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TORRES STRAIT FINFISH ACTION PLAN

Development of a Torres Strait Islander and Aboriginal Traditional Inhabitant Commercial Finfish Fishery Action Plan
Final Report for FRDC Project 2014-240

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Building value and sustainability for fisheries

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Development of a Torres Strait Islander and Aboriginal Traditional Inhabitant Commercial Finfish Fishery Action Plan – Final Report

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In submitting this report, the researcher has agreed to FRDC publishing this material in its edited form.

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Commercial fishermen that have previously, or are still operating in Torres Strait Fisheries, some currently leasing TSRA held finfish sunset licences and catch quota, have also been very generous with their time and knowledge. We appreciate their commitment and their important role in maintaining the value and market access for the fishery, and supporting future growth and value for the fishery under 100% traditional ownership.

EXECUTIVE SUMMARY

Background

The Torres Strait Finfish Fishery (TSFF) is a line fishery taking predominantly coral trout and Spanish mackerel and focused on productive coral reef and cay areas in the north-eastern part of Torres Strait. Commercial fishers include a Traditional Inhabitant Boat (TIB) sector and a non-traditional inhabitant sector. These were previously referred to as Transferable Vessel Holder (TVH) fishers. Finfish species are also caught throughout the region by traditional inhabitant fishers for personal and family consumption and traditional trade.

In 2008, the Australian Government funded a buyback of all finfish TVH fishing licences and the fishery is now 100% owned by Torres Strait Traditional Inhabitants. These commercial 'sunset licences' and associated catch quota are leased back on an annual basis to commercial fishers (many of whom are ex-TVH fishers) to raise revenue to support finfish related business development and capacity building to benefit traditional inhabitants and their communities.

In years immediately before the buyback of commercial licences (e.g. from 2003–2007) the value of finfish catches taken by commercial fishers in the TSFF averaged around $3.37 million per year. It has declined since then and the value of landed catch per year is now around $1.1 million (Marton and Skirtun, 2014).

The Torres Strait Regional Authority (TSRA) commissioned development of the Finfish Action Plan to achieve the following objectives:

1. Increasing Traditional Inhabitant commercial fishing participation in the Torres Strait Finfish Fishery.
2. Increasing Torres Strait Islander and Indigenous employment in fishing and related industries by advancing successful commercial activities in the finfish fishery, including post-harvest matters such as potential markets and marketing strategies.
3. Safeguarding the sustainability of the finfish fishery as traditional ownership and participation in the fishery develops.

Methods

The consultant and TSRA Fisheries Program representatives conducted community consultation visits to Poruma, Erub, Masig, Iama, Warraber, Dauan, Saibai, and Mer Island between March and May 2015, and met with community fisher representatives from Ugar Island in Cairns in late May 2015. These visits were used to:

- introduce the Finfish Action Plan (FAP) project, and discuss the nature of the fishery and its potential value to communities;
- understand community capabilities and infrastructure relevant to finfish business development;
- speak with community members about their aspirations and ideas for greater finfish participation; and
- explore drivers and barriers relevant to that participation.

Meetings were also used to introduce the concept of a Program Logic approach to finfish related investment. This is a logical and sequential framework of investment and activities designed to

enable progress over time toward greater finfish business participation and benefits for communities.

Further information to support development of the FAP was obtained through face to face and telephone interviews with current commercial fishers leasing sunset licences, and regional supply chain businesses. Previous Torres Strait finfish and broader fisheries research and consulting reports were also reviewed.

Results

As identified in previous finfish related studies, current TIB sector finfish participation ranges from no commercially focused fishing in some communities, through a range of smaller volume fishing operations up to more established and commercially focused operations. The consultations did not identify any traditional owned finfish focused businesses where fishers were completely reliant on fishing related income.[1]

Combining income support payments (centrelink) with some income from finfish fishing is the most common approach, with many of these fishing operations not operated on a strong business basis (e.g. many participants are not focused on managing costs and revenues and taxation requirements).

Information collected suggests drivers for greater finfish fishery participation and business viability, and barriers to those are focused around the three key areas illustrated below.

Assets & equipment	Fishing knowledge & training	Vision, goals, a plan
•freezers, ice machines, processing/filleting areas •boats, motors, fishing gear, fuel availability •funding (finfish lease $, My Pathway/income support related training, business loans etc) •essential gear maintenance skills and confidence	•fishing and processing training & practice •fisheries focused small business training in communities •local fishing and business support & mentors •Accessible knowledge about key fishing issues, prices, resources, templates and guidelines	•motivation to succeed •individual & community goals •a logical investment structure for fisheries related development •community fisheries associations, supportive private businesses •more localised investment & action plans

Fishing and freezer business models

To support development of the Action Plan and program logic and provide practical examples, a range of indicative finfish business models were developed. These draw on financial information obtained through community meetings and interviews with TVH fishers and supply chain

[1] There are successful larger scale TIB commercial fishing operations currently however the majority of their effort is focused on TRL with some opportunistic finfish catches.

representatives. Scenarios using single and twin dinghy operations, larger 7-8m "ice boats" fishing for 2-3 day trips, and larger TVH style freezer boat operations have been modelled.

These scenarios use a range of current finfish prices and varying catch levels ranging from lower level single dinghy annual catch of 1.5 tonnes per fisher up to TVH operations taking up to 40 tonnes of Spanish mackerel. Freezer viability at a range of scales has also been modelled.

As reported in previous finfish and broader fisheries viability studies, the finfish business modelling demonstrates that TIB fishing operations must increase substantially in terms of both catch and consistent fishing effort for businesses at any scale to become genuinely viable under the modelled scenarios and assumptions.

For example a TIB fisher selling Spanish mackerel trunks (or barrels) to the local freezer at $6.50 per kg is less able to capture higher value from the catch than the TVH fisher selling finished fillets direct to a wholesaler in Cairns. A high level of fixed costs for businesses means viability is closely tied to fish prices – businesses that are able to shorten their supply chain and sell at a higher price to end buyers are noticeably better off.

The financial modelling showed that 1500kg/year of Spanish mackerel or coral trout is really only profitable at freezer prices if boat capital costs are low (e.g. small loan required and /or boat not replaced every 10 years). A bigger effort resulting in 3,000kg/year is more likely to be profitable, especially if some processing occurs and some fish can be sold as fillets. There is little likelihood of effort below 1,500kg/yr being profitable unless there are no capital costs related to boat and motor.

In the mixed species TIB fishing scenario (mackerel, coral trout and some frozen TRL tails) the modelling shows a similar pattern. Low effort (50 days) is unlikely to be profitable without zero boat capital costs, while the bigger effort (100 days) is more likely to be profitable and can cover the capital costs. For the TVH model at higher catch volumes and with greater value adding the economies of scale mean that even with the higher costs of fishing there is positive net income.

TVH profitability is reduced, however, once the cost of buying the quota is included (for example $1 per kg of mackerel caught). The quota cost based on lease of a sunset licence and quota of 15t at a lease price of $15,000 will reduce profit each year by that amount. TVH vessels are operating on very low margins in the current cost and revenue environment.

For freezers, modelling indicates that *without including the cost of labour* a small freezer would need to buy around 1500kg each of Spanish mackerel and coral trout, process this into fillets and then sell to a wholesaler in order to cover operating expenses. The 2009 AEC report examined profitability issues for freezers of different sizes and found that for finfish only large scale freezers with consistently high throughput would cover their operational costs.

Previous studies and consultation during this project emphasise the very significant challenges and risks associated with running a larger scale commercially viable freezer focused on finfish products. There are a range of essential pre-requisites to set up and maintain such an operation (Figure 8).

Enabling successful business development

It is well accepted that establishing and running a successful business is difficult, and even more so for people in remote Torres Strait communities that do not have exposure to contemporary business processes and role models. With a new business failure rate of around 80% in mainland Australia it is not surprising that fishing businesses in Torres Strait communities face an up-hill battle.

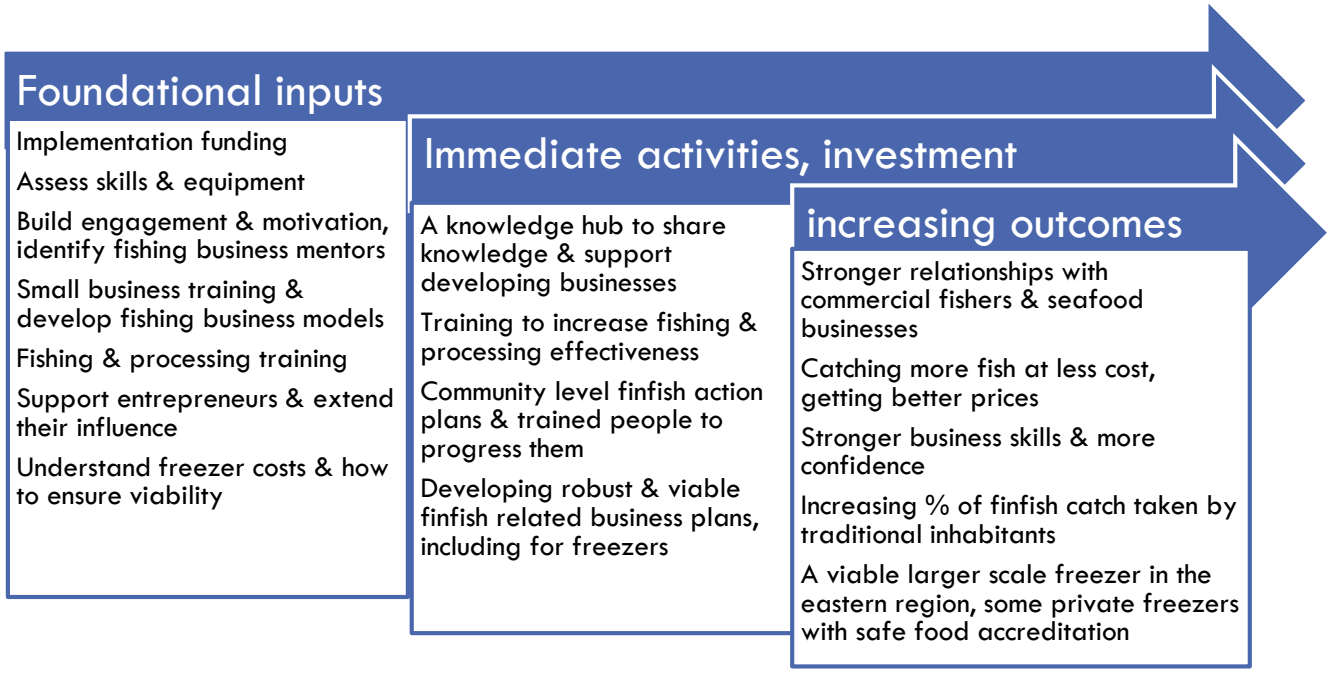
Four over-arching pre-requisites for successful fishing related business development **Motivation, Margins, Markets,** and **Mentoring** are suggested for application across five key outcome areas (or investment themes) identified to guide the Action Plan Program Logic. These are discussed in more detail in the Fishing Business Development section of the report.

The fundamental importance of supporting traditional inhabitant fishers that have shown, or are showing entrepreneurial skills; and careful investment to enable greater motivation for others likely to succeed in finfish related businesses cannot be overstated.

Finfish Action Plan Program Logic

The information collected throughout the project and subsequent analysis, including business modelling and new business development aspects have all informed the development of a proposed Finfish Action Plan Program Logic. This is a series of foundational activities and inputs designed to contribute over time to build the capacity and opportunity for traditional inhabitants to develop and sustain viable finfish related business activities.

The five key outcome areas (or investment themes) developed under the Program Logic cover fishing & processing skills; freezers & infrastructure; finfish business models; small business support, and finfish governance & leadership. These are illustrated below.



Key outcomes from the program logic

The Program Logic for the Action Plan is focused on the following key activities and outcomes:

- Using the 4M's approach, informed by business modelling and practical examples to enable viable TIB sector finfish business models at a range of scales; increasing in risk and complexity over time as capabilities and confidence grow;
- Recognising the valuable role played by existing successful TIB fishing businesses and fisheries entrepreneurs that can showcase successful TIB fishing businesses, extend benefits and act as role models for other fishers;
- Encouraging strong collaboration between TIB and TVH fishers to enable the value of the fishery to be maintained and increased as TIB fishing and business skills develop, and recognising that there is strong mutual benefit from such collaboration and maintaining a TVH presence in the fishery for the medium term;
- More active capacity building investment for the eastern region recognising their competitive advantage in this regard (i.e. most productive catching locations), and development of a finfish related business and governance "hub" centred on this region;
- Encouraging a similar competitive advantage based approach to fisheries resources for other Torres Strait communities. For finfish this may require a less active investment approach for communities best served by other fisheries such as TRL. Lower volume and value finfish operations for these communities may be appropriate in conjunction with other species;
- A finfish business development 'knowledge hub' building on existing and prior TSRA and other economic development investment should be further developed to facilitate knowledge sharing including business models, practical examples, price and market information. It can also operate as a network for business support and ongoing engagement and motivation of TIB fishers and potential fishers;
- Facilitating wherever possible capacity building opportunities for traditional inhabitants to take a more active role in finfish industry development and fisheries management and governance under their 100% ownership of the resource.
- The finfish fishery is an integral part of the broader Torres Strait fisheries "sea-scape" and there are significant benefits from a more strategic TIB fishing industry development approach that recognises and draws on aspects of the current *Roadmap to 100% ownership* process. Activities arising from the Finfish Action Plan and the road-map process should be mutually supportive.

Implementation

The Program Logic structure developed for the Finfish Action Plan is well suited to structured monitoring and evaluation to ensure progress against desired outcomes. A monitoring and evaluation plan has been developed using key evaluation questions tailored to the desired hierarchy of outcomes illustrated in the program logic.

An annual evaluation process is recommended to enable progress and adapt and refine the approach.

A communications and stakeholder engagement plan has also been developed. This is designed to raise awareness and understanding of the action plan, encourage participation and motivation, and extend valuable knowledge and support to traditional inhabitant fishers and related businesses. The finfish action plan knowledge hub outlined earlier is an important part of this ongoing stakeholder engagement process.

Implementing the Action Plan in full and achieving the level of progress in the timeframes suggested by the Program Logic and associated outcomes requires substantial resources and commitment. A dedicated implementation team, perhaps set up as part of a broader Torres Strait fisheries industry development initiative to assist the transition to 100% traditional ownership, would significantly increase the likelihood of the Finfish Action Plan and broader fisheries objectives being achieved.

INTRODUCTION

The Torres Strait Finfish Fishery

The Torres Strait Finfish Fishery (TSFF) is a line fishery targeting Spanish mackerel (trolling) and coral trout (reef-line). There is a commercial traditional inhabitant sector fishing under Traditional Inhabitant Boat (TIB) licences, and a commercial (Transferable Vessel Holder – or TVH) sector. The TVH sector fish using licences and catch quota leased from the Torres Strait Regional Authority (TSRA) on behalf of traditional inhabitants[2]. Finfish species are also caught by traditional inhabitant fishers for personal and family consumption and trade.

In 2008, the Australian Government funded a buyback of all finfish TVH fishing licences and the fishery is now 100% owned by Torres Strait Traditional Inhabitants. These 'sunset licences' and associated catch quota are leased back on an annual basis to commercial fishers (many of whom are ex-TVH fishers) to raise revenue to support finfish related business development, capacity building and related investments to benefit traditional inhabitants and their communities. This ongoing commercial fishing, particularly in the absence of a similar scale of TIB sector commercial fishing, maintains fishery production and value, including supply chain infrastructure and markets.

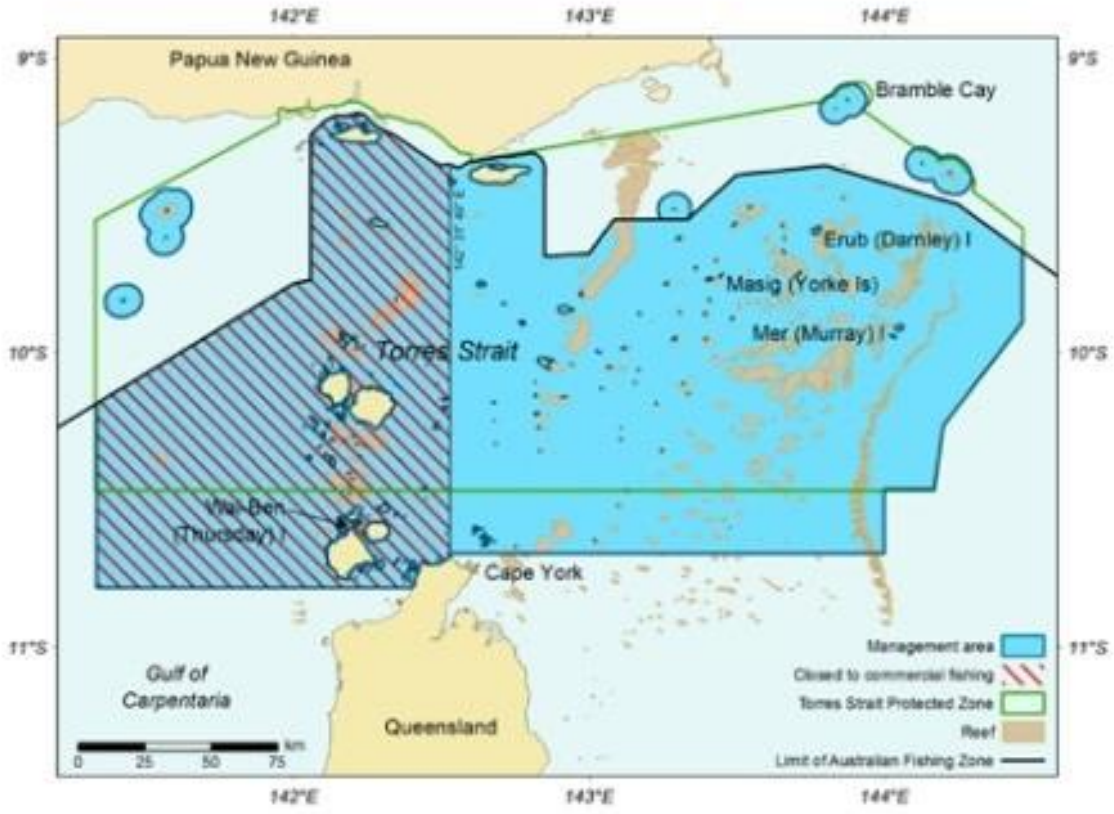


FIGURE 1: AREA OF THE TORRES STRAIT FINFISH FISHERY (MARTON &SKIRTUN, 2014)

[2] These are referred to as sunset licences and are issued on an annual basis to provide for commercial fishing by TVH style operators with the proceeds of the lease being returned to a trust fund held by TSRA on behalf of traditional inhabitants.

Commercial fishers catch mainly Spanish mackerel (*Scomberomorus commerson*) and several coral trout species' including common coral trout (*Plectropomus areolatus)* leopard trout *(P. leopardus*), passionfruit trout (*P. areolatus*), bar cheeked trout (*P. maculatus*), and blue spot trout (*P. laevis*). Other commercially valuable finfish species taken include stripey bass (*Lutjanus carponotatus*), barramundi cod (*Cromileptes altivelis*), tomato cod (*Cephalopholis sonnerati* or C. *miniata*) and emperors (*Lethrinus Sp.*) (Mapstone et al, 2003).

In years immediately before the buyback of commercial licences (i.e. from 2003–2007) the value[3] of finfish catches taken by commercial fishers in the TSFF averaged around $3.37 million per year. It has declined since then and the value of landed catch per year is now around $1.1 million (Marton and Skirtun, 2014).

For the reef-line component of the fishery, the more valuable coral trout species make up most of the landed catch from both the TIB and TVH sectors. Approximately 40t of coral trout quota has been leased out to commercial fishers for the 2015-16 fishing season.

For the Spanish mackerel sector, catch peaked at 251t in the 2000-01 fishing season and reduced to below 100t in 2008-09. It has remained below this level since then. Under 100% Traditional ownership TVH fishers have remained active under the sunset licence leasing arrangements with current catches ranging from around 60 to 80t per year.

Commercial fishers operating under sunset licences are also subject to additional management restrictions including 10-mile fishing exclusion zones around the four main eastern finfish islands (Mer, Erub, Masig, and Ugar) to reduce risks of localised over-fishing around these communities. There are also limits on the number of lines to be used, and the number of hooks per line. There are commercial size limits and some no-take species[4].

Non-commercial catches of finfish species' by traditional inhabitants are believed to be comparable or higher than the current combined commercial catch levels of the TIB and TVH lease sector. The retained catch composition of non-commercial traditional fishers is more varied with a significantly greater proportion of jacks and trevallies (Carangidae) and mullet (Mugilidae) (Marton and Skirtun, 2014)

Nearly all of the TSFF commercial catch has been taken from the Eastern area of Torres Strait with the Erub, Mer, Masig and Ugar Island communities located close to the most productive fishing locations. Finfish species are also taken opportunistically throughout Torres Strait however the focus of the commercial fishery has been the eastern region. The fishery is currently closed to commercial fishing west of a line at 142°32' east. Table 1 on the following page provides an overview of catch, effort and management details for the fishery.

[3] This is the Gross Value of Production or GVP from the fishery. It reflects the initial value of landed catch rather than the value after fish have been further processed into fillets or other portions depending on market demands.

[4] Further background information about the Torres Strait Finfish Fishery is available from the PZJA website: see http://pzja.gov.au/the-fisheries/torres-strait-finfish-reef-line-fishery/#.Vd_8Afmqqko

TABLE 1: CATCH, EFFORT AND MANAGEMENT SUMMARY DETAILS FOR THE TSFF (MARTON & SKIRTUN, 2014)

Fishery statistics a	2011–12 fishing season		2012–13 fishing season	
Stock	**Catch (t) b**	**Real value (2011–12)**	**Catch (t)**	**Real value (2012–13)**
Coral trout	37.8	$0.53 million	22.0	$0.18 million
Spanish mackerel	78	$0.59 million	82.6	$0.59 million
Other	3.9	$0.04 million	1.2	$0.01 million
Total fishery	**119.7**	**$1.16 million**	**105.8**	**$0.78 million**
Fishery-level statistics				
Effort (days) TSSMF	Spanish mackerel: TIB—20 TVH—407		Spanish mackerel: TIB—5 TVH—370	
TSRLF	Coral trout: TIB—43 TVH—184		Coral trout: TIB—0 TVH—140	
Fishing permits	TIB: 150 mackerel endorsements, 134 line endorsements TVH: 5 mackerel and/or line licences		TIB: 102 mackerel endorsements, 103 line endorsements TVH: 5 mackerel and/or line licences	
Active vessels TSSMF	Spanish mackerel: TIB—not available TVH—4		Spanish mackerel: TIB—1 TVH—4	
TSRLF	Coral trout: TIB—not available TVH—1		Coral trout: TIB—0 TVH—1	
Observer coverage	0 days		0 days	
Fishing methods	Coral trout and mixed reef species: handline, rod and line Spanish mackerel: trolled baits and lures, handlines			
Primary landing ports	Cairns (Queensland), Torres Strait Island fish receivers on Erub (Darnley) and Masig (Yorke) islands			
Management methods	Input controls: limited entry, vessel restrictions, prohibited species Output controls: size limits, amount of leased quota			
Primary markets	Domestic: frozen International: frozen			
Management plan	Torres Strait Finfish Fishery Management Plan 2013			

a Fishery statistics are provided by fishing season, unless otherwise indicated. Fishing season is 1 July to 30 June. Real-value statistics are provided by financial year and are in 2012–13 dollars. b Catch figures include both TVH and TIB catch; however, reporting by the TIB sector is not mandatory, so additional unreported catch and effort are likely.
Notes: TIB Traditional Inhabitant Boat. TVH Transferable Vessel Holder.

The Finfish Action Plan

The Torres Strait Regional Authority (TSRA) initiated the Finfish Action Plan project to guide future investment aimed at increasing the value of the fishery under 100% traditional ownership and increasing Traditional Inhabitant participation in the fishery. Benefits from increased participation are likely to come from economic development associated with businesses catching, processing and/or selling fish, or marketing Torres Strait sourced finfish. Related businesses might include viable finfish focussed freezer operations in communities' or other businesses supporting fishing through the sale of bait and fishing gear; or repairs to fishing equipment such as dinghies and outboard motors.

The objectives of the Action Plan project are:

4. Increasing Traditional Inhabitant participation in the Torres Strait Finfish Fishery.
5. Increasing Torres Strait Islander and Indigenous employment in fishing and related industries by advancing successful commercial activities in the finfish fishery, including post-harvest matters such as potential markets and marketing strategies.
6. Safeguarding the sustainability of the finfish fishery as Traditional ownership and participation in the fishery develops.

These objectives also align with more strategic fisheries and Torres Strait economic development objectives, and higher level legislative and policy objectives for the region.

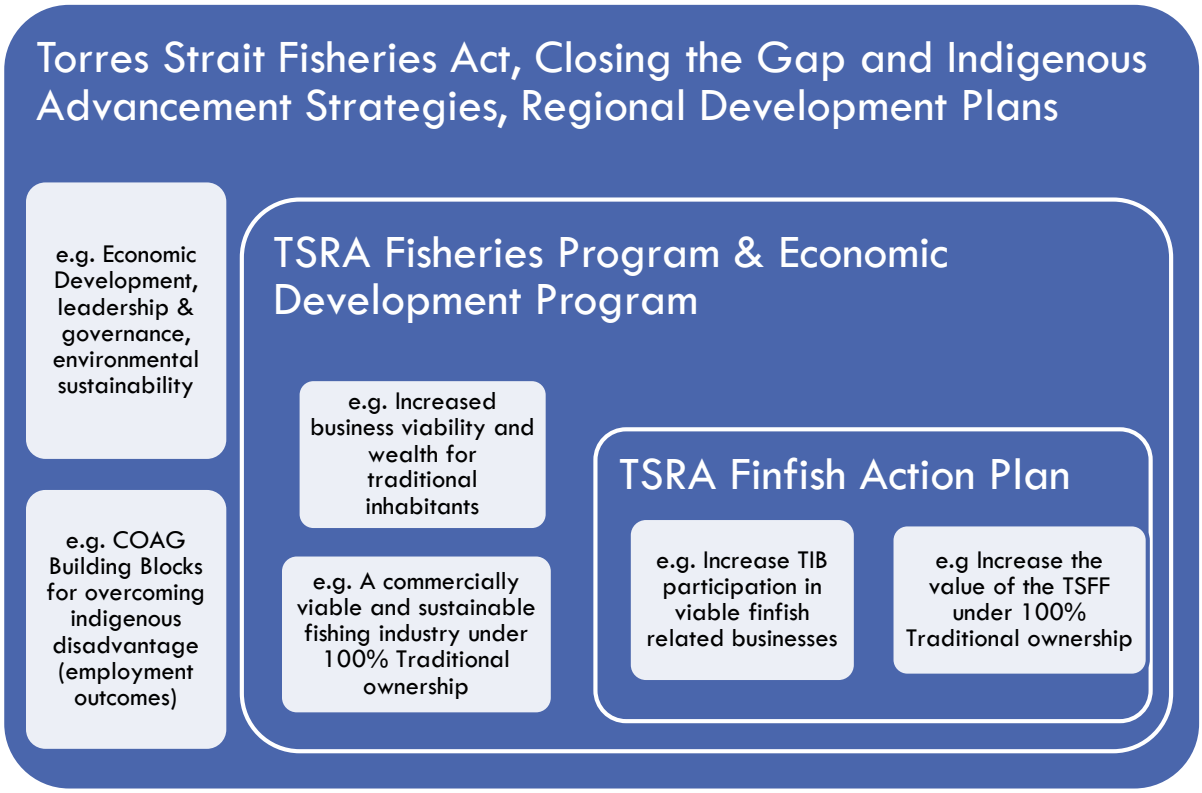


FIGURE 2: FINFISH ACTION PLAN ALIGNMENT WITH KEY TORRES STRAIT STRATEGIC DEVELOPMENT PLANS & PRIORITIES

The methods used to develop the Finfish Action Plan are summarised below. The project has been jointly funded by the TSRA and the Fisheries Research and Development Corporation (FRDC).

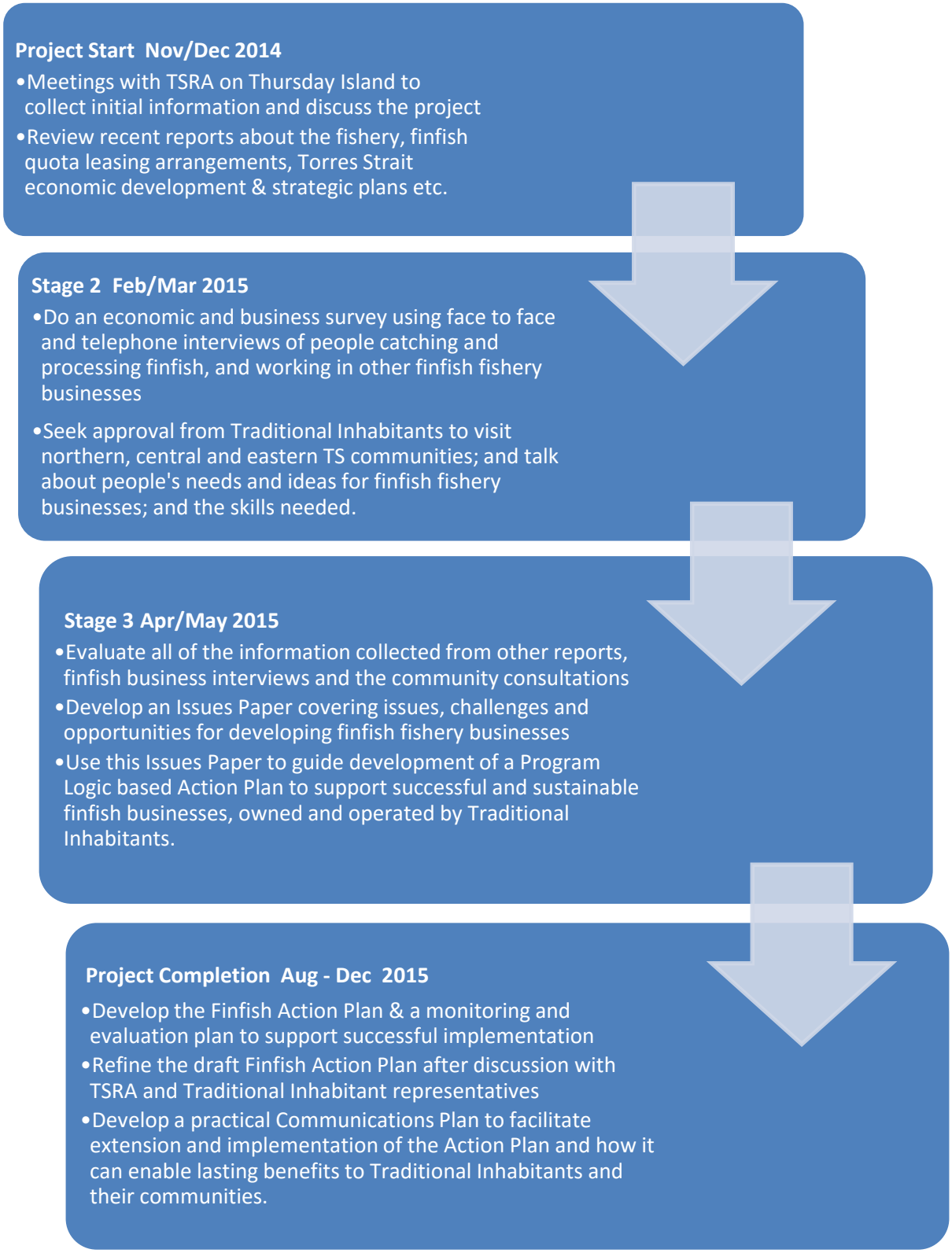


FIGURE 3: KEY STAGES AND METHODS USED TO DEVELOP THE TORRES STRAIT FINFISH ACTION PLAN

ENABLING TRADITIONAL INHABITANT FINFISH FISHERY PARTICIPATION

Community consultation for the Finfish Action Plan

A series of community consultation meetings and discussions with local fisheries business owners were conducted during the FAP project. TSRA Fisheries Program staff, the Fisheries Portfolio leader and TSRA Board Member for Erub Kenny Bedford, and project consultant Andy Bodsworth visited the Warraber, Poruma, Iama, Dauan, Saibai, Erub, Masig and Mer communities between March and May 2015 and also met with some Traditional Inhabitants and fisheries leaders from the Ugar Island community in Cairns in late May 2015.

FIGURE 4: TSRA FISHERIES PORTFOLIO MEMBER KENNY BEDFORD AT THE SAIBAI MEETING

Information from the community meetings has been one of the most important inputs for developing the Action Plan. A comprehensive summary of the issues raised and key discussion points during the community consultation meetings is provided at Appendix 1.

Collecting information to develop the Action Plan

Through the community consultations, interviews with commercial fishers and supply chain businesses, and reviewing previous Torres Strait finfish and broader fisheries research and consulting reports a range of information has been collected to support development of the Action Plan. This information covers:

- Traditional Inhabitants' hopes for the future of the finfish fishery under their 100% ownership e.g. what should that fishery look like in the future? And what sort of benefits might it bring to individuals and communities;
- How current TIB and commercial finfish fishing operations accessing the TSRA-held sunset licences currently work, and the value (not just financial) that those fishing businesses provide;
- Practical and more detailed examples of successful TO owned fishing businesses, and the challenges and lessons learned by these local business owners, aimed at helping other local fishers get started in business;
- Valuable information and insights from meetings with commercial finfish fishers currently leasing out TSRA-held sunset licences and providing revenue for investment back into developing the fishery under 100% Traditional ownership;

- A summary of all of the information discussed at all of the community and individual Finfish Action Plan meetings held so far for the project;
- Insights and lessons from a range of previous fishery-related projects and reviews by TSRA, other consultants, and Traditional Inhabitants that can help increase TO participation in finfish businesses and increase the value of the fishery.

What sort of Traditional Inhabitant finfish fishing is happening now?

FIGURE 5: TRADITIONAL INHABITANT SPANISH MACKEREL AND CORAL TROUT CATCH

Finfish fishing in the Torres Strait communities visited for the project ranges from no commercially focused fishing, through a range of smaller volume fishing operations up to more established and commercially focused operations. The consultations did not identify any traditional owned finfish businesses where fishers were completely reliant on fishing related income[5] (e.g. full time commercial fishers not receiving some level of income support and/or training assistance). The most common examples of current finfish fishery participation by traditional inhabitants were:

- A small number of more serious fishers that earn income from finfish fishing and run their operations with more of a business focus. They are fishing for Spanish mackerel and/or coral trout, and retaining other more valuable species. Very few, if any, of these fishers are not receiving some level of income support payments;
- More serious fishers, most of whom receive some level of income support payments, that earn most of their fishing income from a combination of species with a primary focus on more valuable fisheries like tropical rock lobster (TRL), with ancillary or opportunistic catches of finfish species and/or Beche de Mer (BDM);
- Combining income support payments (centrelink) with some income from fishing is a common approach in many communities; many of these operations do not appear to be run on a

[5] There are successful larger scale TIB commercial fishing operations currently however the majority of their effort is focused on TRL with some opportunistic finfish catches.

business basis (e.g. participants do not seem to have a strong understanding of their costs and revenues and taxation related issues);

- People who fish primarily at weekends or at other times such as holidays, and/or when the weather is favourable; with fish used mainly for family and personal consumption, or some informal trade within a community.

Some specific examples of finfish related businesses owned and operated by Torres Strait Islanders include:

- A small number of small scale but successful finfish businesses buying fish, or catching fish themselves and selling their catch in their community, to Thursday Island (TI) based buyers including local restaurants, and some selling product direct to Cairns buyers via the barge service or via local charter flights if there is space available;
- A small number of TIB fishers running larger vessels with onboard freezing capability and several dories. Such operations are focused on TRL both live and frozen tails however also take finfish species such as Spanish mackerel opportunistically and when the TRL season is closed. These businesses sell direct to end buyers and operate much like the non-indigenous commercial sector;
- A fisher on one community was until recently operating a small fish and chip retail shop on his community using his own locally caught fish;
- The Erub Island community freezer run by the Erub Fisherman's Association buys local finfish and cray tails, processes a range of different fish species', and sells commercial grade fish to local buyers including restaurants at TI and Cape York, Cairns and Townsville based wholesalers and retailers.

What sort of Finfish Fishery do Traditional Inhabitants want?

People in some communities emphasised the long history of fishing in the Torres Strait, and that fishing is a very important aspect of Torres Strait culture. Several people said that fishing is one of the few local activities that offers really good opportunities to build prosperity and self-reliance for island communities. Many of the people that took part in the community meetings expressed their interest in developing or being part of successful fishing businesses. Several community elders suggested fishing activities and businesses can make a large and positive difference for the community. They suggested that not everyone wants to have a really busy, high-value fishing business. Some want more of a balance with a more relaxed lifestyle – and some additional money coming in from fishing.

What might encourage people to do commercial finfish fishing, or stop them?

Previous studies exploring Torres Strait finfish related business development have identified a number of barriers to greater Traditional Inhabitant participation. The community meetings held during the Finfish Action Plan project also identified barriers to participation, including many mentioned in earlier reports. The issues identified are summarised in the following table.

TABLE 2: SUMMARY OF BARRIERS AND DRIVERS FOR FINFISH RELATED BUSINESS PARTICIPATION

What encourages people to go finfish fishing?
Having the knowledge and the confidence to go fishing safely and be able to catch fish effectively
Access to experienced fishers, including going fishing with them to help gain knowledge and confidence
Having enough money to buy fuel, bait, ice and other essentials so they are ready to go fishing when weather/tides are good
Some people are born fishers, are proud to be recognised as full time fishers, and work hard to be successful
Seeing other people around them becoming successful fishers and/or those fishers making extra money for themselves or their families
Not having many other options to do interesting and potentially profitable work in their home community
A well-run community fisheries association, or supportive local businesses to support and encourage fishers and enable their access to other fishing support services, including buying in bulk or arranging better deals on gear and equipment to keep operating costs lower
Having fishing related activities recognised as an approved training activity under income support activities (i.e. being subsidised under income support to learn about fishing)
What sort of things stop people from going fishing, or from having a successful fishing business?
Not enough business experience and confidence to start their own small fishing business; or no access to someone that can help with business skills
Not enough time to do business training, especially if it is done away from their home community
Lack of suitable fishing equipment and supplies e.g. dinghies, motors, fishing gear, eskies, ice
No one to sell their fish to; e.g. no community or private freezer, or a buyer boat
Not enough money to buy a dinghy or motor – or to pay off a loan for a dinghy/motor; or not enough money to buy fuel to go fishing and then make some money
Too much income earned from fishing might mean they lose access to important and more secure and reliable income support payments
Access to productive fishing locations might be difficult, the finfish closure west of 142°31'49" or lack of access to another community's home reefs might influence where people can fish
Having confidence and knowledge for certain kinds of fishing; e.g. knowing what tricks and techniques (anchoring methods, bait types and rigs) to use for catching good numbers of coral trout
Cultural and/or community obligations and/or *Ailan Kustom* might stop people from fishing regularly
Access to start-up capital, or access to business loans and grants; or the skill and experience to write successful business plans or proposals to access such start-up capital
Gaining and/or maintaining safe food accreditation for community based or private freezers

These barriers to greater finfish business participation, and drivers that might enable it can be categorized into aspects related to knowledge and training, people's confidence and motivation, and issues related to equipment and infrastructure. These are illustrated in Figure 6: pieces of the finfish participation puzzle...

FIGURE 6: PIECES OF THE FINFISH PARTICIPATION PUZZLE...

The importance of freezers...

During community visits there was a lot of discussion about freezers, and their importance for supporting successful commercial fishing activities. Many people suggested the absence of a larger scale freezer in their community is one of the main reasons that people are not going out fishing. The main points made about freezers during consultations were:

- A choice of freezers in a community (e.g. private and/or community focused freezers) can be a good thing as it introduces competition and provides different options for buyers and sellers. But too many freezers may reduce the amount of product available to the point that a freezer is no longer viable.
- Some people reiterated the critical importance of the community having access to its own freezer so that it was not reliant on a commercial or privately owned freezer that might provide very little if any community benefits;

- Unlike crayfish, there were substantial processing costs for finfish for the freezer. Staff have to be paid to do the processing and unless there was a good amount of fish coming into the freezer, the costs of processing and keeping staff could mean the freezer is not viable;
- One fisher on Erub maintained his own small freezer, processed his own fish after catching them, and sold direct to other buyers. This works well for him and his business is successful. Some other fishers use larger chest freezers, maybe with a small fan fitted to improve effectiveness, that can keep their fish at or below minus 18 degrees Celsius;
- People discussed the option of a mobile freezer that could be transported on the barge and plugged in ready to go; it could be relocated to other communities depending on the need for it;
- A mobile freezer like this could also be designed to fit on a trailer and be built with highly corrosion-resistant materials, including plumbing fittings that could be easily connected to fresh and salt water for processing and cleaning (similar to the mobile desalination units in some communities).

FIGURE 7: LOCALLY CAUGHT FINFISH IN THE SNAP PART OF THE ERUB COMMUNITY FREEZER

- Not enough fish being caught and sold to a freezer destroying the business viability of that freezer operation;
- Freezers could be a modular design, with more capacity added later if necessary. An appropriate fish processing area that can be easily cleaned and maintained to meet hygiene and safe food requirements is important;
- Larger freezers are not always necessary, and getting secure access to land for a larger freezer site may be difficult;
- Safe food accreditation so that a freezer can legally sell product to registered buyers is very important but can be challenging to obtain and maintain, particularly AQIS requirements for export registered freezers and processing establishments.
- Keeping a freezer running successfully for many years in a remote coastal environment is very challenging. It needs trained people who are committed to making the freezer work and keeping the product coming in. Some communities have people with lots of experience running

a freezer and this knowledge and experience has potential to significantly increase the likelihood of successful freezer operations.

Whilst there are examples of larger scale community based freezers operating successfully in the past for various periods, there are currently no commercially viable community or privately run finfish focused freezers in the region. The Erub Island facility is still running to the credit of those involved, however this freezer is suffering financially from lack of throughput and is also subsidised by TSIRC with respect to power costs.

Investing in a community run larger scale freezer, without strong confidence that the fundamental operating requirements will be met entails very significant financial risk. Figure 8 below illustrates the most important pre-requisites.

FIGURE 8: ESSENTIAL PRE-REQUISITES FOR A VIABLE LARGER SCALE FREEZER OPERATION

The Importance of Community Fishing Support Networks

Participants in several communities noted the challenges with communication and collaboration between fishermen within and across different Torres Strait communities. This includes difficulties accessing practical knowledge and information that can support more effective fishing and business practices. The Importance of access to experienced fishing and business mentors has also been widely recognised in previous studies and capacity building measures for business success in more remote Aboriginal and Torres Strait Islander communities.

Some existing finfish related businesses operate independently as private businesses with support from a business partner or other collaborative private structure (e.g. the Torres Blue partnership between fishers on Poruma Island and Cairns based seafood buyer Independent Seafood Producers (ISP); whilst others operate more as a community based enterprise. The most common framework for these more community focused structures is the Community Fishers Association (CFA) and these exist on several communities. Most CFA's are run as corporations with association members (usually fishers or potential fishers) and directors who may also be experienced fishers or community leaders. Effective CFA's have the potential to be a very valuable enabler for greater fisheries business success and to support the extension of fisheries related benefits throughout a community. A simplified and more consistent approach to the governance structure of these associations, and foundational training and support to make sure they are effective, could significantly improve fishing related benefits for individuals and communities.

A key challenge for the CFA model is balancing formal governance and accountability with practicality. For example corporate governance requirements have the potential to consume significant time and resources that might otherwise be directed to enabling fishing participation and greater business success.

One option is to operate the community fishers association as one of several community business units with formal corporate governance and oversight provided by a more experienced and dedicated corporation. For example the *Kailug* style approach at Masig Island where the overarching corporation provides high level management and support for specific business units. For example these might include the fishermen's Association, a community arts enterprise, or a local tourism based business.

Ugar Island's Kos and Abob Fisheries Corporation: taking a business-like approach to finfish development

Consultation with Traditional Inhabitant and fishing representatives from Ugar Island provided an opportunity to see how they were developing their capacity to fish commercially for finfish, particularly mackerel, in the waters surrounding their community.

Kos and Abob Fisheries have developed a well thought out business plan to build their commercial fishing participation, develop the necessary supporting facilities, and work closely with established regional supply chain businesses to ensure consistent supply of high-quality finfish to ensure the best possible price back to fishermen.

The corporation and its directors are working closely together with their fishers and the community to implement their business plan. They are very well situated, in the heart of productive finfish territory, to set up sustainable and profitable finfish businesses for private as well as community benefit.

Apart from their strong desire to make their business plan succeed, the group also benefit from a close relationship with an experienced business mentor who is helping them to develop and implement their finfish development strategy.

A Director of the Corporation said "*we know that if we want to get things moving (develop our fisheries) we need to do it ourselves*".

This sort of model may allow business units such as the Fishermen's Association to focus squarely on fishing business support activities and investments, providing economies of scale or the purchase of

equipment and fishing gear, and building the capacity of local fishers to operate viable businesses and contribute to regional fisheries management and governance initiatives. Higher-level corporate governance, including auditing, overall strategy and risk management may be done efficiently by the corporation.

Private joint venture business arrangements such as the Torres Blue venture at Poruma Island also offer a good model to combine established viable fishing related businesses with community businesses, providing knowledge and experience, and access to capital and/or assets and equipment that may otherwise be difficult to access for new businesses. The relative benefits these sort of arrangements offer each party need to be carefully considered, including from a more strategic capacity building perspective.

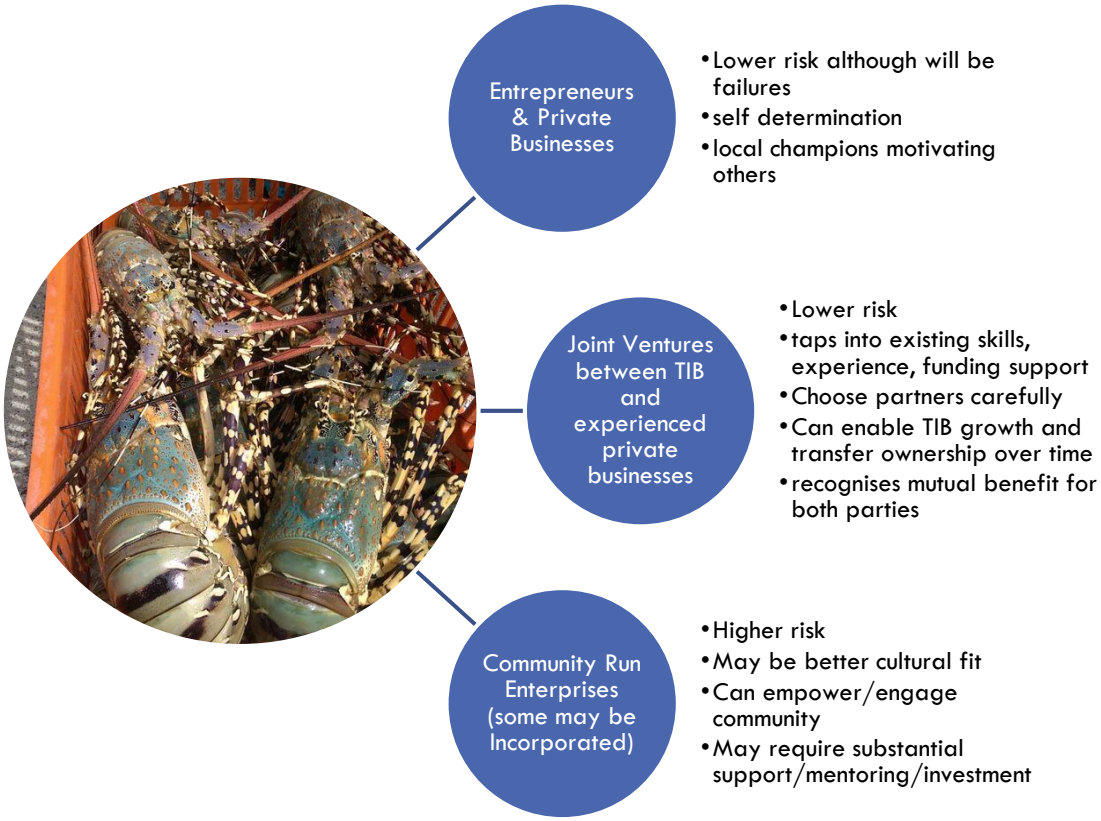


FIGURE 9: PRIMARY OPTIONS FOR TORRES STRAIT FISHING BUSINESS DEVELOPMENT AND SUPPORT

Income from TSRA leasing out sunset licences (ex-TVH licences)

Income earned from the leasing of commercial finfish fishery licences is held in a separate account by TSRA and is very important for supporting development of the fishery on the basis of advice from traditional inhabitants. Traditional inhabitant views and suggestions for investments are considered by the Torres Strait Finfish Quota Management Committee (FQMC) with annual recommendations then made to the TSRA Board for decision.

There is approximately $1 million in lease revenue that has been received from leasing these licences since 2008. Most of this has come from the lease of Spanish mackerel licences and quota with only a small amount (up to 40 tonnes) of the sustainable coral trout catch quota being leased recently.

Approximately $500,000 of the lease funds collected remain for future investment in finfish-related activities. There is also an opportunity to supplement existing finfish lease funding from other funding sources available for Torres Strait economic and fisheries development. There have been several recent initiatives whereby funding through My Pathway and other sources has been used to support fisheries-related training and capacity development. These include training in fish processing and related supply chain activities at the Australian Maritime College in Tasmania, and recent commercial fishing training aimed at improving the effectiveness and efficiency of dinghy based TIB fishers targeting coral trout, Spanish mackerel and other valuable species.

There are some difficult questions about how money available from the finfish leasing should be allocated across different Torres Strait communities. Some communities have historically been more active in finfish fishing; while others rely more on the valuable TRL fishery. To date communities located close to the main commercial finfish fishing areas have been the primary recipients of merit based funding grants to support finfish related business development.

Competitive Advantage - Developing a Finfish Fishery Hub in the Eastern Region

The more Eastern Torres Strait Communities particularly Ugar, Masig, Erub and Mer Islands are located within the most productive and valuable finfish fishing areas. Nearly all of the commercial catch in previous years has been taken in this region. These communities are well-placed to become a regional hub for the fishery under 100% Traditional ownership. The more central western and northern communities have more established TRL fishing businesses and supporting infrastructure, and the TRL fishery offers those communities significant potential for profitable fishing operations.

In recent years investment funding sourced from the leasing of finfish quota to TVH style operations has been focused on finfish related economic development opportunities for the eastern regions. As part of this there is a valuable opportunity for these communities to collaborate with each other to generate higher catch volumes and economies of scale that can underpin viable businesses and infrastructure such as freezers.

There is also an opportunity to develop the fisheries management and governance capabilities of traditional inhabitants to enable their future self-management of finfish and other fisheries resources in the region. Opportunities to partner with established commercial fishing and seafood supply chain businesses to enable more rapid and successful finfish business development across this Eastern region are also important.

For other regions, finfish business development is likely to offer less overall return. These areas are better placed focusing their fisheries business development on species and fisheries that are most abundant in those locations. For most of the Torres Strait communities, developing TRL related fishing businesses offers the most potential as progress is made toward 100% ownership of that fishery.

For finfish business development in these other regions, the most efficient approach is likely to be provision of knowledge and business support services as required and where there is a high level of confidence that businesses with a significant finfish component can be operated profitably. A more generic fisheries business capacity building program for these areas might focus more on TRL whilst also developing the capabilities and opportunities for multi-species fishing businesses that include a proportion of finfish catch.

Adding to and refining existing TSRA initiatives[6] to extend knowledge about finfish and other commercial fishing methods and opportunities via a fisheries "knowledge hub." This should be easily accessible across the entire region, providing valuable information including business network services to enable current information about finfish market prices, interested buyers, techniques for marketing and value adding, business mentors, business models for finfish or multi-species operations and related information.

Using internet and social media based platforms (e.g. Facebook) to support a contemporary knowledge hub and networking structure can offer a great deal of business development information, and build a community of practice to support effective development of viable finfish related businesses in a very cost-effective way. This lower cost more passive investment approach for communities that do not have access to high value or volume finfish catches can help to deliver valuable business outcomes and an appropriate scale very efficiently.

Smart-phone fishing…

Dan French – a fisheries scientist and consultant – has been working on an AFMA-funded project with Erub Island Finfish Fishers to develop and test a smartphone app to collect catch information, improve fishing efficiency and make it easier for people to run their fishing business successfully.

One of the most important functions is to accurately and easily record daily catches. This is like a fishing diary – helping fishers identify the best times and places to fish, and the best combination of conditions and circumstances. The app can also record distances travelled and fuel used to help work out the most profitable way to fish for certain species.

Fishers can then improve and fine-tune their fishing operations to increase their catches, be more sustainable and reduce their fishing costs.

[6] For example TSRA currently funds an "into business" workshop series in communities, business mentoring services, and provides a range of training opportunities.

The value of having experienced ex-TVH fishers leasing out commercial finfish licences

The opportunity for traditional inhabitants to earn income from leasing coral trout and Spanish mackerel quota to commercial fishers for an appropriate fee is a valuable one. Particularly when TIB fishing capacity is being developed to take over from previous TVH style fishing operations. As well as the direct income earned, the value from having experienced commercial fishermen available to share their knowledge about effective fishing practices, and to support development of more efficient fishing practices is substantial.

FIGURE 10: COMMERCIAL MACKEREL FISHING BOAT AT BRAMBLE CAY

Experienced ex-TVH commercial fishers also understand the critical importance of working closely and cooperatively with Traditional Inhabitants from nearby communities. A relatively small number of experienced and committed commercial fishers are more likely to maintain friendly and constructive relationships with traditional inhabitants in their communities.

One of the impacts from the transfer of previous TVH finfish licences to Traditional Inhabitants in 2008 was that the supply of both mackerel and coral trout to regional markets was significantly reduced. For any fishery there is a significant risk that inconsistent supply of product will result in the loss of valuable markets. For example, tropical snapper species from fish-trap fisheries in the Northern Territory are caught in good quantities and are consistently available at competitive prices. Once markets are lost they can be very difficult to regain.

Developing a unique Torres Strait seafood brand also has the potential to increase prices and the overall value of seafood sourced from Torres Strait. However developing and maintaining such a brand takes time and is not easy. First and foremost it relies on consistent supply of high-quality fish. At the moment the quality of Torres Strait finfish caught by commercial fishers leasing the TSRA-held licences is very high and both the volume and quality of this product underpins the overall value of Torres Strait finfish in existing markets.

To maintain and increase the value of traditional inhabitant finfish businesses under 100% ownership it is critically important that TIB fishers and related supply chain businesses work closely together for mutual benefit.

Case study - a successful multi-species fishing business at Erub Island

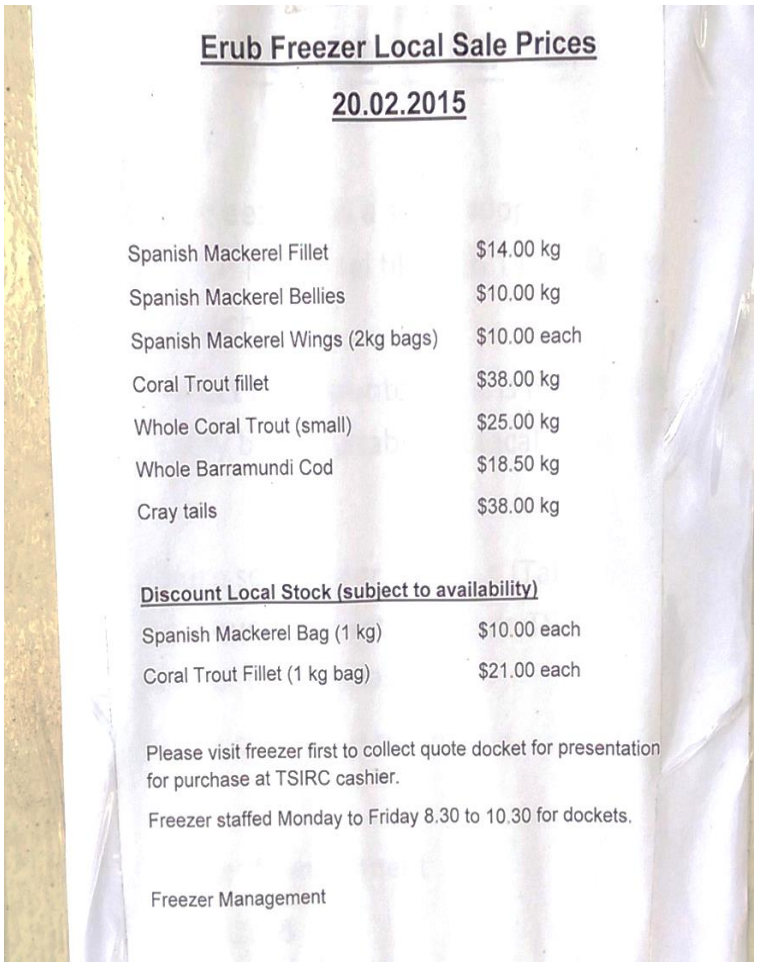
Mr. Les Pit is an experienced fisherman living on Erub Island who fishes commercially when he can on the weekend and during holidays. He mainly fishes for cray, spearing them while free diving. Les also has a full-time job with the council (TSIRC) as the Engineering Manager for the Erub community.

Les agreed to share some of his own fishing business experiences in case they can help other Traditional Inhabitants develop their own successful fishing operations. In a good day's fishing he and his family members might get 100kg of cray tail. Les also fishes for finfish sometimes, although says they are more work to catch and process, and yield less profit than cray.

When Les is fishing for coral trout or mackerel, usually when the cray season is closed, he bleeds the fish as soon as he catches them and then puts them in his esky on saltwater ice he's made in his freezer. Depending on the size of the fish, and what the freezer wants, Les will either fillet the fish or leave them whole.

Les said that he is very particular about the quality of his product. The product has to be perfect – Les pays attention to this from the moment he catches the cray or the fish; his initial processing done on board or on the way home, any later processing at home, and then packing in his freezer.

Les chooses to sell all of his finfish to the community freezer at Erub because he knows how important it is for the community to get enough fish to keep the freezer running. He probably gets about $5 per kg less selling to the freezer than he would selling direct to his buyers.



Erub Freezer Local Sale Prices

20.02.2015

Spanish Mackerel Fillet	$14.00 kg
Spanish Mackerel Bellies	$10.00 kg
Spanish Mackerel Wings (2kg bags)	$10.00 each
Coral Trout fillet	$38.00 kg
Whole Coral Trout (small)	$25.00 kg
Whole Barramundi Cod	$18.50 kg
Cray tails	$38.00 kg

Discount Local Stock (subject to availability)

Spanish Mackerel Bag (1 kg)	$10.00 each
Coral Trout Fillet (1 kg bag)	$21.00 each

Please visit freezer first to collect quote docket for presentation for purchase at TSIRC cashier.

Freezer staffed Monday to Friday 8.30 to 10.30 for dockets.

Freezer Management

FIGURE 11: ERUB COMMUNITY FREEZER PRICE LIST – FEBRUARY 2015

Les suggested a lack of fishing experience, and role models; people not looking after their fishing gear and equipment; and sometimes a lack of commitment or willingness to work hard at fishing, are all things that can stop people from being successful. He worked as a boy on Bluey Bedford's prawn trawler. It was hard work but he learned a lot of valuable skills. Later Bluey encouraged Les to buy a small secondhand freezer, suggesting this would be a good investment. (And it was!)

What does a Maizub Kaur (Bramble Cay) Spanish mackerel fishing operation look like?

Most of the Spanish mackerel caught in the Torres Strait finfish fishery comes from the Bramble Cay area. The peak mackerel season normally runs from early August until early December, depending on how much quota the boats have, how long they're willing to fish in such a remote and challenging location, and their catch rates. Primary fishing vessels range in length from around 9 to 15 metres, supporting 2–3 dories each.

The mackerel caught by line around Bramble Cay are usually caught by trolling garfish baits on long wire leaders. Once the fishing session is complete the dories return to their primary vessel. The mackerel are filleted and then snap frozen soon after capture. They are recognised as a very high-quality product.

Fishing usually continues for around two weeks before boats transit to the Endeavour Bay barge, normally anchored around Masig Island. They resupply their diesel fuel from the mother ship (both the dories and

primary vessel use diesel), transfer their frozen mackerel fillets and get other supplies as needed. Fuel is a major expense, and fishers use around 1600 L to get up to Bramble Cay, and the same to get home to Cairns. Freight for frozen mackerel fillets is around $0.41 per kilogram. Fillets are normally packed in 12 kg cartons and the price fishers get is normally around $12 per kg of fillets.

Some community examples and ideas for investing the Finfish Lease money…

- *Ask new fishers for their ideas about how to go fishing for the least cost. For example a new fisher might have an old but seaworthy aluminium dinghy but no motor. His uncle has an outboard that needs repairs, and finfish lease funding might be able to provide packages of safety equipment for some community fishers. This way the boy is using his business ideas and he's out fishing and catching fish for the freezer just for the price of the motor repair and the safety equipment.*

- *Initiatives to increase finfish participation for the community were discussed around four years ago by Erub's Fisheries Management Association (EFMA). Ten existing dinghies and new motors were purchased and made available as micro loans with repayments set at $300 per month. Participants signed an agreement/contract to this effect. This initiative has helped but was less successful than hoped, with several recipients not meeting their repayment commitments.*

- *EFMA also arranged for a welder to come to the community to repair damaged aluminium dinghies. At a cost of $16,000 – in the 10 days that the welder was available – 28 dinghies were repaired. This was successful for cost-effective dinghy repairs although did not increase actual fishing activity very much.*

- *During community meetings there were some difficult discussions about the value obtained from finfish investments on Erub Island. One person suggested these were failures and made it more difficult for other communities to obtain funding for finfish-related initiatives. Most people recognised there had been some hard but valuable lessons which could help other communities better understand and manage similar risks.*

- *New or less experienced fishers could be provided with less valuable dinghies and smaller motors by the Community Fisheries Association. They could then prove their fishing ability with less cost, and demonstrate they are willing to look after the Associations fishing assets (e.g. dinghies and motors) but without too much initial cost or risk.*

- *As well as the more motivated or full-time fishermen, training should be provided to weekend fishermen as well. They also have the ability to support the community freezer by catching fish on the weekends and selling to the freezer.*

TORRES STRAIT FINFISH FUTURES

What might some future Traditional Inhabitant finfish businesses look like?

Participants in community meetings spoke about a range of future options and models to encourage finfish fishing activity. They felt that the opportunity to choose the most suitable business models was important. This might be a more entrepreneurial private business model, or a community, or more co-operative model.

People also wanted information to help them choose the best approach depending on their circumstances and preferences. In many cases people supported the idea of a mixed fishing business model based on the most abundant and/or valuable mix of species available locally. For example some fishers are mainly fishing for cray during the season, perhaps also fishing for mackerel when the cray season is closed, and also harvesting Beche de Mer (BDM) opportunistically.

People agreed that examples of actual finfish businesses, with costs and revenues, would be helpful to understand what is involved. For example information about how much fish they need to catch to break even, or make a profit.

FIGURE 12: TYPICAL 5 TO 6 METRE DORIES WIDELY USED IN TIB FISHING OPERATIONS

Examples of possible future finfish businesses that could work well in Torres Strait communities are provided below:

- A simple and widely accessible approach, at least in the shorter term, is people fishing from 5 to 6 m dories with 40 to 90 hp two-stroke motors and good quality eskies. They could fish out of their home communities, selling their product to a community or private freezer. A variation on this is a more vertically integrated Dinghy-based operation where a fisher also maintains a

small private freezer, processes their own catch and sells direct to end buyers for a higher price per kg (similar to the approach used for TRL tails by Mr. Les Pit on Erub).

FIGURE 13: TREVALLY FROM WARRABER ISLAND

- The next level may be slightly larger boats in the 7 to 8 m range with good eskies and the ability to carry good quantities of ice for two or three day trips. Bluey Bedford from Erub suggested boats like these some years ago calling them 'ice boats'. He felt they were a good balance of simplicity and enough fishing and catch storage capacity to support larger community-based freezers. People could stay overnight on these boats, fish in rougher weather conditions more safely, and carry more product – perhaps 200-300kg of fish. Using ice rather than freezers allowed consistently high quality product to be landed to a community freezer where skilled fish processors are available. Fish could then be more rapidly frozen in larger quantities using blast freezers and then stored at low temperatures in the storage freezer.

- The next level up from this might be similar to the previous TVH style operations where boats of greater than 10 m supporting several dinghies fish for mackerel or coral trout, filleting and freezing their product on-board. This would be very similar to the style of TVH operations operating before the 2009 buyout and now leasing TSRA held sunset licences and quota. These freezer boats can also act as mobile buyers for communities that don't have freezer access, or where freezers are unserviceable.

- Whilst more complex and challenging to operate successfully, A live coral trout fishing business, exporting catch to valuable Asian markets, may also be a future business model either via a joint venture arrangement with an experienced live trout fisher, or down the track when traditional inhabitant fishers have developed the necessary business and operating skills to make this more complex and higher risk operation viable.

Finfish Fishery Business Models

Boat business modelling

This section presents the results of modelling several options for finfish focused fishing businesses. The models use cost and income information obtained from community consultations, interviews with TVH style operators leasing TSRA held sunset licences, and information from previous studies (e.g. Fairhead & Hohnen 2007, AEC 2009). Some preliminary finfish catch and effort information from the recent AFMA funded project to trial a smartphone application (app) at Erub Island for TIB sector catch reporting has also been used.

Spanish mackerel modelling results

The cost models are presented for three TIB fisher businesses catching at different levels to help identify economies of scale and points where these businesses become profitable. It is important to note there are a range of variables that can significantly impact viability, including assumed catch rates. For example small scale dinghy models are based on conservative catch rates of around 30kg per fisher per day. With effective training these catch rates may reasonably be doubled, or increased even further, substantially improving returns.

- Single person using a single dinghy and doing 50 fishing days to catch 1,500 kg/year;
- Single person single dinghy doing 90 fishing days to catch 3000 kg/year
- Two boats and two people (one paid) with 90 fishing days each (6000 kg/year)
- A smaller scale TVH style cost model is presented for comparison (catching 15,000 kg/year using quota leased under the TSRA held sunset licence arrangement, and employing 2 additional workers/crew).

The annual costs of fishing at each of these scales is shown below, with details on the break-up of costs shown in Appendix 2.

	Tonnes / year			
	1.5	3	6	15
Annual fishing cost ($)	13,800	20,414	42,090	69,830

The high level of fixed costs means profitability is closely tied to prices obtained for the catch (either whole or fillets). For mackerel a fillet price of $13/kg equates to $8.125/kg of wet fish[7].

For each scale (e.g. annual catch) of fishing operations, model results are presented at 4 different fish sale prices:

- $6.5/kg (mackerel barrels local freezer price)
- $8.125/kg (effective whole fish price for $13/kg fillets)
- $10.2/kg (average sale price in 2005-06[8] for this scale of fishing)

[7] Information from ex TVH fisher T. Vass providing fillet to whole fish ratios

[8] Where older prices have been used for modelling they have been adjusted for inflation to approximate current pricing.

- $13/kg (fillet price applied to whole fish).

With this range in price the value of catch at each catch volume varies significantly. Clearly the TIB fisher selling to the local freezer at the low-processing price of $6.50 is less able to capture higher value from the catch than the TVH fisher selling finished fillets direct to a wholesaler. In the remote and challenging Torres Strait operating environment this ability to shorten the supply chain makes a significant difference to business performance.

Catch value ($)

	Tonnes / year			
	1.5	3	6	15
at $6.50/kg	9,750	19,500	39,000	97,500
at $8.125/kg	12,187	24,375	48,750	121,875
at $10.2 per kg	15,300	30,600	61,200	153,000
at $13/kg	19,500	39,000	78,000	195,000

Boat Cash Income is income from fish sales (kg caught x price/kg) less costs. The results for Boat Cash Income based on the 4 fishing models and 4 price points are shown in the following table.

Boat Cash Income ($)

	Tonnes / year			
	1.5	3	6	15
at $6.50/kg	-4,050	-914	-3,090	27,670
at $8.125/kg	-1,612	3,961	6,660	52,045
at $10.2 per kg	1,500	10,186	19,110	83,170
at $13/kg	5,700	18,586	35,910	125,170

Because the fishing costs to achieve the modelled catch volumes are largely fixed, net boat cash income is determined by the prices received.

- For the single dinghy 1500kg/yr TIB fisher the operation is only making money at a price above around $9/kg per whole fish.

- For the single dinghy 3000kg/yr TIB fisher the operation has better economies of scale and can make money above around $7/kg per whole fish – so selling fillets is potentially profitable.
- For two dinghies at 3000kg each per year the financial performance is about the same as 1 boat at 3000kg per year.
- For the TVH model the economies of scale mean that even with the higher costs of fishing there is positive net income even at the low price of $6.50/kg per whole fish.

So far the financial modelling has not included the cost of ownership of the boat and equipment (though it does include provision for repair and maintenance). Ownership costs have two parts:

1. Depreciation – the accounting term for the expected loss of value of the capital asset over time, used to take account of the need to replace the equipment – in this case over a 10-year period. For example for a dinghy and motor setup worth $30,000 new (e.g. 6m hooker dory, 70 hp two stroke motor and trailer), the depreciation can be approximated by 10% of that (replacement) cost each year over 10 years. So if this money was set aside each year the boat owner would be able to replace the equipment with new in 10 years' time. Not all TIB fishers will feel they need to make provision to replace their equipment every 10 years, and many will not place such a high value on depreciation, looking more at the daily or annual cash income they might receive.
2. Loan costs – takes account of the annual cost in paying off a loan if a loan is required to buy the capital equipment (boat, motor, and trailer). A commercial loan of $30,000 over 10 years at 7% interest requires $4,176 per year to pay off interest and principle. Not all TIB fishers will need to borrow this whole amount, and the less borrowed the lower this cost item will be.

Boat Business Profit is Boat Cash Income less depreciation (to factor in equipment replacement costs over 10 years).

	Tonnes / year			
	1.5	3	6	15
Replacement cost ($)	30,000	30,000	60,000	100,000
Depreciation ($)	3,000	3,000	6,000	10,000

Boat Business profit

	Tonnes / year			
	1.5	3	6	15
at $6.50/kg	-7,050	-3,914	-9,090	17,670
at $8.125/kg	-4,612	961	660	42,045

at $10.2 per kg	-1,500	7,186	13,110	73,170
at $13/kg	2,700	15,586	29,910	115,170

The table above shows that once depreciation is included, boat business profit is negative for fishers catching 1500kg/yr at current prices, though it profitable for a single fisher catching 3000kg per year or a pair of dinghies catching 6000kg/yr. Once again the TVH approach, though more capital intensive, is also profitable at all prices modelled.

Boat Business Profit less loan cost shows commercial viability of model once investment (loan costs) are included.

	Tonnes / year			
	1.5	3	6	15
Annual loan cost ($)	4,176	4,176	8,352	14,000

Post loan cost profitability

	Tonnes / year			
	1.5	3	6	15
at $6.50/kg	-11,226	-8,090	-17,442	3,670
at $8.125/kg	-8,788	-3,215	-7,692	28,045
at $10.2 per kg	-5,676	3,010	4,758	59,170
at $13/kg	-1,476	11,410	21,558	101,170

If a loan is required to finance the fishing operation, the financial modelling shows that the 1500kg/yr operation is not profitable, while the 3000kg/yr and 6000kg/yr operations can be if fillets are sold rather than barrels. Once again the TVH model is profitable at each price point modelled. TVH profitability is reduced, however, once the cost of buying the quota is included – estimated at around $1 per kg of mackerel caught. So the quota cost (at a 15 t annual harvest) of $15,000 would reduce the post loan profit each year by that amount.

The following table presents a summary of the financial viability modelling outcomes.

1 boat, 1 fisher 50	1 boat 1 fisher	2 boats 2 fishers	TVH	Catch price

	fishing days	90 fishing days	180 fishing days		
Catch annual (t)	1.5	3	6	15	
Catch/boat/day (kg)	30	33	33		
Boat business profit	-7,050	-3,914	-9,090	17,670	at $6.50/kg
loan	4,176	4,176	8,352	14,000	
post loan	-11,226	-8,090	-17,442	3,670	
Boat business profit	-4,612	961	660	42,045	at $8.125/kg
loan	4,176	4,176	8,352	14,000	
post loan	-8,788	-3,215	-7,692	28,045	
Boat business profit	-1,500	7,186	13,110	73,170	at $10.2 per kg
loan	4,176	4,176	8,352	14,000	
post loan	-5,676	3,010	4,758	59,170	
Boat business profit	2,700	15,586	29,910	115,170	at $13/kg
loan	4,176	4,176	8,352	14,000	
post loan	-1,476	11,410	21,558	101,170	
Quota cost	0	0	0	15,000	

Main assumptions:

Around $100/trip for fuel

$30,000 boat/gear loan over 10yrs at 7%pa and 10% depreciation per year over 10 years

Spanish mackerel quota leased at $1/kg whole weight

Modelling outcomes:

1 boat 1.5t/yr (higher volume TIB fisher) loses $11,226/yr if they receive freezer price and borrow to buy boat

1 boat 3t/yr (highest volume TIB fisher) loses $8,090 per annum for 90 days fishing if they receive freezer price and borrow to buy boat

2 boats working together, 6t/yr lose $17,442 per annum for 90 days fishing each if they receive freezer price and borrow to buy boat

TVH (15t/yr) boat makes around $13,000 per annum after quota cost (at $8.125/kg whole fish or $13/kg for fillets)

Ice boat

$/kg	Catch value	BCI	BBP	loan	Post loan profit	Quota if non TIB group
6.5	130,000	-25,250	-35,250	14,000	-49,250	20,000
8.125	162,500	7,250	-2,750	14,000	-16,750	20,000
10.2	204,000	48,750	38,750	14,000	24,750	20,000
13	260,000	104,750	94,750	14,000	80,750	20,000

BCI = boat cash income (value of fish caught less costs)

BBP = boat business profit (BCI less depreciation)

Main assumptions:

Catch 20t/yr

$100,000 boat/gear loan over 10 years at 7%pa and 10% depreciation per year over 10 years

3 day trips at $300/trip x 60 trips/annum

Modelling outcomes:

Loss made at $6.50/kg

Loss made at $8.125/kg

Net profit of $24750 at $10.2/kg (if no quota cost),

Net profit of $80,750 at $13/kg (if no quota cost)

Freezer boat

$/kg	Catch value	BCI	BBP	loan	Post loan profit	quota
6.5	260,000	29,550	-5,450	49,000	-54,450	40,000
8.125	325,000	94,550	59,550	49,000	10,550	40,000
10.2	408,000	177,550	142,550	49,000	93,550	40,000
13	520,000	289,550	245,440	49,000	196,440	40,000

Main assumptions:

Catch 40t/yr

$350,000 boat/gear loan over 10 years at 7%pa and 10% depreciation per year over 10 years

4 day trips at $400/trip x 20 trips/annum

Modelling outcomes:

Loss made at $6.50/kg

Loss made at $8.125/kg if quota fee paid

Net profit of $53,550 at $10.2/kg,

Net profit of $156,440 at $13/kg

Coral Trout modelling results

Coral trout prices are higher than Spanish mackerel prices, making the financial modelling of coral trout fishing more positive. Current coral trout prices[9] are:

- Whole fish (bled, guts in) $10/kg at a local freezer
- Fillets $25-40 (equivalent to a whole fish price of $15.625/kg assuming that 1kg of fish yields 0.625kg of fillets).

As these prices are above the equivalent Spanish mackerel prices and the fishing effort is similar, fishing for coral trout is modelled as a more profitable operation.

[9] Prices are indicative based on current Erub Island freezer prices and information from regional supply chain businesses.

Following the same approach as set out above for Spanish mackerel, the following table summarises the financial modelling of the 4 different approaches to coral trout fishing.

	1 boat, 1 fisher 50 fishing days	1 boat 1 fisher 90 fishing days	2 boats 2 fishers 180 fishing days	TVH	Catch price
Catch annual (t)	1.5	3	6	15	
Catch/boat/day (kg)	30	33	33		
Catch value	15,000	30,000	60,000	150,000	at $10/kg
Fishing cost	13,800	20,414	42,090	69,830	
Boat cash income	1,200	9,586	17,910	80,170	
Boat business profit	-1,800	6,586	11,910	70,170	
Post loan profitability	-5,976	2,410	3,558	56,170	
Catch value	23,438	46,875	93,750	234,375	at $15.625/kg
Fishing cost	13,800	20,414	42,090	69,830	
Boat cash income	9,638	26,461	51,660	164,545	
Boat business profit	6,638	23,461	45,660	154,545	
Post loan profitability	2,462	19,285	37,308	140,545	
Quota cost	0	0	0	22,500	

The financial modelling shows that with a similar catch effort and associated costs the higher prices obtainable for coral trout makes for a more profitable fishing operation. Small scale (1500 kg/yr) TIB fishing is net cash positive but is not profitable once depreciation and loan costs are included. But at 3000kg/yr both these costs can be included and the operation is still profitable. The two boat model is also profitable, as is the TVH coral trout model.

Mixed species fishing modelling results

Many TIB fishers would catch a mix of species over a year. The following table summarises the financial modelling for a mixed species single boat operation. The first option is based on a single dinghy running 50 fishing days per year (as modelled above) divided into 20 days Spanish mackerel

(30kg per fisher per day) , 20 days coral trout (using catch of 25kg per fisher per day), and 10 days rock lobster (20kg of frozen tails per fisher per day). Prices are local freezer prices (ie $6.50/kg for mackerel barrels, $10/kg for whole coral trout and $25/kg for lobster tails).

The second option doubles the fishing days to 100 and keeps the species mix.

Catch value 50 days/year

	days	kg/day	per year (kg)	Value ($)	freezer price ($)
SM	20	30	600	3,900	6.5
CT	20	25	500	5,000	10
TRL	10	20	200	5,000	25
	50		1,300	13,900	

Catch value 100 days/year

	days	kg/day	per year (kg)	Value ($)	freezer price ($)
SM	40	30	1,200	7,800	6.5
CT	40	25	1,000	10,000	10
TRL	20	20	400	10,000	25
	100		2,600	27,800	

	50 fishing days	100 fishing days
Annual catch (kg)	1,300	2,600
	$	$
Annual fishing cost	13,800	20,414

Catch value	13,900	27,800
Boat cash income	100	7,386
Depreciation	3,000	3,000
Boat business profit	-2,900	4,386
Loan	4,176	4,176
Post loan profitability	-7,076	210

The financial modelling shows a that both 50 day and 100 day operations are cash positive, but only the 100 day operation yields enough income to cover depreciation and equipment loan costs as well.

Scale of TIB fishing

Current TAC levels are in the order of 120 tonnes/year for Spanish mackerel and 80 tonnes/year for coral trout. Of this total amount, generally around 100 tonnes per year are leased to TVH fishers for Spanish mackerel and 50 tonnes for coral trout. TIB fishers are able to catch around 20 tonnes per year of Spanish mackerel and 30 tonnes per year of coral trout.

Information from Fairhead and Hohnen (2007) and preliminary information from the Erub Island Smartphone Project (D. French pers. com) suggests most TIB fishers operate at low effort levels. In 2005-06

> "… approximately a dozen fishers accounted for around 70 per cent of islander commercial catch in 2004-05 and 2005-06. At the other end of the scale, there were around 50 fishers in the same years who sold less than 100 kilograms of finfish." (Fairhead & Hohnen p7)

The following table is an indication (not based on survey data) of how the catch effort might be distributed across the total tonnages available. It models a small number of 'higher volume' fishers and a long tail of low volume fishers.

	Annual catch (kg)						
	3,000	1,500	1,000	500	250	100	Total fishers
Number of fishers (mackerel)	1	3	3	5	10	50	72
Number of fishers (trout)	1	4	4	10	25	50	94

	Total catch weight						Total catch (kg)
mackerel	3,000	4,500	3,000	2,500	2,500	5,000	20,500
trout	3,000	6,000	4,000	5,000	6,250	5,000	29,250

The catch modelling shows that based on typical patterns of fishing intensity there could be 4 Spanish mackerel (predominantly) and 5 coral trout (predominantly) fishers selling 1500kg or more per year. The financial modelling showed that 1500kg/year of Spanish mackerel or coral trout is really only profitable at freezer prices if boat capital costs are low (e.g. small loan required and /or boat not replaced every 10 years). A bigger effort resulting in 3,000kg/year is more likely to be profitable, especially if some processing occurs and some fish can be sold as fillets. There is little likelihood of effort below 1,500kg/yr being profitable unless there are no capital costs related to boat and motor.

In the mixed fishing scenario the modelling shows the same pattern – the low effort (50 days) is unlikely to be profitable without zero boat capital costs, while the bigger effort (100 days) is more likely to be profitable and can cover the capital costs.

Combined with the catch modelling there are signs that up to 4 fishers could be (just) profitable in the Spanish mackerel fishery and up to 5 in the coral trout fishery. The likelihood of profitability increases with more processing and with lower boat capital costs.

Freezer modelling results

Costs for small (2m x 2m) snap and store freezer. Cost estimate $12,000, bought on a commercial loan at 7% over 10 years. Power cost estimated at $250/month.

Annual operational expenses	$
Loan repayment	1,670
Depreciation	1,200
Freight	2,500
Packaging	500
Power	3,000
Certification/licensing	500
Total	9,370

For a small community or privately owned freezer to be commercially viable these costs would have to be covered through income earned on value-adding to whole fish bought from fishers, processed into higher value fillets and then sold to wholesalers. The buy and sell price and fillet yield are shown in the following table.

	buy price (per kg)	wastage	filet yield (kg)	fillet price (per kg)
SM	6.5	0.625	4.0625	13
CT	10	0.625	6.25	25

Financial modelling

	buy kg	buy cost ($)	sell kg	sell value ($)	Net cash income ($)
SM	500	3,250	312.5	4,062.50	
CT	500	5,000	312.5	7,812.50	
		8,250		11,875.00	3,625

The financial modelling indicates that *without including the cost of labour* a small freezer would need to buy around 1500kg each of Spanish mackerel and coral trout, process this into fillets and then sell to a wholesaler in order to cover the operational expenses. The 2009 AEC report examined profitability issues for freezers of different sizes and found that for finfish only large scale freezers would have the throughput required to be able to cover their operational costs.

The finfish supply chain, marketing and branding

There are considerable challenges maintaining larger commercial freezers across the Torres Strait region and there is a history of these larger community freezers closing over time, primarily due to not having enough fish coming through consistently to keep the freezer economically viable. For example the freezer at Erub Island has recently been the only larger scale community-based freezer still operating. This freezer also receives some external support that is helping to keep it running and maintain broader community benefits.

One of the business challenges for a larger community freezer is that it is an additional link in the Torres Strait finfish supply chain and this introduces extra costs. The freezer cannot afford to pay too much for its fish because it has to factor in freezer operating costs such as power and payments for fish processing staff. Despite these additional costs the freezer must still meet the price being offered by wholesale or retail buyers in Cairns and elsewhere.

Increasing the value and/or reducing the costs in this supply chain – including freezer costs and revenues – is a key part of improving the benefits from the fishery back to Traditional Inhabitants and their communities.

In addition to reducing running costs for fishing and supply chain operations, adding value to finfish caught locally – through innovative or more cost-effective processing techniques, better marketing and eventually product differentiation through branding offers potential to improve profitability of Torres Strait finfish products.

High quality fish equals more buyers and better prices

Les Pit at Erub says the fish and crays he provides for sale have to be perfectly packed and in perfect condition. He pays attention to this from the moment he catches them, with careful handling and plenty of saltwater ice on the boat, careful processing at home, and then packing in his 2-tonne home freezer.

Les says that because he is always careful with the quality and packing his buyers trust him. They pay him a good price and they put the money in his bank account as soon as his fish is loaded onto the barge at Erub.

Previous community freezers at Mer and Masig Islands

Although both these freezers are no longer running several people commented that they were recognised for supplying high quality locally caught finfish for sale.

Several Cairns-based buyers also mentioned the consistently high quality of fish caught by these fishers and sold through their freezer.

Both communities' have a range of people with good experience helping to run a larger scale fishing focused freezer facility. They could help less experienced people and together get a freezer running successfully.

These sort of skills are one of the key foundations for running a viable larger scale freezer, and re-establishing the reputation for high quality Torres Strait finfish caught by traditional inhabitant fishers.

A Torres Strait Seafood brand reflecting the unique cultural and environmental attributes of Torres Strait seafood has potential to increase prices and/or improve market access. The foundation of such a brand is the underlying product quality and the confidence that these products can be consistently

supplied to markets. A brand is a unique promise to buyers about a particular product, service or experience, and the promise needs to be kept for the brand to survive and prosper.

Finfish products sourced from Torres Strait must be consistently high quality and provided in quantities that sustain markets for these products. Without these underlying foundations there is little point in developing a specific seafood brand, or investing in market development.

FIGURE 14: PEARL ISLAND SEAFOODS IS A LOCALLY OWNED AND OPERATED TORRES STRAIT SEAFOOD SUPPLY CHAIN BUSINESS

These foundational requirements are well understood by some local seafood businesses, including those smaller finfish businesses that are running successfully in places like Erub Island (Les Pit and the Erub Freezer) and Warraber Island (e.g. Mr. Patrick Mills).

The quality and consistency of fish being sold to the freezers is critical to maintaining good prices and the reputation of Torres Strait fish. One or two mistakes in supplying product for the freezers could mean that buyers source their fish from elsewhere and valuable markets for Torres Strait finfish could be lost.

Future governance – traditional inhabitants managing finfish resources

The current and future sustainability of the finfish fishery is critically important to its longer term value and success. Although the Finfish Action Plan project is not focusing on how the Torres Strait Finfish Fishery should be managed under 100% Traditional ownership it is important to recognise the importance of environmentally sustainable fishing practices and maintaining the productivity of finfish populations that underpin the future value of the fishery.

Greater traditional inhabitant involvement in finfish governance and management has the potential to provide fisheries related employment outcomes and ensure a closer and more effective alignment between fisheries management arrangements and the specific objectives of traditional inhabitant fishers and their communities. These potential benefits are recognised in one of the TSRA fisheries program aims to: *ensure that Torres Strait Islander and Aboriginal people are engaged in the management of the region's fisheries resources.*

Having 100% ownership of the fishery and developing the capacity to obtain the best benefits for communities from that ownership entails important responsibilities. Currently the Australian Fisheries Management Authority (AFMA) manages the fishery on behalf of the PZJA under the Torres Strait Finfish Fishery Management Plan 2012, in a manner consistent with the Torres Strait Fisheries Act 1984.

Although the finfish fishery management plan has only been recently finalized it will need modification over time to reflect specific Traditional Inhabitant management objectives, and the strategies to achieve those objectives. AFMA also oversees the Finfish Fishery Working Group as an expertise based consultative group to guide the management of the fishery, and recommend management changes through the PZJA process.

An accurate understanding of catches taken by TIB fishers and non-commercial traditional fishers, as well as any commercial fishers leasing TSRA sunset licences, is fundamentally important if the fishery is to be managed sustainably whilst also maintaining high catches to deliver greater economic benefits. Carefully targeted fisheries research, and the engagement of traditional inhabitants in this research and management process is an important opportunity.

By developing the capabilities of the more eastern finfish communities, including a collaborative business development and governance structure across the region, there is an opportunity to establish this area as the finfish business and management hub. Developing a range of fishing industry and management leadership roles and a supporting training and development framework can enable career progression through several valuable and interesting industry development or fisheries management related positions.

This sort of structure could include a focus on finfish related governance industry development however should form part of a broader capacity building program for Torres Strait fisheries management and governance.

Fostering Indigenous Fishing Business in the Torres Strait

There have been several previous studies exploring aspects related to finfish fishery development for traditional inhabitants to gain greater benefit from the TSFF[1]. The findings and recommendations from these earlier reports are generally consistent; they emphasised the need to:

1. Address motivational barriers presented by the structure and availability of income support programs (e.g. security and availability of income support payments may act as a disincentive to people fishing more seriously);
2. Increase margins by looking at ways of increasing 'economies of scale' by fishers working together either with multiple boats (co-op style) or larger boats;
3. Support growth/expansion of larger scale fishing effort by TIB fishers;
4. Work closely with and mentor interested and motivated fishers to maximise productivity and business efficiency – training and mentoring in fishing and business skills;
5. Enable appropriate access to finance to help fishers increase the scale and throughput of their fishing operations;
6. Improve access to markets through stronger value chain and local buyer (freezer) capacity.

Nearly all Torres Strait Islander commercial fishing is conducted around income support payments and obligations, with fishing done on a part time basis to supplement income. Fishing effort is generally low and lacks consistency and there are very few serious and full time fishermen. Fishing is conducted from small boats undertaking mainly day trips over relatively short distances. Most TIB sector commercial fishermen are not operating on a proper business basis (e.g. their true costs and returns

from fishing are poorly managed and understood). The poor understanding of a business approach impacts on the ability to raise loans, cover repayments, cover costs, make an income and keep boats operating.

Previous reports have all concluded that TIB commercial fishermen need to shift to a more business minded approach and increase fishing effort substantially to operate viably. Reports also note that viable catch rates appear achievable as long as fishing effort is consistent.

Fishing Business Development

Establishing a successful business is difficult, and even more difficult if you are a traditional inhabitant living in a remote Torres Strait community. Aboriginal and Torres Strait Islander communities have often not had exposure to the same kind of business processes and role models that other communities have and are less likely to be successful without some external help.

The business community throughout mainland Australia has a business failure rate of approximately 80% in the first five years of business. With even more challenges to overcome it is not surprising that businesses in Torres Strait communities also have a high failure rate.

To ensure a greater level of success for new fishing business ventures, business support and development services are required. Even with a range of support services in place, the level of assistance may not be enough to ensure success. The suite of services necessary includes training, mentoring, and personal support for new business owners' and expert advice for more technical areas. A successful outcome cannot be expected by simply providing some equipment and hoping the individual will automatically know what to do in other key aspects of their business management.

Many of these imperatives are currently being addressed by existing and/or planned TSRA investment priorities. Currently these include a comprehensive program of small business training and development workshops (i.e. *into business* workshops), small business and entrepreneurship mentoring panels, and marine and fisheries focused training and development under income support programs. For example the Torres Strait Marine Pathways Program (TSMPP) has recently enabled Coxswains training for school leavers so they have an opportunity to promptly start marine related employment on leaving school if desired.

The essential foundations of starting up and running a successful business can be categorized into several fundamental areas. These are described below as the '4 Ms'

Motivation: Is the person best placed to take up the opportunity likely to be motivated? Without some drive and passion there is no way anyone will bother to take the risks in investing time and capital to exploit the good idea? What other income and business options does the best placed person have? Is there room in their life to wade into a new enterprise? And are there good enough reasons and motivations to do so?

Margin: Is there likely to be a real profit margin in the business? The idea may look great to an outsider, but will a rough estimate of costs in getting sales versus sales expected show that there is a profit margin to be made?

Market: Is there actually a market for the great idea, and can the person best placed to take it access the market? This is particularly important in regional areas if the great idea involves selling to

people a long way away. How strong is the supply chain? How good are the networks and relationships that will be crucial to getting the product or service to customers?

Mentoring: How well suited to business is the person best placed to take up the great idea? Are they familiar with the nature of business intended, and do they have a good basis in the product or service, and contacts in the marketplace? Almost all start-ups gain great benefit from the experience of others, and the mentoring process is a powerful way of mitigating the main risks that start-ups may fail – lack of experience and business acumen. Mentoring can be a formal process, or an informal relationship. This too is a particular issue in regional and remote areas where there may not be many 'tracks in the sand' ahead, or people around who have had a successful venture.

The 4M's form a natural sequence and each one needs to be strong. If any of the 4 Ms is weak then the great idea is very unlikely to turn into a viable business.

Most people starting a business will have a very good understanding of the technical aspects of their business; for example many Torres Strait Islanders understand their sea-country intimately and many also understand some aspects of the fishing industry. However very few people have necessary knowledge and skills related to the financial aspects of running a business, including the marketing and sales aspects that may also be crucial to success.

The following information provides an important checklist for consideration when establishing any sort of small business and is equally relevant for finfish related business development.

A checklist for small business start ups

1. **Be clear about "why?"** Being a business owner is not for everyone – it is challenging, there is a lack of certainty, it can be very hard financially and it will take a lot of work. People need to be very clear about why they want to start their own business.
2. **Who are the customers?** This needs to be very clear from the outset, then clarity can be achieved in branding, location, marketing, pricing – everything.
3. **Who is the competition?** And how is this business different from the existing competition?
4. **Understand the rules and regulations** that might affect the business.
5. **Finances and securing finance is necessary**. There is a need for outside assistance from an accountant and where to source startup capital.
6. **Pricing**. Many new start businesses do not charge enough for their time or discount heavily to attract customers – not a good strategy.
7. **How to attract customers.** The business needs a very good marketing plan clearly identifying how to attract customers.
8. **Seek advice.** Involve expert advisers in the setup of the business. Ensure you have access to advice from an accountant, a solicitor, a marketing adviser and others such as graphic designer, website developer, and IT consultant as necessary.
9. **Insurances in place.** As a minimum Public Liability is usually necessary.
10. **Seek a mentor** and business advice.

Indigenous businesses face many impediments when becoming established. Most commonly they include cultural issues, such as local custom, and lack of:

- Access to finance

- Business management skills
- Role models
- Support on an ongoing basis
- Information and capacity to find out the answers to questions as they arise.

A workbook prepared previously for the then *Aboriginal and Torres Strait Islander Commission* (ATSIC) to accompany applications for business loans emphasised the importance of Motivation and personal readiness for getting into business. Before getting to the funding application, loan applicants were asked to self-assess how ready they are for business against four themes:

Part 1 focused on personal character explored how people were likely to react to the challenges and highs and lows of running a business.

Part 2 looked at people's health and how they would keep the business going if they couldn't work for a period of time.

Part 3 looked at people's experience – do they have the basic skills to make their business work?

Part 4 explored the reasons and motivations for going into business – what do people want from their business?

With satisfactory answers to these Motivation screening questions, the workbook then stepped loan applicants through a condensed business viability (or Margin) assessment. The emphasis given to these two soft criteria – coming before development of a viable business plan underpinning the loan application - highlights the critical nature of these criteria in nurturing viable Indigenous business start-ups. Entrepreneurialism and business generally are not the cultural norm in most Indigenous communities so extra attention on these areas is fundamentally important for business success.

Phase1. Start up and Training

Business Management Training – short course similar to the New Enterprise Incentive Scheme for Aboriginal Business.

This will enable fishers who are interested in establishing their own businesses to use their business as a real time example and apply their learnings from the training to the business as they start up. Access to finance may be an issue at this stage. Very few lending institutions will lend money on a business plan so if finance is needed assistance from government in the form of grants or low interest loans will be needed. Alternately the expertise of a finance broker may provide the solution.

Phase 2. Establishment

While in the establishment phase business operators will need hands-on personal support. They will need the services of a business advisor – preferably Aboriginal/Torres Strait Islander – who can visit regularly and be on the other end of the phone to provide information, business advice and assistance and help with identifying solutions to issues as they arise. Access to professional advice such as legal and accounting will be necessary during this phase and will come at a cost.

Phase 3. Operation and Growth

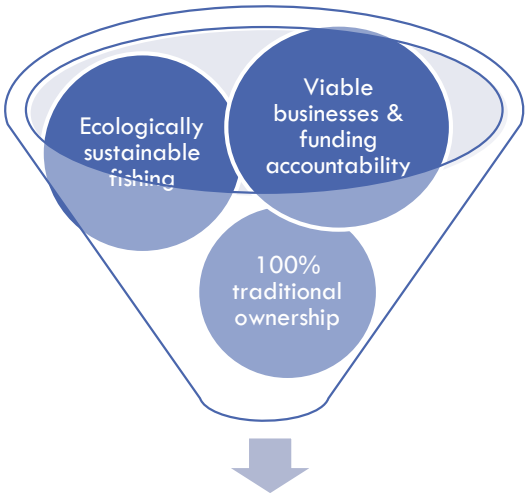
Ongoing support to the individual business operator is critical. A mentor should be allocated to the business operator who will be expected to be in touch weekly at first then monthly for structured sessions. As the business grows mentoring can be provided on an as-needs basis. Access to professional advice such as legal and accounting will continue to be necessary during this phase.

THE FINFISH ACTION PLAN PROGRAM LOGIC – BRINGING IT ALL TOGETHER

The Finfish Action Plan Program Logic is the basis of the Action Plan. It is a systematic sequence of recommended investment areas, activities and desired outcomes expected to enable strong progress toward more profitable and successful finfish fishery businesses owned and operated by Torres Strait traditional inhabitants.

Design Criteria for the FAP Program Logic

The FAP project objectives outlined in the initial section of this report (also based on TSRA fisheries and economic development priorities, and broader government Aboriginal and Torres Strait Islander and regional development objectives) provide the central criteria to guide overall development of the Finfish Action Plan Program Logic (or investment framework) (illustrated below).



The Program Logic is designed to be a very effective pathway from where the fishery is now to a point where it generates sustained economic and other value to communities, is fully owned and operated by Traditional Inhabitants, and related businesses are largely self-sustaining.

These different stages of growth for finfish related capabilities and businesses require tailored and sequential strategies to overcome the usual barriers and challenges associated with running a successful small business. There are also a range of unique challenges associated with running a successful fishing related business in the remote areas of Torres Strait related to logistical challenges, development of fishing and business skills, and cultural factors.

An important aspect of developing a strong Program Logic is understanding how likely it is that a sequence of investments and activities will result in measurable progress toward a chosen goal. This could be described as: *If we invest in and do this activity we expect it to result in this outcome…* For example assuming that providing funding for a larger scale community freezer will result in a viable freezer operation and increase fishing participation and broader business success for that community.

By using a program logic based approach, and testing this assumption in a systematic way, it becomes clear that there are several other underlying factors that will determine whether or not that freezer investment is likely to result in greater business success and related employment outcomes for the community. These include issues like:

- Do people really want to go fishing? Do they care if the freezer is successful or not?
- Do they have alternative ways to generate income?
- Are they better off taking live rock lobster for a higher price than available for finfish?
- Does the community have the right mix of skills and experience, and the funding, to keep the freezer running?

These additional "success factors" (or they may be barriers to progress) can then be included in the program logic, or accounted for in other ways. In summary the Program Logic based approach used to develop the Action Plan provides:

- A systematic method and tools to develop a pathway from current practice to a desired objective/s;
- A way to build stakeholder understanding and ownership of the activities, including the investment and effort required to achieve an important goal;
- A way to understand the relevance of proposed activities and investments, and the likelihood that they will be successful;
- A framework to enable regular monitoring and evaluation of progress toward the desired objective/s;
- A framework to enable learning and improvement (adaptive management) to stay on track toward the objective/s.

To illustrate the key outcome areas that underpin the Action Plan, the program Logic structure is divided into five investment themes (also referred to as key outcome areas). They are illustrated below.

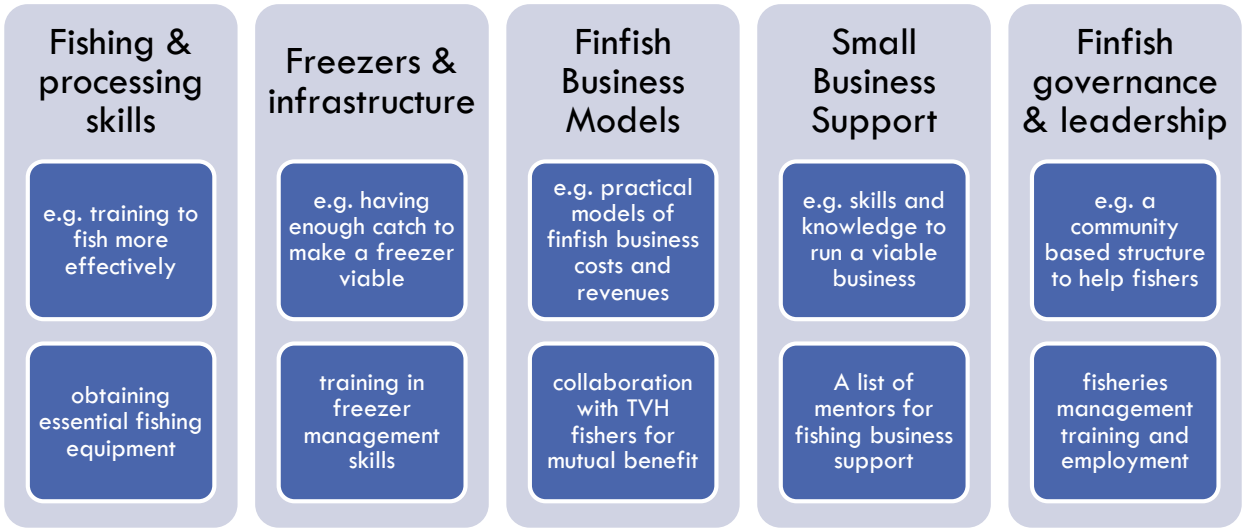


FIGURE 15: FAP INVESTMENT THEMES

Information supporting development of the Program Logic

The methods used to develop the Action Plan were designed to efficiently collect reliable and accurate information to guide and underpin development of realistic and feasible finfish fishery business outcomes. The diagram below illustrates the range of information, including TSRA's own strategic planning and regional economic development objectives, collected and then evaluated to help build the Program Logic framework.

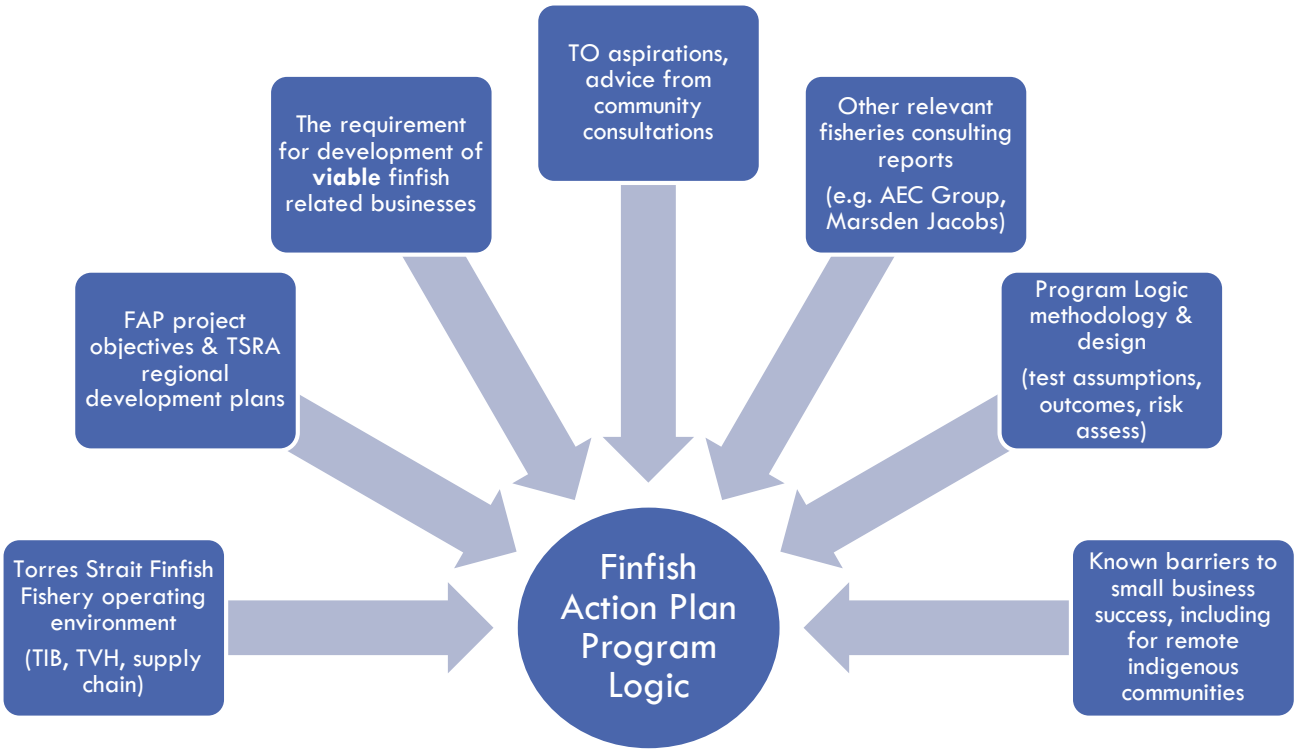


FIGURE 16: INFORMATION SOURCES AND INPUTS USED TO DEVELOP THE FAP PROGRAM LOGIC

Common themes running through the Program Logic

One of the most important aspects of the Action Plan is the need for a Program Logic that recognises the fundamental importance, and also the considerable challenges, of initiating and supporting the development of viable Torres Strait Islander fishing businesses in a very remote and challenging operating environment.

Throughout the project, particularly during community consultation, and as a result of reviewing previous consulting reports related to fisheries development, the critical importance of addressing the 4M's of successful business development has been a recurring theme. Without focused attention on these critical attributes of **Motivation, Margins, Markets,** and **Mentoring** it is very unlikely that the longer term FAP outcomes will be achieved.

Program Logic Diagrams – The Finfish Action Plan Architecture

TABLE 3: OVERVIEW OF THE FAP PROGRAM LOGIC & INVESTMENT AREAS

Goal: Profitable and Sustainable Torres Strait Islander Finfish Businesses					
	Fishing & processing skills development	*Freezers & fishing related infrastructure*	*Fishing Business Models & business support*	*Fisheries related governance & leadership*	
Longer term outcomes: Higher level FAP results.	Highly efficient catching sector Consistent high quality/value product tailored to markets	Viable freezers & supporting infrastructure across key finfish communities	Spectrum of viable finfish business types represented regionally (dinghy to freezer boats, perhaps live coral trout)	TO's have a lead role in Torres Strait fisheries governance, finfish fishery management, and industry development	**6-10 years**
Intermediate outcomes: Evidence of increasing increased finfish business value & participation	Greater catching efficiency measured via CPUE, improved catch quality delivers better prices. Increased % of full time fishers. Improved gear reliability and sea-safety	Larger finfish communities (e.g. Erub, Mer) w' viable freezers Viable private freezers regionally Improved access to capital for infrastructure via robust business skills & planning	Viable yet more complex operations (e.g. collaborative higher volume, may include TVH style freezer boats. Stronger markets, supply chain presence	Community Fishers Associations are supporting viable fisheries businesses. Some key fisheries management/governance roles filed by TO's	**3-5 years**
Anticipated practice & attitude change (Observable changes that will illustrate and enable progress)	Greater desire to fish and operate commercially Community support for fishers Greater adoption of useful technology	Acceptance that un-viable facilities will fail and close down. Strong asset management Growing collaboration, Joint Ventures w' established supply chain businesses	Businesses at viable scale, incl multi species models, ice boats. Awareness of starting small & growing a business. TIB/ TVH / supply chain collaboration. Marketing nous.	Improved collaboration within and across communities TO's seeking leadership positions Regional fisheries governance performance is valued	
Immediate activities and outputs (the next sequence of activities and outputs leading toward higher level goals)	In situ training (small business, fishing & processing, gear maintenance, sea safety) Knowledge hub established to support learning & practice Alignment of income support programs with Action Plan activities	Business plans for viable freezers and/or infrastructure developed Pre-requisites to viable larger scale freezers met Some uptake of viable smaller scale private freezers, ice machines. Safe food accreditation (domestic and/or export)	lower risk finfish and multi species fishing businesses (dinghy's, banana boats) Knowledge hub established Business models available Committed mentors identified Marketing strategy developed	Targeted support for proven performers. Committed mentors available. Community Fishers Associations supported (guidelines, mentors). Development of regional fisheries roles & strategic planning	**1-2 years**
Foundational inputs, activities (these are the building blocks of future finfish business success)	Funding to support FAP (incl finfish lease $, grants, loans) Some training underway (e.g. Erub fishing skills) TSRA initiates FAP project	Viable business models for freezers documented Pre-requisites for viable freezers identified, TSRA initiates FAP project, Funding to support FAP	Community consultation and skills audit, FAP funding, collaboration with TIB and ex-TVH fishers, Grass roots engagement to build business motivation	Community consultation, Capabilities and skills audit Explore governance needs and options, Funding to support FAP, TSRA initiates FAP project	**Now to 1 year**

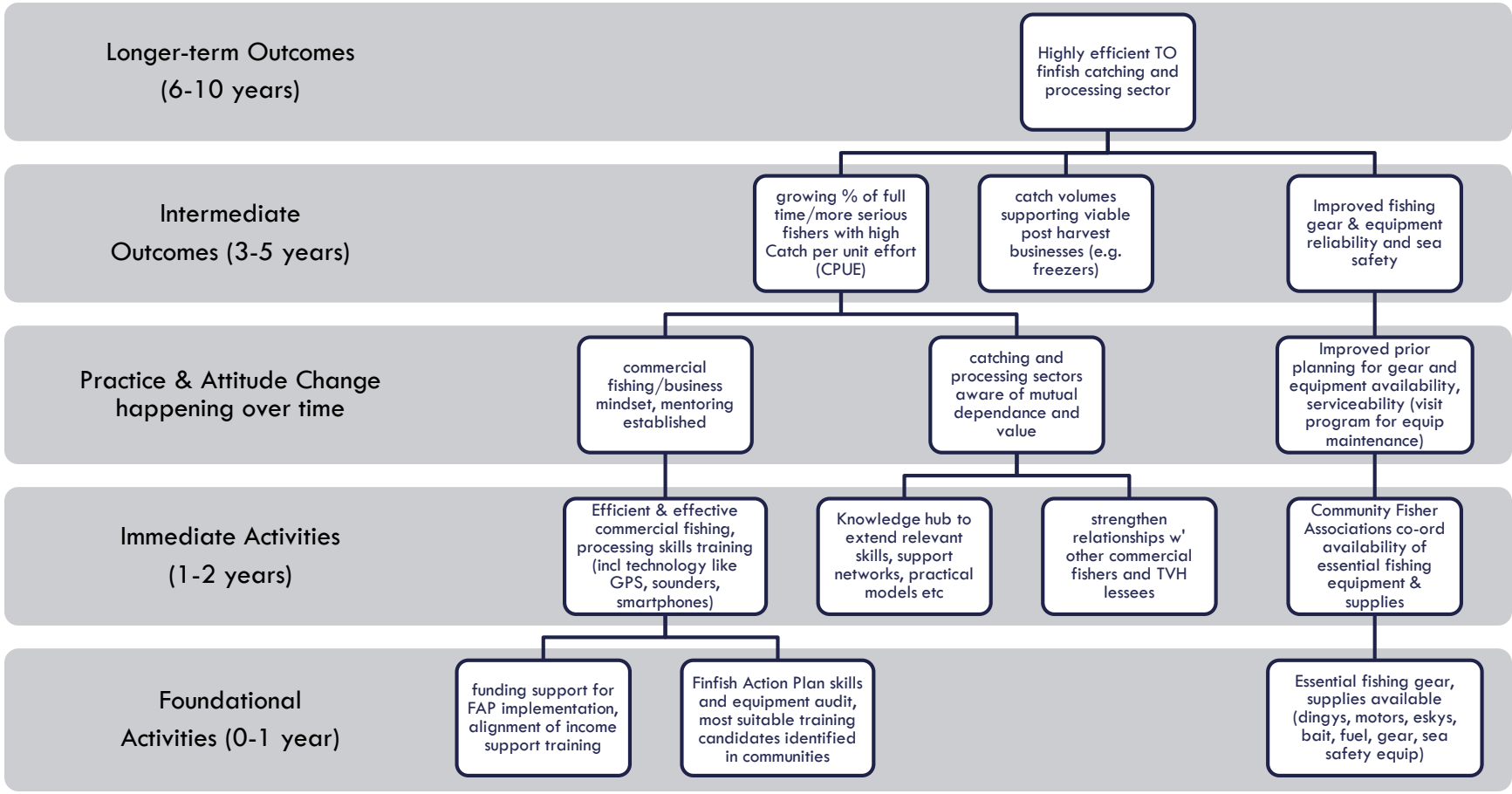


FIGURE 17: PROGRAM LOGIC FOR EFFECTIVE FINFISH FISHING & PROCESSING

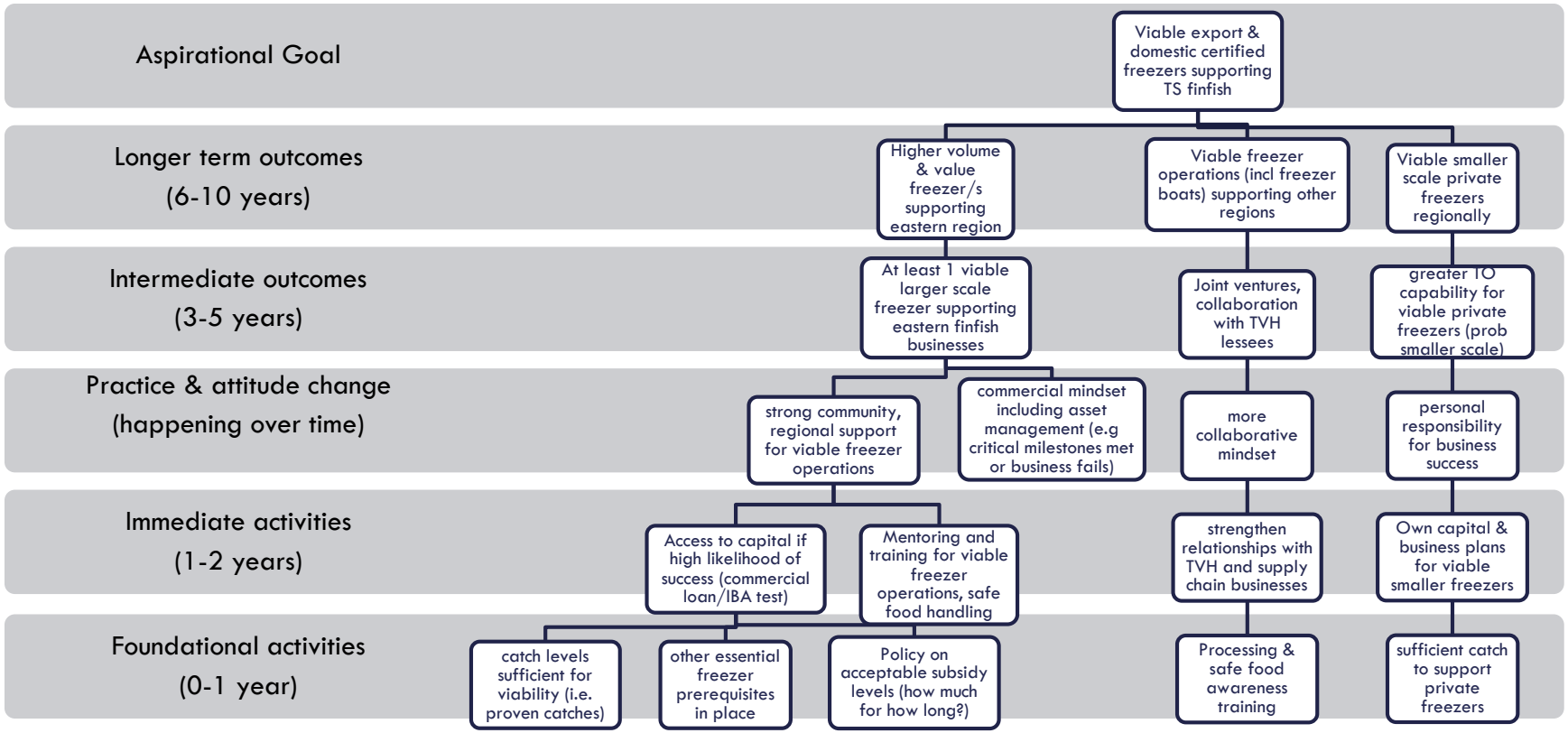


FIGURE 18: PROGRAM LOGIC FOR FREEZERS AND INFRASTRUCTURE

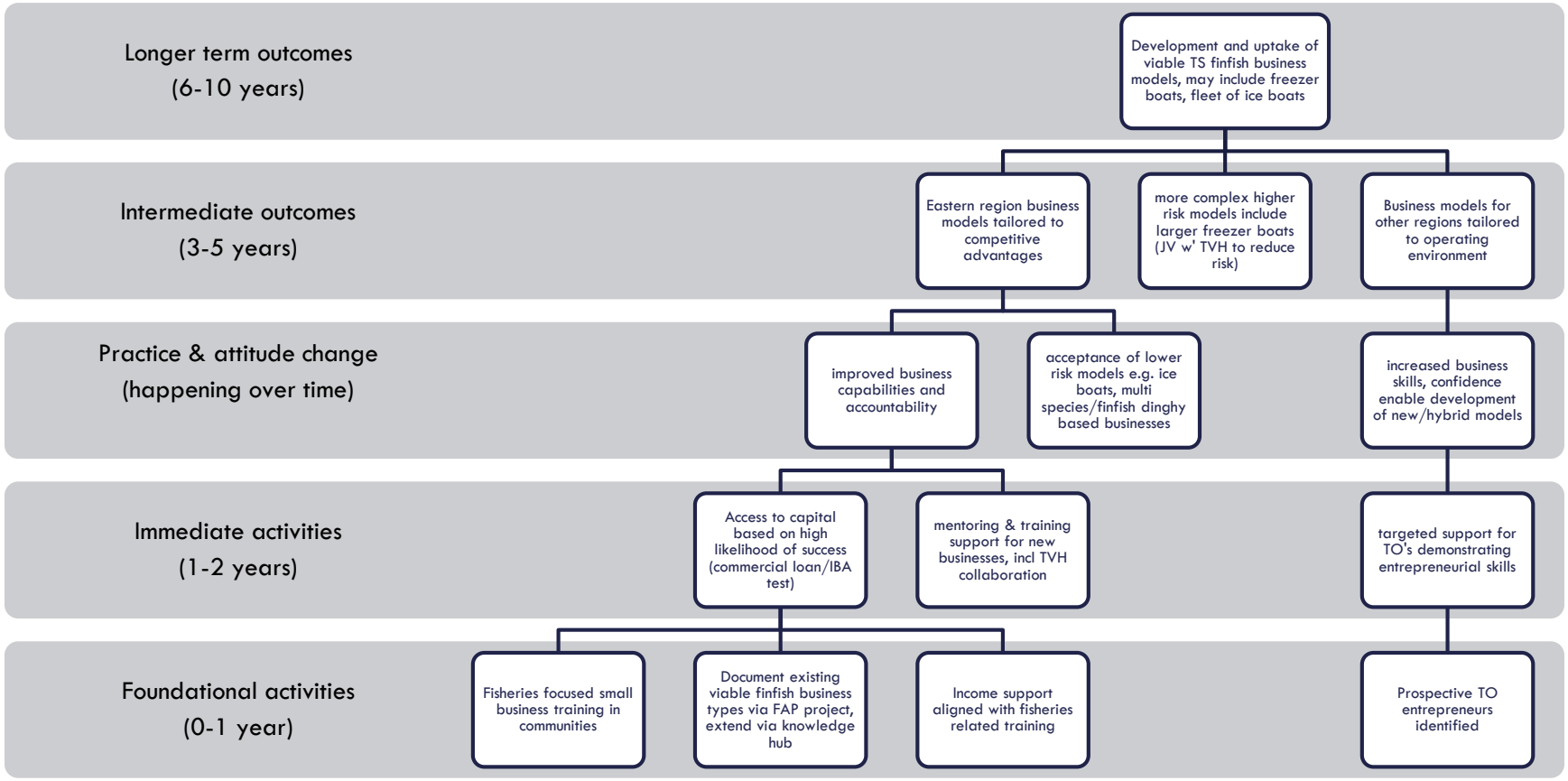


FIGURE 19: PROGRAM LOGIC FOR FINFISH BUSINESS MODELS

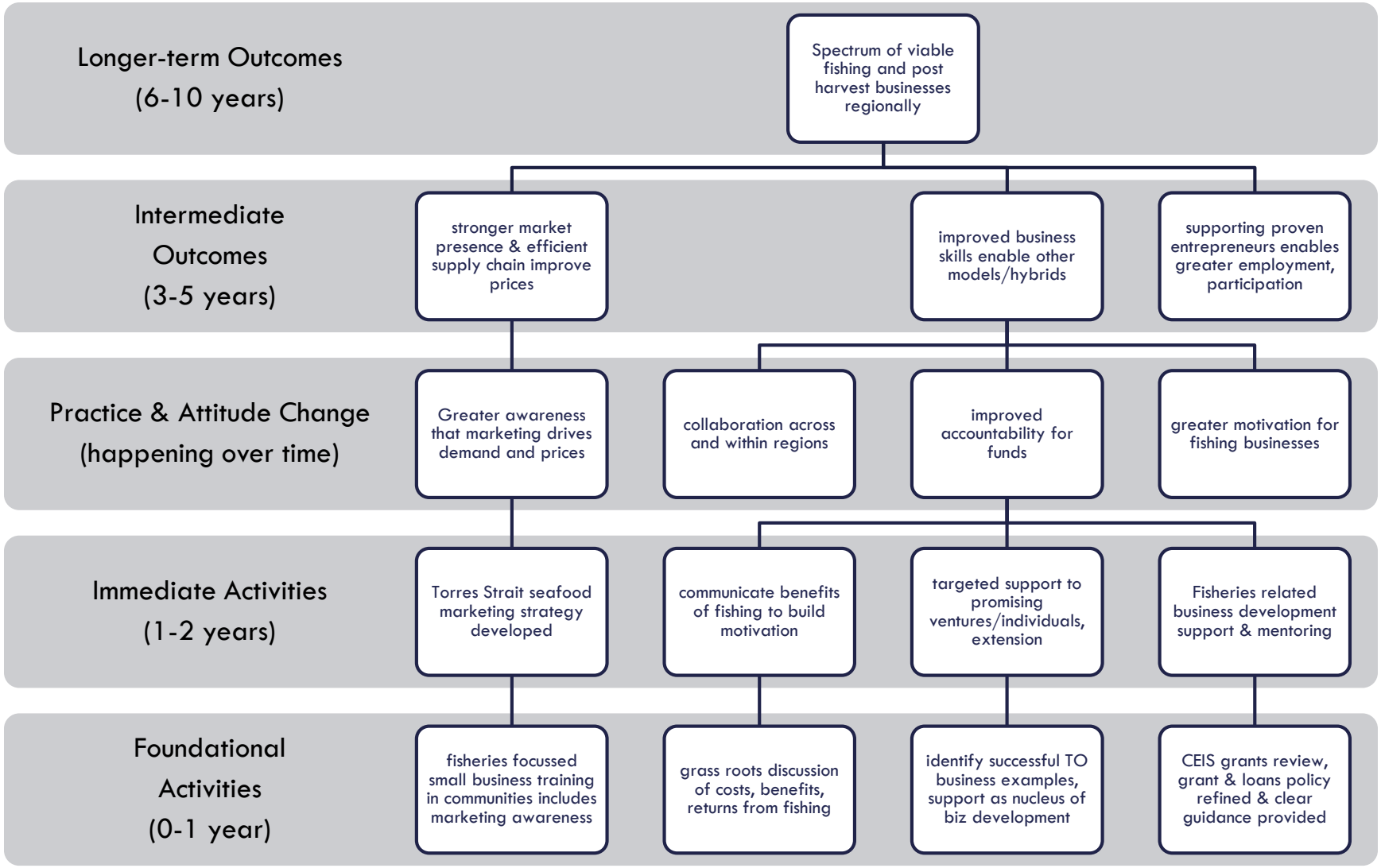


FIGURE 20: PROGRAM LOGIC FOR FINFISH BUSINESS SUPPORT

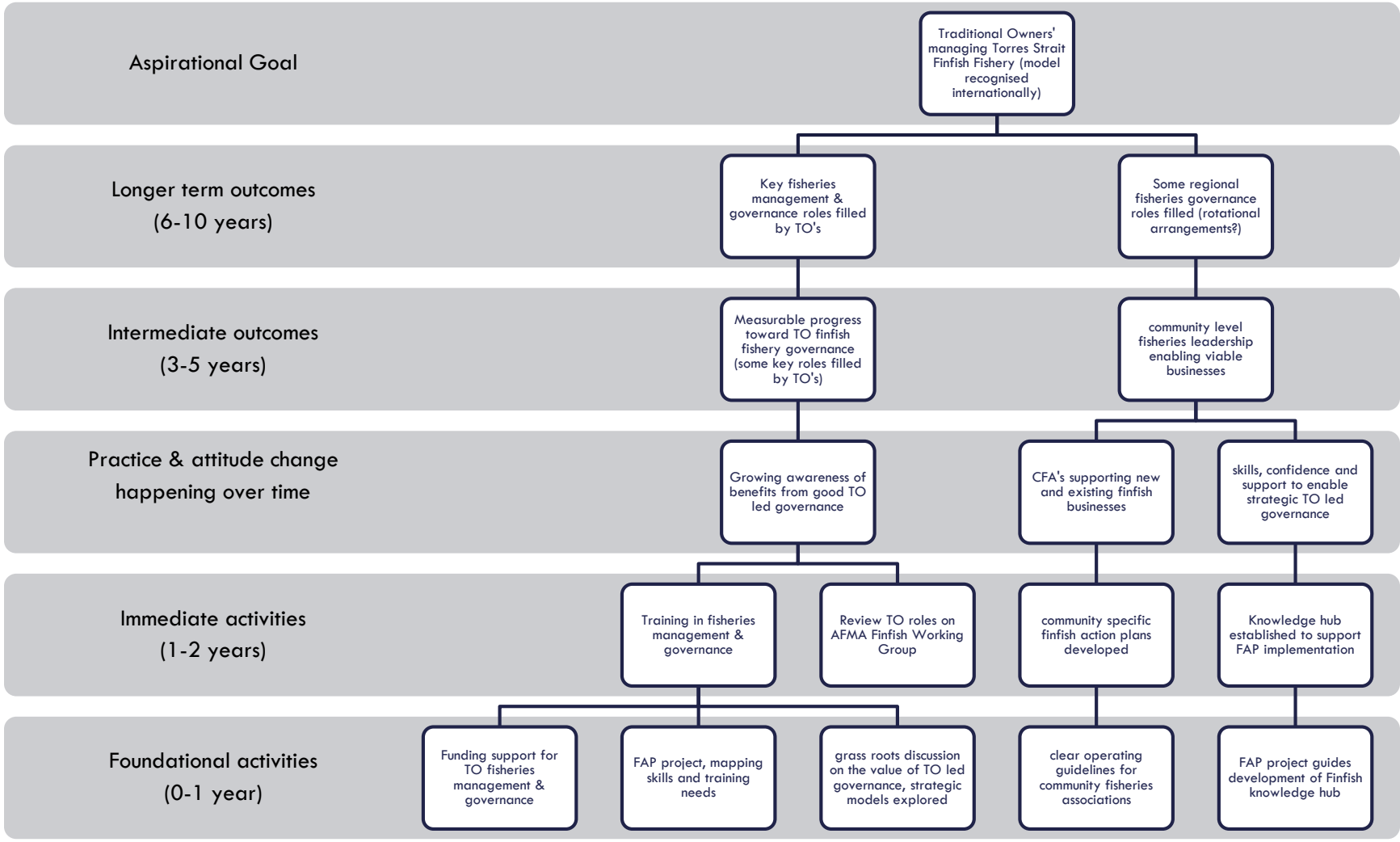


FIGURE 21: PROGRAM LOGIC FOR FINFISH & FISHERIES GOVERNANCE & LEADERSHIP

Applying the Program Logic – External Support

There are two broad scenarios for external support to enable progress toward the overall Finfish Action Plan goal of *Profitable and Sustainable Torres Strait Islander Finfish Businesses*. The chosen approach depends largely on the relative roles of government, Torres Strait Islanders themselves, and the commercial fishing industry (both TVH style lessees and supply chain businesses).

The level of explicit government support (e.g. human resources and funding for capacity building, income support aligned with fisheries development[10]), and the level of private fishing industry investment (including direct employment and training, and joint venture opportunities) will be key determinants of overall progress. These overarching finfish industry development options are described further below.

Option 1: Focused & Leveraged Fishing Industry & Supply Chain Development

This is the recommended approach and is consistent with both the design of the Finfish Action Plan Program Logic, and related TSRA and government strategic development plans for Torres Strait. The approach assumes substantial government investment guided by the FAP program logic structure, with substantial collaboration and leverage from related government agencies and related regional economic and fisheries development programs. Under this scenario TSRA and related fisheries management and economic development programs will actively engage with and manage investment programs and projects to position Torres Strait Islander businesses and communities for optimum benefits from a sustainably managed finfish fishery. This also reflects a high level of strategic alignment between tiers of government, TSRA, and other indigenous business development entities that seek to improve return on investment by leveraging off demonstrated entrepreneurial skills.

TSRA and its fisheries and economic development programs would also have a lead role in engaging support from other relevant government agencies and departments, and regional fisheries and supply chain businesses to help make this process efficient, including national R&D leverage where possible. This can augment limited investment resources whilst Torres Strait Islander businesses become more established. Managed well this approach is likely to deliver the best fisheries and economic development outcomes in the least time.

Option 2: Organic Fishing Industry and Supply Chain Development

Under this scenario TSRA leads implementation of the Finfish Action Plan alongside an efficient best practice ESD based finfish fishery management plan reflecting 100% Traditional ownership and desired regional economic development outcomes. This framework guides finfish development investment and activities. The emphasis is on Torres Strait Islander businesses and the broader regional seafood industry to use their resources efficiently to grow TS finfish fishery production and business opportunities more organically. Under this scenario the pace of change and the realization of aggregate benefits from 100% traditional ownership of the fishery would be slower. Explicit objectives would be developed more by industry than government. It could take many years to develop a cohesive and higher value catching and supply chain platform for the region.

[10] Note that a fishing related activity conducted under an income support program triggers a range of important obligations associated with the regulatory framework for income support. These include appropriate insurance coverage for the activities, declaration of fishing related income, accountability for other benefits arising from the training activities etc.

COMMUNICATIONS PLAN

Stakeholder categorization & information requirements

Stakeholder category and role	Stakeholder Organization	Information Requirement
Key Stakeholders for project management Project sponsor/client	TSRA FRDC	**During project:** Clear understanding of the project approach, methods, risks, communications, and budgets. Progress updates on outputs and high level project management. Timely advice on significant project issues, risks or variations. **On Completion:** Endorsement of Milestone completion. Consideration and comment for outputs.
Key Stakeholders for FAP implementation Direct beneficiaries of the Finfish Action Plan (FAP)	TSRA, Community Fishers Associations, Fishers and prospective fishers. Regional seafood industry supply chain businesses, Torres Strait community leaders	**During project:** An understanding of the project approach and methodology via initial meetings and communications during the project. Project updates via project website and direct communication as required. Opportunity to contribute to findings and recommendations as required by client **On Completion:** Key literature and relevant reports made available centrally via project website (as a precursor to more targeted information extension via knowledge hub).
Primary Stakeholders PZJA Agencies, and others with a direct governance, financial or cultural interest in the TSFF (see next column) Torres Strait Media (Torres News)	QLD DAFF AFMA (Torres Strait Office, TSSAC, Finfish Working Group) PZJA, Malu Lamar Commercial fishing lessees for TSRA Finfish Sunset Licences FRDC Indigenous Fisheries Reference Group	**During project:** An understanding of the project approach and methodology via initial meetings and communications during the project. Project updates via project website and direct communication as required. Opportunity to contribute to findings and recommendations as required by client Key literature and relevant reports made available centrally via project website (as a precursor to more targeted information extension via knowledge hub). **On Completion:** Access to project findings and recommendations subject to client advice.

Communications plan – purpose and objectives

Communications Plan Purpose & Objectives

Finfish Action Plan stakeholders have been categorized above to enable targeted and efficient communications associated with FAP implementation. The primary purpose of communication supporting implementation of the Action Plan is to:

1. Efficiently provide relevant information to defined stakeholders to enable their understanding of the FAP, including objectives and the benefits for different stakeholder groups. This is intended to build their understanding of, and support for, the Action Plan.
2. Efficiently extend background information and more specific information and project knowledge/outputs to specific stakeholders to increase the effectiveness of the Action Plan and maintain stakeholder engagement over time.
3. Provide communications and supporting information in a way that is freely available to benefit all relevant parties, avoiding information being "locked up" by individuals, or within groups, committees (use information push and pull strategies)

Activity ID	**Information** *(what)*	**Stakeholders** *(who)*	**Timeframes** *(when)*	**Messages & Methods** *(how)*
1.1.	Project progress (status, deliverables, major issues or risks). Milestone reports.	Key	Ongoing	In person during consultation visits and related meetings. Also via email, phone and posted to FAP project website. Formal project milestone reports to FRDC in accordance with contract.
1.2.	Initial information about the project and project progress updates	Primary	Updates every 2 months throughout project.	All appropriate background information and regular progress updates posted to publicly accessible project web page. Articles prepared for Torres News (initial article, mid project update).
1.3.	FAP implementation progress updates - ongoing for life of FAP implementation (available to all stakeholders) (for primary and secondary	**Torres News**: update on FAP implementation progress and outcomes every 6 months. Purpose is to maintain interest and engagement of stakeholders, showcase progress and successes, build motivation for fishers and related businesses and build and maintain community support. **FAP Knowledge Hub** (including a FAP implementation website and Facebook page): monthly progress updates and finfish community building material to maintain engagement. Regular extension of practical information and resources to support and motivate existing and emerging finfish related businesses and community fishers associations. Include local examples, champions and case studies. **Info-graphic focused brochure**: a clear and simple brochure that summarises the purpose, key elements and desired outcomes of the FAP (approx. 4 pages). For wide distribution to communities to support initial FAP implementation. To be available via the FAP website and also distributed via TSRA, AFMA and the Community			

		Fishers Associations. Updated brochure to be prepared annually showcasing achievements and outcomes as FAP implementation progresses. **TSRA Fisheries Program Newsletter:** regular FAP update articles in each edition of the newsletter. Purpose is to maintain awareness and engagement with the FAP implementation program. Articles should showcase progress and outcomes and the benefits these are bringing to traditional inhabitants. Should also illustrate the program logic based structure of the action plan and the need to undertake foundational activities to build a viable platform for subsequent activities and investments. **Community Fishers Association meetings and informal networks:** CFA's should have an ongoing role in keeping their members up to date with FAP implementation and seeking member feedback on related issues, including barriers to implementation and/or refinements to the implementation approach. The Chair or a member of the CFA could act as a FAP implementation champion, or mentor as appropriate. **AFMA Finfish Fishery Working Group (FFWG)**: subject to discussion between TSRA and AFMA, there may be a role for AFMA's FFWG to assist with FAP related communications and engagement. Similarly a more strategic overarching approach to the development of Torres Strait fisheries industry development and governance may provide opportunities to integrate FAP implementation with broader capacity building, and develop leverage off these processes. **Torres Strait Community Radio:** community based FAP champions to provide regular community updates and listener Q&A sessions to seek community feedback, ideas and maintain community and fisher engagement with the FAP and its desired outcomes (approximately every 3-6 months). **FAP Facebook page:** Knowledge hub coordinator to initiate and provide oversight of a FAP implementation focused Facebook page. Community based FAP champions and community fishers' association members to take the lead on providing regular updates, chat, images etc supporting FAP implementation for their community. Activity from fishers and related business representatives should be encouraged to build a FAP implementation "community" and maintain engagement and community support networks.		
1.4.	Communication of FAP progress based on reporting from the monitoring & evaluation plan.	Key & Primary Stakeholders	Annually as part of formal progress reporting	Performance reporting based on Key Evaluation Questions from the FAP monitoring and evaluation plan. These evaluation questions are based on the activities and desired outcomes described in the FAP Program Logic. A plain English summary of FAP progress could be provided via the primary communications channels (e.g. Knowledge hub, FFWG meeting, TSRA fisheries newsletter etc).

MONITORING & EVALUATION PLAN

The monitoring and evaluation plan (M&E Plan) has been developed to enable cost effective and efficient evaluation of progress through the program logic based steps of the Action Plan. The M&E Plan is based on the Program Logic outcomes hierarchy and provides a comprehensive and relevant framework to assess progress against desired outcomes and overall FAP objectives. Evaluating performance according to the program logic structure will also enable refinement of lower level investment strategies and actions if these are not adequately contributing to the desired outcomes. The M&E Plan has been designed to operate on an annual basis.

Level in Program logic	Monitoring question	Suggested indicators	Does the indicator data exist?	Performance reporting (who, when?) [11]
Longer term outcomes				
Majority of sustainable TS Finfish harvest is taken and sold by traditional inhabitant businesses.	Are traditional inhabitants catching and marketing the majority (e.g. greater than 75%) of the sustainable harvest of TS finfish?	Annual catch information tied back to business ownership details	Subject to accurate and reliable catch reporting and business details (e.g. ORIC database or equivalent)	Annual fishery performance reporting
Highly efficient TO finfish catching and processing sector	Are operating costs and business performance broadly equivalent to other established commercial reef-line fisheries? Is Catch Per Unit Effort (CPUE) comparable to or higher than similar fisheries (noting that CPUE will also vary with catchability and stock abundance)	Standardized CPUE if available Time series of catch rate data using the best available catch & effort information	Some comparative and/or baseline data available from earlier research; catch monitoring projects underway	Annual fishery performance reporting
Higher volume & value freezer/s supporting eastern region; viable freezer operations supporting other regions (incl freezer boats and smaller scale private freezers)	Is there a higher volume viable freezer operating reliably to service eastern region finfish businesses? Are there viable freezers operating in other regions commensurate with the scale of local finfish businesses?	Freezer business performance (viability) Qualitative feedback from fishers and community leaders	Yes if freezer/s operating commercially Qualitative feedback to be initiated as part of annual performance reporting	Annual fishery performance reporting

[11] Where possible the FAP M&E Plan uses existing performance indicators and data to help assess the level of progress against desired outcomes. Performance reporting under this M&E Plan should be done annually. Should there be an overarching TS Fisheries strategic plan to guide effective development of TS fisheries under 100% traditional ownership then (for efficiency) the FAP M&E Plan and performance reporting against that could be integrated with that overarching process.

Level in Program logic	Monitoring question	Suggested indicators	Does the indicator data exist?	Performance reporting (who, when?) [11]
Development and uptake of viable TS finfish business models for catch and post-harvest (may include freezer boats, fleet of ice boats)	Is there a range of viable business models in operation (scale, throughput) tailored to the local operating environment?	Qualitative information on the nature of existing viable finfish related businesses Quantitative via regional employment statistics	Qualitative and quantitative feedback to be initiated as part of annual performance reporting	Annual fishery performance reporting
Traditional Owners' managing Torres Strait Finfish Fishery (model recognised internationally)	To what extent are traditional inhabitants responsible for managing the TSFF? How many traditional inhabitants are employed in fisheries management, governance or fisheries business development roles?	Qualitative via annual review, including feedback from established management committee/s (e.g. finfish working group) Quantitative via regional employment statistics	Performance framework to be developed as part of over-arching TS Fisheries Governance model	Performance reporting as part of development of future TS Fisheries governance arrangements
Intermediate outcomes				
growing % of full time/more serious fishers with increasing fishing efficiency	What is the percentage increase of more serious/full time fishers per community? Is CPUE and/or ratio of revenue to costs increasing over time?	Numbers of full time/more serious fishers (full time are not on income support, more serious are earning a greater % of income from finfish than previously)	Requires an annual survey of community fishing practices to be developed as part of annual reporting	Annual fishery performance reporting
catch volumes supporting viable post-harvest businesses (e.g. freezers)	Are finfish catch volumes from each community sufficient to maintain viable freezers and related businesses?	Annual catch reporting, annual business performance data	Subject to accurate and reliable catch reporting and business performance details	Annual fishery performance reporting
Improved fishing gear & equipment reliability and sea safety	Is reliability and availability of key fishing equipment improving? Is sea safety improving for finfish related fishing businesses?	Qualitative via formal feedback from fishers, Community Fishers Associations. Quantitative via AMSA reporting.	Qualitative feedback process to be initiated, AMSA regional sea safety data is compiled annually.	Annual fishery performance reporting

Level in Program logic	Monitoring question	Suggested indicators	Does the indicator data exist?	Performance reporting (who, when?) [11]
At least 1 viable larger scale freezer supporting eastern finfish businesses	Is there a viable larger scale freezer in operation for the eastern finfish region (subject to lenders policy on subsidy levels)	Business performance data; qualitative feedback from community fishers and leaders	Yes if freezer operating commercially. Qualitative feedback to be initiated as part of annual performance reporting	Annual fishery performance reporting
Sufficient private freezers operating viably to support existing fishing businesses	Are there smaller scale private freezers available to support catching businesses where needed?	Number of private, safe food accredited freezers operating in each community compared to current benchmark.	Qualitative and quantitative feedback to be initiated as part of annual performance reporting	Annual fishery performance reporting
more complex higher risk models include larger freezer boats (JV w' TVH to reduce risk)	Are more complex and/or higher value viable fishing businesses becoming established?	Qualitative data from community fishers associations and business owners. Turnover and other relevant business performance data.	Yes for viable businesses, qualitative data to be collected via annual fishery performance reporting	Annual fishery performance reporting
stronger market presence for finfish & efficient supply chain improve prices	Is the market position of TS sourced finfish strengthening? Is the average quality of TS sourced finfish products improving? To what extent are improved marketing and supply chain efficiencies contributing to improved prices?	Qualitative feedback on market position, and average quality of wet and processed product, price data for TS sourced finfish. Indicators to be developed as part of a finfish marketing strategy	Prices available via freezer operating data and via supply chain. Some private business data exists for smaller freezers.	Annual fishery performance reporting
supporting proven entrepreneurs enables greater employment and participation for traditional inhabitants	How well supported do self-starting/entrepreneurial businesses feel? To what extent are employment and other benefits being enabled by these businesses?	Business performance data; qualitative feedback from entrepreneurs and community fishers and leaders	Qualitative and quantitative feedback to be initiated as part of annual performance reporting	Annual fishery performance reporting
Measurable progress toward TO finfish fishery governance (some key roles filled by TO's)	To what extent have traditional inhabitant fisheries management and governance capability and outcomes improved?	Qualitative data from TSRA, AFMA. Quantitative data on employment participation	Qualitative feedback process to be initiated. Some quantitative data available via	Annual fishery and overall fisheries strategic plan performance reporting

Level in Program logic	Monitoring question	Suggested indicators	Does the indicator data exist?	Performance reporting (who, when?) [11]
	What is the nature of these improvements?		economic development progress reporting	
community level fisheries leadership enabling viable businesses	To what extent do traditional inhabitant finfish businesses feel supported by their Community Fishers Association (or equivalent supporting group)?	Qualitative data from community fishers associations and fishers/business owners.	Qualitative feedback process to be initiated as part of annual performance reporting.	Annual fishery and overall fisheries strategic plan performance reporting
Immediate outputs/activities				
Efficient & effective commercial fishing, processing skills training (incl technology like GPS, sounders, smartphones)	How many fishers have been trained in fishing skills and techniques? To what extent has this training improved their skills, confidence and motivation for commercial fishing?	Numbers trained from training project performance reporting Qualitative evaluation as part of training program	To be developed as part of the training package.	Training outcomes reporting and annual fishery performance reporting
Knowledge hub to extend relevant skills, support networks, practical models etc	Is an internet (webpage) and social media based (Facebook) knowledge hub in place? How useful is the knowledge hub in supporting business development and existing businesses?	Presence or absence of the knowledge hub Qualitative feedback from fishing related businesses, prospective fishers and community fishers associations	Qualitative and quantitative feedback to be initiated as part of annual performance reporting	Annual fishery and overall fisheries strategic plan performance reporting
Access to capital if high likelihood of success (commercial loan/IBA test), or own capital & business plans developed for viable smaller freezers	What % of finfish related loan applications meet IBA or equivalent commercial lending tests? How many of these have been approved for funding?	Proportion of successful TS Finfish related loan applications	Collated as part of ongoing IBA administration, should be available from commercial lenders	Annual fishery and overall fisheries strategic plan performance reporting
targeted support for TO's demonstrating entrepreneurial skills	To what extent are new and/or established finfish business entrepreneurs being supported to extend benefits more widely?	Qualitative feedback from finfish related business entrepreneurs, community fishers associations	Qualitative feedback to be initiated as part of annual performance reporting	Annual fishery and overall fisheries strategic plan performance reporting

Level in Program logic	Monitoring question	Suggested indicators	Does the indicator data exist?	Performance reporting (who, when?) [11]
Torres Strait seafood marketing strategy developed	Has a contemporary and appropriate TS seafood marketing strategy been developed?	Presence or absence, has the strategy been reviewed by experienced seafood marketing professionals that understand the TS operating environment?	Qualitative feedback to be initiated as part of annual performance reporting	Annual fishery and overall fisheries strategic plan performance reporting
Community specific finfish action plans developed	Do the primary eastern finfish communities (Erub, Mer, Ugar, and Masig) have a tailored finfish business development plan (or action plan)?	Presence or absence, and qualitative feedback from fishing related businesses, prospective fishers and community fishers associations	Qualitative feedback to be initiated as part of annual performance reporting	Annual fishery and overall fisheries strategic plan performance reporting
Training in fisheries management & governance, review TO roles on AFMA Finfish Working Group	To what extent has a training program, including practical placements/experience for TS fisheries and finfish related management been implemented	Presence or absence, and number of trainees or positions identified for placements	Qualitative feedback to be initiated as part of annual performance reporting	Annual fishery and overall fisheries strategic plan performance reporting
Foundational Inputs and activities				
Essential fishing gear and supplies available (dinghy's, motors, eskies, bait, fuel, gear, sea safety equip)	Is there adequate essential fishing gear and equipment to support the level of fishing underway, or that is very likely to occur?	Qualitative feedback from fishers and community fishers associations	Qualitative feedback to be initiated as part of annual performance reporting	Annual fishery and overall fisheries strategic plan performance reporting
Catch levels sufficient for freezer viability (i.e. proven catches). Other essential freezer pre-requisites in place.	For any planned freezer investment (particularly consideration of a larger scale freezer) has the community demonstrated the ability and willingness to catch enough fish to ensure ongoing freezer viability?	Recent catch records assessed against proposed freezer scale and throughput (informed by FAP and other freezer viability modelling).	Catch records are sporadic, some private records are available. Some data via Erub smartphone project.	Annual fishery and overall fisheries strategic plan performance reporting
CEIS grants review, grant & loans policy refined & clear guidance provided, to include guidance about acceptable subsidy levels for larger facilities/investments if required (how much for how long?)	Has clear guidance about how to apply for and construct a business loan application been provided to communities? Is there appropriate information available from funding sources about the level of subsidy that may be accepted until a facility becomes viable?	Presence or absence of such guidance (subject to lending requirements).	Qualitative feedback to be initiated as part of annual performance reporting	Annual fishery and overall fisheries strategic plan performance reporting

Level in Program logic	Monitoring question	Suggested indicators	Does the indicator data exist?	Performance reporting (who, when?) [11]
Finfish processing & safe food awareness training	Has fish processing and safe food awareness training been conducted? How many people have been trained for each community?	Qualitative and quantitative information about training	Qualitative feedback to be initiated as part of training package and annual performance reporting	Training organization and via annual fishery and overall fisheries strategic plan performance reporting
Fisheries focused small business training provided to selected fishers and the most prospective candidates in communities (includes marketing basics)	Has fisheries focused small business training to selected fishers and prospective fishers been provided?	Qualitative and quantitative information about training	Qualitative feedback to be initiated as part of training package and annual performance reporting	Training organization and via annual fishery and overall fisheries strategic plan performance reporting
Document existing viable finfish business types, particularly foundational level business types, via FAP project, extend via knowledge hub	Have viable business types and models been identified and documented, have they/will they be made available via the FAP knowledge hub.	Presence or absence of relevant business models in FAP report and knowledge hub.	Qualitative feedback to be initiated as part of annual performance reporting	Annual fishery and overall fisheries strategic plan performance reporting
grass roots discussion of costs, benefits, returns from fishing, including the value of TO led governance and fisheries management	To what extent has grass roots engagement of fishers and prospective fishers occurred to build motivation and confidence for fishing related business development and TO governance?	Number of community meetings held, presence or absence of communications and engagement material to support this activity	Qualitative feedback to be initiated as part of annual performance reporting	Annual fishery and overall fisheries strategic plan performance reporting
clear operating guidelines to support community fishers associations	Have clear and simple operating guidelines to support effective and efficient community fishers associations been developed and distributed?	Presence or absence of guidelines, qualitative and quantitative information about distribution and relevance of CFA guidelines	Qualitative feedback to be initiated as part of annual performance reporting	Annual fishery and overall fisheries strategic plan performance reporting
Funding support for FAP implementation, income support options aligned with fisheries related training	To what extent has funding been identified/provided to support FAP implementation? To what extent has income support training/funding been reconciled with finfish business development needs?	Funding allocations for FAP related program/project management, including funding leveraged from other relevant programs	Included in relevant program budget and approvals Available via income support program administration	Corporate performance reporting, annual reports Annual fishery and overall fisheries strategic plan performance reporting

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APPENDIX 1: COMMUNITY VISIT SUMMARY

TSRA Finfish Action Plan Project (FRDC 2014–240) Community Visits Summary

Purpose, scope and structure of community visits

Project visits to central and eastern Torres Strait communities were held over the period 9–19 March 2015, and later from 4–6 May. The visit schedule and all subsequent arrangements were made by TSRA staff and Cobalt MRM. Mr. Kenny Bedford (TSRA Portfolio Member for Fisheries and Member for Erub), Mariana Nahas (TSRA Project Manager Fisheries and Economic Development Program), and Andy Bodsworth (Director Cobalt MRM) conducted the visits. Opportunistic meetings were also held with key stakeholders on Thursday Island over this period; and by Andy Bodsworth in Cairns enroute Thursday Island and return. The final visit schedule was:

1. Poruma Island 9 March 2015
2. Erub Island 10–11 March 2015
3. Masig Island 12–13 March 2015
4. Iama Island 16–17 March 2015
5. Warraber Island 18–19 March 2015
6. Dauan Island 4 May 2015
7. Saibai Island 5 May 2015
8. Mer Island 6 May 2015
9. Ugar Island 25 May 2015 (meeting with community members in Cairns).

The main purpose of the consultation was to:

- Introduce the Finfish Action Plan (FAP) project and provide communities with an up to date understanding of the Torres Strait finfish fishery, including the nature of the fishery, its potential value to communities, and current processes to lease TSRA-held sunset licences back to commercial fishers;
- Conduct a capability/skills and infrastructure audit;
- Consult with Traditional Inhabitants about their aspirations and ideas, and drivers and barriers to participation in finfish fishing activities, and development of a more profitable and sustainable fishery under 100% Traditional ownership;
- Introduce the concept of a FAP Program Logic (a logical framework of investment and activities designed to enable progress over time toward greater finfish participation and benefits for TO communities).

Meetings were held in an informal conversational way, with participants typically seated in a semi-circle. All of the meetings were moderately well attended with between 10 and 20 participants.

The visit to Warraber Island coincided with fine weather and favourable tides for night hunting of cray. Most fishermen took advantage of this with few of them available for the meeting. Warraber community members and fishers took part in smaller group discussions with the project team.

Detailed draft records of each community meeting, and other one on one meetings over the period, have been prepared and circulated to community representatives and/or participants for their review and comment.

Meeting introductions & project overview

For each meeting TSRA Fisheries Portfolio member Mr. Kenny Bedford asked a suitable community representative to open the meeting with a prayer. Mr. Bedford requested Traditional Inhabitants from each community welcome participants to their country, and acknowledge community elders and leaders. He then thanked participants for the opportunity to visit and hold the meetings.

Mr Bedford then provided an overview of the purpose of the FAP project, the broader environment for fisheries in Torres Strait and the finfish fishery now under 100% traditional ownership. He emphasised the valuable opportunities this provided for TOs.

In his introductory overview for each meeting Mr. Bedford noted:

- Finfish fishery sunset licences and quota for coral trout and Spanish mackerel were now held in trust by the TSRA and leased annually to commercial fishers (including some experienced ex-TVH fishers).
- This process has resulted in approximately $1 million in lease revenue to date, of which around $500,000 remained for future investment in finfish related activities.
- Future investment should be done carefully and strategically to get the best possible value from the lease revenue; and an investment plan was needed. The FAP project was focused mainly on this strategic fishery development plan and guidance on investment priorities to increase TO participation and raise the success of finfish related businesses.
- Possible investment could be toward training, increasing business skills and support for new finfish related businesses, opening up markets and increasing TO presence across the finfish and broader Torres Strait fisheries supply chain.

Mr. Andy Bodsworth then introduced himself as an independent fisheries consultant working under contract to TSRA to deliver the FAP project. In his introductory comments Mr. Bodsworth noted:

- The current gap in catch value from the fishery (gross value of production) in years before 2007 was around $3.3 million and is currently around $1.1 million. That was a gap in the value of fish caught of around $2.2 million for the finfish fishery at catch levels considered sustainable;
- An offer to lease a licence may contain other aspects of value to TSRA/communities, and price alone may not be the only important component – for example, training in fishing may be highly valued by some communities. The fishery is valuable to TOs in other ways, such as culturally, or in the broader value of sustainability and environmental health. The project would also provide advice to TSRA about evaluating the value of lease offers made by commercial fishers.
- The idea of program logic or a series of steps that build on each other over time to get to an agreed goal (for example, a goal could be that Torres Strait mackerel is recognised

internationally as premium quality and sustainably caught fish). This series of activities and logical steps was the basis of a strategic investment plan referred to by Mr. Bedford.

- Prospects for a unique Torres Strait seafood brand; including factors that would help to build that brand, or could damage the brand if high quality standards and a consistent supply of fish were not maintained over time.

Ms. Nahas also introduced herself, providing a brief overview of the TSRA fisheries team, and program objectives.

Discussions during the meetings and responses to questions posed to participants are summarised below, grouped under subject / theme headings. A summary of skills, training, experience and assets relevant to greater TO finfish participation is being compiled and will be provided as an Annex to this visit summary.

Current scale of Indigenous involvement in finfish fishing

Finfish fishing in the Torres Strait communities visited reportedly ranged from very little targeted fishing (e.g. Poruma) to more established and commercially focused operations (e.g. Erub). Discussions included the different species of fish available to each community as well as seasons and conditions affecting this availability (e.g. species available to Dauan and Saibai TOs are different to those for the eastern communities but are still commercially valuable, and good eating fish).

Current finfish participation

The types or categories of finfish participation identified during meetings were:

- A small number of full time or close to full time fishers that earn all or most of their income from finfish fishing either for mackerel or coral trout, or both species and bycatch species taken in these sectors;
- Full time or close to full time fishers that earn all or most of their income from a combination of species but with a primary focus on more valuable fisheries like tropical rock lobster (TRL); with ancillary or opportunistic catches of finfish species and/or Beche de Mer (BDM);
- Part time fishers that earn up to half their income from fishing activities; with other income provided via government income support payments (currently *My Pathway*);
- People that fish primarily at weekends or at other times such as holidays, and/or when the weather is favourable; with fish used mainly for family and personal consumption.

Opportunities to increase participation

Meeting participants pointed to a number of barriers – lack of money, interest, confidence – that are holding back greater finfish fishing participation. They also identified a range of opportunities that could help increase Indigenous finfish fishing including:

- A training vessel, currently used for cray fishing at Poruma Island that might also be valuable for developing finfish skills;

- Motivated fishers working together and supporting each other as part of a 'fishing gang' in a community (as done at Erub Island to support the community freezer);
- Some communities (e.g. Masig Island) now have more fishermen actively working in cray and BDM fisheries. Now could be a good time to build on this activity and motivation via targeted investments to increase participation and initiate successful finfish related businesses;
- Potential to develop a Garfish fishery at Warraber Island to support fishers targeting mackerel throughout Torres Strait (noting that garfish are one of the most sought after mackerel baits, and can be difficult to source at a good price);
- Business models that focus on a mixture of fishing types, taking advantage of seasonal variations in finfish availability and recognising peak seasons for other valuable Torres Strait fisheries like TRL and BDM (e.g. more focus on finfish fishing around the central communities during the annual TRL closure).

Participants in the central communities (e.g. Iama and Warraber Islands) noted their focus on TRL; suggesting that training and targeted skills development to close the gap between more subsistence focused finfish activity and the more commercial and highly productive fishing techniques of the TVH finfish sector may be valuable.

A participant noted that for Ugar Island finfish were critically important, just as for other communities in the central and western areas crayfish resources are their most important fisheries. Ugar participants reported they have about five fishermen who are fishing at close to full time levels but that still rely on income from Community Development Employment Program (CDEP). They emphasised the importance and value of their traditional knowledge in relation to mackerel, including the movement of these fish with the weather and seasons. This was valuable knowledge and tied to the community's ownership of sea country resources.

Participants emphasised that there was lots of fishing expertise in the community, including the ability to run successful finfish fishing operations.

Similarly, people suggested there should be more opportunities to discuss finfish fishery related issues and capability development, including opportunities to use My Pathways training to support future finfish fishing.

Business types and needs

The most common finfish business type identified from the community consultations is a small scale, largely independent fishing operation. Fish are sold locally or used for personal and/or family use. Some people work in small family teams; such as husband and wife or father and sons.

Many fishers work part time, and some fish full time. Several of the younger fishers have transitioned from part time to more full time fishing; those that have made a successful transition have had some training in business planning or had an opportunity to work with a mentor.

The range of gear and equipment needed to establish and run a successful fishing business – training, fuel, boat and motor, equipment etc – was also discussed at the community meetings.

Business models

Participants spoke about different business models to encourage finfish fishing activity. They felt that the opportunity to choose the most suitable model was important. This might be a more entrepreneurial model (e.g. a joint venture arrangement similar to the Poruma Island Torres Blue arrangement with Independent Seafood Producers (ISP)); or a community, more cooperative model. People should have the information to help them choose the best approach depending on their circumstances and preferences.

In many cases, people thought a mixed fishing business model was the best approach; e.g. fish for cray during the season when prices were good, fish for mackerel when the cray season closed, and take BDM opportunistically.

People from Dauan Island also emphasised this mixed approach. Around 15 years previously Dauan fishers had operated a fishing boat around 15 metres long that had fished extensively in the area, mainly using gillnets for a range of species. Participants noted that because of their earlier fishing experience on the commercial vessel, they had good skills to undertake commercial finfish fishing. There were experienced coxswains on the island with good fishing and fish processing experience.

The previous vessel worked well; they sold blacktip shark trunks, mixed reef fish fillets, Barramundi fillets and operated with up to 9 crew. People generally enjoyed working on the boat and thought it was a successful fishing operation.

A Mer Island participant suggested their community needed a larger boat that could operate with local fishers on board, running out and fishing for a fortnight before coming in and changing crew; operating on a rotational basis. A participant mentioned the possibility of a mother ship style operation, where local fishers could fish to that master vessel. Smaller dinghies with smaller motors such as some already in the community could be used to support this operation. One mentioned a relative living on Thursday Island who had put in a business plan for a larger boat, and this had been approved, and the boat was now operating successfully. He asked why this was not the case for the Mer Island application for a vessel?

Several Mer Island participants referred to an earlier fisheries business plan that had been submitted to TSRA some years ago; they noted this plan had been prepared by a professional consultant with a lot of community input. They have not heard what has happened to the business plan, and did not want to repeat the process; they were sick and tired of the talk and the politics, and wanted action.

Combining income support payments with some income from fishing is a common approach in several communities. People also suggested some of the indigenous business models operating in New Zealand could be applied to fishing in Torres Strait, and this is currently being investigated by TSRA; as are models operating in Greenland for traditional fishing.

Business needs

Participants that have moved into full-time fishing agreed that business training was an important part of their ability to develop a successful fishing business. Some suggested local case studies, or examples, of successful local businesses would help others to overcome common barriers, and help provide the confidence and motivation for people to incrementally develop their own successful businesses.

Fishing on the weekend is an important opportunity for people and can significantly increase participation and catches; however a lack of fuel, gear, and bait at the time people can go fishing is a common barrier.

The immediate costs of fuel and fishing gear are stopping some people from fishing. Money to buy fuel and other supplies is needed, or management of fishing and/or other income (e.g. maintain cash-flow) is needed to overcome this initial cash shortage. For example, one young fisher mentioned that he goes fishing locally on the reef flat areas with a dragnet to catch some mixed fish to sell locally; and from the cash proceeds he is able to buy some fuel, collect some bait and go fishing for coral trout or mackerel that he can then sell to the community freezer.

People mentioned the importance of fishing for cray for many of the communities visited. Cray are a high value catch and also involve less processing and thus less cost. Cray are either supplied live for the best prices or as frozen tails. At Erub Island, finfish species and cray tails are handled by the freezer, and whole smaller coral trout and fillets are sold. Mackerel are received as trunks with heads off, and gutted; these are then filleted by the freezer staff and sold as fillets.

Mr Bedford noted that the quality and consistency of fish being sold to the freezers was critical to maintaining good prices and the reputation of Torres Strait finfish. One or two mistakes in supplying product for the freezers could mean that buyers sourced their fish from elsewhere and valuable markets for Torres Strait finfish could be lost.

Fishing-related activities/businesses along the supply chain

Participants mentioned the possibility of fishing related businesses to support fishing, which might include fishing tackle and boat/motor maintenance opportunities, looking after hookah gear etc.

Across the meetings there was considerable discussion about freezers, and their important role. One of the challenges is that a community freezer like the one on Erub Island is an additional component in the supply chain and this adds to costs. The freezer cannot afford to pay too much for its fish, because it has to be able to sell the fish at the price offered by buyers and still earn enough to cover operating costs.

Community freezers

People thought that simplifying the supply chain from fishers to the end buyers may help community freezers operate more cost effectively and enable them to continue to operate. Other points made about freezers include:

- A choice of freezers in a community (e.g. private and/or community focused) could be a good thing as it introduces competition and different options for buyers and sellers;
- Unlike crayfish, there were substantial processing costs for finfish for the freezer. Staff have to be paid to do the processing and unless there was a good amount of fish coming into the freezer the costs of processing and keeping staff could reduce profitability, and may mean the freezer is not viable;
- One fisher on Erub maintained his own small freezer, processed his own fish after catching them, and sold direct to other buyers. This worked well for him and his business has been operating successfully for many years;

- People thought the option of a portable freezer that could be used seasonally, or moved to take advantage of a good run of fish in an area, may be a good thing to trial. A large freezer may not be necessary, and getting secure access to land for a larger freezer site may be difficult;
- Participants at Yam Island felt that a freezer with a 5 tonne holding capacity and a 1 tonne snap freeze capacity would be about right with regard to product available and their barge schedules. The freezer could be a modular design, with more capacity added later if necessary. It was also very important to have an adequate processing area that could be easily kept clean to meet hygiene and safe food requirements; Key supply chain businesses (buyers) for Torres Strait fisheries were identified at the Poruma Island meeting as Pearl Island Seafoods, MG Kailis, and ISP.

Case Study – a seafood buyer on Saibai Island and his home based fishing operation

A local buyer on Saibai Island has a TIB licence under the amnesty arrangements, and a carrier boat and buyer endorsement. He is the main buyer on Saibai and sells product to Rebel marine on Thursday Island. He buys TRL and mud crabs mainly but also catches some fish and sells fillets locally – mainly barramundi and jewfish.

He was kind enough to show Mr. Bodsworth around his small home based buying operation. He uses 3 or 4 large chest freezers under his verandah on a concrete slab. They are approximately 900 litre capacity. A new one has recently been provided by Rebel Marine. Most of the product he buys and sells on to Rebel is TRL tails. He buys them for the same price that Rebel buys them and Rebel pay him a commission.

He and members of his family also fish for other species including various finfish and mud crabs, and some of the fish is filleted by him and sold locally. He has plenty of filleting experience. He is interested in getting some prices that people are willing to pay for jewfish, barramundi and mackerel fillets. He also mentioned that efforts are currently underway with the council to have a mobile freezer with snap capability set up on Saibai for broader community benefit.

Traditional Inhabitants' aspirations for the fishery

People noted the long history of fishing in the Torres Strait, and that it is an important aspect of the region's culture. Fishing also offers opportunities to build prosperity for island communities. Many of the people that took part in the community meetings would very much like to have, or be part of successful fishing businesses.

Participants thought that running a professional fishing business could provide opportunities to be more self-sufficient, allow them to re-invest into a business, buy a good car, take a holiday, or upgrade their fishing boat and motor. Others said that life in the island communities was quite relaxed, and not everyone wanted to work hard and go fishing all the time. Some would like more of a balance with a relaxed lifestyle and perhaps some additional money coming in from fishing.

Many believe that fishing activities and businesses can make a large and positive difference for the community. Some participants suggested that if young people in the community were actively and happily engaged in fishing activities and making money to support them and their families they were less likely to become involved in less positive activities (e.g. excessive alcohol, or harmful drugs)

Yam Island participants said that the community should be able to work together to support people developing their fisheries skills or new businesses, and help them through difficult periods. On Yam for example, there were several highly experienced fishermen living in the community that had worked previously in a range of other fisheries, including commercial mackerel fishing.

Dauan participants discussed prospects for fitting together a mix of species in different fisheries to help become viable full time fishers - cray in season; barramundi and jewfish during the dirty water time; Spanish mackerel and other species during clearer water at other times of the year. BDM were also available at some of the reefs in the area.

There was extensive discussion among Mer Island participants about TO aspirations and fishing. A participant emphasised the importance of the recent native title findings in relation to Torres Strait sea claims, and that these native title developments are a very positive step for the Mer community, and other Torres Strait TOs. One noted that around 80% of the productive finfish waters existed within Mer Island traditional sea country. He reiterated that those valuable fisheries resources must be fished by the community, so that the community would benefit from them.

Suggested investment priorities for money from the leaseback of finfish licences

A range of suggestions arose at the meetings as to how money raised from the leaseback of finfish sunset licences and catch quota should be invested.

Gear and equipment

Ideas about equipment such as dinghies, and best value for money, included:

- Upgrading and/or providing basic essential safety equipment for fishers such as PFDs and position locator beacons;
- Buy slightly smaller outboard motors (e.g. rather than a 60hp motor use a 30hp one). This could make a big difference in the initial cost while still providing much the same opportunity to catch fish;
- Similarly, new fishers could be provided with less valuable dinghies and smaller motors, so they could prove their commitment and fishing ability with less cost, and demonstrate they are willing to look after community fishing assets;
- If buying community dinghies, these should be provided to fishermen with a proven track record of fishing so the risk of them not participating is reduced;
- Ask the new fishers, or the local boys, for their ideas about how to go fishing for the least cost. For example, one boy might have an old aluminium dinghy that was still seaworthy but has no motor – perhaps his uncle has offered for the boy to use his outboard if he can get it repaired – and then community funding might be able to provide packages of safety equipment. This way the boy is using his ideas and seeing the benefit, and there is another person or two out fishing just for the price of the motor repair and the safety equipment;

- It is very important to get value for the money spent. One community had received welding training and learned to build dinghies – they had built three new dinghies which do not appear to be used, and had then bought two more expensive dinghies from a commercial supplier.
- Some participants suggested fishers may not need bigger boats as were used by previous TVH fishers; boats of 7–8 m that can carry 200–300kg of fish in a good esky may be adequate where fishing grounds are closer to communities and boats do not need to be at sea for extended periods;

Other investment ideas/comments

Other comments in relation to investment of leaseback funds, included lessons learned from investments thus far and using the funds in a careful way:

- Initiatives to increase finfish participation for the community were discussed at length around four years ago by Erub Fisheries Management Association (EFMA). It was agreed that 10 fisherman starter packages would be arranged, using money from the finfish licence leasing funds. Ten existing dinghies were purchased in response to 10 applications. These were made available as micro loans with repayments set at $300 per month and participants signed an agreement/contract to this effect. This initiative was less successful than hoped, with less than half of the recipients meeting their repayment commitments and/or other terms of the agreement;
- EFMA also arranged for a welder to come to the community to repair damaged aluminium dinghies. At a cost of $16,000, 28 dinghies were repaired in the 10 days that the welder was available. This was successful in terms of cost effective dinghy repairs and having these assets available for fishing although did not of itself increase actual fishing activity very much;
- Some suggested identifying key people in each community that have fishing-related skills or the motivation to start a successful business was a very important part of ensuring success for these type of initiatives;
- There is a need to update some of the existing community proposals to invest the finfish leasing funds currently available to those communities. The FAP project would provide valuable information, and lessons learned from other communities that could help communities decide on the best way to spend their funds;
- There was a robust discussion about the value obtained from investments on Erub Island; a participant suggested these initiatives were largely failures and had thus made it more difficult for other communities to obtain funding for finfish related initiatives. Participants generally agreed there had been some hard but valuable lessons learned by people at Erub in relation to their finfish related activities and investments. These lessons can help other communities obtain better value by not making similar mistakes, or help them better understand and manage risks in advance;
- It was very important that the money from the finfish licenses was invested carefully in areas where My Pathways or alternative funding sources were not available. There was an opportunity to use funding from different programs to complement the money available from leasing of the sunset licences;

- As well as the more motivated or full-time fishermen, training should be provided to weekend fishermen as well. They also had the ability to support the community freezer by catching fish on the weekends and selling to the freezer;
- Hiring a manager for a community freezer, or using funding support to bring in skills that are not available in the community;
- Many participants noted the advantages in starting small finfish operations initially. Providing an opportunity for people to prove themselves and their commitment to fishing, or to looking after community provided equipment.

Some participants relayed broader community concerns that the funds available for finfish development from leasing out the sunset licences were being spread too thinly across the region. For example, some communities in parts of Torres Strait are more reliant on, and get direct and flow on benefits from participation in the TRL fishery, or from BDM.

The area and resources relevant to particular sea claims were also important. Traditional Inhabitants of a certain sea claim area should be able to benefit from the resources in that area. If money is spread too thinly, the investment will be less effective in developing the unique resources found in a particular area.

At the Mer Island meeting participants talked about the finfish license leasing arrangements and suggested those fish should be caught by TOs. Mr Bedford suggested leasing that catch out to commercial fishers until TOs were ready to fish for themselves and benefit directly was a valuable interim arrangement.

A participant mentioned three fibreglass dinghies with motors and trailers that had been purchased from the finfish leasing money provided to Mer Island. He also noted that those dinghies had not been used, and that community members needed to participate in fishing to generate benefits. He asked how decisions to share income from the finfish leasing arrangements would be made; how would this money be allocated fairly noting that TOs from Mer Island, Darnley Island, and others in the eastern region were the custodians of those sea-country resources?

Ugar Island participants emphasised that the finfish lease money should not be spread too thinly amongst all of the Torres Strait communities. The focus should be on the eastern communities to develop as a hub of finfish activity. Participants emphasised that transparency in how the finfish lease money is spent is very important. If there is not a high level of transparency, people across the different communities won't trust each other. They noted that the TSRA Board discussion about how the finfish lease money should be allocated across the region was very important. They strongly believed that the benefits from finfish should go to the region where the fisheries were most important and where most of the activity historically (and currently) was occurring.

The Blue Mist fishing vessel purchased by Erub Island Fisheries Association

The EFMA has initiated a range of activities and investments to improve participation in finfish fishing. More recently it held detailed discussions about options to invest $70,000 of funds from the finfish trust. The group agreed that they needed a larger boat rather than 2 fully outfitted dinghies as suggested. A suitable boat was located and purchased after considerable searching (the boat was called *Blue Mist*).

The *Blue Mist* was steamed to Erub from Cooktown by a local skipper and crew and moored at Erub Island. The EFMA had a roster to take care of and routinely check the boat whilst at anchor/moored. It appears the vessel had some leaks which were manageable as long as the automatic bilge pump was serviceable; however something happened to the bilge pump/generator and the boat sank. The following points (and lessons) were mentioned in relation to the EFMA's *Blue Mist* experience:

- During initial discussions about how to best invest available finfish lease money there was lots of interest and enthusiasm from local and prospective fishers about having a vessel like the *Blue Mist*. Several people said they would take the boat fishing and around 20 people from Erub had recently completed coxswain's training;
- The opportunity for a larger boat and the subsequent successful journey of the boat back to Erub was a real milestone in the development of the EFMA, and potentially for Erub based fishing operations, it generated a lot of enthusiasm in the community;
- Despite many people expressing their interest initially, there was a lot of reluctance for any one person to take responsibility to skipper the boat and actually take it fishing; this might reflect a lack of confidence and experience (despite recent coxswain's training) to take the boat fishing;
- Someone observed that people are often happy to go fishing with someone else who takes responsibility for the boat and any fishing associated risks;
- Confidence and experience appear to be major factors stopping people from having a go at fishing. There are now generations of people in some communities with very little if any practical experience of boating and fishing.

Infrastructure / processes that can be improved to increase participation

Community meetings identified many ideas and opportunities that may increase participation in finfish fishing. As outlined above, several meetings discussed the topic of freezers for communities in detail, noting:

- Freezers must be the appropriate size. Don't over-invest in a larger freezer, but also don't under-invest. If the Finfish Action Plan is successful it is important that a freezer can support the amount of product being taken and hold enough until the barge is available to take product to Cairns or Thursday Island;
- A backup freezer is important; this may be a snap as well as a storage area, so that if one part of the freezer breaks down the other part can be used until repairs can be made. This backup could also be made available by having several private freezers, as well as a community freezer;
- People discussed the option of a mobile freezer that could be brought on the barge and plugged in ready to go; it could be relocated to other communities to meet demand, or if better use could be made of it. Perhaps design it to be located on a trailer and built with highly corrosion resistant materials, including plumbing fittings that could be easily connected to fresh and saltwater for processing and cleaning (similar to the mobile desalination unit on a trailer at Warraber Island);
- Some communities have several members with extensive experience managing freezers and processing fish. These people could play a very important role in teaching others the skills and knowledge needed to run a community freezer successfully;

- Participants on Yam Island reiterated the critical importance of the community having access to its own freezer so that it was not reliant on the existing commercial freezer run by Pearl Island Seafoods. Several participants also said that the private freezer had provided very little if any community benefits, despite the owner suggesting it would;
- Like Ugar island participants, those at the Saibai meeting raised the idea of a regional hub for finfish operations – if there was not enough fishing in any one place to support a freezer then have a small freezer on Saibai that fishers from Dauan could also sell too. Dauan might have people that were skilled at repairing fibreglass dinghies, and a fishing tackle shop;
- Funding support for a freezer was a critically important for Ugar Island TOs, as they have a good business plan but need the funding to support it. They noted that their previous applications for funding had not been approved, and this was holding up development. They also recognise that if they want to get things moving they will need to do it themselves.

Other points mentioned were:

- One way to increase participation is to provide easy access to a buyer. For example, where there is no freezer, a larger fishing boat with a freezer on board could take fish. When the fishing vessel *New Providence* was located off Ugar Island there was an increase in catches in that area;
- Skilled people or skills located within a cluster of communities (e.g. an outboard motor mechanic in one community, fibreglass repair skills in another) was a way to cost effectively maintain key fishing support skills and assets and equipment;
- Planning for intended fishing operations is very important. For example, in the black teat fish trial, communities were provided with salt, containers and training in advance of the opening, which meant they were ready to process product as they caught it and get a better price;
- People at the Saibai meeting discussed simple ways to get people out fishing at low cost, including: using existing dinghies and outboards; providing good quality eskies; and ensuring ice and fuel were available to fishers when needed, e.g. when tides and weather conditions were suitable;
- A Mer island participant emphasised the importance of good administration, stating that there were people with the necessary practical fishing skills in the Mer Island community; but that the administration was very important. The ideas had to come from the community from the ground up not top–down;

Minimising additional costs on commercial fishers leasing the TSRA-held finfish licences

People generally agreed it was important not to impose additional costs on commercial fishermen that were leasing the finfish licences and quota. Several people said that the money available from leasing out the licenses and quota in the finfish fishery was a blessing. This money could be reinvested to help TOs learn and develop their finfish businesses. It was important to recognise the benefits that the commercial fishers leasing the licenses would bring to the communities.

TSRA noted there had only been one applicant to fish 35 tonnes of coral trout quota. This lack of competition could affect the price offered. There was also a risk that not enough fishing meant that markets and skills may decline. A benefit of having a smaller number of fishers may be that communities are more accepting of those fishing operations.

A participant at the Ugar island meeting suggested that a 30 foot commercial fishing boat with a freezer on board would be a good platform to support fisheries development in the eastern region. This boat could train and employ crew from different communities and give them opportunities to learn everything about a fishing operation including how to skipper a vessel. The commercial fishers leasing licenses could help with this training, and the transition to a TO fishing vessel.

Constraints on greater Traditional Inhabitant involvement in finfish fishing; and possible solutions

Some of the identified challenges for development of finfish related businesses were common across the region; for example, the need for community freezers, and the capabilities and support to keep them running.

Identified constraints

- People lacking confidence and experience to start up and run their own fishing business was a constraint noted in most meetings. This related to both setting up and running a fishing business, and actual involvement in fishing activities. Some suggested it may be a fear of failure stopping people from getting started, and it was suggested people need to step up and take a risk to be successful in their new fishing ventures. It was recognised that these sort of barriers to new business activities are common across Australia;
- A Dauan participant mentioned that one of the barriers to more fishing – particularly areas away from the island, is that it is very expensive to get accommodation; and also difficult to stay with family or relatives on other islands for any length of time. Participants from Dauan Island also noted the problems sometimes caused by runoff from the Fly River nearby in PNG that had poisoned some areas;
- Participants in several communities noted the challenges with communication and collaboration between fishermen and Community Fishermen's Associations. These were delaying progress on initiatives that could increase finfish participation;
- One of the Community Fishermen's Associations had already developed a plan to invest funds available from the lease money. This plan had now been stalled for several years; and was holding back fishermen from developing their fishing operations;
- Having enough money to buy fuel to go fishing is difficult for some people. Some participants reported periodic problems with the fuel supply and sometimes the credit card auto payment system not working for several weeks at a time;
- Mer Island participants discussed why fishing wasn't taking place. Land available for the freezer site had been an issue that was now solved, and start-up capital was not available and had delayed progress. Other blockages included disagreements and politics at the community level. People had not heard back from TSRA about why their application for fisheries business funding had not been successful;
- Ugar Island participants emphasised that gaining access to an operational freezer was the most important priority, and that everything was on hold until the freezer was up and running;
- One of the barriers to the development of Ugar Island fisheries is the lack of deep-water access to the island, the proposed dredging operation to make this channel is very important. Another barrier was that sometimes TOs in their communities don't work together for broader benefit. An example is efforts to develop a collaborative fisheries model for the eastern

communities – there needs to be agreement about who undertakes and leads the main activities to support this aspiration.

Identified solutions

In response to discussion about constraints on participation, a number of solutions were suggested:

- People agreed that examples of actual finfish businesses, with costs and revenues, would be helpful to understand what is involved. For example, information about how much fish they need to catch to break even, or make a profit. Fishermen needed to understand how much they had to catch to cover their costs and then make a profit;
- Some suggested the Community Fishermen's Association should be there to actively support the fishermen and their ideas, and this would increase participation;
- Ugar participants noted the importance of the eastern region working together to develop finfish fishing businesses to support their region;
- Dauan participants suggested a 24hr fuel credit card system was important. At other meetings people thought that the current fuel bowser system for several communities where they accessed fuel via their credit card generally worked well;
- For communities without a freezer the benefits of a small freezer to make ice was suggested, or an ice machine that could provide ice for people's eskies' so that they could go fishing and keep their fish in good condition. For example, this would enable fishermen to fish productive areas between Masig and Erub, and then sell fish to the Erub freezer. This could be a very cost effective way to increase fishing. There may also be a need to upgrade some people's esky so that they could keep fishing throughout the day, keep plenty of ice, and provide high-quality fish at the end of their trip.
- The prospect of catching garfish for bait for mackerel fishermen operating in Torres Strait was discussed at the Dauan meeting, and the need to talk with these fishermen to find out exactly what sort of garfish would be most valuable and how they should be packed to be of most use;
- A participant suggested that government needed to develop good policy support for TOs working in fishing, and to support their fishing industry development;
- A participant emphasised the importance of people in the community taking action themselves, and not blaming other people for the lack of progress, or expecting too much to be done by government. He said that it was very important that those who had done recent training could use those fisheries skills before they were forgotten.

A Mer Island participant suggested a study examining the value of catch available in the traditional waters of the community. Once the value of this resource was known the community might choose to lease them to traditional fishers from other communities. Several participants noted that this would be the next development in terms of native title ownership of sea country resources in Torres Strait. It was suggested work needed to be undertaken to clarify and define the boundaries of sea country belonging to each community. This approach is similar to that taken by indigenous communities in the areas of mainland Australia, for example where mining royalties are paid to the TOs of land where the mining occurs. Participants agreed that these were critically important issues, and their importance was growing. They noted that the agreement for 10 nautical mile exclusion zones around communities was reached before the more recent native title sea claim decision.

Finfish related skills and training

Comments about skills and training that arose at the community meetings focused on issues such as My Pathways, skills development and business training.

My Pathways/income support related training

A participant said that training such as that offered through My Pathways is a valuable opportunity, but that it should focus more on employment opportunities in the communities. For example there are great opportunities to build successful fishing businesses on Islands like Masig – someone said "We have a goldmine right here, we just have to open the door."

People felt it was important to help trainees transition away from My Pathways, and to identify as fishermen. People agreed that My Pathways provided important opportunities for training, but that progression to more practical activities was important so that people had the confidence to start their own businesses.

Mr. Bedford mentioned the advantages of having a cluster approach to skills and capabilities that could support fishing. He noted that two Masig Island fishers had recently been trained in fish processing skills in Tasmania under the My Pathways program. Perhaps they could build on this opportunity by working with the Erub freezer team practicing the skills they had learned and supporting the freezer operation.

The training being arranged for Erub would be suitable for Mer Island fishers also. My Pathways are going to investigate this opportunity.

Business and other training

Everyone agreed that business training was very important, and was a blockage stopping people from fishing. Business training should be provided in the communities and focused on aspects relevant to fishing businesses.

People at the Yam meeting also emphasised the importance of business training, and the prospect of husband-and-wife fishing businesses, with a husband fishing and his wife or partner looking after the financial aspects of the business.

A participant explained the challenges of having to leave the community to undertake professional training. This is very difficult to do this because the cost of living is very high and people can't afford to take too much time away from their work.

There was also interest in learning how to use fishing technology to improve catches, including equipment such as depth sounders and GPS units. Fishing training is being arranged for Erub fishers and this may also be valuable for other communities. People agree that this type of practical training could help fishers fish more effectively and increase their catch rates.

Saibai Island participants asked about who are the right people to train their TO fishers, and how to select these people. They noted that some community fishers have experience working on commercial mackerel boats in the Gulf and elsewhere, particularly catching and filleting.

Mer Island participants identified the following training ideas that could increase fishing by TOs:

- skills in using GPS and sounders

- how to anchor correctly to maximize coral trout catch
- business training, including information about marketing of catch, cash flow management, start-up costs, and how to access other funding loans and grants.

APPENDIX 2: FINFISH BUSINESS MODELLING SCENARIOS AND KEY ASSUMPTIONS

Cost model details - 1 dinghy

The core operational expenses have been derived from Fairhead & Hohnen (2007), with costs increased by effective CPI (2006 to 2015) of 10%, with fuel cost increase of 15% to reflect fuel price changes. Fairhead & Hohnen detailed costs were derived from surveys completed by fishers in the 2004-5 and 2005-06 fishing seasons. While surveys did include 5 completed by TIB fishers (of 31 active licensees), the averages show that the completed surveys were from the most active fishers, those catching the largest weight of mackerel each year. 12 islander fishers accounted for 70% of the total TIB catch (p7) with many catching very small amounts (e.g. 50 sold under 100kg of mackerel in the year). Only 3 TIB fishers were catching 3000kg or more (p8) in a year. So while the cost structures in the table below are based on detailed data captured from TIB fishers, the numbers are biased towards those of the small number of fishers catching larger volumes.

The base modelling scenario was 1 fisher, 1 dinghy fishing 50 days per year and catching an average of 30kg of mackerel per day for an annual total of 1,500kg.

The modelling showed high sensitivity to sale price, as the boat cash income became negative with prices under $9.50/kg. A typical price paid by freezers (the most common point of sale for single person operations) for mackerel barrels (head off, guts removed, tail on) in 2015 was $6.50/kg. Most TIB fishers sell mackerel in this form as they do not have the facilities to sell fillets to other buyers. The fillet price is higher at around $13/kg, but each kilogram of fillet equates to 1.6kg of wet fish, which brings the effective fillet price down to $8.12/kg of whole wet mackerel.

Another determinant of profitability is the value and ownership of the boat and other equipment. To keep the modelling on a consistent basis it was based on a cost of $30,000 for dinghy and equipment, with depreciation of this at 10% per annum over 10 years (ie replacement every 10 years). The cost of borrowing this amount has also been included through a loan over 10 years at 7% to buy this equipment was also factored in, not because each TIB fisher would have borrowed this amount to finance their operation, but to ensure a level playing field for each model and comparable assessments of the business case for each scale of operation. The loan servicing (principal and interest repaid over 10 years) is shown separately to make it clear how much this cost would impact on profitability. Many TIB fishers would not have borrowed this amount, in which case their breakeven point would be at a lower sale price. It is likely that most TIB fishers would treat their boat and equipment as a resource to be used and would not intuitively include the depreciation 'cost' or loan 'cost' in their figuring of the profitability of their fishing activities.

The cost models are presented for three TIB fisher operational scales to look for economies of scale and to identify the profitable scales of operations:

- Single person singly dinghy 50 fishing days
- Single person single dingy 90 fishing days
- Two boats and two people with 90 fishing days each

Economies of scale may be achieved with increased fishing effort.

Almost doubling the fishing days from 50 to 90 and a consequential annual catch of 3 tonnes/year helps distribute the relatively fixed costs across higher returns. Overall, if 3 tonnes can be caught in 90 fishing days the annual boat business profit increases.

4 fold catch increase – 6 tonnes/year

Two boats operating a total of 90 days a year and catching a total of 6 tonnes provides further economies of scale, even with wages ($15,000 per annum) paid to one fisher.

10 fold catch increase – 15 tonnes/year

Scaling up this model to 15 tonnes/year reflects the average TVH income and expenditure pattern identified.

For each scale model results are presented at 4 different fish sale prices:

- $6.5/kg (mackerel barrels freezer price
- $8.125/kg (effective whole fish price for $13/kg fillets
- $10/kg (average sale price in 2005-06 for this scale of fishing
- $13/kg (fillet price applied to whole fish).

Boat Cash Income is income from fish sales (volume x price/kg) less costs.

Boat Business Profit is Boat Cash Income less depreciation (to factor in equipment replacement costs over 10 years).

Boat Business Profit less loan cost shows commercial viability of model once investment (loan costs) are included.

The following table sets out our 'standardised' cost structure for a TIB fisher with their own equipment. We recognise that individual fishers will have their own costs which are either over or under this standardised cost structure, which will reflect their fishing history (equipment and skills) and the places they fish. The figures are based on those presented in the AEC report in 2009, with interest and repayments amended to reflect current commercial interest rates and other cash costs increased by 10% to account for price inflation since that time. Balancing the variations in annual costs across individuals, the table below is believed to be both realistic and representative, and has been used as the foundation of the scenarios set out below. The figure of around $10,500 for annual ownership cost (based on boat and equipment purchased via a loan) is broadly accepted.

Annual ownership costs

	2009 AEC p48 ($)	Ownership cost 2015 ($)
Interest & repayments[1]	4,000	4,176
Repairs & maintenance[2]	1,500	1,650
Depreciation (boat & motor) [3]	2,000	3,000
Licenses & registration	150	165
Insurance	350	385
Sundry expenses	1,000	1,100
	9,000	10,476

Notes: 1 based on loan for boat, motor and equipment of $30,000 at 7% per annum over 10 years

2 Estimated on 10 year asset life

3 Straight line method on $30,000 value over 10 years

Single person single dinghy 50 days and 1500kg/year

	2015
Fuel	5973.1
Wages	101.2
Freezer charges	0
Admin	525.8
Bait	907.5
Freight	0
Gear	1664.3
Licence/wharfage	146.3
Repairs	2754.4
Travel	721.6
Other costs	1005.4

	13799.6
Trip length	1 day
Fishing days	50
Catch (t)	1.5
Catch/day (kg)	30
Catch value $	12187.5
$/kg	8.125
Boat cash income	-1612.1
less depreciation	3000
boat business profit	-4612.1
loan	4176
Post loan profit	-8788

Main assumptions:

Around $100/trip for fuel

$30,000 boat/gear loan over 10yrs at 7%pa and 10% depreciation per year over 10 years

Quota $1/kg

Single person single dinghy 90 days and 3000kg/year

This model shows some economies of scale in running costs, and is at the upper end of what TIB fishers are catching each year.

	2015
Fuel	8959.65
Wages	202.4
Freezer charges	0
Admin	525.8
Bait	1361.25
Freight	0

Gear	2496.45
Licence/wharfage	146.3
Repairs	4131.6
Travel	1082.4
Other costs	1508.1
	20413.95

Trip length	1 day
Fishing days	90
Catch/day (kg)	33
Catch (t)	3
Catch value $	24375
$/kg	8.125
Boat cash income	3961.05
less depreciation	3000
boat business profit	961.05
loan	4176
Post loan profit	-3215

Two dinghies, two people (one paid $15,000 per year), 90 fishing days each

	2015
Fuel	11946.2
Wages	15000
Freezer charges	0
Admin	2103.2
Bait	2722.5
Freight	0
Gear	2496.45

Licence/wharfage	585.2
Repairs	5508.8
Travel	721.6
Other costs	1005.4
	42089.35

Trip length	1 day
Fishing days	180
Catch/day (kg)	33
Catch (t)	6
Catch value $	48750
$/kg	8.125
Boat cash income	6660.65
less depreciation	6000
boat business profit	660.65
loan	8352
Post loan profit	-7692

Cost model TVH boat

Fuel	15000
Wages	30000
Freezer charges	0
Admin	478
Bait	4950
Freight	0
Gear	4539
Licence/wharfage	133
Repairs	10016

Travel	1968
Other costs	2742
	69826

Trip length	3 days
Catch (t)	15
Catch value $	121875
$/kg	8.125
Boat cash income	52049
less depreciation	10000
boat business profit	42049
loan	14000
Post loan profit	28,049

Main assumptions:

Catch 15t/yr

$100,000 boat/gear loan over 10 years at 7%pa and 10% depreciation per year over 10 years

3 day trips at $300/trip x 60 trips/annum

Note that the post loan boat business profit is close to that nominated by one of the TVH fishers interviewed who said he needs to make a profit of $20,000 to make the trip worthwhile.

Ice boat

Using the cost model developed by AEC in 2009 and updating costs to 2015 shows the cost/income stream for an ice boat setup catching 20 tonnes per year. Cost of ice boat estimated at $100,000.

Ice boats	2015
Freight	
Interest & repayments	14000
Repairs & maintenance	5500
Depreciation (boat & motor)	10000

Licenses & registration	550
Insurance	5500
Sundry expenses	5500
Processing/packaging	0
Provisions	11000
Wages	82500
Fuel $300/trip * 60	20700
Trip length	3 days
Catch (t)	20
Catch/trip (kg)	333
Catch value $	162500
$/kg	8.125
Boat cash income	7250
less depreciation	10000
boat business profit	-2750
loan	14000
Post loan profit	-16750
Quota	20000

Freezer boat

Using the cost model developed by AEC in 2009 and updating costs to 2015 shows the cost/income stream for a freezer boat setup catching 40 tonnes of mackerel per year. Cost of freezer boat estimated at $350,000.

	2015
Accreditation	300
Freight	13200
Interest	49000
R&M	5500
Depreciation	35000
Licenses and reg	550
Insurance	13200
Misc Exp	11000
Processing/packaging	5500
Provision	5500
Wages	82500
Fuel $400/trip * 20	9200
	230450
Catch (t)	40
Catch value $	325000
$/kg	8.125
Boat cash income	94550
less depreciation	35000
boat business profit	59550
Capital	49000
Post loan profit	10550
Quota	40000