



MACALISTER ELLIOTT & PARTNERS LTD

Kiritimati Recreational Fishery Management Plan

FOR MFMRD



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Acronyms

CPUE	Catch per unit effort
MCS	Monitoring, control, and surveillance
MEP	MacAlister Elliott and Partners Limited
MFMRD	Ministry of Fisheries and Marine Resource Development
SPR	Spawning potential ratio

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Part 1. Scope

A. Regulatory framework

- 1) This fishery management plan applies to recreational fly fishing occurring within the lagoon and on the surrounding reefs of Kiritimati, Kiribati.
- 2) As defined in the Fisheries (Amendment) Act 2021 (the Act) (i) “recreational fishing” means fishing done for leisure, including game and sport purposes, with or without regard to earnings, gain or profit; and (ii) “fishery” means a stock of fish or fishery operations that can be treated as a unit for purposes of sustainable development and management, taking into account cultural, geographical, scientific, technical, recreational, economic and other relevant characteristics.
- 3) Recreational fishing in coastal waters throughout Kiribati is controlled by the Act and the Fisheries (Conservation and Management of Coastal Marine Resources) Regulations 2019.
- 4) Recreational fishing is licensed (Fisheries Act, Section 14B).
- 5) A fishery may be determined to be a “designated fishery” (Fisheries Act, Section 5) if, having regard to cultural, scientific, economic, environmental and other relevant considerations, the Minister considers that the fishery (i) is important to the national interest; and (ii) requires management and development measures for its effective conservation and optimum utilisation.
- 6) Fishery management plans can be enacted for both designated fisheries and other fisheries (Fisheries Act, Section 6) to provide for, inter alia, (i) fishing practices addressed by the plan; (ii) fees to be paid for the right to fish; (iii) restrictions on the right to fish, including the type of fishing activity and the areas in which the fishing activities may or may not take place; and (iv) requirements that certain conditions be complied with, such as the provision of information and data.
- 7) A fishery management plan (Fisheries Act, Section 6) must (i) identify the fishery and its characteristics, including the present state of its exploitation; (ii) specify the objectives to be achieved in the management of the fishery; (iii) specify the management and development strategies to be adopted for the fishery; (iv) provide for a scheme of licensing, if necessary, or other appropriate management measure; (v) specify, if applicable, the licensing regime to be applied, including the limitations, if any, to be applied to local fishing operations and the amount of fishing, if any, to be allocated to foreign fishing operations; (vi) specify the

information and other data required to be provided by persons licensed to fish for that fishery; and (vii) take into account any relevant traditional fishing methods and practices.

- 8) Further restrictions are enacted via the Fisheries (Protection of Bonefish on Kiritimati) Regulations 2008.

B. Duration and revision of the management plan

- 1) This management plan applies for a period of 25 years.
- 2) Upon expiry of this plan, it may be extended or replaced in line with provisions of the Act and relevant Regulations.
- 3) The plan shall be reviewed and revised every five (5) years, in line with provisions under the Fisheries (Conservation and Management of Coastal Marine Resources) Regulations 2019, Section 5.
- 4) A review of the plan may be conducted at any time if needed earlier than the minimum period of five years, when the Minister considers necessary, upon the advice of the Director and of the Recreational Fishery Management Council.
- 5) Any amendments to the plan shall be endorsed by the Recreational Fishery Management Council and approved by the Minister in writing.

C. Authorisation

- 1) This fishery management plan has been prepared in accordance with the Fisheries Act, Section 6.
- 2) All activities carried out under this plan shall be subject to applicable provisions of all Acts and Regulations of Kiribati.
- 3) This fishery management plan applies to all fishing as defined in Part 2.
- 4) This fishery management plan shall enter into force by order of the Minister and the management measures described in the management plan shall have the full force and effect of regulations promulgated under the Act in accordance with Section 6.

Part 2. Description of the fishery

A. Location

- 1) This fishery management plan applies to recreational fishing within the coastal waters—including lagoon and outer coastline—of Kiritimati, Kiribati (Figure 1).

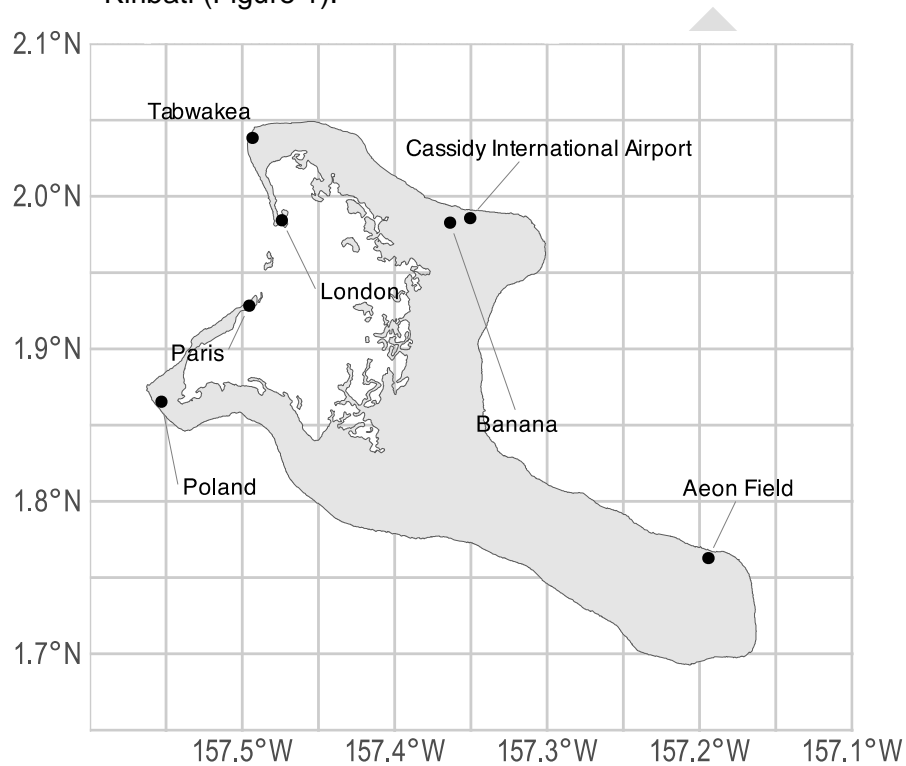


Figure 1: This fishery management plan applies to all coastal waters of Kiritimati.

B. Catching methods

- 1) This fishery management plan applies to recreational angling using hook and line and lightweight lures (fly fishing).

C. Target species

- 1) This fishery management plan applies to the species listed in Annex 1.
- 2) Limited quantitative data is available on the target species and catch rates of the fishery.
- 3) Interviews with fishing guides and tourist (n=12) conducted in 2023 revealed that bonefish and giant trevally are the most targeted species (Figure 2).

- 4) Detailed biological and ecological information for these target species is presented in Annex 1.

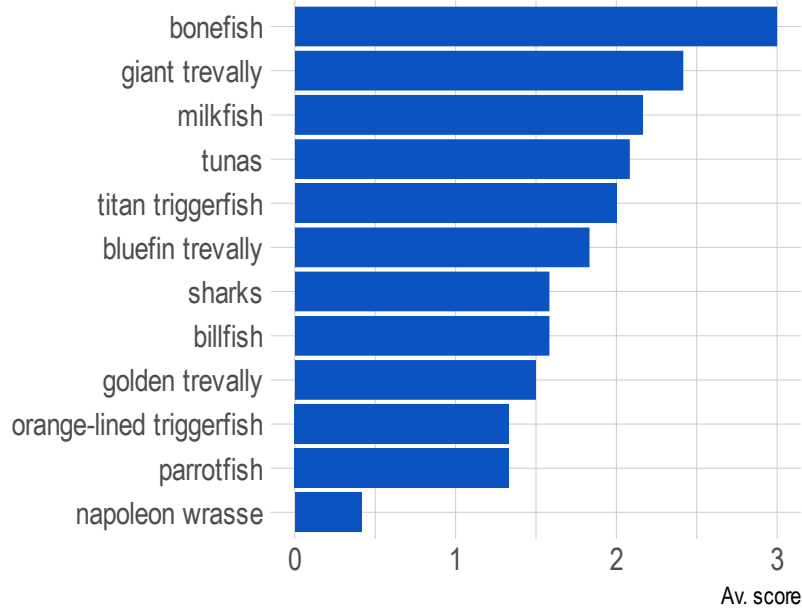


Figure 2: Stakeholder interviews with recreational fishing guides and anglers (n=12) conducted in 2023 revealed average target score where 0 = never caught; 1 = bycatch species; 2 = occasionally targeted/ special request; and 3 = commonly targeted.

D. Biological status

- 1) Limited quantitative information is available on the biological status of fish stocks targeted by the fishery.
- 2) Interviews with fishing guides and government representatives (n=20) conducted in 2023 revealed that both government and industry stakeholders perceive the fishery to be in good condition (Figure 3). Some anecdotal reports suggested that stock status may have declined between 2019 and 2023 due to a reduction in tourist arrivals during the Covid19 global pandemic and an increased dependence on subsistence fishing on target species.

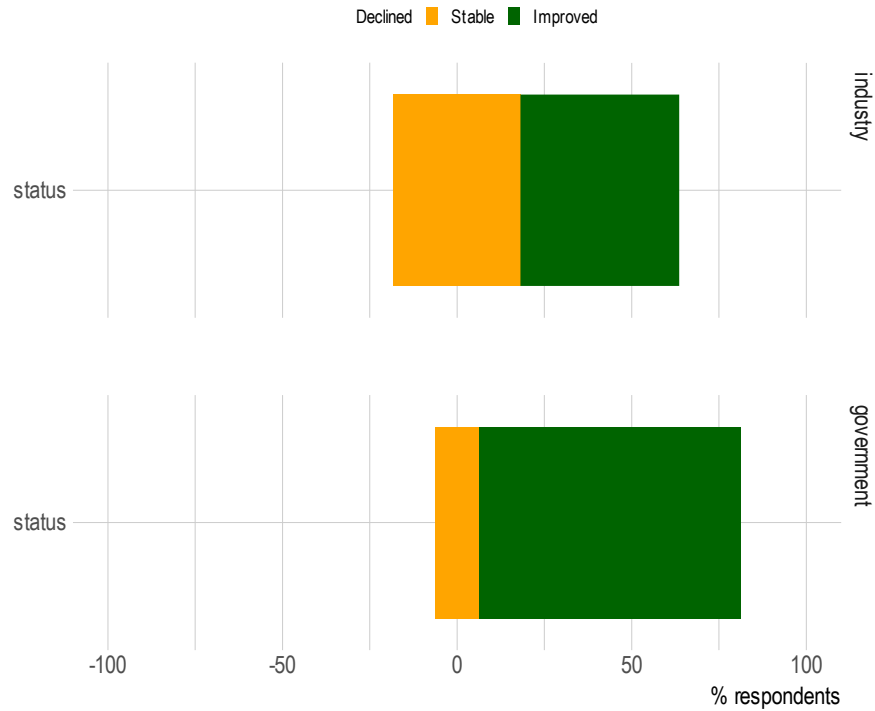


Figure 3: Industry and government perceptions about the status of Kiritimati's marine aquarium resources over the past five years.

E. Socio-economic status

- 1) Limited quantitative information is available on the socio-economic status of the fishery.
- 2) Ministry of Fishery and Marine Resources Development (MFMRD) records reveal that the number of fishing permits granted to foreign visitors has increased year on year to a maximum of 1,400 just prior to the Covid19 global pandemic (Figure 4, B).
- 3) Actual annual revenues from permit sales are estimated to exceed AU\$75,000 per year (Figure 4, A).
- 4) The permit fee was set at AU\$55 via Fisheries (Protection of Bonefish on Kiritimati) Regulations 2008, with no subsequent adjustment for inflation. The Reserve Bank of Australia (<https://www.rba.gov.au/calculator/annualDecimal.html>) reports inflation of 38.7 percent between 2008 and 2022. In other words, AU\$55 in 2022 has the equivalent purchasing power as AU\$39.64 in 2008. Adjusted for inflation, annual revenues are estimated at less than US\$60,000 at 2008 values (Figure 4, A).

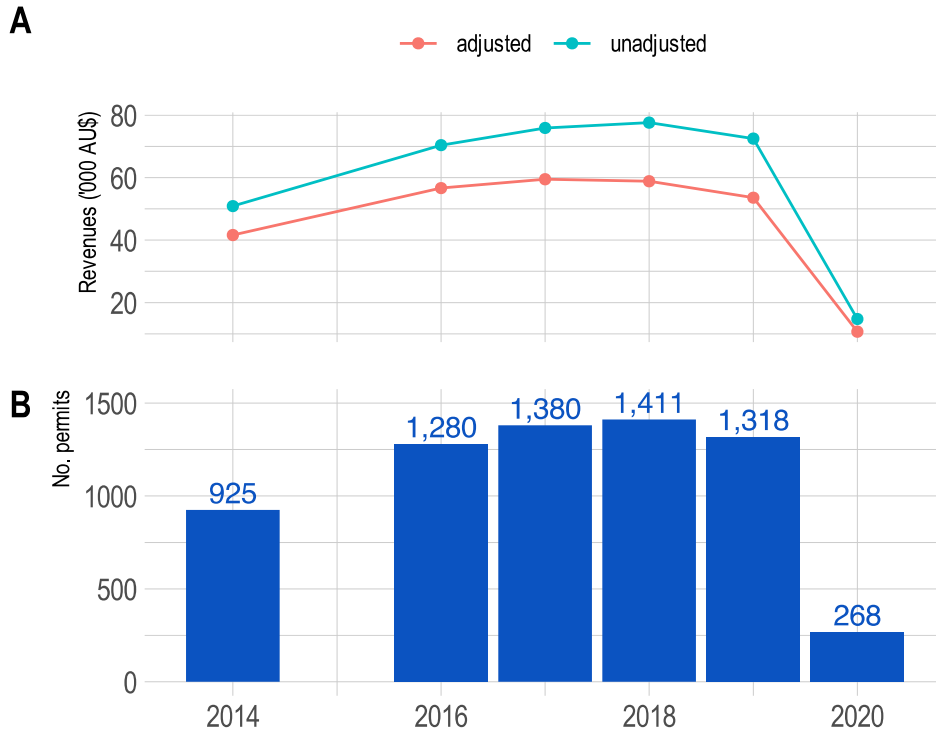


Figure 4: Recreational fishing permit revenues (A) and numbers (B). Revenues are presented as unadjusted (blue) and adjusted (red) for inflation based on 2008 purchasing power. Source: MFMRD

F. Ecosystem impacts

- 1) Limited quantitative information is available on the ecosystem impacts of the fishery.
- 2) Due to low angler density and catch-and-release practices the ecosystem impacts of the fishery are expected to be low, and to include:
 - (a) Trampling of lagoon flat intertidal habitats by wading anglers;
 - (b) Crowding of lagoon flats resulting in (i) reduced visitor satisfaction; and (ii) increased disturbance of fauna including fish stocks, seabirds and endangered, threatened and protected species such as turtles and manta rays;
 - (c) Behavioural impacts such as learned avoidance of lures by target species;
 - (d) Reduction in target populations, especially due to suboptimal catch-and-release practices. Research conducted in Kiritimati has

demonstrated that improper handling practices can result in 100 percent post-release mortality within 16 days.¹

- 3) The fishery may also be affected by external impacts that include:
 - (a) Pressure on target fish stocks by other fisheries, including the gillnet fisheries operating within the lagoon;
 - (b) Changes in water quality, including eutrophication of lagoon waters resulting from organic waste; and
 - (c) Increased sea surface temperature resulting from global climate change.
- 4) Interviews with fishing guides and anglers (n=12) conducted in 2023 revealed that recreational fishing effort is concentrated within the lagoon, and on the outer coasts just outside the lagoon and surrounding Banana and Korean Wreck.

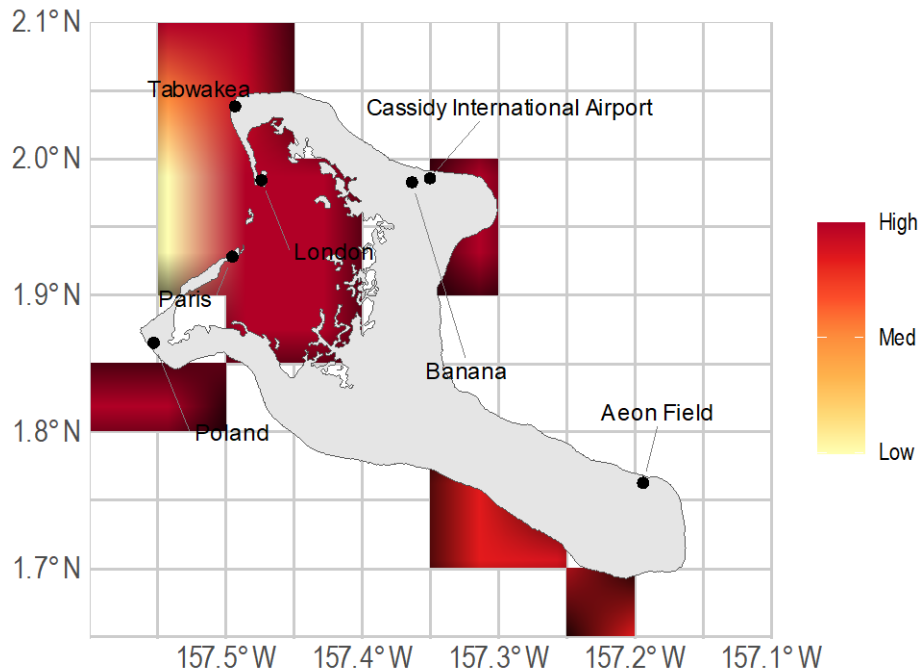


Figure 5: Stakeholder interviews revealed that recreational fishing effort is concentrated primarily within the lagoon, on the outer reefs just outside the lagoon, and on the outer coastline surrounding Banana and Korean Wreck

¹ Yeeting, B (2006) *The Implications of Fishing and Handling of the Bonefish, *Albula glossodonta* (ALBULIDAE), on their mortality: A Management Consideration. 2nd International Bonefish and Tarpon Symposium, Florida, USA. January 2006.*

Part 3. Goals of the management plan

- 1) The purpose of the fishery management plan is to establish an effective, beneficial, and enforceable management structure to provide ecological sustainable development of the Kiritimati recreational fishery and benefit the people of Kiritimati. This purpose is achieved via three key goals.

B. Goal 1 – Recreational fishery resources are within biologically sustainable limits

- 1) This goal aims to ensure that the species targeted by recreational fishers are managed at biologically sustainable levels and that adequate information is collected and available to inform management. This management plan establishes the following objectives in support of this goal:
 - (a) Recreational fishing catch and effort are managed to maintain target populations at biologically sustainable levels; and
 - (b) Sufficient information is available to inform fishery management planning and evaluation.

C. Goal 2 – Recreational fishery resources are used optimally and equitably

- 1) This goal aims to ensure that recreational fishing activities are managed to provide socio-economic benefits to the people of Kiribati. This management plan establishes the following objectives in support of this goal:
 - (a) Access to fishery resources is allocated to deliver optimum and equitable utilisation;
 - (b) The flow of social and economic benefits from the recreational fishery to the people Kiribati is maintained at target levels; and
 - (c) Fishing experience is maintained at target levels.

D. Goal 3 – Effective, efficient and participative management of the recreational fishery

- 1) This goal aims to ensure that management of the recreational fishery is transparent and participative, maximising opportunities for voluntary compliance whilst also considering wider cultural, social and economic issues. This management plan establishes the following objectives in support of this goal:

- (a) Appropriate institutions and mechanisms are established for stakeholder involvement in the development of recreational fisheries management advice and recommendations;
- (b) Decision-making processes by fishery management agencies are transparent; and
- (c) Stewardship of fisheries resources by recreational fishing guides and tourists is maximised.

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Table 1: Management strategy and performance indicators for the recreational fishery.

Objective	Strategy	Performance indicator	Reference point
Goal 1 – Recreational fishing resources are maintained within biologically sustainable limits.			
<p>Recreational fishing catch and effort are managed to maintain target populations at biologically sustainable levels.</p>	<ol style="list-style-type: none"> 1) Regulate fishing effort using licences and permits. 2) Regulate size at which fish may be captured using minimum and/or maximum size limits. 3) Regulate catch limits through effective catch-and-release, bag, boat and/or possession limits. 4) Apply spatial and temporal restrictions to protect fish species during critical stage of life cycle. 5) Regulate permitted fishing methods. 6) Understand and minimise post-release mortality to minimise impacts on target populations. 7) Where a species is considered at risk, introduce appropriate conservation and management measures (i.e. strategies listed above and/or protect the species until recovery is shown). 	<p>Spawning potential ratio for selected species as detailed in the harvest strategy.</p>	<p>Target: SPR40% Limit: SPR20% See harvest strategy.</p>
<p>Sufficient information is available to inform fishery management planning and evaluation.</p>	<ol style="list-style-type: none"> 1) Recreational Fishing Logs are available for all fishing trips to provide catch/effort data that is incorporated into stock assessments. 2) Explore opportunities for additional cost-effective recreational catch monitoring and research as required. 3) Status of target species is assessed and reported. 	<p>Annual recreational fishery status report produced to a high standard.</p>	<p>Status of target species is not reported annually.</p>

Objective	Strategy	Performance indicator	Reference point
Goal 2 – Recreational fishing resources are used optimally and equitably.			
Access to fishery resources is allocated to deliver optimum and equitable utilisation.	<ol style="list-style-type: none"> 1) The number of guide and angler licences is set based on consideration of resource status. 2) All applications for licences are processed and responded to within the required 14-day period. 3) Where the number of licences requires adjustment, processes are implemented as per the Management Plan 	Compliance with licence regulations and conditions.	20% or more of inspections detect non-compliance issues.
The flow of social and economic benefits from the recreational fishery to the people Kiribati is maintained at target levels.	<ol style="list-style-type: none"> 1) Measures for determining the socio-economic value of the recreational fishery are identified and adopted (e.g., sector contribution to GDP, number of direct jobs, non-tax revenue generated, etc.) 2) Socio-economic measures are assessed and communicated publicly 	Measures for determining the economic value of the recreational fishery are adopted and publicly accessible.	Economic measures are not developed, implemented, monitored and/or publicly accessible once established.
Fishing experience is maintained at target levels.	<ol style="list-style-type: none"> 1) Visitor satisfaction surveys are implemented periodically. 2) Fishing experience is considered when new/modified management arrangements are developed. 	Level of satisfaction recreational fishers have with their fishing activity is reported annually.	Visitor experience is not reported annually.

Objective	Strategy	Performance indicator	Reference point
Goal 3 – Recreational fishing Effective, efficient and participative management of recreational fishing			
Appropriate institutions and mechanisms are established for stakeholder involvement in the development of recreational fisheries management advice and recommendations.	<ol style="list-style-type: none"> 1) Recreational Fishery Management Council is established and meets regularly (at least once per year). 2) Promote stakeholder input to the management of the fishery, through co-management processes and communication strategies. 	Recreational Fishery Management Council meeting reports are available and document (i) stakeholders participating in the meeting; (ii) proposals and issues raised; and (iii) decisions taken.	Recreational Fishery Management Council meeting report is not available. Lack of key stakeholder participation in any proposed recreational fishery management changes.
Decision-making processes by fishery management agencies are transparent.	<ol style="list-style-type: none"> 1) Communicate decision-making processes on reviews and revisions of this management plan. 2) Information about the recreational fishery and its management arrangements are publicly accessible, including online and via posters, brochures or other media available at fishing lodges. 	Documentation of fisheries management decision-making processes.	80% or less of management decisions are published in publicly available forums. Publicly available information on recreational fishing and management is decreasing from previous year.
Stewardship of fisheries resources by recreational fishing guides and tourists is maximised.	<ol style="list-style-type: none"> 1) Fishing logs are submitted for all fishing trips. 2) Guides and/or anglers are able to report fishery offences via a clearly defined reporting mechanism. 3) Annual compliance risk assessment is undertaken. 	Number of fishing logs submitted. Number of offences reported by stakeholders. Compliance risk assessment undertaken annually.	Decrease in the number of Recreational Fishing Logs submitted. Increase in the number of offences reported by stakeholders. Recreational fishery compliance risk assessment is not undertaken annually.

Part 4. Authorities and roles

A. Ministry of Fisheries and Marine Resource Development, Fisheries Division

- 1) The functions of MFMRD Fisheries Division in relation to Kiritimati's recreational fishery are set out under the Act and include, but are not limited to:
 - (a) Receive and assess fishing license applications, issue/ grant fishing licenses, and enforce fishing license conditions;
 - (b) Charge and receive fishing licence and permit fees;
 - (c) Oversee the implementation and revision of this management plan as required;
 - (d) Coordinate, facilitate and implement resource assessments and provide technical information;
 - (e) Coordinate the participation of stakeholders in the management and development of the recreational fishery;
 - (f) Coordinate, conduct, review or oversee monitoring and research efforts to support the sustainable development and management of the recreational fishery;
 - (g) Provide annual reports to stakeholders on the status of the fishery; and
 - (h) Assist the Island Councils to develop and align bylaws related to the recreational fishery with national regulations.

B. Island Councils

- 1) The Island Council of Kiritimati, established under the Local Government Act 1984, is the local authority that deals with the general administration and control of all matters in Kiritimati. The roles of the Council in the management of the recreational fishery includes but is not limited to:
 - (a) Receive and assess applications and issue local business licenses and other related licenses in accordance with relevant Island Council policy/ies;
 - (b) Collect applicable license fees;
 - (c) Develop and implement bylaws on the recreational fishery that are within the Island Council's area of jurisdiction and in line with national regulations, and impose fines and penalties;

- (d) Assist MFMRD Fisheries Division in the implementation of the recreational fishery management plan where possible; and
- (e) Provide input into the declaration of boundaries for zone use and marine reserve areas.

C. Kiritimati Recreational Fishery Management Committee

- 1) A Kiritimati Recreational Fishery Management Committee shall be established, and its function will be to discuss matters relating to the implementation of this plan and to the status, management and compliance of the fishery, including but not limited to:
 - (a) Review the status of recreational fishery target populations;
 - (b) Review progress towards the goals and objectives specified in this management plan;
 - (c) Discuss and address compliance matters relating to this plan and the fishery; and
 - (d) Make recommendations to improve implementation of this management plan and progress towards its specified objectives and goals.
- 2) The Committee will be appointed by the Secretary and will consist of the following members:
 - (a) MFMRD Fisheries Division;
 - (b) A representative of the Island Council;
 - (c) A representative of the Police;
 - (d) A representative of the Ministry of Environment, Lands and Agricultural Development, Environment and Conservation Division;
 - (e) A representative of the Ministry of Line and Phoenix Islands Development; and
 - (f) A representative of the Recreational Fishery Guides Association.
- 3) MFMRD Fisheries Division will be the Secretariat of the Committee.
- 4) The Director will be the Chair of the Committee, and may invite representatives of civil society or non-government organizations, relevant academic, regional or international organizations and/or institutions to specific meetings.
- 5) The Committee will meet annually, with special meetings to be called by the Secretariat when urgent matters arise.

- 6) The Committee may adopt procedures that it deems necessary for conducting its meetings (e.g., meeting minutes, quorums and decision-making).

D. Recreational Fishery Guides Association

- 1) The Recreational Fishery Guides Association has an important role to play in the fishery, including but not limited to:
 - (a) Fully complying with the conditions of their licenses;
 - (b) Ensuring that Recreational Fishing Logs are filled in correctly and submitted to MFMRD on a timely basis;
 - (c) Assisting any authorized enforcement officer to carry out their duties; and
 - (d) Assisting MFMRD Fisheries Division and the Island Council in the review, revision and implementation of this management plan.

Part 5. Harvest strategy

A. Overview

- 1) This harvest strategy provides a structured framework for decision-making and specifies the predetermined management actions to be taken to achieve the ecological, economic and social management objectives targeted by the recreational fishery of Kiritimati. Implementation of the harvest strategy is informed by information obtained from Recreational Fishing Logs (Annex 8), fishery inspections (Part 8), and the recreational fishery research strategy (Part 7). This information provides statistically robust estimates of:
 - (a) Recreational fishing effort and catches by species; and
 - (b) The structure and status of target populations

B. Objectives

- 1) The objectives of this harvest strategy are to:
 - (a) Maintain target populations within biologically sustainable limits; and
 - (b) Maximise fishing experience within ecological sustainable limits.

C. Performance indicators and reference points

- 1) The performance indicator adopted by this harvest strategy is the spawning potential ratio (SPR) for each target species.
- 2) Reference points are used to assess the status of target populations (i.e., sustainable, depleting, recovering, depleted), and to trigger the need to adjust management arrangements for the species.
- 3) Target reference points define the values of a performance indicator for a species at which a change in management is required.
- 4) Limit reference points define the values of a performance indicator for a species that is no longer considered acceptable.
- 5) This management plan adopts a target reference point of SPR40 and a limit reference point of SPR20.
- 6) Details on current population structure are presented in Annex 1.

D. Decision rules

- 1) Decision rules outline the management response to be implemented when a reference point is breached.
- 2) In the case where the reference point for a target species is breached, and the status of the species is determined to be sustainable, recovering, depleting or depleted, the actions outlined in Table 2 will be considered to ensure sustainability of the fishery.
- 3) Recognising limitations on the availability and timeliness of information, a precautionary and risk-based approach will be required when considering the need to adjust management approaches.

Table 2: Management decision rules based on status and trajectory of the target population.

Status	Criteria	Response
Sustainable	Species is above SPR40	No management change required.
Recovering/ Depleting	Species is above SPR20 and at or below SPR40	Management change required.
Depleted	Species is at or below SPR20	Consider closing fishing for that species for a predetermined period, or developing a suitable alternative mechanism for recovery.

E. Process for considering revised management arrangements

- 1) The annual fishery status report is considered during the annual Recreational Fishery Management Council meeting.
- 2) When a species is determined to be depleting or depleted, the following options may be used for considering and developing revised recreational fishery management arrangements:
 - (a) The need for a change to the recreational fishery management arrangements is assessed;
 - (b) The management targets to be achieved by the changes are identified and specified;
 - (c) Recreational fishery management arrangement options are identified, reviewed and selected (including any required adjustments to licence conditions);
 - (d) A strategy for communicating the revised recreational fishery management arrangement to affected stakeholders is determined;
 - (e) A monitoring/review framework for the revised changes is developed.

F. Potential options for revised management arrangements

- 1) When breaches of reference points occur, a range of management tools and responses are available to achieve the operational objectives of this harvest strategy. These conservation and management measures are described in detail in Part 6 and include:
 - (a) Adjusting the number of licences and permits;
 - (b) Implementing spatial and/or temporal closures;
 - (c) Implementing limits on the size and/or number of individuals that can be caught per unit of time.
- 2) The process outlined in Section E will be used to determine the most appropriate management tools and responses to achieve the specified management target under the current circumstances.

Part 6. Conservation and management measures

A. Recreational Fishing Guide Licence

- 1) Any person operating as a recreational fishing guide must possess a Recreational Fishing Guide Licence.
- 2) Applications for a Recreational Fishing Guide Licence will be made using the Recreational Fishing Guide Licence Application Form (Annex 4) submitted to MFMRD Fisheries Division.
- 3) MFMRD Fisheries Division will review applications in accordance with the Application Assessment Guidelines (Annex 5).
- 4) MFMRD Fisheries Division will decide whether to grant or deny the application.
- 5) Applicants will be informed of the decision on their application no later than 14 days after the application was officially received.
- 6) Special management or operating conditions may be attached to a Recreational Fishing Guide Licence.
- 7) The Recreational Fishery Guide Licence is valid for the period of time endorsed on it, unless suspended or cancelled.
- 8) The Recreational Fishing Guide Licence Guide is issued by MFMRD and is non-transferrable.
- 9) Applicants who are denied a Recreational Fishing Guide Licence have the right to appeal to MFMRD via the appeal process described in Part 9.
- 10) There is an annual fee payable to MFMRD by the licence holder prior to receipt of the awarded licence. The value of the annual fee is described in Annex 2.
- 11) Any person who contravenes subsection 1, 7 or 8 commits an offence and upon conviction will be liable to imprisonment for not more than six months, a fine not to exceed \$1,000.00 and/ or forfeiture of fishing gear used in committing the offence.

B. Recreational Fishing Permit

- 1) All persons who wish to conduct recreational fishing in the coastal waters of Kiritimati, and who do not possess a Recreational Fishing Guide Permit, will be required to obtain a Recreational Fishing Permit in line with provisions under Fisheries (Protection of Bonefish on Kiritimati) Regulations 2008.

- 2) Applications for a Recreational Fishing Permit will be made to MFMRD Fisheries Division.
- 3) MFMRD Fisheries Division will decide whether to grant or deny the application based on the number of available permits remaining under Annex 7.
- 4) Applicants will be informed of the decision on their application no later than 24 hours after the application was officially received.
- 5) The Recreational Fishing Permit is valid for the period of time endorsed on it unless suspended or cancelled.
- 6) The Recreational Fishing Permit is issued by MFMRD and is non-transferable. The Minister may, in writing, delegate the administration of this responsibility.
- 7) There is an annual fee payable to MFMRD by the permit holder prior to receipt of the awarded permit. The value of the annual fee is described in Annex 2.
- 8) Any person who wishes to fish in Kiritimati for research, conservation or other purposes beneficial to the recreational fishery may be exempt from obtaining a permit if such exemption is granted in writing by the Minister.
- 9) Any person who contravenes subsection 1, 6, or 6 commits an offence and upon conviction will be liable to imprisonment for not more than six months, a fine not to exceed \$1,000.00 and/ or forfeiture of fishing gear used in committing the offence.

C. Restrictions on the number of licences and permits

- 1) The maximum number of Recreational Fishing Guide Licences will be capped at the number presented in Annex 7.
- 2) The maximum number of Recreational Fishing Permits will be capped at the number presented in Annex 7.
- 3) The maximum number of anglers per guide per trip shall be capped at the number presented in in Annex 7.
- 4) These restrictions shall be reviewed and adjusted if deemed necessary by the Recreational Fishery Management Council.
- 5) Recreational fishery licence and/or permit holders will comply with the Recreational Fishery Code of Conduct (Annex 9).
- 6) Any person who contravenes subsection 3 commits an offence and shall be liable upon conviction to imprisonment for not more than six months, a fine not exceeding \$1000.00 and/ or forfeiture of fishing gear used in committing the offence.

D. Fishing gear and method restrictions

- 1) Recreational Fishing Guide Licence and Recreational Fishing Permit holders are permitted to use fly fishing gears only.
- 2) Any person who contravenes subsection 1 commits an offence and shall be liable upon conviction to imprisonment for not more than six months, a fine not exceeding \$1000.00 and/ or forfeiture of fishing gear used in committing the offence.

E. Prohibition or restriction of fishing in certain areas and during certain periods

- 1) This management plan shall identify spawning, nursery or other critical habitats (Annex 6) where restrictions on fishing effort and type of fishing gear may be prohibited from time to time.
- 2) The Recreational Fishing Guide Licence and the Recreational Fishing Permit may include restrictions on fishing effort in designated areas as deemed necessary by the Recreational Fishery Management Council to allow recovery of fish stocks.
- 3) Any person who contravenes subsection 1 or 2 commits an offence and upon conviction shall be liable to imprisonment for not more than six months, a fine not exceeding \$1,000.00 and/ or forfeiture of fishing gear used in committing the offence.

F. Limits on the size and/or number of individuals that can be caught

- 1) This management plan shall outline any limits on the size and number of individuals of a given species that may be caught within a given period of time (Annex 7).
- 2) The Recreational Fishing Guide Licence and the Recreational Fishing Permit may include limits on the size and number of individuals of a given species that may be caught within a given period of time, as deemed necessary by the Recreational Fishery Management Council to allow recovery of fish stocks.
- 3) Any person who contravenes subsection 1 or 2 commits an offence and upon conviction shall be liable to imprisonment for not more than six months, a fine not exceeding \$1,000.00 and/ or forfeiture of fishing gear used in committing the offence.

G. Reporting requirements

- 1) A Recreational Fishing Log recording information and data related to the fishing trip is to be maintained and submitted to MFMRD Fisheries Division by all Recreational Fishing Guide Licence and Recreational Fishing Permit holders according to the conditions of their licence or permit.
- 2) The Recreational Fishing Log is outlined in Annex 8.
- 3) Any person who contravenes subsection 1 commits an offence and upon conviction shall be liable to imprisonment for not more than six months, a fine not exceeding \$1,000.00 and/ or forfeiture of fishing gear used in committing the offence.

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Part 7. Recreational fishing research and stock assessment

A. Data collection, reporting and analysis

- 1) The development and revision of this management plan shall be evidence-based and precautionary.
- 2) To achieve the research and monitoring needs for the fishery, a variety of data types are collected and analysed, including fishery dependent and fishery independent data:
 - (a) Fishery dependent data are provided via the accurate and timely submission of Recreational Fishing Logs by all Recreational Fishing Guide Licence and Recreational Fishing Permit holders.
 - (b) Fishery independent data are provided via Research Services and the implementation of a Research Strategy as described below.

B. Status reporting of species

- 1) The status of the species and populations targeted by the recreational fishery shall be reported annually by MFMRD Fisheries Division.
- 2) The annual status reports will bring together available fishery dependent and fishery independent data pertaining to the catch, effort and ecology to determine the status of target species and populations.
- 3) These annual status reports shall be considered when reviewing and revising management arrangements for recreational fishing (see Part 5).

C. Research strategy and services

- 1) Research needs shall be identified by MFMRD Fisheries Division in consultation with the Recreational Fishing Management Council.
- 2) A research strategy shall be developed to address research needs, and will include details on methodologies, sampling strategy (including spatial and temporal sampling effort), and reporting.
- 3) MFMRD may appoint research provider(s) for stock assessments and status reports which are used for assessing the status of the species and populations targeted by the recreational fishery.
- 4) Costs associated with implementation of the recreational fishing research strategy shall be financed via the non-tax revenues generated from licence and permit applications, and from the national budget as required.

Part 8. Compliance, monitoring, control and surveillance

A. Capacity and capability

- 1) Sufficient authorised officers will be appointed to carry out inspections, investigations, and compliance visits to lodges to raise awareness about the requirements and restrictions of this management plan.
- 2) An enforcement strategy shall be developed to support implementation of this management plan and delivery of the targeted goals and objectives. The enforcement strategy will assist in identifying strengths and gaps in MFMRD's current capacity and capabilities.

B. Resources and assets

- 1) Scoping will be undertaken to assess the resources and assets required to fully implement this management plan, including all monitoring, control and surveillance requirements.
- 2) Sufficient authorised officers will be appointed to carry out inspections, investigations, and compliance visits to lodges to raise awareness about the requirements and restrictions of this management plan.

C. Tools and mechanisms

- 1) Systems will be identified and established to support the submission, analysis, and enforcement of conservation and management measures, including but not limited to:
 - (a) Recreational Fishing Logs - submission deadlines and methods of submission will be outlined in the licence conditions.
 - (b) Data analysis - processes and procedures for data sharing and access with other government departments will be established to facilitate detection of non-compliance.
 - (c) Enforcement – Identification of non-compliance, enforcement trigger points and mechanism for cross checking with physical inspection data.
 - (d) Prosecution – Sufficient sanctions and penalties to act as a deterrent and ensuring admissibility of catch records as evidence for prosecutions.

D. Roles and responsibilities

- 1) The current distribution of powers under the Fisheries Act (2010) has been extended by MFMRD to include significant numbers of departments and persons. This includes sport fishing guides who are provided with the remit to enforce the entirety of the Fisheries Act without training or capacity/capability.
- 2) It is recommended that the letter extending powers should be rescinded and further clarity provided regarding the appropriate competent authorities and their remits with regards to implementation of the Fisheries Act and associated regulation.

E. Enforcement and education

- 1) Upon the enactment of this management plan, a 6-month education period will be implemented during which competent authorities will support guides, anglers and other stakeholders to comply with the new requirements of this management plan without risk of enforcement action. This education period will enable MFMRD staff to educate and upskill recreational anglers and guides with regard to the new requirements.
- 2) In the longer-term a communication and education strategy will be established to ensure that information about the recreational fishery and its conservation and management measures is available at critical control points, including the airport arrivals hall and fishing lodges. The strategy will identify appropriate dissemination mechanisms such as posters and informational brochures available at fishing lodges. An effective communication and education strategy will help to reduce and deter non-compliance.

F. Monitoring strategy

Control Measure	Legal Route	Applicability	Requirement	Enforcement and MCS
Closed areas	National legislation if the closure is for fixed dates annually or permit condition if the dates of the closure are not fixed e.g., based on catch-per-unit-effort (CPUE) data	Sport fishers and sport fishing guides	No fishing in/no access to closed areas as prescribed by the licence conditions or legislation	At sea patrols and/or shore-based observations depending on the location of the closure. Vessel tracking devices are an option for remote tracking for sport fish vessels which operate in remote areas or near high-risk closures
Fishing permits	National legislation with conditions attached to the permit. Carriage order	Sport fishers	Permit to be carried at all times and presented to authorised officers upon request	Permit inspection to be carried out at upon arrival, at fishing lodges, during fishing operations at sea and/or when landing. Checks include issue number to prevent re-use, valid to and from dates and name on the permit
Catch records	National legislation but could be a condition of the permit if there is a need to issue variations to the requirements	Sport fishers and sport fishing guides	Requirement to record dates of fishing, locations, species, length, and weight.	<u>Real time</u> Catch records can be requested by MFMRD enforcement officers at any time in the execution of their duties in the field and cross checked with their observations. <u>Retrospective</u> Office based checks can be conducted to ensure compliance with permit requirements and restrictions

Part 9. General

A. Training requirements

- 1) Any person wishing to apply for a Recreational Fishing Guide Licence will be required to demonstrate accredited training in: (i) first aid; (ii) boat handling; and (iii) recreational fishing best practices.
- 2) The Recreational Fishing Management Council and/or MFMRD may introduce new training requirements if necessary and will inform affected parties of the requirements. Upon the introduction of new training requirements, adequate time will be provided for licence holders to meet these requirements.

B. Obligations of licence and permit holders

- 1) Licence and permit holders are to comply with all conditions on their licence and permit.
- 2) It is the obligation of licence and permit holders to ensure that Recreational Fishing Logs are filled in correctly and submitted to MFMRD Fisheries Division on a timely basis as required by conditions stipulated in the licence or permit.
- 3) Licence and permit holders will allow and assist any authorised officer to carry out his/ her duties safely, including but not limited to boarding vessels to carry out inspection of the boat and fishing gears, inspecting Recreational Fishing Logs, taking photographs and collecting fish specimens as necessary.

C. Appeals

- 1) In the case where an application for a licence or permit is declined, the applicant may submit an appeal in writing to MFMRD. Any such appeal must clearly state the reason for the appeal and must be submitted no later than 21 days after the notice of the decline is received.
- 2) Upon review and consideration of the appeal, MFMRD will within 21 days write a review report with recommendations for further action to be submitted to MFMRD for a final decision to be made.
- 3) The applicant may further refer his/her appeal to the Secretary if his/her application is again declined by MFMRD. The decision of the Secretary shall be binding and final.

Annex 1. Target species

A. Overview

- 1) This section lists the species targeted by the recreational fishery. Target species were identified via interviews with guides and anglers conducted in 2023. Biological parameters were obtained from FishBase (<https://www.fishbase.org.au>) or published studies on populations within the western and central Pacific. No published studies are available that describe biological parameters for Kiritimati populations, and the need for these studies should be identified in the recreational fishery research strategy (Part 7). Indicative population structures for unfished population and fished to a level commensurate with SPR40 are presented for each species, to demonstrate how length-frequency data can be used to ascertain stock status.^{1,2}

¹ Hordyk, A., Ono, K., Valencia, S., Loneragan, N. & Prince, J. (2014). A novel length-based empirical estimation method of spawning potential ratio (SPR), and tests of its performance, for small-scale, data-poor fisheries. *ICES J Mar Sci*. doi:10.1093/icesjms/fsu004

² Hordyk, A., Ono, K., Sainsbury, K., Loneragan, N. & Prince, J. (2014). Some explorations of the life history ratios to describe length composition, spawning-per-recruit, and the spawning potential ratio. *ICES J Mar Sci*. doi:10.1093/icesjms/fst235

B. Bonefish (*Albula glossodonta*)



Figure 6: *Albula glossodonta*. Source: FishBase

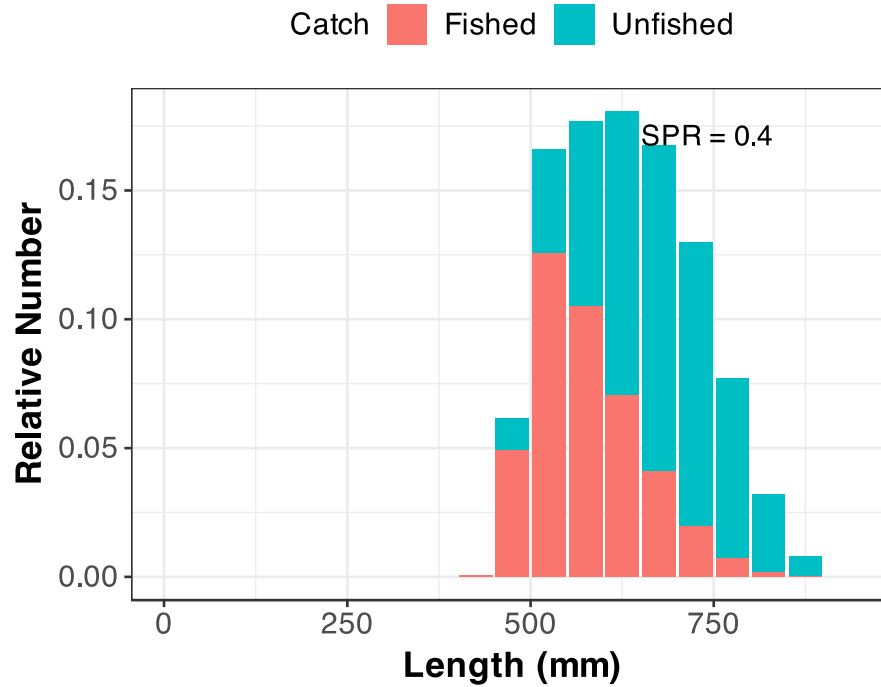


Figure 7: Indicative population structure when unfished (blue) and fished to a level commensurate with SPR40 (red)

- 1) Biological parameters
 - (a) L_{inf} : 750mm
 - (b) L_{95} : 510mm
 - (c) L_{50} : 480mm
 - (d) M/K: 0.8461538

C. Giant trevally (*Caranx ignobilis*)

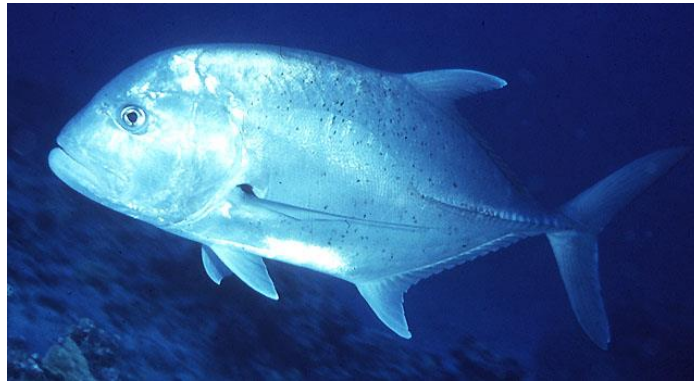


Figure 8: *Caranx ignobilis*. Source: FishBase

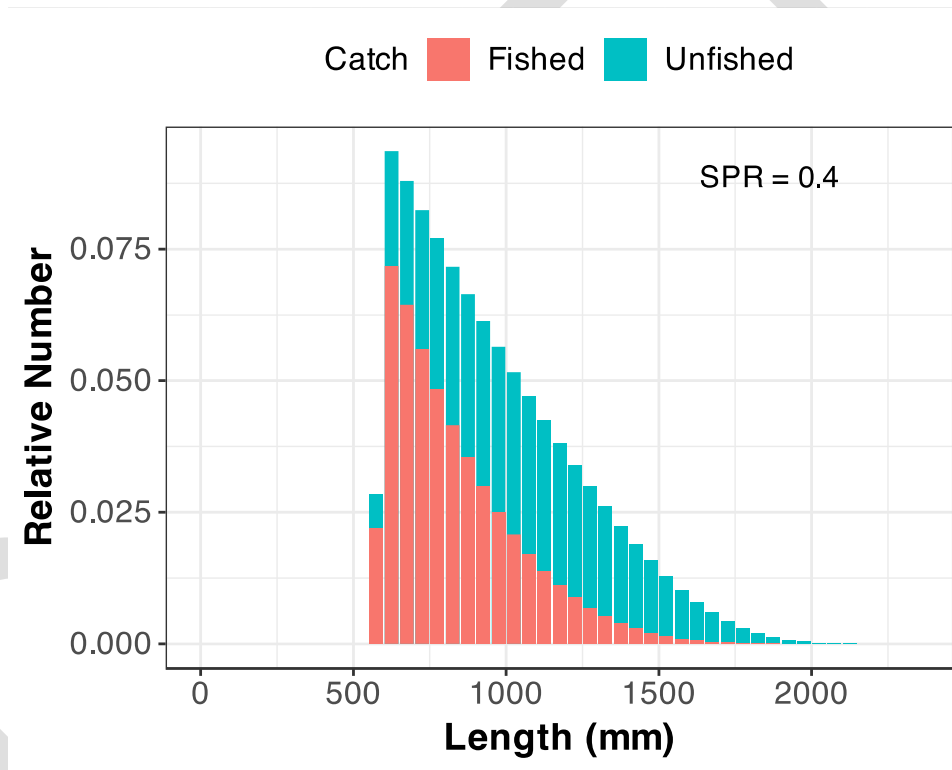


Figure 9: Indicative population structure when unfished (blue) and fished to a level commensurate with SPR40 (red)

- 1) Biological parameters:
 - (a) L_{inf} : 1840mm
 - (b) L_{95} : 596mm
 - (c) L_{50} : 580mm
 - (d) M/K : 2.4545455

D. Bluefin trevally (*Caranx melampyus*)

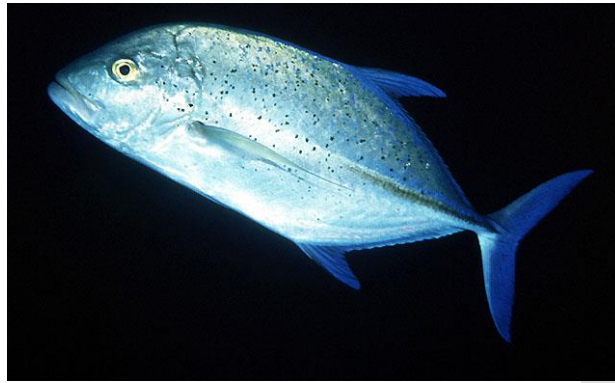


Figure 10: *Caranx melampyus*. Source: FishBase

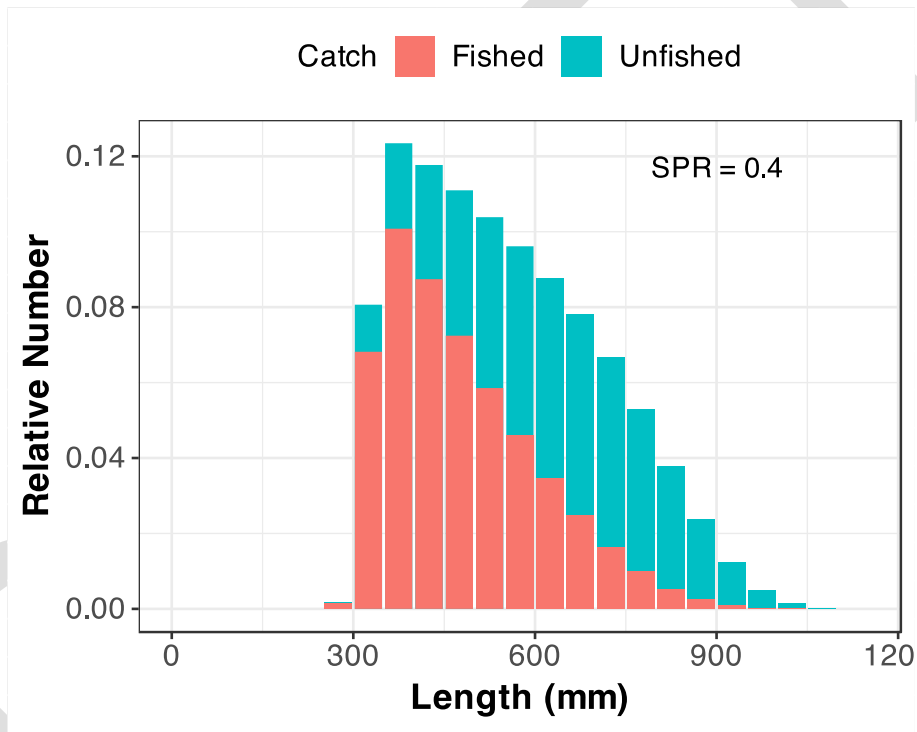


Figure 11: Indicative population structure when unfished (blue) and fished to a level commensurate with SPR40 (red)

- 1) Biological parameters:
 - (a) L_{inf} : 897mm
 - (b) L_{95} : 350mm
 - (c) L_{50} : 320mm
 - (d) M/K: 1.5

E. Golden trevally (*Gnathanodon speciosus*)



Figure 12: *Gnathanodon speciosus*. Source: FishBase

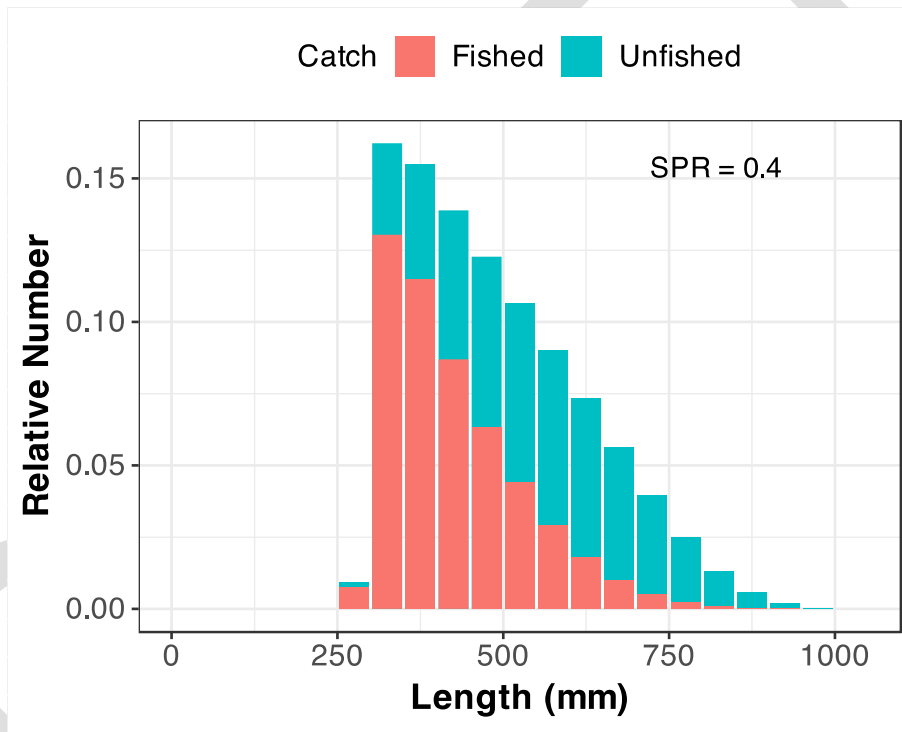


Figure 13: Indicative population structure when unfished (blue) and fished to a level commensurate with SPR40 (red)

- 1) Biological parameters:
 - (a) L_{inf} : 845mm
 - (b) L_{95} : 325mm
 - (c) L_{50} : 300mm
 - (d) M/K: 1.9375

F. Milkfish (*Chanos chanos*)



Figure 14: *Chanos chanos*. Source: FishBase

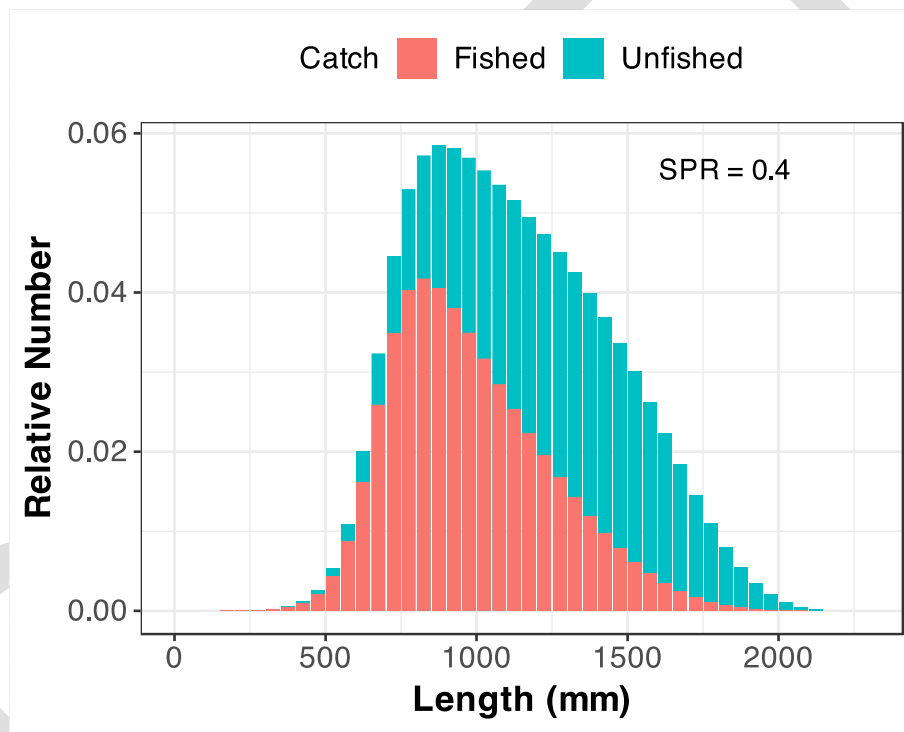


Figure 15: Indicative population structure when unfished (blue) and fished to a level commensurate with SPR40 (red)

- 1) Biological parameters:
 - (a) L_{inf} : 1800mm
 - (b) L_{95} : 861mm
 - (c) L_{50} : 680mm
 - (d) M/K: 1.5

G. Titan triggerfish (*Balistoides viridescens*)



Figure 16: *Balistoides viridescens*. Source: FishBase

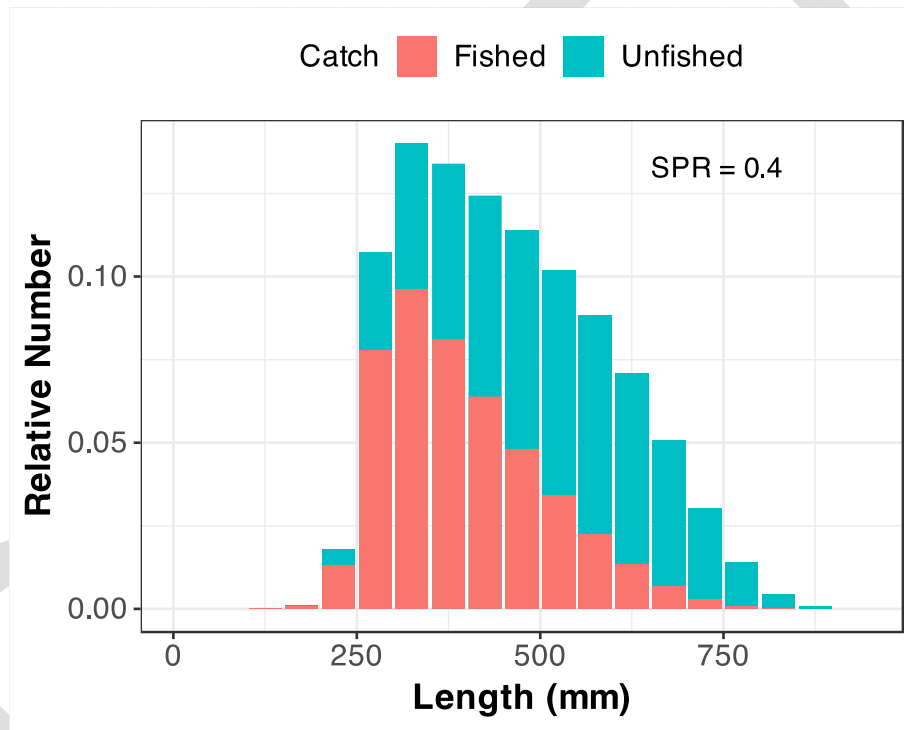


Figure 17: Indicative population structure when unfished (blue) and fished to a level commensurate with SPR40 (red)

- 1) Biological parameters:
 - (a) L_{inf} : 750mm
 - (b) L_{95} : 310mm
 - (c) L_{50} : 260mm
 - (d) M/K: 1.5

H. Orange lined triggerfish (*Balistapus undulatus*)



Figure 18: *Balistapus undulatus*. Source: FishBase

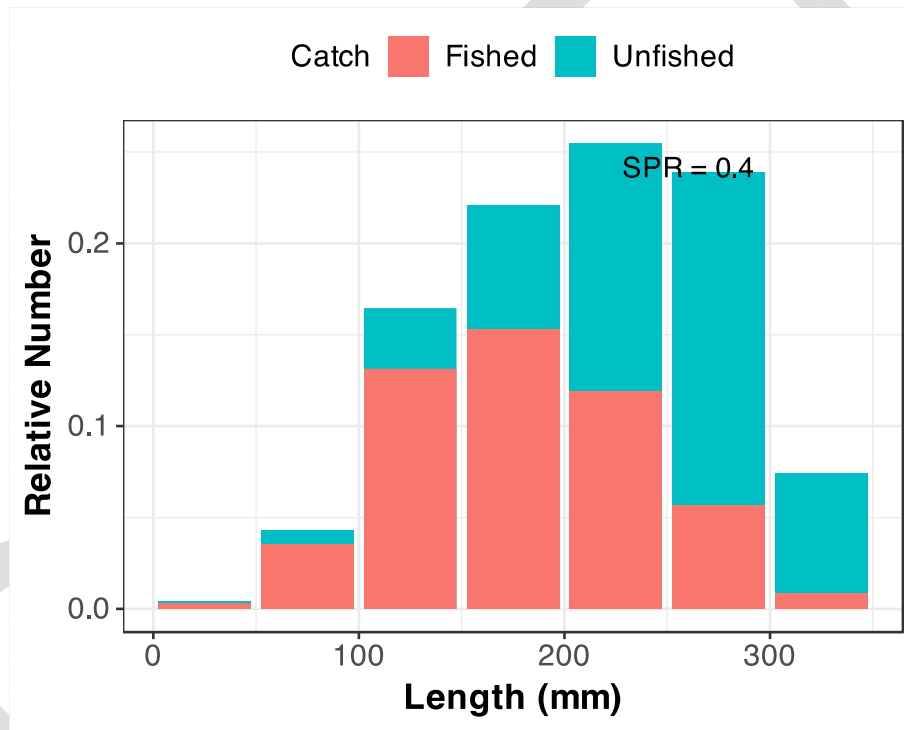


Figure 19: Indicative population structure when unfished (blue) and fished to a level commensurate with SPR40 (red)

- 1) Biological parameters
 - (a) L_{inf} : 300mm
 - (b) L_{95} : 157mm
 - (c) L_{50} : 100mm
 - (d) M/K: 0.8

Annex 2. Fees

Type	Duration	Fee amount
Recreational Fishing Guide Licence	12 months	\$300.00
Recreational Fishing Permit	12 months	\$300.00

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Annex 3. Guidelines for fines and penalties

Activity	Subsection	Penalty
Fishing without a valid licence or permit	Part 6.A, Part 6.B	First offence: Monetary fine with a maximum of \$1,000.00 Repeat offence: Forfeit fishing gears Imprisonment up to 6 months
Transfer of licence or permit	Part 6.A, Part 6.B	First offence: Monetary fine with a maximum of \$1,000.00 Repeat offence: Termination of licence or permit
Maximum number of anglers per recreational fishing guide is exceeded.	Part 6.C	Monetary fine with a maximum of \$1,000.00
Use of fishing gears and/or methods that are not permitted	Part 6.D	First offence: Monetary fine with a maximum of \$1,000.00 Repeat offence: Forfeit fishing gears Termination of licence Imprisonment up to 6 months
Prohibited fishing in designated areas and during certain periods	Part 6.E	First offence: Monetary fine with a maximum of \$1,000.00 Repeat offence: Forfeit fishing gears Termination of licence Imprisonment up to 6 months
Exceeding limits on the size and/or number of individuals that can be caught	Part 6.F	First offence: Monetary fine with a maximum of \$1,000.00 Repeat offence: Forfeit fishing gears Termination of licence Imprisonment up to 6 months
Reporting requirements	Part 6.G	First offence: Monetary fine with a maximum of \$100.00 Repeat offence: \$50.00 for each week that the fishing log is not submitted. Termination of licence if non-submission of fishing log for 8 weeks or longer.

Annex 4. Recreational Fishing Guide Licence application form

Name: _____

Address: _____

Date of birth: _____

Are you of Kiritimati descent? Yes No

How long have you lived in Kiritimati? _____ Years

Have you completed an accredited boat master training? Yes No

(if yes, attach a copy of the certificate to this application)

Have you completed an accredited first aid training? Yes No

(if yes, attach a copy of the certificate to this application)

Have you completed an accredited recreational fishing training? Yes No

Yes No (if yes, attach a copy of the certificate to this application)

Are you willing to participate in research related to the management and development of the Kiritimati recreational fishery? Yes No

I hereby declare that I (i) have answered all questions truthfully and to the best of my knowledge; (ii) will comply with all licence conditions of the Recreational Fishery Guide Licence; and (iii) am fully aware of the penalties and fines that will be imposed upon me should I fail to comply with these licence conditions.

Signature _____

Date _____

Attachments:

- Boat master training certificate
- First aid training certificate
- Recreational fishing training certificate

Annex 5. Recreational Fishing Guide Licence applicant assessment criteria

Criterion	Rationale	Points
Has the applicant completed accredited boat master training?	Boat master training will ensure that boating accidents are minimised, and sea safety issues and risks are understood.	Yes: 5 No: 0
Has the applicant completed accredited first aid training?	First aid training will ensure that first aid treatment is administered in the event of an accident.	Compulsory requirement
Has the applicant completed accredited recreational fishing training?	Recreational fishing training will ensure that best handling practices are applied to minimise stress to target species and impacts to the ecosystem.	Yes: 5 No: 0
Is the applicant of Kiritimati descent and aged 18 years or older?	Licences are preferentially granted to persons of Kiritimati descent to provide socio-economic opportunities to persons of Kiritimati descent.	Yes: 5 No: 0
Is the applicant willing to participate in research related to the management and development of the Kiritimati recreational fishery?	Participating in research helps to reduce the cost of research, and demonstrates that the applicant is willing to help address information and data gaps.	Yes: 3 No: 0
Has the applicant previously been charged/prosecuted for non-compliance with licence conditions?	Licences are preferentially granted to persons that comply with conservation and management measures?	Yes: 0 No: 5
Is the applicant currently involved in the Kiritimati recreational fishery?	Licences are preferentially granted to those that are already trying to develop the fishery.	Yes: 5 No: 0

Annex 6. Designated areas

Type	Location	Use
Spawning and nursery habitat	Paris spawning area	<p>All fishing activity, including recreational fishing, prohibited 3 days before and after full moon.</p> <p>Recreational Fishing Permit holders must be accompanied by a licensed Recreational Fishing Guide</p>

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Annex 7. Fishing restrictions

A. Licence restrictions

Restriction	Number
Maximum number of Recreational Fishing Guide Licences issued per year.	30
Maximum number of Recreational Fishing Permits issued per year.	1,500
Maximum number of anglers per guide at any time.	2

B. Catch restrictions

Species	Min. size	Max. size	Catch limit
Bonefish (<i>Albula glossodonta</i>)	None	None	Unlimited / day
Giant trevally (<i>Caranx ignobilis</i>)	None	None	Unlimited / day
Bluefin trevally (<i>Caranx melampygus</i>)	None	None	Unlimited / day
Golden trevally (<i>Gnathanodon speciosus</i>)	None	None	Unlimited / day
Milkfish (<i>Chanos chanos</i>)	None	None	Unlimited / day
Titan triggerfish (<i>Balistoides viridescens</i>)	None	None	Unlimited / day
Orange lined triggerfish (<i>Balistapus undulatus</i>)	None	None	Unlimited / day

Annex 8. Recreational fishing log

Angler's name _____

Permit/License No. _____

Guide's name _____

SITE DETAILS	SPECIES	WEIGHT	LENGTH	TAG No.
Date:				
Location:				
Lat:				
Lon:				
Start time:				
End time:				

SITE DETAILS	SPECIES	WEIGHT	LENGTH	TAG No.
Date:				
Location:				
Lat:				
Lon:				
Start time:				
End time:				

SITE DETAILS	SPECIES	WEIGHT	LENGTH	TAG No.
Date:				
Location:				
Lat:				
Lon:				
Start time:				
End time:				

SITE DETAILS	SPECIES	WEIGHT	LENGTH	TAG No.
Date:				
Location:				
Lat:				
Lon:				
Start time:				
End time:				

SITE DETAILS	SPECIES	WEIGHT	LENGTH	TAG No.
Date:				
Location:				
Lat:				
Lon:				
Start time:				
End time:				

SITE DETAILS	SPECIES	WEIGHT	LENGTH	TAG No.
Date:				
Location:				
Lat:				
Lon:				
Start time:				
End time:				

Please log site details even for unsuccessful trips. Completed trip logs should be submitted to the MFMRD Fisheries Division.

Annex 9. Recreational fishing code of conduct

A. Catching

- ✓ **DO** Always use barbless hooks.
- ✓ **DO** Match tackle to the conditions and the size of fish.
- ✓ **DO** Minimize stress to the fish by landing quickly.
- ✓ **DO** Ensure that your fishing permit is valid for the current date and location.
- ✓ **DO** Maintain a log of all catches.

B. Handling and release

- ✓ **DO** Revive fish and ensure fish they can swim upright before releasing.
- ✓ **DO** Use non-abrasive gloves and avoid touching the fish with bare hands.
- ✓ **DO** Use hemostats or pliers to remove hooks quickly.
- ✓ **DO** Keep fish in the water and minimize exposure to air to no more than 15 seconds.
- ✓ **DO** Avoid touching the gills
- ✓ **DO** Use a weighing cradle and avoid lip-gripping weighing devices.
- ✓ **DO** Watch out for predators when releasing fish, and consider moving to a new location if fishing activity has attracted predators.
- ✓ **DO** Dispose of your litter responsibly.
- ✓ **DO** Respect local cultures and traditions.
- ✗ **DON'T** Go out on the lagoon flats alone.

Any infractions of this code of conduct by anglers, guides or other parties should be reported immediately to MFMRD Fisheries Division.