

FISHERY AND AQUACULTURE COUNTRY PROFILE	Food and Agriculture Organization of the United Nations	FID/CP/Kiribati
PROFIL DE LA PÊCHE ET DE L'AQUACULTURE PAR PAYS	Organisation des Nations Unies pour l'alimentation et l'agriculture	
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NATIONAL FISHERY SECTOR OVERVIEW

KIRIBATI

1. GENERAL GEOGRAPHIC AND ECONOMIC DATA

Area:	810 km ²
Water area:	3 550 000 km ²
Shelf area:	[no continental shelf]
Length of continental coastline:	1 296 km (length of the coast of islands)
Population (2007):	95 000
GDP at purchaser's value (2008)	136 million USD ¹
GDP per head (2008):	1 390 USD
Agricultural GDP (2008):	35.0 million USD ²
Fisheries GDP (2008):	11.8 million USD ³

2. FISHERIES DATA

2007	Production	Imports	Exports	Total Supply	Per Caput Supply
	tonnes liveweight				kg/year
Fish for direct human consumption ⁴	8 041	1 743	2 648	7 136	75.1
Fish for animal feed and other purposes	13 562	---	---	---	

Estimated Employment (2005):

(i) Primary sector (including aquaculture):	936 ⁵
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¹ 2007 average exchange rate: USD 1 = AUD 1.19; GDP source: Unpublished data kindly provided by the Kiribati National Statistics Office (R.Takarie, personal comm., October 2008); Note: subsistence activities (including subsistence fishing) were not included in the official 2007 GDP calculations.

² In the official GDP calculations, the contribution of agriculture does not include fishing.

³ This is the official fishing contribution to GDP – which includes seaweed culture, but does not include subsistence fishing activities. A recalculation shows the total fishing contribution (including subsistence fishing and seaweed) to be USD 37.7 million: Gillett (2009). The Contribution of Fisheries to the Economies of Pacific Island Countries and Territories. Pacific Studies Series, Asian Development Bank, Manila

⁴ Data from FAO food balance sheet of fish and fishery products.

(ii) Secondary sector:	Unavailable
Gross value of fisheries output (2007):	244.2 million USD ⁶
Trade (2006):	
Value of fisheries imports:	583 thousand USD
Value of fisheries exports:	5.0 million USD

Kiribati is an archipelagic nation comprising 33 islands with a total land area of only 810 sq. km. but with a surrounding EEZ of about 3.5 million sq. km that includes some of the most productive tuna fishing grounds in the Pacific. All the islands are of coralline origin and are surrounded by fringing or barrier coral reefs. The country is divided into three widely separated island groups - the Gilbert Group in the west, the Phoenix Group in the centre, and the Line Islands in the east - each surrounded by their own discrete portion of the EEZ. Several islands in the Line and Phoenix groups are uninhabited. The distance between the eastern and western extremes of the EEZ is over 4 500 km. There are no rivers, lakes or other freshwater impoundments in Kiribati.

3. FISHERY SECTOR STRUCTURE

3.1 Overall fishery sector

Subsistence and small-scale commercial fishing is conducted throughout the islands using traditional canoes driven by sail or paddle, from plywood canoes powered by outboard motor and from larger outboard-powered craft. Small-scale commercial fishing is concentrated around Tarawa where a sizable population, some ice and cold store facilities, and a cash-oriented economy create better market conditions. A large amount of tuna is captured by the industrial offshore fisheries – but the vast majority of the catch is taken by vessels. based outside the country.

The small land area and poor soil result in limited agriculture production. There is a great reliance on marine resources for livelihoods, government revenue, and especially nutrition. By several estimates, Kiribati has the highest per capita consumption of fish of any country in the world.

The fisheries in the waters of Kiribati can be placed into several categories. These categories and the associated production in 2007 are estimated as:

	Coastal Commercial	Coastal Subsistence	Offshore Locally-Based	Offshore Foreign-Based ⁷	Fresh-water	Aquaculture		
						Milkfish (Tonnes)	Seaweeds (Tonnes)	Pieces ⁸
Volume of Production (metric tonnes or pieces)	7 000	13 700	0	163 215	0	5	1 112	100
Value of production (USD)	18 487 395	28 571 429	0	197 051 374	0	75 630		

⁵ This is the number of **employed cash workers in "agriculture/fishing"** as determined by the 2005 national census. In some respects this number is misleading. The subject of fisheries-related employment is covered in greater detail in a section below.

⁶ From Gillett (2009); includes the six fishery production categories: (1) coastal commercial fishing, (2) coastal subsistence fishing, (3) locally-based offshore fishing, (4) foreign-based offshore fishing, (5) freshwater fishing, and (6) aquaculture.

⁷ This is the catch in the Kiribati zone by vessels based outside the country. Normally, in FAO reporting on production in world capture fisheries, this catch will be reported as the catch of the nation(s) in which the vessel(s) is (are) registered.

⁸ Pearls are commonly measured in pieces, rather than kg.

The main trends and important issues in the fisheries sector

The main trends in the sector include:

- Increasing exploitation of the inshore resources, especially those close to the urban markets in South Tarawa.
- A steady total value of the annual catch in the offshore fisheries in the mid-2000s by foreign fleet – about USD 200 million.
- A drop in the seaweed production in the 2000s
- Increasing enthusiasm for tuna management and development arrangements with neighboring Pacific Island countries.
- An increasing reliance by the Kiribati Government on offshore fishery licensing fees.
- Increasing small-scale commercial landings at non-Tarawa locations in recent years due to increasing ice production in outer islands.
- Continued high consumption of fish throughout the country.

Some of the major issues in the fisheries sector are:

- The difficulties of transferring fish economically from the outer islands (where they are abundant and where cash income is badly needed) to South Tarawa (where 44 per cent of the total Kiribati population lives).
- The weak nature of the current coastal fishery management measures.
- The inability of the national fishing company to compete internationally.
- Balancing the promotion of domestic tuna industry development with the need for access fees for government revenue; the difficulties associated with using access to leverage domestic development.
- The interaction between the industrial offshore tuna fishery and the small-scale coastal tuna fishery.

3.2 Marine sub-sector

The marine fisheries have two very distinct components, offshore and coastal:

- Offshore fisheries are undertaken on an industrial scale by foreign-based purse seine, longline, and pole-and-line vessels. Domestic fishery in this areas is sporadic and very limited.
- Coastal fishing is primarily carried out for subsistence purposes and for sales in local markets. In addition, there are some coastal fisheries that are export oriented, mainly aquarium fish and beche de mer.

3.2.1 Marine Catch profile

The estimate of the volume and value of the marine catch taken within the Kiribati EEZ by fleets based outside the country is estimated based on the information in FFA (2008)⁹ and Gillett (2009) as:

Volume of Catch of Foreign-Based Offshore Fleets in the Kiribati EEZ

	2003	2004	2005	2006	2007
Volume foreign longline catch	13 367	37 369	14 016	15 041	6 149
Volume foreign purse seine catch	84 827	105 023	216 567	174 406	156 938
Volume foreign pole/line catch	236	600	0	0	128
Total (tonnes)	98 429	142 992	230 583	189 447	163 215

Source: Gillett (2009) and FFA (2008)

⁹ FFA (2008). The Value of WCPFC Tuna Fisheries. Unpublished report, Forum Fisheries Agency, Honiara.

Value of Catch of Foreign-Based Offshore Fleets in the Kiribati EEZ

	2003	2004	2005	2006	2007
Value catch of foreign longliners	39 016 404	129 919 299	46 696 204	57 090 431	22 359 622
Value catch of foreign purse seiners	52 702 832	77 498 588	164 567 058	138 670 788	174 498 702
Value catch of foreign pole/line	263 689	752 910	0	0	193 051
Total (USD)	91 982 925	208 170 797	211 263 262	195 761 219	197 051 374

Source: Gillett (2009) and FFA (2008)

An important point about tuna fishing in Kiribati concerns the oceanographic conditions and their effect on tuna purse seining. During El Niño periods, the favorable fishing areas for seining shift from Papua New Guinea and the Federated States of Micronesia eastward toward the Kiribati EEZ, resulting in large tuna catches in the Gilbert, Phoenix, and Line Islands.

The estimation of the catch of the coastal fisheries is open to considerable speculation. Gillett (2009) examines previous estimates, export data, annual reports of the Fisheries Division (2003 - 2006) and the results of the 2006 household income and expenditure survey. Selectively using these sources of information, the 2007 volumes and values of coastal commercial and coastal subsistence fishery production were estimated:

	Coastal Commercial	Coastal Subsistence
Volume of Production (tonnes)	7 000	13 700
Value of Production (USD)	18 487 395	28 571 429

No discussion of fishing in Kiribati would be complete without some mention of (1) the government fishing company, (2) the tuna troll fishery of Tarawa, and (3) the ark shell fishery.

Domestic industrial fishing activity in the country during the 1980s and early 1990s was dominated by Te Mautari Limited (TML), a wholly government-owned company established in 1981 to develop a pole-and-line tuna fishery in Kiribati's EEZ. **Technical and economic difficulties associated with Kiribati's remoteness, lack of infrastructure and variability in resource abundance have, however, plagued TML's operations. Despite landing good catches in some years the company has rarely made a profit, and has required continued Government support.** In May 2001 Central Pacific Producers Ltd. (CPPL) was set up to incorporate three entities: TML, another government fishing company on Christmas Island, and the Outer Island Project. At that time CPPL had a new processing facility, complete with ice plants and generators in Betio and the company exported about 2 tonnes of tuna and other pelagic fish species to Hawaii in 2001. In April 2008 the company employed 70 people, including 20 women.

One of the most productive small-scale commercial fisheries in the Pacific Islands is the tuna troll fishery of Tarawa. In 2008 an informal survey of that fishery was undertaken (box).

The Tarawa Tuna Troll Fishery

Discussions with fish sellers, staff of the Ministry of Fisheries and Marine Resources Development, and key individuals in communities in South Tarawa indicate the main aspects of the Tarawa troll fishery:

- **126 active full time commercial tuna troll fishing craft operate out of South Tarawa; 88 troll tuna fishing craft also participate in tuna fishing on a sporadic basis.**
- **There are average three fishermen and 1.5 women fish handlers/sellers for each**

of the 126 full time commercial tuna troll fishing craft. There will normally be two women involved, but one will alternate with the other (i.e. taking ice chest of tuna to the road by hand cart, changing with each other through the day to accommodate domestic responsibilities.

- **About 189 women are involved full time in the sale of tuna (full-time equivalent; 2 half time is equivalent to one full time). Some men are involved in tuna sales, primarily buying fish from several fishing operations.**
- **About 6 300 kg of tuna and related pelagic species sold on an average day, or 126mt per month. To these commercial sales, approx 5% should be added for domestic use, to give total landings of tuna of about 132tonnes per month.**
- **The commercial fishing is carried out by only men and 99.5% of fish sellers are women who are normally the wives of the fishermen.**
- **The present market price of tuna is USD 2.65 kg, and tuna sales account for about USD 334,000 per month, or USD 4 million per year. This represents about USD 21,000 in sales annually for each of the 189 full-time sellers.**

Savins (2008)¹⁰

Source:

Preston (2008)¹¹ describes the fishery for “te bun”, the ark shell or blood cockle *Anadara maculosa*. This shell inhabits sandy lagoon floors and seagrass beds and supports a fishery of traditional importance in several atolls, including Tarawa, where harvests in 1992-1993 were of the order of 1 000 tonnes per year by subsistence collectors, and a similar quantity by commercial harvesters. However over-collection appears to have caused resource depletion in Tarawa and other areas. Recent estimates are now of the order of 222 tonnes per year in South Tarawa, about 10% of previous levels.

3.2.2 Marine landing sites

Catches taken by foreign fleet within the Kiribati EEZ are not offloaded in Kiribati. For purse seining, depending on the flag of the vessel, tuna catch is either transshipped for transport to a cannery (seiners from Taiwan and Korea), delivered directly to Pago Pago (US vessels), or delivered to a port in Japan (Japanese vessels). Pole-and-line vessels deliver their catch directly to port in Japan. The longliners either make deliveries to Asian ports or transship at a port in Kiribati or neighboring Pacific Island country.

The catches from small-scale commercial fishing are mostly landed at a site in South Tarawa, but much smaller quantities are landed at villages throughout Kiribati. Small-scale commercial landings at non-Tarawa locations have expanded in recent years due to increasing ice production in outer islands. Many islands now have cold storage (14 islands out of 33 total in Kiribati), enabling storage for local sale and shipment to Tarawa.

Subsistence fishery landings occur at coastal villages throughout the country, roughly in proportion to the distribution of the population.

3.2.3. Marine fishing production means

Tumoa (2008) reviews foreign fishing activity in the Kiribati EEZ. In 2007 a total of 337 foreign fishing vessels were licensed to fish in Kiribati EEZ. The fleet consisted of 160 longliners, 171 purse seiners, and 6 pole-and-line vessels. Fisheries Division (2009)¹² states the licensed fleets in 2008 were: 186 longliners, 178 purse seiners, and 25 pole-and-line vessels. There is one Kiribati-registered purse seiner but, according to Fisheries Division, the vessel has not come to Tarawa in several years and is managed by an office located overseas. The Fisheries Division has periodically

¹⁰ Savins, M. (2008). The Tuna Troll Fishery of South Tarawa. A Report prepared for GPA Ltd.

¹¹ Preston, G. (2008). Coastal Fisheries Development and Management. Working Paper 3, Institutional Strengthening Scoping Study Report, Forum Fisheries Agency, Honiara.

¹² Fisheries Division (2009). Annual Report to the Commission’s SC5 Meeting, Port Vila, Vanuatu 10-21 August 2009. WCPFC-SC5-AR/CCM-10. Western and Central Fisheries Commission.

used a 13 meter catamaran (Tekokona II) for trial fishing and training, but it never achieved a commercial production level.¹³

Information on the production means of the very active Tarawa troll fishery is given in the box in Section 3.2.1 above.

Subsistence and small-scale artisanal fishing is conducted throughout the islands, from traditional canoes driven by sail or paddle, from plywood canoes powered by outboard motor and from larger outboard-powered skiffs. Fishing is by bottom hand-lining, trolling, pole-and-line fishing, mid-water hand-lining, spearing, trapping, netting and reef gleaning.

3.2.4 Main resources

Fisheries Division (2009) gives the catches by species in the 2008 purse seine fishery based on raised logsheet data as: 90.7% skipjack, 4.7% yellowfin, 4.2% bigeye, and 0.4% other species.

The corresponding data for the longline fleet catch in the Kiribati EEZ for 2008 are incomplete but for the 2007, the reported catch (Section 3.2.1. above, 6,149 tonnes) was about 40% yellowfin and 60% bigeye.

The pole-and-line catch in the Kiribati EEZ was about 95% skipjack and 5% yellowfin.

The catch of the coastal commercial and subsistence fisheries is extremely diverse. Sullivan and Ram-Bidesi (2008)¹⁴ give the main finfish species sold in Tarawa – which is indicative of some the important finfish in the coastal fisheries.

Common Fish Species Sold on South Tarawa

Local Name	English Common Name	Latin Species Name
<i>Bokaboka</i>	leather jacket fish	<i>Siganus</i> sp.
<i>Bawe</i>	red tail snapper	<i>Lutjanus fulvus</i>
<i>Okaoka</i>	orange striped emperor fish	<i>Lethrinus obsoletus</i>
<i>Ikanibong</i>	paddletail snapper	<i>Lethrinus gibbus</i>
<i>Morikoi</i>	Spangled emperor	<i>Lethrinus nebulosus</i>
<i>Ati</i>	Skipjack	<i>Katsuwonus pelamis</i>
<i>Ingimea</i>	Yellowfin tuna	<i>Thunnus albacares</i>
<i>Ikarii</i>	Bonefish	<i>Abula glossodonta</i>

Invertebrates are quite important, especially in the subsistence fisheries. "Te bun", the ark shell is described in Section 3.2.1 above. Other significant invertebrates are various species of crabs (especially the coconut crab, *Birgus latro*), bivalves, and gastropods.

3.2.5 Management applied to main marine fisheries

Offshore Fisheries Management

Kiribati is a member of the Western and Central Pacific Fisheries Commission that was established by the Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean. The Convention entered into force in June 2004.

¹³ Source: Barclay, K. and I. Cartwright (2007). Capturing Wealth from Tuna: Case Studies from the Pacific. Asia Pacific Press.

¹⁴ Sullivan, N. and V. Ram-Bidesi (2008). Gender Issues in Tuna Fisheries - Case Studies in Papua New Guinea, Fiji and Kiribati. DevFish Programme, Forum Fisheries Agency, Honiara.

In the early 2000s Kiribati Tuna Development and Management Plan 2003-2006 was formulated with assistance from the Forum Fisheries Agency (FFA). Because the document was not officially adopted, it cannot be relied upon to provide accurate information on national tuna fishery management arrangements. Nevertheless some insight can be obtained by examining aspects of the Plan.

- The objectives targeted by this Plan are given to be: promoting longline development, maximizing government revenues, securing more jobs and more business from foreign vessels, developing large scale servicing for fleets operating in the region, promoting industrial scale tuna fishing and processing, and the establishment of the fisheries licensing and law enforcement authority.
- The ten key elements of the plan are: institutional strengthening; improved consultation and coordination; provision of economic incentives; participation in international fisheries arrangements; revision of national legislation; social impact mitigation measures; conservation issues; small-scale longline development; medium and large-scale longline development; and a three-phased strategy for development.

In 2009 the FFA analyzed the strengths and weaknesses of the Kiribati Tuna Development and Management Plan¹⁵:

- Strengths: The plan was formulated with extensive consultation and was focussed precisely on the priorities of the mainly government stakeholders involved in the process. The consultations created a heightened awareness of opportunities, constraints and issues related to tuna resources, management, and development. The plan formulation process resulted in many fisheries officers having substantial contact with regional and international tuna fisheries specialists and allowed those officers to create useful networks. The Process brought together much of the important information on Kiribati tuna (e.g. tuna resources, legal, MCS)
- Weaknesses: The plan was not adopted by Cabinet. Reasons cited by various stakeholders included: The plan (presumably Vol 1 and 2 together) was too large and not readily digestible by non-technical people involved in the decision process, Government was uneasy about the creation of an authority that may be costly and have some negative impact on the flow of funds from access arrangements, the change of Government that occurred just after plan formulation, the decision-making body was too large and it was difficult to collect all the players together, and lack of incentives for government officials to embrace the plan. Not enough attention was given in the plan to specific interventions to achieve the objective of maximising revenue

From an historical perspective, most national offshore fishery management efforts have been focused on the objective of generating revenue for the Kiribati Government through licensing foreign fishing vessels. These efforts have been quite successful: The license fees received from foreign fishing made up 24 % of total recurrent revenue for 2007 and 41% in 2008 (Gillett 2009).

There has been a large amount of regional cooperation in the management of offshore fisheries. This has been exercised primarily through the Parties to the Nauru Agreement (PNA) – in which Kiribati is an important member (see box).

¹⁵ Gillett, R. (2009). Tuna Management Plans in the Pacific Ocean - Lessons Learned in Plan Formulation and Implementation. Forum Fisheries Agency, Honiara, 45 pages.

The PNA¹⁶

In February 1982 the Nauru Agreement Concerning Cooperation in the Management of Fisheries of Common Interest (hereafter referred to as the Nauru Agreement) was opened for signature. The Nauru Agreement had been negotiated by seven Pacific island states –Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Palau, Papua New Guinea and Solomon Islands. This group of countries (later joined by Tuvalu) is known collectively as the Parties to the Nauru Agreement (PNA).

The conclusion of the Nauru Agreement marked the beginning of a new era in Pacific island cooperation in the management of the region’s tuna stocks. It was an important milestone in the exercise of coastal state sovereign rights over their 200-mile EEZs. The PNA group accounts for much of the tuna catch in the Pacific island region. In 1999, it produced 98 per cent of the tuna catch taken from the EEZs of Pacific island Forum Fisheries Agency members; 70 per cent came from three PNA members: PNG, FSM and Kiribati. The group also accounted for 94 per cent of the access fees paid to the FFA Pacific island states. By controlling access to these fishing grounds, the PNA group collectively wields enormous influence and power.

The PNA has implemented a number of management arrangements. These include a set of non-negotiable minimum terms and conditions for foreign fishing vessel access and a limit on the number of purse seine vessels operating in the region under bilateral licensing arrangements. Currently the PNA countries (including Kiribati) are implementing a limitation on purse seine effort based on the number of vessel days.

Coastal Fisheries Management

Preston (2008) reviews coastal fisheries management in Kiribati. Management of coastal fisheries is poorly developed at the national level in Kiribati. Resource-specific regulations exist only for lobsters and, since February 2008, for bonefish on Christmas Island. There are no size limits for coastal marine resources other than lobsters, no quotas, no limits on the number of licences issued, no gear restrictions, and only two formally-established local fishery management areas (in North Tarawa, and in Christmas). A fisheries management plan is in preparation for the beche-de-mer fishery but discussions with fisheries staff indicate that this is likely to be based on a national total allowable catch (TAC) which involves no spatial allocation and which may therefore be insufficient to prevent overexploitation on any given island. A management plan is also being developed for the aquarium fish industry in Christmas, again using a TAC which may be based on previous export volumes rather than any objective assessment of the resource base, and which may also not provide sufficient resource protection to ensure sustainability.

There appears to be a perception among the population in general, and among many government officers, that coastal marine resources are essentially limitless, or at least sufficiently abundant that no management is needed, especially as regards the outer islands. This situation may have arisen because overexploitation of inshore resources has not until recently been perceived as a problem area. Historically, inshore resources have primarily been seen as development opportunities, while most management effort has been directed towards oceanic tuna fisheries.

The situation in regard to management of coastal fisheries is nevertheless changing. The combination of growing population, increasing market demand for certain products (especially beche-de-mer and shark fins) and improved international and domestic transportation linkages and market access in some cases means that coastal resources are nearing or may have exceeded their sustainable production limits. Some resources (deep-water snappers, coastal tunas) may have potential for further development, but in the case of lagoon and reef species the future focus will need to be on conserving, managing and, in some cases, restoring stocks.

¹⁶ Source: Tarte, S. (2002). The Nauru Agreement Concerning Cooperation in the Management of Fisheries of Common Interest - A Review of the Agreement and an Analysis of its Future Directions. A Consultancy Report prepared for the Forum Fisheries Agency and the Parties to the Nauru Agreement.

Institutional Arrangements for Fishery Management

In Kiribati the main institution involved with fishery management is the Ministry of Fisheries and Marine Resources Development. The role of this agency is covered in more detail in a section below.

3.2.6 Fishermen Communities

The concept of "fishermen communities" has limited applicability to Kiribati. Nearly all households in the country are involved in fishing activities. It could therefore be stated that all villages in Kiribati are "fishing communities".

3.3 Inland sub-sector

There are no freshwater fisheries in Kiribati.

3.4 Recreational sub-sector

The only significant sport fishery in Kiribati is on Christmas Island, where overseas tourist anglers visit to fish for bonefish and, to a lesser extent, for large coastal pelagic species such as trevallies, wahoo, tunas and, occasionally, marlins. Christmas also attracts small numbers of divers. Tourists originate mainly from the United States, Japan and, since the commencement of flights from Fiji a few years ago, Australia and New Zealand. The sport fishery generates economic benefits for Christmas through sport-fishing licence fees, jobs for about 70 professional fishing guides, and tourist expenditure in the **island's hotels**. Fly-casting for bonefish operates under a catch-and-release system, and so has a limited impact on bonefish stocks, unlike the artisanal gillnet fishery which targets the same species. (Preston 2008)

3.5 Aquaculture sub-sector

ADB (2008)¹⁷ describes some of the main aquaculture operations in Kiribati:

- Pearls: Kiribati began investigating the culture of black pearls twelve years ago. After an encouraging start and the harvesting of a number of pearls of marketable quality, the project has had several difficult years, and its future appears uncertain. The Fisheries Division became fully responsible for the project in 2007. Funding and staff resources for further work to overcome identified problems are reported to be inadequate.
- Seaweed: The history of seaweed in Kiribati is similar in some respects to that of ventures elsewhere that seek to exploit a niche market opportunity on the basis of what appears to be a comparative advantage derived from resource endowment, but that are unable to compete with bigger and better placed suppliers whose subsequent entry drives down prices below the smaller **producer's cost of production**. **The government** has been subsidising seaweed prices in a similar way to the copra subsidy but on a much smaller geographical scale, to encourage people to make a living in outer islands. This has propped up production, and Kiribati still exports small quantities of dried seaweed, mainly from Tabuaeran and Christmas, where it makes a useful addition to household incomes, but the industry has not fulfilled the hopes originally held for it.
- Milkfish: In 2004 the tidal ponds east of Parliament at Ambo were allocated for development of an aquaculture research and experimental station in collaboration with the Fisheries Division. Substantial infrastructure has been constructed, and programmes are underway to culture and distribute milkfish to farmers for further growth as foodfish for sale; to establish the feasibility of commercial prawn cultivation - recognised to be one of the most difficult things to do in Pacific aquaculture; and to develop fish quarantining techniques to support the export trade in aquarium fish (petfish). Meanwhile, the old fish ponds and surrounding earthworks at Temaiku which were originally intended to grow baitfish for the export tuna fishery, have been resurrected under the control of the Fisheries Division with technical and financial assistance **from Japan's Overseas Fisheries Cooperation Foundation**. The project now operates as

¹⁷ ADB (2008). Kiribati: Managing Development Risk - A report in ADB's Pacific Islands Economic Reports series. Asian Development Bank, Manila.

Temaiku Ecofarm, an integrated aquaculture/agriculture enterprise supplying fish, chickens, eggs and pork to the local market on a semi-commercial basis, i.e. sales revenue covers direct operating costs.

Kiribati reported 10 tonnes of milkfish and 1788 tonnes of *Euclidean* seaweeds from aquaculture in 2009 and the estimated total value of aquaculture was about USD 163 000.

Aquaculture Production as reported to FAO (mt)

	2005	2006	2007	2008	2009
Milkfish (<i>Chanos chanos</i>)	12	12	5	12	10
Seaweed (<i>Euclidean sp</i>)	5 000*	8 837	1 112	1 083	1 788

* Seaweed production in 2005 was estimated by FAO.

4. POST-HARVEST USE

4.1 Fish utilization

The catch taken by various foreign purse seine fleets operating in the Kiribati EEZ is almost all for canning, but the mechanisms for getting their catch to the canneries shows considerable variation. The Japanese purse seiners return to Japanese ports to offload the catch. US purse seiners offload their catch at the canneries in Pago Pago, American Samoa, and do not transship often. Taiwanese, Korean, and Chinese seiners (or vessels controlled by interests from these countries) usually transship their catch. This transshipment occurs either in Tarawa Lagoon, Christmas Island, or in a port in a neighboring country – often Pohnpei in the Federated States of Micronesia or Majuro in the Marshall Islands. ole-and-line vessels operating in the Kiribati EEZ deliver their catch directly to port in Japan, for mainly consumption in Japan in various forms. online vessels operating in the Kiribati EEZ either make deliveries to Asian ports or transship at a port in Kiribati or neighboring Pacific Island country. The higher grade tuna is mainly used for sashimi in Japan, the lower grades for mainly for canning for EU and USA markets, and the intermediate grades for sashimi in non-Japanese markets.

Sullivan and Ram-Bidesi (2008) give information on the post-harvest aspects of the small-scale fishery for tuna in Kiribati. The report states that there is almost no processing of the tuna from the artisanal fishery as the fish is sold fresh on the day when it is caught. The only significant processing done in recent years has been the production of tuna jerky by a few private individuals. The government fishing company is now undertaking some quasi-commercial sales of processed tuna. **In the past, Tarawa's artisanal tuna trade was adversely affected by fish discarded from transshipping vessels.** While in the Kiribati EEZ, these vessels are required to transship inside Tarawa lagoon rather than offshore. Frozen discards were collected on the wharf and resold in direct competition with small scale fishermen. Consumers could see that the fresh fish were much better quality but still bought the discards because they were cheaper. As a result, prices slumped temporarily. The town councils now control the price of market fish whilst the government fishing company maintains an exclusive claim on all discards from transshipments.

In the outer islands catches are mainly used for home consumption, or shared, although some excess catch may be salted and dried for later consumption or sale. Many islands now have cold storage (14 islands out of 33 total in Kiribati), enabling storage for local sale and shipment to Tarawa. In the past the schemes to transport fish to urban markets met with limited financial success due to the difficulties and cost of maintaining the infrastructure and transporting the product.

Some of the Tarawa tuna catch is processed into jerky. A small processing/exporting company was established in 1990 and began exporting tuna jerky in 1993. Exports of this product reached

a maximum in 1996 when 1 380 kg worth USD 57 960 was sent to Australia, New Zealand, Korea, Japan, and Hawaii. Jerky exports are currently sporadic.

The aquarium fish are exported to distributors in the mainland United States via Hawaii.

4.2 Fish Markets

Catches taken by small-scale commercial fishers in South Tarawa are mainly sold alongside the road from insulated ice boxes. Some are disposed of through small commercial fish markets.

In 2004 a study was undertaken by WorldFish on the fisher sellers of Tarawa. Box 4 summarises some of the results of the study – which emphasise the difficulties and constraints faced by the sellers.

The Fish Sellers of Tarawa

Women sell most of the finfish sold on Tarawa. In total there are perhaps 60 fishmongers active in the municipality of Tarawa during periods when fish catches are high. In our sample of 15 fishmongers, most came from families that lacked formal employment. Their ages ranged from 25 to 60 years old. On average, they were caring for households that contained 10 members, including 3 children.

Pay varies for the women and pay increases are rare. More than a third of the women interviewed were earning 10 cents per dollar of fish sold and two were given 20 cents per dollar of fish sold. Three of the women were earning a flat rate of between AUD 10 and AUD 20 a day. One woman did not receive her pay personally as it was included as part of her husband's income from fishing. In another case, the employer habitually neglected to pay the woman at all, and in one case the pay scale varied. Because daily earnings generally depend on the amount of fish sold, women are encouraged to maximize sales and to work long hours. On most occasions, the women report that they earn at least USD 10 per day and for this they work for more than 8 hours, 6 or 7 days a week. At times when there is no fishing, fish sellers have no income. Women remain in the fish trade because they have few or no alternatives for making the money they need.

The municipal councils demand fees from all fish traders but the fees are not uniform. In Bairiki and Bikenibeu, located within the Tarawa Urban Council, the fee that is charged for each business is USD 5 per day while in Betio it is USD 3 per day. While confused about these differential rates, the women interviewed have never asked why these charges are variable or even required, since their employer already pays for an annual business license. At present, the Tarawa Urban Council, the decision-making body controlling the fish trade, is composed of 17 men and only 1 woman. The one seat occupied by a woman is reserved for the representative of a women's NGO.

Source: Tekanene 2005¹⁸; USD to AUD exchange rate in 2003 averaged 1.51

5. FISHERY SECTOR PERFORMANCE

5.1 Economic role of fisheries in the national economy

A recent study by the Asian Development Bank (Gillett 2009) attempted to quantify the fishery-related benefits received by Kiribati. The study gave the available information on the contribution of fishing/fisheries to GDP, exports, government revenue, and employment. The results can be summarized as:

- Official estimates show that fishing in 2008 was responsible for 8.7 % of the GDP of Kiribati. A recalculation using a different methodology shows the fishing contribution to GDP was about 15 times greater.¹⁹

¹⁸ Tekanene, M. 2005. The women fish traders of Tarawa, Kiribati. WorldFish Center, Global Symposium on Gender and Fisheries, Penang (Malaysia), 1-2 Dec 2004

¹⁹ The fishing contribution of USD 38 million in the recalculation is more than half of the official 2007 GDP of Kiribati. A valid comparison cannot be made however, as the official figure does not include subsistence activities of any kind.

- The license fees received from foreign fishing made up 24% of total recurrent government revenue for 2007 and 41% in 2008.
- There are few comprehensive reliable data on formal and non-formal employment in the fisheries sector.

From the above it can be seen that fisheries make a very important contribution to GDP, exports, and government revenue.

5.2 Demand

The per capita consumption of fish in Kiribati, based on the 2007 FAO Food Balance Sheet, is 75.1 kg. Various other studies have made estimates ranging between 72 and 207 kg. Considering **Kiribati's population**, 100 kg of fish consumption per capita translates into a 2010 demand for 10 090 tonnes of fish.

Factors influencing the future demand for fish are emigration, increase in price of fish (over-exploitation of inshore areas, fuel cost increases), relative cost of fish substitutes, changes in dietary preferences, and population changes.

5.3 Supply

The government has several strategies to increase the national fish supply. These involve supporting the marketing of fishery products in Tarawa from other parts of the country by refrigeration and transport schemes, promoting aquaculture, and discouraging foreign tuna fishing close to the islands of Kiribati.

Major factors affecting the local supply of fish are over-fishing, transport links to the outer islands, the degree of domestic tuna industry development, and **"leakage" from foreign industrial tuna vessels**.

5.4 Trade

The National Statistics Office website does not show export data after 2004. Unpublished data from the National Statistics Office gives the exports from Kiribati by commodity through 2007. Unfortunately, the data on many important fishery exports is incomplete since 2004. Gillett (2009) considers the available data on fishery exports of the country and concludes that a crude estimate of the volume and value of the fishery exports of Kiribati in 2006 is about 4 250 tonnes, worth about USD 5 million.

5.5 Food security

Fish is an important element of food security in Kiribati. The FAO Food Balance Sheets show that in 2007 fish contributed an average of 28.8 % of all protein to the diet and 55.8% of animal protein.

Sullivan and Ram-Bidesi (2008) consider much of the recent literature on fish consumption in **Kiribati and make summary statement: "What is clear is that (a) fish and fish products remain a very significant part of total animal protein supply in Kiribati and (b) tuna species remain the single most common and important marine resource consumed in Kiribati."**

Animal protein substitutes for fish consist mainly of various types of imported meat, much of which are extremely fatty and have negative health implications.

5.6 Employment

The 2005 Kiribati census provides some information on employment related to fisheries. In the census **"working" is defined as being any activity concerned with providing the necessities of life**. Respondents were coded on the questionnaire into the three mutually exclusive categories of **"cash work", "village work" or "no work"**. **A person who is employed or works mainly for cash is a cash worker**. Persons doing village work are those performing a variety of tasks involved in

growing or gathering produce or fishing to feed their families and are described as subsistence farmers or fishermen. The results of the census show:

- Village work (subsistence farmers or fishermen) such as growing or gathering produce or fishing to feed their families was the main activity of 39 and 36 per cent of males and females 15 years and older. The proportion of village workers (of 51 per cent) was much higher in the rural (Outer Islands) areas, than in South Tarawa (urban), where only 20 percent were village workers.
- By far, the majority of employed cash workers in Kiribati are employed in the Public Administration sector – 6 953 persons or 52.9 per cent of the total employed (Figure 34). The only other three industry groups that have a significant proportion of the employed persons are: Transport/Communication – 1 473 (11.2 per cent); Retail Trade – 1 179 (9.0 per cent); and Agriculture/fishing – 936 (7.1 per cent).
- Apart from Government jobs, employment on fishing vessels and especially on merchant/container boats, and tankers is the main source of employment for males.

Gillett (2008)²⁰ tracked the number employed in the large-scale domestic tuna industry in Kiribati over a seven-year period:

	2002	2006	2008
Local Jobs on Vessels	39	15	15
Local Jobs in Shore Facilities	47	80	70
Total	86	95	85

5.7 Rural development

In the Kiribati context, “rural development” could be thought of as any development efforts that take place outside of the South Tarawa urban area. The primary mechanism for fisheries development in those areas is through promoting income-earning opportunities, mostly by encouraging the capture and culture of products that are subsequently shipped to Tarawa and/or exported.

The success of those efforts has been mixed. Outer island fish collection schemes and seaweed culture have certainly produced benefits for the producers – but this has come at considerable costs in terms of government subsidies and donor funding. Many of the constraints on the feasibility of the rural fisheries development schemes relate to business skills, regular maintenance of mechanical equipment, and government involvement in commercial activities.

6. FISHERY SECTOR DEVELOPMENT

6.1 Constraints and opportunities

Some of the major constraints in fisheries sector development are:

- Many of the inshore fishery resources, especially those close to the urban markets, are fully or over-exploited.
- Small-scale fishers are having increasing difficulties in economically accessing the relatively abundant offshore fishery resources.
- There are considerable difficulties associated with marketing fishery products from the remote areas where abundance is greatest to the urban areas where the marketing opportunities are greatest.
- The lack of government orientation to a private sector which is poorly developed.
- For export fisheries, the relatively high operating costs compared to competing countries.

²⁰ Gillett, R. (2008). A Study of Tuna Industry Development Aspirations of FFA Member Countries. Forum Fisheries Agency, Honiara, 70 pages.

- The reluctance of the Kiribati Government to use foreign access to tuna fishery resources to leverage domestic tuna fishery development.

The opportunities in the fisheries sector include:

- Increasing the effectiveness of the Fisheries Division by creating incentives to promote private sector development
- Improving the sustainability of inshore fishery resources by more active management
- **For industrial fishing, taking advantage of Kiribati's strengths:** (1) proximity to very substantial tuna resources, and (2) abundant supply of highly productive, competitively priced labour

A report by the Forum Fisheries Agency²¹ summarized the opinions on opportunities in domestic tuna industry development of (1) the senior staff of the Ministry of Fisheries & Marine Resources Development and (2) of the most experience fisher/processor in the private sector:

	Senior staff of MFMRD	Private sector fisher/processor
Tuna fishing	<ul style="list-style-type: none"> • Phasing out foreign fishing, and replacement with a regional fleet of purse seine, pole-and-line, and longline vessels. • The ownership of the vessels will be like in the Federated States of Micronesia - government owned but operated as private companies • Two vessels of each type for each of the 8 PNA countries 	<ul style="list-style-type: none"> • As uneconomic foreign fleets drop out (high costs of fuel/labour) local fleets become more viable. • Due to resource and logistic considerations, most fleet expansion will occur at Christmas Island, rather than Tarawa • Domestic industrial fishing will be limited to longlining, at least in the medium-term future "learn to walking before running"
Tuna processing	<ul style="list-style-type: none"> • Due to cannery/loining difficulties in Kiribati, all purse seine catch will be off-loaded in neighboring countries • Fresh tuna processing/export will only occur in countries where logistics are more favourable than in Kiribati 	<ul style="list-style-type: none"> • The economics of tuna jerky production are improving. • With its large labour pool, loining in Tarawa is a possibility

6.2 Government and private sector policies and development strategies

As mentioned in Section 3.2.5 above, the Kiribati Tuna Development and Management Plan was not officially adopted, but it does provide some insight into government policies and strategies in domestic tuna industry development. The Plan states there will be a three-phased programme:

- in the short term, the priority will be on the small-scale longline development activities described above; promoting larger scale longlining development; securing employment of Kiribati men on foreign fishing vessels; and finalizing decisions on the infrastructure needs and other long term development initiatives so feasibility studies can be commenced in preparation for such activities, e.g., fishing port complexes, etc.;
- in the medium term, the priority will be on improving transshipment and servicing facilities, and operations, coupled with the above noted studies; final decisions on infrastructure sites; and securing of funding for these enterprises;
- in the longer term, there will be greater scope to promote increased Kiribati participation in purse seining and industrial scale fish processing, training and the development of new large-scale vessel servicing which will include the construction of the required infrastructure and its operations.

With respect to coastal fisheries development, **Preston (2008) states that the government's aim is to have development driven mostly by the private sector with the government-owned company Central Pacific Producers Ltd. (CPPL) 'trail blazing' to encourage private sector development by showing people that a certain business could work provided they know how to do it.** This strategy has met with mixed success. On one hand there is a need for government catalyst where there is

²¹ Gillett, R. (2008). A Study of Tuna Industry Development Aspirations of FFA Member Countries. Forum Fisheries Agency, Honiara, 70 pages.

a weak or non-existent private sector. On the other hand, some people feel that CMML is constraining the private sector by providing government-subsidized competition.

6.3 Research

The Fisheries Division, usually with the support of external donors or organisations, undertakes fisheries and aquaculture research in Kiribati. The objectives are usually to conduct research on marine resources that have potential for development and to coordinate collaborative research activities with regional research organisations.

A very large number of fisheries research projects have been carried out in Kiribati. Many areas of Kiribati and most types of resources have been covered by various research endeavors. The older research is listed in the Kiribati Fisheries Bibliography²².

More recent fisheries research is listed in the latest annual reports of the Fisheries Division. This includes research projects involving ciguatera, stock assessments of various species, post-larval fish, rapid marine resource assessments, and coral reef monitoring.

Tarawa Lagoon has been especially well-researched due to a large externally-funded project in the early 1990s. That research included assessments of shellfish, coral reef and benthic organisms, a finfish assessment, with special emphasis on bonefish, a study of primary and secondary production, along with an analysis of the food web in the lagoon water column, and a computer simulation of lagoon circulation with special emphasis on the impact of causeways. A household survey of 4% of the households in South Tarawa and 2% of the households of North Tarawa was used as a tool to understand public attitudes and lagoon use patterns. (Biosystems 1994)²³

6.4 Education

Education related to fisheries in Kiribati is undertaken in a variety of institutions:

- Academic training in biological, economic and other aspects of fisheries is given at the University of the South Pacific in Suva, and to a lesser extent at universities in New Zealand, Australia, Japan, and the United Kingdom.
- Training courses, workshops and attachments are frequently organized by the regional organizations: the Secretariat of the Pacific Community in New Caledonia and by the Forum Fisheries Agency in the Solomon Islands. The subject matter has included such diverse topics as fish quality grading, stock assessment, seaweed culture, fisheries surveillance, and on-vessel observing.
- Courses and workshop are also given by NGOs and by bilateral donors.

Barclay and Cartwright (2007)²⁴ give information on the training of people from Kiribati (I-Kiribati) on Japanese fishing vessels (box).

The Fisheries Training Centre

Kiribati is unusual among Pacific island countries in that it trained and recruited I-Kiribati to work on foreign fleets. This started as an offshoot from the Maritime Training Centre (MTC), which had trained and recruited I-Kiribati for the German merchant marine since the 1960s. The industry organisation Japan Tuna noted the positive effects of the MTC on employment for I-Kiribati, and was also looking for a source of cheaper crews, so decided to set up something similar for training fishers. This became the Fisheries Training Centre (FTC), established in 1989.

At the FTC, Japan Tuna funded the salaries of two Japanese instructors, two local instructors and the costs of running the longline training vessel, *Tiakawa*, including the

²² Gillett, R., M. Pelasio, and E. Kirschner (1991). Kiribati fisheries bibliography. Document 91/8, FAO/UNDP South Pacific Regional Fisheries Development Programme, Suva, Fiji.

²³ Biosystems (1994). Tarawa Lagoon Management Plan. United States Agency for International Development.

²⁴ Barclay, K. and I. Cartwright (2007). Capturing Wealth from Tuna: Case Studies from the Pacific. Asia Pacific Press.

crew. Japan Tuna channelled resources for the FTC and recruited graduates from its fleet via a business called the Kiribati Fisherman's Service, with an office in Bairiki also staffed and funded by Japan Tuna. The FTC was under government obligation to train at least 72 young men between the ages of 18 and 30 each year, and usually trained only this many because Japan Tuna paid for the training and did not want to train more crew than it needed. As a result, all of the trainees had a job to go to on graduation and the course was popular among young Kiribati men because of chronic unemployment problems in Tarawa.

6.5 Foreign aid

Bilateral programmes of technical cooperation, collaboration and assistance in fisheries have been provided by the Governments of Japan, Australia, New Zealand, United Kingdom, and USA, and by multilateral donors including UNDP, ADB, FAO, UNCDF. Kiribati also enjoys technical assistance or the channeling of multilateral donor assistance from various regional agencies including, FFA, SPC, SOPAC, and the University of the South Pacific. Significant assistance projects in the past several decades have included:

- Japanese funding for Outer Island Fish Centres, a pilot beche-de-mer hatchery, funding for the **Tarawa Fishermen's Cooperative**, provision of a cargo and passenger vessel to help link outer island fisheries centres, and assistance in the establishment and upgrading of Te Mautari Limited and Central Pacific Producers;
- Australian funding for the overseas training of fisheries personnel, a pilot black-lipped pearl oyster hatchery, and provision of fish processing equipment for a private venture on Tarawa;
- New Zealand assistance in the overseas training of fisheries personnel, and support to the establishment of *Eucheuma* seaweed farming, including the formation of the Atoll Seaweed Company;
- British funding of management personnel for Te Mautari Limited and assistance to Outer Islands Project activities on Butaritari, Abemama and Abaiang;
- United Nations Development Programme support to the establishment of milkfish farming on Tarawa, initial design of Te Mautari fishing vessels, an artisanal boat building project, overseas training for fisheries personnel, and a brine shrimp project on Christmas;
- Asian Development Bank assistance has been provided for a study of export market development, institutional strengthening of the Environmental Unit and a soft loan to the Development Bank of Kiribati to support a fishing vessel credit scheme, and;
- European Union funding of a Marine Resource Sector Review and support to the Atoll Seaweed Company.

7. FISHERY SECTOR INSTITUTIONS²⁵

The Ministry of Fisheries and Marine Resources Development (MFMRD) is the Kiribati Government **Agency responsible for developing and managing the nation's** fisheries as well as other marine resources (marine aggregates, deep-sea minerals). The Ministry comprises Administration and Finance sections as well as the two main technical divisions, the Fisheries Division and the Mineral Resources Division. The Fisheries Division is by far the larger of the two, employing some 88 staff as opposed to 4 in the Mineral Resources Division. The total establishment of the Ministry is 115 staff, with the remaining 23 being employed in administration, financial management and other non-technical functions.

The Fisheries Division comprises three technical branches:

- the Oceanic Fisheries Branch which deals with tuna fishery licensing and access arrangements, operation of the vessel monitoring system, deployment of observers and other relevant activities.

²⁵ Information in this section is from Preston (2008) and Vunisea, A. (2003). Social and Gender Considerations. Working Paper for Kiribati Tuna Fishery Development and Management Planning Exercise, Secretariat of the Pacific Community, Noumea.

- the Coastal Fisheries Branch, which deals with development and management of coastal and inshore fishery resources; and
- the Aquaculture Research and Development Branch (ARDB), which was previously a Section of the Coastal Fisheries Branch but which has now been separated out under the current organisational structure.

Each Branch is managed by a Principal Fisheries Officer, under the overall supervision of the Director of Fisheries. A separate Unit of the Division exists to deal with fishery issues in Christmas and the Line Islands. **Administratively this falls under the ARDB, although the Unit's activities cut across all functional areas of the Fisheries Division, both Oceanic and Coastal. The Division's Extension and Research vessel is also administratively placed under the ARDB.**

There are several other institutions in Kiribati that are considered as fishery stakeholders. These include both government ministries and other agencies:

- **Ministries:** The Ministry of the Environment and Social Development is responsible for evaluating the environmental impacts of marine resource export developments and is also concerned with the protection of subsistence fisheries, and the protection of marine habitats and marine life. The Ministry of Commerce, Industry and Tourism is charged with evaluating foreign investment in the marine resources sector, local companies involved in marine product export, and supporting private sector development. The Ministry of Home Affairs is responsible for internal affairs, including Outer Island Development activities and the Ministry of Line and Phoenix Groups oversees all developments in those islands. The Ministry of Finance is the recipient agency of the foreign fishing access fees.
- **Other agencies:** The Fisheries Training Centre, the Council of Churches, the Central Pacific Producers Limited, the current government fish processing centre, private sector processors/exporters, the Development Bank of Kiribati, and fishers associations.

Some of the important internet links related to fisheries in Kiribati are:

- www.spc.int/coastfish/countries/Kiribati/kiribati.htm Contains a large amount of information on fisheries of Kiribati, including many reports by SPC and others.
- www.wcpfc.int/meetings The section on the Scientific Committee contains the annual reports on the tuna fisheries of Kiribati
- www.fao.org/docrep/006/y5121e/y5121e0b.htm Information about the sea safety of Kiribati's fishers
- www.janeresture.com/ki33/fishing.htm Contains considerable information about traditional fisheries of Kiribati and some social perspectives.

8. GENERAL LEGAL FRAMEWORK

The basic fisheries law of Kiribati is the Fisheries Act. In this legislation the "Minister may take such measures as he shall see fit to promote the development of fishing and fisheries in Kiribati to ensure that the fisheries resources of Kiribati are exploited to the full for the benefit of Kiribati."

Important aspects of the Act are:

- The Minister is empowered to appoint a Chief Fisheries Officer and licensing officers for the purposes of carrying out the provisions of the Act.
- The President, acting in accordance with the advice of the Cabinet, has wide powers to make regulations relating, inter alia, to the licensing of foreign fishing vessels, the conditions to be observed by foreign fishing vessels, the conservation and protection of all species of fish, prohibited fishing gear and methods and the organisation and regulation of marketing, distribution and export from Kiribati of fish and fish products.
- A regulatory framework for the operation of fish processing establishments is created.
- There is a provision to prohibit the taking of fish in any sea or lagoon area or on any reef forming part of the ancient customary fishing ground of the people except by members of the concerned group or under a licence granted by the Minister in his discretion.

- There is a prohibition on the use of explosives, poisons and noxious substances for the purpose of catching fish

The act has been amended several times. The most recent was in 2008 when changes were made to extend the fishery limits so as to incorporate all Kiribati waters, to increase penalties for certain offences, to provide for administrative penalties, and to clarify the forfeiture provisions.

Other legal instruments relevant to fisheries include:

- The Marine Zones (Declaration) Act 1983 which defines and establishes a twelve nautical mile territorial sea and a 200 nautical mile exclusive economic zone.
- **The Fisheries (Pacific Island Parties' Treaty with United States of America) Act 1988** implements the Treaty on Fisheries Between the Governments of Certain Pacific Island States and the Government of the United States of America.
- The Native Lands Code gives legal recognition to ownership of fish traps, reefs and fish ponds.
- Many of the island councils throughout Kiribati have rules concerning fishery practices.

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