TUNA LONGLINING OUT OF CAIRNS

Introduction and background

Tuna fishing in the temperate waters off Australia’s East Coast has been well established by Australian operators. However, tuna fishing in the tropical waters off Cairns is a relatively new fishery to Australians. Commercial fishing trials were conducted off Cairns with government funding assistance in the early 1980s.

These trials used five prawn trawlers converted for pole-and-line fishing and handlining, with the yellowfin tuna (*Thunnus albacares*) caught being frozen for shipment to a cannery. The trials were not successful due to the low catches, the high operational costs, the price paid for canning tuna and the freight cost involved in trucking the catch to the cannery, around 3 000 km away.

In 1988, the Lamason family moved to Cairns from the south coast of Western Australia. Bob Lamason commenced tuna longlining trials in 1989 using his vessel *F/V Inquirer*. The trials were proving to be successful, with good catch rates for yellowfin tuna and bigeye tuna (*Thunnus obesus*) and export markets being developed. However, the pilot strike of 1989–90 put an end to these fishing trials as there were no flights to take the catch to export markets and there was basically no domestic market in the Cairns area for tuna.

After the pilot strike was over, Bob Lamason recommenced his fishing operation. It took time to re-establish and expand export markets and create domestic markets for his catch. Fishing was good, so Bob started to expand his fishing operation in 1992 with the purchase of his second tuna longline vessel, *F/V Vision* (Figure 1). As good catches continued and markets expanded, Bob Lamason founded ‘Great Barrier Reef Tuna’ in 1993, with the purchase of a modern processing plant at Portsmith, Cairns and the purchase of his third vessel, *F/V Return*. From 1994 to 1997, Bob continued to expand his operation with the purchase of another five vessels, most of them purpose-built fibreglass tuna longliners in the 18–20 m length range, built in Fremantle, Western Australia and sailed to Cairns, all fitted with the most recent electronic technology.

There have been a number of other operators tuna fishing in the Cairns area over the past few years, which have stayed in the fishery for varying lengths of time.

Management and licensing arrangements

Management and licensing of commercial operators in Australia’s tuna fisheries falls under the jurisdiction of the Australian Fisheries Management Authority (AFMA). For the Eastern Tuna and Billfish Fishery (ET&BF—Figure 2), a Management Advisory Committee (ETMAC) provides management advice to AFMA. The committee comprises representatives of the commercial sector, recreational sector, scientists, managers and state governments under an independent chairman, with observer status given to a conservation representative and a charter vessel representative. The main focus of ETMAC at present is to work with AFMA in the development and finalisation of a Management Plan that will give stability to operators in the fishery.

The main fishery off Cairns falls within the boundaries of ‘Area E’ (Figure 3) in the ET&BF. Only...
13 licences are issued by AFMA for this area as it is an important recreational and game fishing location as well. Marlin is the main species targeted by the game fishing charter vessels, and they are concerned that the commercial by-catch of these species during tuna longlining operations could have an impact on the marlin stocks.

Resource sharing between the different fishery sectors has been promoted by AFMA in its management approach, especially in relation to marlins. However, the ET&BF has implemented a voluntary non-retention of marlin scheme for the entire fishery as a means of demonstrating to the game-fishing sector that it is not interested in retaining marlins, except broadbill swordfish (*Xiphias gladius*) and in some locations further south, striped marlin (*Tetrapturus audax*). In addition, a mandatory ban has been

Figure 2: Map of the East Coast Tuna and Billfish Fishery showing different zoning for licensing purposes

Figure 3: Area E of the ET&BF off Cairns
placed on the take of black marlin (*Makaira indica*) during their spawning season (September to January inclusive) in Area E only.

To try to fully understand the fishery in Area E, substantial research efforts have gone into looking at fishery interaction (between recreational/charter and commercial operations), gear performance in terms of targeting (or not targeting) marlins with certain longline configurations and independent observer coverage of domestic longline operations (i.e. marlin by-catch).

AFMA’s approach to management of Area E has been to implement a tight reporting schedule where each vessel has to report two hours before departing port the intended location. Whilst at sea, a maximum of 500 hooks can be set at any one time, as a mechanism to reduce the by-catch of marlin, and when one is caught the chance of it being released alive is greater. At the end of fishing, each vessel must report two hours before entering port. In addition it is a mandatory requirement that the AFMA ‘Australian tuna longline fishing logbook (ALO3)’ be completed accurately for all fishing activities.

**Great Barrier Reef Tuna—fishing operations**

Bob’s fishing operations have expanded from two vessels in 1992 to seven operational vessels in mid 1997, and the delivery of an eighth vessel, F/V *Total*, in July 1997. The main species caught are yellowfin tuna and bigeye tuna, with the mix varying from year to year, and albacore tuna (*Thunnus alalunga*). The main by-catch species include mahi mahi (*Coryphaena hippurus*), wahoo (*Acanthocybium solandri*), broadbill swordfish, and moonfish or opah (*Lampris regius*).

The vessels have to travel at least 50 nm through the Great Barrier Reef to get to the fishing grounds and can fish up to 250 nm from port. All vessels have a hydraulically powered mainline reel with 3.5 mm monofilament mainline. Four radio beacons with flashing lights attached (Figure 4) are spaced equally along the mainline with the 500 hooks on individual 20 m branchlines, set around 40 m apart on the mainline.

Setting takes 1.5–2 hours. The gear is then left to soak for several hours before hauling, which takes 3–4 hours. Two sets are made per day, with a fishing trip lasting 4–5 days and the return to port usually coinciding with flight schedules for marketing.

Handling the catch is very important to maintain the highest quality. When fish are landed, they are immediately spiked and bled. When bleeding is complete, the fish are gilled and gutted, the gut cavity scrubbed clean of blood, the fish rinsed, placed in a plastic bag, and then immersed in a RSW (refrigerated sea water) tank for chilling to 0°C.

All of Bob’s vessels use RSW as the chilling medium for the catch—no ice is carried at all. Bob believes that RSW chills the fish quicker, saves handling time and effort (no need to ice the catch), saves space on the vessel, and reduces the operation cost of the vessel (no need to buy or handle ice at all). To avoid abrasion and rubbing of the fish, each fish needs to be protected. In Bob’s case, plastic bags are used. The bags can be rinsed and re-used over and over again.

**Great Barrier Reef Tuna—processing operations**

Great Barrier Reef Tuna’s processing plant is a ‘Grade A’ accredited Australian Quarantine and Inspections Service self assessment establishment. The design of the facility allows all processing to occur in a ‘production line’ style with no double handling, ending with the fish being cartoned and stacked on pallets.
next to the door through which they entered. Attached to the processing facility is a retail outlet that is well patronised by locals and tourists wanting fresh tuna or other pelagic species, usually sold in fillet or steak form.

When the vessels come in to unload, they tie up at their berth at a marina, less than one kilometre from the packhouse. As the vessel deck is lower than the wharf area, a ramp is used to unload. The catch is taken from the RSW tank, the plastic bag removed and the fish pulled up a ramp (Figure 5) and placed in a tub in the back of a refrigerated truck for transport to the packhouse. The tub has RSW in it to maintain the temperature of the catch during transportation to the packhouse.

Once at the packhouse, the tubs of fish are unloaded by fork lift and placed beside the stainless steel processing and packing tables (Figure 6). The fish are then placed on the tables, with each fish checked for cleanliness with any remaining blood removed from the gut area (Figure 7).

A trigger-operated spray unit with chilled water is used in this operation. Chilling of the water used in processing is achieved by having coils of copper pipe mounted in one of the chill rooms (Figure 8) with the water coming from a tap, through the pipes in the chill room to the trigger operated spray unit. This is a cheap, easy way to maintain the coolness of the fish during final processing and checking of the product before packing.

Once the fish has been checked, a cut is made in the tail so that the flesh can be seen for grading. The fish is then slid onto a ‘table scale’ for weighing (Figure 9), the weight recorded and the fish slid off to the packing end of the ‘process line’. The grade of the fish and its size will dictate the market the fish will be sent to. Fish are packed into cardboard ‘coffins’ inside plastic liners with several ‘ice packs’ added, one in the gut cavity of each fish and others loose in the carton. Several fish are placed in each carton, so the weight is around 80–100 kg. The cartons are then well sealed, well labelled with number, weight and species of fish as well as destination, and either stored on a pallet in a chill room or placed in an air-freight cargo container, ready for transporting to the airport.

Marketing the catch

The main aims in marketing are to provide the buyer with the quality of product they want, and to be in a position to supply it when they want. Having a fleet of seven (now eight) vessels staggered in their landing times allows the above marketing criteria to be met. The selection of markets to send each fish to is also a part of the marketing strategy. Over the four years of operation, the customer base for product has increased to over 130 clients, intrastate, interstate and overseas. From 5 to 25 t of fish are processed each week with around 65 per cent exported and 35 per cent sold domestically (including retail sales).

The main markets for Great Barrier Reef Tuna are in Japan, and product is air-freighted on direct flights from Cairns International Airport. Great Barrier Reef Tuna uses a marketing strategy of selling some product at a fixed price to buyers, with the balance placed on the auction floors in Tokyo, Sapporo, Nagoya, Osaka and Sendai.

The species and size of fish dictate which market in Japan each fish or carton will go to. Although the fixed-price buyers do not pay the same rates that can be...
achieved on the auction floor, a greater range of sizes and grades can be sold. Also these buyers will take some albacore, a fish not usually exported. Nominal quantities of tuna are also supplied to the Hawaii market at times.

The domestic market for product continues to expand as the palates of Australian consumers change. Sales intrastate and interstate continue to increase for tunas, mahi mahi and wahoo. Low-value species such as skipjack tuna (*Katsuwonus pelamis*) and some albacore tuna are frozen and sent for canning, while some go to the crocodile farms for feed. This means that virtually nothing is wasted from the Great Barrier Reef Tuna processing operation. Retail sales through their shop continue to increase as locals and tourists experiment with the different species on offer. Tuna loins, fillets of mahi mahi, wahoo and moonfish are on offer. The offcuts from filleting are chopped and sold to the crocodile farms, or to local companies that take tourists to the reef, so they can feed fish in the wild. The retail shop also buys in other marine...
products of a high quality so that customers have a wider selection to choose from.

The latest vessel in the fleet—F/V Total

Bob Lamason’s latest vessel, F/V Total, was delivered to Cairns in July 1997 ready to be fitted with tuna longlining gear. The vessel was built by New Westcoaster Pty Ltd in Western Australia. This fibreglass vessel is 20 m long with a beam of 6.5 m and draws 1.9 m (Figure 10).

The main engine is a 640 HP 6 cylinder Yanmar diesel with 3:1 reduction gearbox, and a 4 cylinder Perkins auxiliary driving a 37.5 KVA generator. The hydraulic system is driven from a power take-off on the main engine. The vessel holds 10 000 l of fuel in four tanks in the engine room and 4 000 l of fresh water stored in two tanks under the forward bunks.

F/V Total has 8 berths including a captain’s cabin, toilet, shower, and spacious galley area. Six
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large RSW tanks are located below deck with a total holding capacity of around 20 t of chilled product.

Each tank has its own thermostatically controlled refrigeration coils mounted on one side (Figure 11) with a sump for draining. A circulation pump is also used to move the RSW around the tank and across the coils to maintain the desired temperature of 0°C.

The vessel also has an outside steering position with engine and hydraulic controls on the port side (Figure 12) for use during hauling operations.

Summary

The development of a tuna longlining industry out of Cairns by Bob Lamason has been very successful. Great Barrier Reef Tuna has expanded annually since 1993 and has generated employment for over 45 people on the fishing vessels and in the processing plant.

Figure 10: Bob Lamason’s latest vessel, F/V Total

Figure 11: Refrigeration coils and sump in one of the six RSW tanks
Future expansion will depend on the management controls implemented by AFMA as a new Management Plan for the ET&BF is finalised and introduced.

**Reference**


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Figure 12: Outside steering position with Bob Lamason (left) showing other fishermen over his new vessel