced (continue with QB6)
- YES, the stock is enhanced with juveniles/mature individuals originating from hatcheries (continue with QB5a)
- YES the stock is enhanced with juveniles/mature individuals originating from wildcatch (continue with QB5b)
- UNKNOWN it is unknown if the stock is being enhanced OR it is known that the stock is enhanced but the origin of the enhancement individuals is unknown. (continue with QB6)

Custom Score, see Annotations

QB5a Does the restocking from hatcheries result in detrimental effects on the ecosystem

- NO - The restocking does not lead to detrimental effects on the gene pool or the ecosystem
- YES - The restocking does lead to detrimental effects on the gene pool or the ecosystem
- Unknown - The effect on the gene pool or ecosystem is not known

Custom Score, see Annotations

(Consider ecosystem effect such as gene pool drift/reduction or by "pushing" species abundance and resulting effects e.g. on the trophic web)

QB5b Does the enhancement species originate from overfished or vulnerable stocks? Does the restocking result in detrimental effects on the ecosystem?

- NO, the original stock of the enhancement species is not overfished and the restocking does not lead to detrimental effects on the gene pool or the ecosystem
- YES, the original stock of the enhancement species is overfished OR available information indicates a detrimental effect on the gene pool or the ecosystem caused by the enhancement.
- YES, the original stock of the enhancement species is overfished AND available information indicates a detrimental effect on the gene pool or the ecosystem caused by the enhancement.
- UNKNOWN - The status of the original stock is unknown AND/OR there is not enough information to evaluate effects on the ecosystem caused by the enhancement practise.

Custom Score, see Annotations

(Consider ecosystem effect such as gene pool drift/reduction or by "pushing" species abundance and resulting effects e.g. on the trophic web)

QB6 Do fishery-specific data indicate, or, do experts believe that the current fishing practice likely reduces the stock to unsafe levels*?

- NO - Current fishing practice is likely to maintain maximum productivity of the stock
- NO - the current fishing practice is unlikely to threaten the target stock.
- YES - there are indications that current fishing practice might threaten the target stock and there are no management measures regulating this fishery
- YES - The stock is severely threatened by the current fishing practice
- UNKNOWN - There is no information about the current fishing practice and/or how it affects the target stock

Custom Score, see Annotations

***E.g. due to the gear used or the range or the coverage of the fishing activity.*

CATEGORY 2: ECOLOGICAL CHARACTERIZATION

Q7 Does the fishery negatively impact* any species (fish and non-fish) that is listed** as threatened, endangered or protected (ETP)?

- NO - The fishery under assessment does not cause significant damage to any listed, overfished, or highly vulnerable species
- NO - The fishery under assessment is not likely to cause significant damage to any listed, overfished, or highly vulnerable species
- YES - The fishery under assessment is likely to cause significant damage to some listed, overfished, or highly vulnerable species
- YES - The fishery under assessment causes significant damage to any listed, overfished, or highly vulnerable species
- UNKNOWN - There is conflicting or insufficient information concerning the effects on listed, overfished, or highly vulnerable species

Custom Score, see Annotations

* Impacts should be considered at a population level (not just within assessment area)

** Listed on regional, national or international threatened species lists such as IUCN RedList

Q8 Does the fishery generate discards of species exhibiting a high* post release mortality?

- NO - The fishery produces less than 5% discards of species exhibiting a high post release mortality?
- YES - The fishery produces between 5% and 15% discards of species exhibiting a high post release mortality?
- YES - The fishery produces between 16% and 30% discards of species exhibiting a high post release mortality?
- YES - The fishery produces more than 30% discards of species exhibiting a high post release mortality?
- UNKNOWN - The discard rate is unknown (please refer to baseline matrix for the score)

Average Score

Custom Score, see Annotations

* >25 %

Discard rates should refer to weight (not in numbers).

*Please add the following Custom scores in case the discard rate is unknown

Gear	Custom score	Total score
Bottom Trawl	-1	-2
Gillnet/Longline	0	-1
Handline	+1	0
Traps/Pots	+1	0

Q9 Do discards or landings of other species including overfished or biologically highly vulnerable species occur within this fishery at levels that potentially harm the stocks of these bycatch species?

- NO - Discards and bycatch do not occur in this fishery at potentially harmful levels. All landed* and discarded species are well monitored
- NO - impacts on other populations by landing or discarding them is unlikely although not all affected species are monitored.
- YES - Discards and bycatch occur in this fishery at potentially harmful levels.
- YES – there is evidence that discard and bycatch of other species occurs and causes significant damage to these stocks.
- UNKNOWN - It is unknown or uncertain if discards or bycatch occur in this fishery at potentially harmful levels,

Custom Score, see *Annotations*

Q10 Does the intensity of the fishery result in significant negative ecosystem changes*, such as cascade effects, major food chain effects, or community changes? [Ecosystem Effect]

- NO - The fishery is not causing significant negative ecosystem changes [direct evidence]
- NO - Negative ecosystem changes caused by the fishery are unlikely [circumstantial evidence]
- YES - Significant negative ecosystem changes are likely [circumstantial evidence]
- YES - The fishery is causing significant negative ecosystem changes [direct evidence]
- UNKNOWN – There is not enough information to evaluate ecosystem effects caused by the fishery under assessment.

Custom Score, see *Annotations*

**Examples of significant ecosystem changes: Significantly increased abundance of species with a low trophic level caused by depletion of predators OR depletion of top predators as a result of the decrease of key prey species OR truncated size composition of the ecological community. OR Major changes in the species biodiversity of the ecological community OR changes in the genetic diversity of a stock that lead to changes of growth or reproduction of the species*

Q11a In the space provided below, please indicate which of these capture methods and habitat types occur in the freshwater capture fishery being assessed by placing a mark in the appropriate cells.

Habitat Types	Medium or large lacustrine		Medium or large riverine		Streams or ponds	Wetland	Estuarine (e.g., sea grass, kelp forest)	Temporary water (sloughs, paddy fields, etc.)	Unknown
	Sand and gravel	Rocky bottom	Sand and gravel	Rocky bottom					
Handlines and pole and lines (hand operated), Pelagic gillnets, Longlines (nei)	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
Hand collection and Hand implements, Fyke nets, Beach seines, Scoop-nets	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
Pot (traps), Demersal gillnets	<input type="checkbox"/> 1	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 0	<input type="checkbox"/> 0	<input type="checkbox"/> 0	<input type="checkbox"/> 0	<input type="checkbox"/> 0	<input type="checkbox"/> 0
Danish seines, Pair seines	<input type="checkbox"/> 0	<input type="checkbox"/> -1	<input type="checkbox"/> 0	<input type="checkbox"/> -1	<input type="checkbox"/> -1	<input type="checkbox"/> -1	<input type="checkbox"/> -1	<input type="checkbox"/> -1	<input type="checkbox"/> -1
Beam trawls	<input type="checkbox"/> -1	<input type="checkbox"/> -2	<input type="checkbox"/> -1	<input type="checkbox"/> -2	<input type="checkbox"/> -2	<input type="checkbox"/> -2	<input type="checkbox"/> -2	<input type="checkbox"/> -2	<input type="checkbox"/> -2

Average Score

Average Score Value (just for testing ..)

Custom Score, see Annotations

Q11b Is the fishing method destructive to fish habitats that are valuable to target species, important prey or predator species in the ecosystem, or to the ecological function of the habitat (including habitat communities)?

- NO - This fishery does not cause damage to the habitat or its ecological functioning.
- YES - The fishery causes some damage to fish habitat, but this damage does not show effect during seasons important to fish life history and/or does not irreversibly affect the ecological functioning of the habitat.
- YES - The fishery causes significant damage to fish habitat throughout the year or during seasons important to fish life history, e.g., spawning, migration, and/or has prolonged negative effects on the ecosystem functioning.
- UNKNOWN - There is not enough information to evaluate effects on the ecological functioning of the habitat, OR the habitats occurring in the area of assessment is unknown.

Custom Score, see Annotations

CATEGORY 3: MANAGEMENT

Q12 How effective are implemented management measures to minimize impacts on endangered, threatened protected, overfished and biologically vulnerable species?

Score between 100% (fully effective) and 0% (measures have no effect / there are no measures)

IRRELEVANT – this item is irrelevant for the fishery under assessment

UNKNOWN – There is no information on established management measures or their efficiency.

Q13 How effective are implemented management measures to minimize discards?

Score between 100% (fully effective) and 0% (measures have no effect / there are no measures)

IRRELEVANT – this item is irrelevant for the fishery under assessment

UNKNOWN – There is no information on established management measures or their efficiency.

Q14 How effective are implemented management measures to protect affected habitats and ecosystems?

Score between 100% (fully effective) and 0% (measures have no effect / there are no measures)

IRRELEVANT – this item is irrelevant for the fishery under assessment

UNKNOWN – There is no information on established management measures or their efficiency.

Q15 How effective are existing regulations enforced? How effective are measures in assuring overall compliance and preventing IUU?

Score between 100% (fully effective) and 0% (measures have no effect / there are no measures)

UNKNOWN – There is no information on established management measures or their efficiency.

Q16 How transparent is the decision-making process and how effective does it include stakeholder participation?

○

Score between 100% (fully effective) and 0% (measures have no effect / there are no measures)

UNKNOWN – There is no information on established management measures or their efficiency.

**Effective such that communication occurs and the content of communication informs management and policy outcomes*

Q17 When multiple fisheries sectors are competing with each other for the same species (i.e. recreational, artisanal): How effective* are conflict-resolution mechanisms** to resolve space or resource access conflicts

○

○

Score between 100% (fully effective) and 0% (measures have no effect / there are no measures)

IRRELEVANT – this item is irrelevant for the fishery under assessment

UNKNOWN – There is no information on established management measures or their efficiency.

** Effective such that the methods put in place to resolve conflict issues are accessible to members with differing viewpoints and are able to arrive at solutions, implement them, and measure their success.*

*** Conflict-resolution mechanisms can refer to various processes or bodies designed to handle and reduce conflict situations. Examples include but are not limited to boards of directors, panels consisting of members from different sectors, community-led conflict resolution processes, traditional or culturally-based conflict resolution methods, etc.*