



**FRDC**

FISHERIES RESEARCH &  
DEVELOPMENT CORPORATION

# **ESTUARINE POT THEFT SOLUTION**

**NATIONAL WORKSHOP REPORT**

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**Estuarine Pot Theft Solution National Workshop Report  
FRDC Project No 2015-039**

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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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# Acknowledgments

The workshop was initiated by the Fisheries Research and Development Corporation (FRDC) and the NSW Fisheries Research Advisory Board (NSWFRAB), after the Professional Fishermen's Association (PFA) identified the issue as a research priority. The Project Team would like to thank Designing Out Crime division of the University of Technology, Sydney and participants of the workshop. The project Team would also like to thank the Queensland Fisheries Research Advisory Board and Northern Territory Fisheries Research Advisory board for their contributions to the workshop.

## Abbreviations

AFTA	Australian Fishing Tackle Association
DPI	Department of Primary Industries
FRDC	Fisheries Research & Development Corporation
NSWFRAC	New South Wales Fisheries Research Advisory Committee
PFA	Professional Fishermen's Association
UTS	University of Technology, Sydney

# Executive Summary

The NSW Professional Fishermen's Association in conjunction with the Fisheries Research Development Corporation organised an intensive workshop with a wide representation of participants from across Australia aimed at addressing issue of theft of and from estuarine pots. Facilitated by the Designing Out Crime Research Centre, the workshop demonstrated a unique multi-driver approach by addressing the problem space in an innovative and collaborative manner.

The theft of and from estuarine pots is a serious issue facing both the NSW commercial fishing and recreational fishing communities. Mud crabs are highly prized and fetch high prices in seafood markets. This high price drives a thriving black market for mud crabs which is contributed to by both recreational and commercial fishers.

A discussion of possible solution directions is necessary with the rising incidences, and new and innovative measures will be required to prevent or discourage theft of mud crabs from estuarine pots in the future. The Workshop was used to examine what pathways exist and possible mitigative measures to reduce the likelihood of the theft.

The Workshop identified 17 recommendations that focused on Justice, community awareness, stewardship, trust and innovation. The recommendations are still conceptual and require further development, but give a clear sense of the priority areas and issues identified.

The Workshop agreed that the recommendations be presented a potential research directions and provide "solid starting points".

## Keywords

**Theft, innovation, *Scylla serrata*, *Portunus pelagicus***

# Introduction

In 2014, the NSWFRAC (previously known as the NSWFRAB) identified as a R, D&E priority, research into anti-theft of mud crab (and other estuarine) pots. The FRDC Board determined that the research priority would require a National Workshop to ascertain whether research into this issue was feasible. The NSWFRAC requested that the PFA provide a quote for the facilitation and organisation of the National Workshop.

The PFA requested that the University of Technology, Sydney (UTS) provide a costing for the facilitation of an anti-crime based workshop titled “the National Workshop for the Anti -theft of Estuarine Pots” to be hosted at the Sydney Fish Markets. The UTS were chosen to facilitate as they can demonstrate a unique ‘multi-driver’ or ‘holistic’ approach whilst bringing the benefit of engaging diverse

Commercial fishers are licensed to harvest and sell mud crabs; recreational fishers are permitted to catch small quantities but only for personal consumption. The theft of yield, and catching pots, is well known but not yet quantified. It is understood that estuaries closer to populated areas have higher incidences of theft especially during weekends and holidays. Fishers have noticed an increase in the frequency of thefts.

A variety of pots are used – commercially made, homemade, rigid and collapsible. Commercial and recreational fisheries regulations specify the size requirements and dimensions of the pots and the number of escape openings. Regulations also specify how many pots are permitted to be used by both commercial and recreational fishers. Pots are required to be marked by a boat that will specify name (and if commercial fishing license number) to ensure that compliance officers can check correct number of pots.

Pots are baited and left to passively catch crabs, the pot is left unattended while crabs “smell” the bait and enter the pot. Mud crabs are highly prized and fetch high prices in seafood markets. This high price drives a thriving black market for mud crabs which is contributed to by both recreational and commercial fishers.

A discussion of possible solution directions is necessary with the rising incidences, and new and innovative measures will be required to prevent or discourage theft of mud crabs from estuarine pots in the future.

# Objectives

- 1 Empower and provide tools to attendees to find innovative solutions
- 2 Framing the problem in a way that enables generation of solutions
- 3 Create solution directions to a complex and wicked problem
- 4 A Plan of Action that includes recommendations for further work to deal with the issues across all relevant stakeholder groups



# Method

The NSW Professional Fishermen’s Association in conjunction with the Fisheries Research Development Corporation pulled together a wide representation of participants from across Australia to join us for an intensive workshop addressing the theft issue. Facilitated by the Designing Out Crime Research Centre, the workshop demonstrated a unique multi-driver approach by addressing the problem space in an innovative and collaborative manner.

The Workshop was held on Friday, 15<sup>th</sup> Jul 2016 at the Sydney Fish Market

## THE PARTICIPANTS

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James Hohenhaus	Danny Elliot	Chris Cleaver

Officer QLD Boating & Fisheries Patrol	NSW Commercial Fisher	Product Manager Shimano Fishing Australia Pty Ltd
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## FACILITATORS

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# WORKSHOP

## METHODOLOGY

With the aim of preventing or discouraging illegal interference with pots and crab catch, the workshop was designed using an evidence based innovation method which has been developed by the Designing Out Crime research centre specifically to deal with complex problems. The workshop method used both analytical and creative exercises and tools designed to focus attention on the needs of victims. Initially, the participants were asked to think about issues that arise at each stage of the 'crab to consumer' timeline:

1. Mud Crab
2. Location
3. Pots
4. Catch
5. Market
6. Consumer

These categories were chosen to understand the problem and what different prevention methods have previously been tried and tested. In discussion of previous solutions, we could identify aspects that might be useful and new directions that can be explored. The following provides a description of the methods and objectives of each exercise undertaken by the workshop participants.

### **WHAT:** Journey Mapping

Using a visual timeline from 'estuary to consumer' to help identify previous solution directions and potential pain points. The guiding questions for this stage were: "What has been tried before?" and "How successful have these methods been?"

### **WHY:**

Each fisherman and respective communities have different experiences based on their approaches and geographical conditions. Participants shared their experience and knowledge, which help us learn more about solution possibilities.

### **WHAT: Evaluating previous directions**

Delving deeper into our journey map, participants were invited to discuss previous methods and what prevented their success as solutions. The guiding questions for this stage were: "What competing forces are at play?", "What are the deep underlying issues?"

### **WHY:**

This task encouraged deep and creative thought amongst our participants, we could identify the major areas of concern and any potentially positive aspects of past methods that might be useful in future conceptual development.

## WHAT: Stakeholder Analysis

This exercise sought to identify the stakeholders involved in situation. Stakeholders with a high degree of connection, agency and ability to impact upon crime were identified, as well as those people or organisations who are less directly connected. The guiding questions for this stage were, “Who has been involved so far? Who could be involved in the future?”

## WHY:

Thinking about who is currently affected by the issue provides a landscape overview of which groups and individuals could be involved in any future solution.

## WHAT: Theme Analysis

In the first stage of this workshop exercise, the participants sought to identify the values motivating the stakeholders that are affected by the issue. The question workshop participants asked was “What is important to each stakeholder?” In the second stage, human-centred values were distilled from the responses to that question. Examples included ‘trust’, ‘stewardship’, ‘prosperity’, ‘justice’, etc. Participants then explored each theme in greater detail, using analogies, anecdotes, similes and antonyms to agree on a shared conceptual understanding of the theme.

## WHY:

The purpose of theme analysis is to identify and define the values that are commonly held among the stakeholders affected by the issue. Developing a deep, shared understanding of these positive values is crucial in designing interventions that will create the conditions for such values to flourish.

## WHAT: Frame Creation

A frame is an imaginative device that serves both a critical and creative purpose. It plays a role similar to the metaphorical lens: it allows new observations to be made, old problems to be interpreted differently, and new solutions to come to light. The way in which a problem or issue is framed is critically important to the manner in which that problem is interpreted or felt by those affected, as well as how it is managed by problem-solvers. The creation of frames is a creative leap that draws inspiration from an exploration of the themes (stage 4), and can be quite a complex exercise in practice, involving many stages and activities. Explained simply using the theme of ‘justice’ as an example, a guiding question in frame creation might be: ‘what is an example of a situation in which a fisher gets justice when his yield is stolen? How is the feeling of trust created, and how can we create or replicate that feeling in a new context?’

## WHY:

The value of a frame, and the types of insights it can offer, depends on how and where it is overlaid onto the problem context. For example, a frame could be used to look at the structure of a system (to provide, for example, ideas about how strict the penalties should be for those charged) or to define the ideal pathway for a key stakeholder (such as fishers building a community to look out for each other).

## WHAT: Concept Development

The participants were then divided in four groups lead by each facilitator. Using the insights and ideas generated by the frames created in stage 5, each group rapidly mapped a ‘solution development template’ for the possible solution directions. Each template generated ideas based on ‘action’ (form working group, construct prototype), ‘who’ (should be involved e.g. crab fisher, designer), ‘resources’ (e.g. Materials, specific technology) and ‘time’ (estimate). This exercise was completed in 40 minutes; however, a thorough mapping

exercise of this sort could be an invaluable tool in comprehending the challenges that face fishers, and identifying solutions to these challenges.

#### WHY:

In a design process, the design concepts provide new ideas about how to approach the problem; they indicate how a solution is likely to look. A phase of prototyping, testing and improving follows the concept development stage and precedes the implementation of 'final' concepts.

# Results

In Exercise 1 of the workshop, participants brainstormed issues and solutions present at each stage of the journey. The responses were categorized in six different sections; 'mud crab', 'location', 'pots', 'catch', 'market' and 'consumer'.

<p><b>MUD CRAB</b></p> <ul style="list-style-type: none"> <li>-Bag limits between states</li> <li>-Crabs micro chipped</li> <li>-DPI compliance</li> <li>-Cross border no take female crabs</li> <li>-Bag limits vs. cultural/ social perceptions</li> <li>-Consistency legislation between states</li> <li>-Penalties</li> <li>-Legislation</li> <li>-Empty crabs</li> <li>-Taking undersize product</li> <li>-Dealing with repeat offenders</li> <li>-Standard of grading</li> <li>-State and Territory laws</li> <li>-What has abalone industry done?</li> </ul>	<p><b>POTS</b></p> <ul style="list-style-type: none"> <li>-Departmental rules</li> <li>-Different commercial &amp; rec pots</li> <li>-Hidden pots</li> <li>-Microdots hiding floats</li> <li>-Permanent dyes</li> <li>-Surveillance video</li> <li>-Padlocks</li> <li>-RFID pots</li> <li>-Specific commercial</li> <li>-Booby traps</li> <li>-Sabotage</li> <li>-Pot size</li> <li>-Attach the pot underwater to mangrove root</li> <li>-Efficiency</li> <li>-Regulated - pots, float, design etc.</li> <li>-Cheap disposable rec traps</li> <li>-Move traps from trouble areas</li> <li>-Gas floats</li> <li>-Signal pot to release floats</li> <li>-Fusible link to release buoy</li> <li>-Pots with individual markings</li> <li>-Submerged float</li> <li>-Sunken pots with</li> <li>-Surveillance</li> <li>-Lifting mechanism</li> <li>-Branding</li> <li>-GPS location</li> <li>-Tracking floats</li> </ul>
<p><b>LOCATION</b></p> <ul style="list-style-type: none"> <li>-Large tidal movements</li> <li>-Penalties</li> <li>-Legislation</li> <li>-Photographing</li> <li>-Surveillance video dealing with repeat offenders</li> <li>-Make traps accessible access at low tides</li> <li>-Drones air to surface</li> <li>-Isolated areas bring temptation</li> <li>-Move traps from trouble areas</li> <li>-Sabotage</li> <li>-Education program</li> <li>-Compliance officers</li> <li>-Catch person in the flesh</li> </ul>	

<p><b>MARKET</b></p> <ul style="list-style-type: none"> <li>-Substitution of high grade for low grade</li> <li>-Social license</li> <li>-Education of market</li> <li>-Quality issues grading system</li> <li>-Theft in market</li> <li>-Branding</li> <li>-Quality grade</li> <li>-Tag RFID</li> <li>-Black market</li> <li>-Black market of female or undersize</li> <li>-Enforcement patrols</li> <li>-Tag on claw</li> <li>-Tax vs. cash business</li> <li>-Dry ice branding</li> </ul>	<ul style="list-style-type: none"> <li>-Bricks in dummy pots hooks or barbs in ropes</li> </ul> <p><b>CATCH</b></p> <ul style="list-style-type: none"> <li>-RFID carb tags to thieves</li> <li>-Soft crab penalties</li> <li>-Dealing with repeat offenders</li> <li>-“Crab is not owned until in hand”</li> <li>-\$ Greed drives black market</li> <li>-Photographing</li> <li>-Government support for industry</li> <li>-Tag on claw bag limits</li> </ul> <p><b>CONSUMER</b></p> <ul style="list-style-type: none"> <li>-Traceability</li> <li>-Reduction of quality</li> <li>-Chain of evidence</li> <li>-Branding</li> <li>-Tag crabs by operator</li> <li>-Tags RFID</li> <li>-Pot to plate initiative</li> <li>-Reputation risk black market labeling</li> <li>-Crabber ID required for restaurant to buy</li> </ul>
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# IDENTIFYING STAKEHOLDERS

This list shows the stakeholders that were identified in our next stage of analysis. This exercise shows that there are multiple stakeholders who are, or could be involved in a solution to estuarine pot theft. It also reveals potential avenues for solutions that might not have been considered prior.

This list resulted from a rapid brainstorming session and is not exhaustive. Researching stakeholders in depth would provide a fuller understanding of the problem context and its players, and would represent a substantial body of work.

## Who has been involved?

Magistrates  
Consumers  
PFA  
Marketers  
Black Marketers  
Commercial Fishers  
Police  
Recreational Fishers  
Buyers & sellers  
Government  
FRDC  
Judiciary  
Compliance  
Fisheries of each state

## Who could be involved?

Fish Pot Manufacturers  
AFTA  
Restaurants  
Overseas Fisheries  
Indigenous fishers  
Marine Community  
Researchers  
Social Media  
Fishing Media  
Education  
Television Media  
(food shows)  
Caravan parks  
Schools  
Tourism  
Retailers  
General boaties  
Teacher's Association  
Transporters



# **SOLUTION DIRECTIONS**

The concepts on the pages following are the result of the stakeholders' workshop. The concepts suggest potential solution directions that can be considered for further investigation. They are not 'finished products', but rather represent a solid starting point for further exploration of how the system can be remodeled to reduce the impact of estuarine pot theft.

## **RESULTS**

Many fishers in NSW spend hours of their time planting the pots for their daily mud crab fishing and find that all their worthy catch is lost with pots damaged or stolen altogether by some deceitful thief. This scenario is often heard from commercial fisherman in NSW and other states where the catch is later sold through black markets at the expense of commercial and recreational fishers.

The possible solution directions are necessary with the rising incidences and potential measures are required to prevent or discourage theft of mud crabs from estuarine pots.

This section outlines the main recommendations from the workshop. The ideas are still conceptual and require further development, but give a clear sense of the priority areas and issues identified. These approaches aim can build up a sense of security and trust within the fishing community.

The Solution directions fall into 5 categories:

1. **JUSTICE**
2. **AWARENESS**
3. **STEWARDSHIP**
4. **TRUST**
5. **INNOVATION**

# JUSTICE

Clarification of rules & regulations and a revision of their penalties would act as a deterrent for perpetrators and provide a secure support system for the fishing community.

Here are some potential solutions directed toward the final goal of justice. These solution directions rely on the cooperation of legal and government bodies with the marine community in order to progress.

## **Police + Judiciary + Legislation = JUSTICE**

### **1. LEGISLATORS & JUDICIARY**

The issue of theft from estuarine pots appears to be of little priority to the relevant legal systems that are currently overseeing the issue (Police and Judiciary for eg.). The first step that needs to be taken is to ensure that jurisdictions are aware of how detrimental these crimes are to our Australian fishing industry. The scale of the impact on mud crab fisheries specifically is akin to the impact of shoplifting in the retail sector.

*Actions that could be taken would include:*

- a. Raising the profile of the issue to police / enforcement agency /prosecutors / magistrates.
- b. Victims given access to standard 'Victim Impact Statement'

(VIS template) that assists in then explaining clearly the impact

*Estimated Timeline:*

- Following funding, 35 hours to structure VIS template
- 6 months to 1 year for adaptation to system.

### **2. TOOLS TO ASSIST**

In order to improve the way this theft issue is addressed within the legal system, we can bring awareness of estuarine pot theft to Police and other enforcement bodies, and work with them to improve on how they use their tools to assist in crime prevention.

- a. Standard reporting system to make it easier for police and victims
  - i. Crimestoppers
  - ii. Eyewatch (NSW Police) and similar in other jurisdictions

*Estimated Timeline:*

Following funding, 12 months

### 3. PENALTIES

There was a strong majority of those present at the workshop that believed the current penalties for those charged with tampering with pots did not fit the crime. Higher penalties for those charged, and also harsher punishments for those found to be repeat offenders would better match the impact that crimes have on fishers.

a. Review current penalties across the jurisdictions and explore alternative penalty options such as:

- On the spot penalties
- Higher penalties for the repeated offenders (loss of boat/fishing license, incarceration etc.)

b. Make a case to legislators for a reconsideration of penalties

to better meet the expectations of the fisher community

Estimated Timeline:

- Long term

# AWARENESS

The issue of estuarine pot theft is of a huge concern in the fishing industries in Australia, but it isn't a well known problem for the general public. Using specific avenues in order to spread the word and raise awareness would generate a sense of community support for the victims in a 'neighborhood watch' style initiative.

## TARGET RESTAURANTS/ CONSUMPTION = MARKETING + QUALITY

### 1 SOCIAL MEDIA

Social Media is an extremely useful tool in dispersing targeted ideas and information quickly. Using this medium to raise awareness of the issue in a viral campaign would be ideal.

Actions that could be taken would include:

- a. Directing small story boards and video clips (positive stories) for YouTube on mud crab thefts
- b. Mobilisation of stakeholders across the Fisheries industry to participate in the campaign.
- c. Facebook advertising campaigns/events

Estimated Timeline:

- Marketing should be mainly targeted before summer or Christmas holidays in Southern states, in dry season (Winter) in NT
- Ongoing campaign.

### 2 SOCIAL MEDIA

Raising awareness of the black-market/legitimate market issue in conjunction with tourism advertising.

Promoting local industry and legitimate recreational fishing, particularly in holiday periods. Cooking shows on television are a good platform to generate the effect of eating "Good Crabs" (the one which are bought legally from fisherman), or that you have caught yourself using approved recreational fishing methods.

Actions that could be taken would include:

- a. News and media campaign to advertise and spread the word, promoting mud crabs as a local delicacy
- b. Tourism industry, restaurants owners, and advertising agencies, students can play a vital role in developing such campaigns

Estimated Timeline:

- During busy summer period (in southern states), Dry season in the NT

#### Anticipated impact:

- Consumers become aware and discerning

### 3 “CERTIFIED – Good Crab”

Creating a certification program where retailers (seafood retailers and restaurants) display that they only sell certified safe mud crabs/seafood. Educating customers on the importance of knowing that their produce is of a high quality and sourced legally and safely.

#### Actions that could be taken would include:

a. Fishing industries, commercial fishing peak industry bodies, government together can create an awareness for consumers and retailers that only mud crabs bought legally from commercial fishermen can be sold in retail and restaurants.

i. A certification program that ensures good practice from the pot to the customer, linked in with existing food hygiene programs (including good practice packing and transporting, etc)

ii. Branding and advertising about the restaurants who buys only from commercial fishermen

#### Estimated Timeline:

- Ongoing certification campaign

### 4 TAG

Marketing of a new system of tagging, raises awareness for the issue at the same time as implementing new manageable organisation of catch and ownership.

#### Actions that could be taken would include:

a. adopting existing technology to a tagging system,

options such as:

- Traceability through Tagging system (by Smart phone)
- RFID
- Volunteers, compliance, FRDC and legislation can involve them to prioritise the system.

#### Estimated Timeline:

- 6 months - 1 year implementation, then ongoing revision, refining and marketing.

# STEWARDSHIP

Estuarine pot theft is an issue for both commercial and recreational fishermen. In collaboration with government bodies and sustainability programs, fishermen would benefit from maintaining a healthy habitat for their future prospects. By building a respected profile, the 'victimless crime' aspect of pot theft will be reduced.

## (HABITAT REHAB MANAGEMENT) STEWARDSHIP + GOOD HABITAT = CATCHABILITY

### 1 UNITED REPRESENTATION

Individuals and associations can play an important role in creating a narrative of stewardship of the habitat.

Actions that could be taken include:

- a. United representation across jurisdictions, partnering on sustainability programs
- b. Fisheries and representative bodies come together to collaborate and promote a healthy physical environment

Estimated Timeline:

- Up to 6 months to develop a strategy

### 2 PROFILE BRANDING

Creating a strong profile and a character for the fisheries community will develop a branding effect on the consumers. This in turn will endorse the issue and cause responsiveness about the produce.

Actions that could be taken would include:

- a. Promoting the profile of Mud Crab Fishing
- b. PFA, Recreational, Government, UTS, Fish Habitat, Network, Environmental non-government organisations can promote the profile.

Estimated Timeline:

- Profiles can be developed within 6 months

### **3 FISHING CLINICS**

Creating training programs for the future generation will help prevent such scenarios in the coming years. Education has always and will continue to play an important role in any system in generating awareness amongst the community. Awareness of legal means of fishing would remove excuses for pot thieves.

Actions that could be taken would include:

- a. Fishing clinics and Educational classes
- b. Schools, community groups, fishing camps, etc are good platform to create awareness DPI could champion and promote these educational programs, engaging professional and recreational fishers in the delivery

Estimated Timeline:

- 6 months - 1 year implementation, then ongoing revision and refining.

### **4 CRAB STEWARDS**

The Crab Stewards program will help build a better community within the commercial and recreational fishers community. 'Volunteering ' and 'looking out for each other' will strengthen the fishing process and gain trust and confidence with each other.

Actions that could be taken would include:

- a. Development of a 'CRAB' fishery stewardship strategy
  - i. Fisheries, Governments & NGO can then promote this program
  - ii. Time, personnel in-kind, contributors are essential in such programs.

Estimated Timeline:

- 6 months - 1 year implementation, then ongoing revision and refining.

# TRUST

Changing the social perception and profile of the Crabbing Industry whilst simultaneously educating of it's hardships and issues of theft will help generate community support. Recreational fishers include mum and dad crabbers who are fishing for fun or to feed their family. Educating those who are unaware of the theft issue and the impact it has on the marine community as a whole.

## **AWARENESS + EDUCATION + SOCIAL LICENCE = COMMUNITY STANDING (TRUST)**

### **1 STAKEHOLDER EDUCATION**

An internally focused education campaign that provides up to date knowledge of what is happening as a result of the estuarine pot theft project.

Actions that could be taken would include:

- a. For Recreational Fisherman
  - i. Challenging the notion that it is a victimless crime
  - ii. Making it easier for inexperienced recreational fishers to catch mud crabs legitimately
- b. For Commercial Fisherman Information packs and delivery by passionate recreational fishermen, commercial fishermen, Indigenous Elders and DPI compliance educating the sector.

Estimated Timeline:

- Programs can be developed within 6 months

### **2 MEDIA EDUCATION**

Connecting the issue with the people who are being affected will generate awareness and sympathy and get maximum exposure about the impact of theft.

Actions that could be taken would include:

- a. "Champion / Figure "can be used to generate hype
- b. Innovation, showing how the latest technology makes mud crab theft risky
- c. Emphasizing on real people, pictures and stories
- d. Lobby production companies, Media organization & personalities get involved in the campaign.
- e. Messages need to be consistent and results should be tracked and measured
- f. Campaign with a timeline – For example replicating the successful 21 days to change a habit.

Estimated Timeline:

- Immediate action with funding



### 3 CURRICULUM EDUCATION

Curriculum education as a part of current education system will help in creating preventive measures for future generations.

Actions that could be taken would include:

- Depart of Education, teacher's union; stakeholders with a unique career path should prepare a education program.
- Teachers should be provided with required resources, funding, instructional materials and expert support with training.

Estimated Timeline:

- Long term

# INNOVATION

Systems of innovation and invention that are defined by a combination of new technologies and years of fishing experience and knowledge. Utilising what we already know and pushing this understanding toward future innovation technologies.

## **FUTURE + QUALITY + CATCHABILITY = INNOVATION**

### **1. TAGS**

A tagging system was identified by the workshop participants as having great potential as a solution direction. A system that gives them confidence and hope in solving the theft issue could be met with enthusiasm by the broader sector.

Actions that could be taken would include:

- a. Develop a tagging system with stakeholders that is easy to use and assists in the efficiency of the pot to table journey.
- b. Investigate business cases for legislative led vs market led adoption of tagging system.
  - Would assist with registration for commercially caught crabs
  - Marketing opportunity for particular fishers/coops
  - Making compliance easier to track

Estimated Timeline:

- Immediate investigation following funding

### **2. BUOYS**

Mud crab pots in non-shallow water are easy to find by thieves largely because they are marked by buoys. It is legislated that buoys need to be attached to pots. By exploring the latest technology in the fishing industry, and more broadly, there is the possibility to find and create new solutions.

Actions that could be taken would include:

- a. Submersible buoys
  - Would require investigation and legislative change
- b. Above water
  - i. Mark to differentiate between commercial & recreational pot's floats (still does not solve the fellow commercial fishers' theft)
  - ii. POTWATCH App, neighbourhood watch for mudcrabs

Estimated Timeline:

- Immediate investigation following funding

### 3. POTS

The pot is the most important tool for any mud crab fisher. Developing an innovative trap to help secure the yield will make the fisher feel confident and assured at the same time.

Actions that could be taken include:

a. Design of new trap options, with the following characteristics:

1. A trap that is theft resistant
2. That is at least as efficient at catching crabs as existing options
3. Easy to use and adaptable
4. Designs out ghost catch

b. Augmenting existing pots with technology:

- i. Surveillance creating a best practice guide for Fishers who wish to use CCTV surveillance on or near the pot.
- ii. Exploration of other surveillance options such as Tsunami buoy technology, drones, etc.
- iii. Tag technology using GPS will help in better marking of the pots

Estimated Timeline:

- Immediate investigation following funding

# Conclusion

The workshop identified a number of potential pathways forward and participants agreed that not one pathway alone would mitigate the impact of estuarine pot theft.

This report is submitted with 17 recommendations.

It was agreed at the workshop that the recommendations be presented as potential research directions and provide “solid starting points” as a recommendation to the NSWFRAC and the FRDC.

Solution Direction	Direction Enabling Partner	Engagement Action
1. Justice: Legislators and Judiciary		
1a. Ministerial and Government liaison	Key Government Ministers (eg. Attorneys General, Police, Primary Industries, Fisheries) and Departments	Strategic communications strategy developed and implemented (meetings with staffers, Ministers, relevant officials and dissemination of key facts through formal letters and information packs.)
1b. Judiciary	Police prosecutors	Develop and disseminate a standard Victims Impact Statement so that the Judiciary begins to receive a consistent voice from victims on the impacts of this crime.
2. Justice: Tools to Assist		
2ai. Standard reporting systems	Crime Stoppers	Meet with senior Crime Stoppers representative and discuss options for utilising the crime Stoppers network to improve reporting options
2aii. Police social media	Police agencies	Meet with senior police to explore how their social media networks (eye-watch in NSW, Vic, QLD) can be utilised to target theft from estuarine pots
3. Penalties		
3a. Review current penalties and alternatives	Researchers	Engage a qualified researcher to conduct a review of current penalties and alternatives
Solution Direction	Enabling Partner	Engagement Action

3b. Make a case to legislators to reconsider current penalties	State and Territory Governments	Following from action 1a. strategically engage staffers, ministers, and officials to receive recommendations through formal industry submissions.
4. Awareness		
4a. Social media	Production company and/or students	Engage with production company and/or students to produce a series of short video clips
4b. Dissemination strategy	Fisheries industry, Advertising agency, Fishers, and others	Engage and mobilise distribution channels
4c. Facebook events	Social media specialist	Engage a specialist to develop and implement a Facebook event/campaign
Marketing: Food Tourism		
5a. Promotion strategy for hotspot locations	Local media, tourism agencies	Produce local news stories and cooking show content for TV and print that promotes mud crabs as a local delicacy, available in restaurants and by legitimate recreational fishing
5b. Content development	Tourism industry, restaurant owners, recreational fishers, advertising agencies, marketing students	Engage a body of knowledge specialists, and content developers to develop the collateral for the campaign.
6. Marketing: "Certified - Good Crab"		
6a. Cross agency working group	Fisheries, Recreational fishers, Government, Food Industry, Transporters	Engage supply chain in a process to develop a certification program that promotes safe and legal crab
7. Marketing: Tag		
7a. Market the introduction of a new tagging system through developing the system with stakeholders	System developers, legislators, professional and recreational fishers, marketers	Market action 15 to those who were not involved in the development of the new tagging system.

Solution Direction	Enabling Partner	Engagement Action
Stewardship		
8. Stewardship: United Representation	Sector support, Sustainability grant schemes	Create a narrative internally for the sector to take on stewardship  of the estuarine environment. Partner with Sustainability grant providers to fund projects that reinforce this.
9. Stewardship: Profile  Branding	Branding agency and/or marketing students	Engage branding agency and/or students to develop a brand for  mud crabbers that shows them as stewards of the estuarine environment
10. Stewardship: Fishing Clinics	DPI, Tourism, schools, community groups	Develop a program of fishing clinics for roll-out across hotspot locations. Fishing clinics will promote legal recreational fishing.
11. Stewardship: Crab Stewards	Professional and recreational mud crab fishers	Develop a program that engages members as stewards of the estuarine environment, both from an environmentally sustainability and industry sustainability perspective
Trust		
12a. Trust: Stakeholder Education  - Recreational fishers	Education campaign developer, distribution channel	Develop an education package/strategy targeting recreational mud crab fishers to, update them on emerging issues as a result of this project, makes legitimate fishing easier and to highlight the harm that theft creates, and the penalties
12b Trust: Stakeholder Education  - Professional Fishers	Education campaign developer, distribution channel	Develop an education package/strategy targeting professional mud crab fishers that brings them up to speed on developments from this project.
13 Trust: Media Education	Media partners, campaign developer, industry participants	Develop a mud crab theft specific media campaign that compliments the Marketing Food Tourism actions. This campaign will highlight the risks of stealing and the

		impact it has on 'mum and dad' fishers.
<b>Solution Direction</b>	<b>Enabling Partner</b>	<b>Engagement Action</b>
14 Trust: Curriculum Education	Departments of Education, Curriculum developers	Develop additions to school curriculums that help to create the next generation of mud crab fishers. A generation who is respectful of the estuarine environment, of mud crabs, and of their fellow fishers.
Innovation		
15a. Innovation: Tagging system	Systems designer	Engage a systems designer to create and develop a new integrated tagging system utilising existing tags and technology. Test refine and scale either through legislation, or through finding cost efficiencies in the new system that makes voluntary adoption attractive
15b. Innovation: Investigate need for market led vs legislative led adoption of tags	Legislators	Create business cases for market led adoption and legislative led adoption of the tagging system and take these to the industry for consultation.
16. Innovation: Buoys	Entrepreneurs, Innovators, legislators, industry	Explore alternatives to the existing system through a 'hackathon' style event that invites entrepreneurs, innovators, and industry to create alternatives. Select the winning design and then test refine and scale either through legislation, or through finding cost efficiencies in the new system that makes voluntary adoption attractive
17. Innovation: Pots	Entrepreneurs, Innovators, legislators, industry	Explore alternatives to the existing system through a 'hackathon' style event that invites entrepreneurs, innovators, and industry to create alternatives. Select the winning design and then

		support the winner through a process of testing refining and scaling to market.
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# **Project materials developed**

Please see the Report from the Estuarine Pot Theft Solution Workshop (October 2016) in Appendix 1.

# Appendices 1

Report from the Estuarine Pot Theft Solution Workshop (October 2016)



# ESTUARINE POT THEFT SOLUTION WORKSHOP

October 2016



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Designing out Crime research centre  
is in partnership with the University of  
Technology, Sydney.

# CHANGE THE WAY YOU SEE Crab Theft

**THIS REPORT** is an account of a one-day workshop held at the Sydney Fish markets on Friday July 15, 2016 to investigate measures to prevent or discourage theft of crabs from estuarine crab pots. The workshop was organized following a determination by the NSW Fisheries Research Advisory Body that theft into mud crabs pots was a priority.

**THE WORKSHOP** was established by the Professional Fishermen's Association and facilitated by the Designing Out Crime Research Centre from the university of Technology Sydney. Over twenty participants from NSW, Queensland and the NT represented professional fishers, recreational fishers, researchers, associations, and government departments involved with sustainable fishing. All have a stake in reducing the theft of produce from the pots and also further down the supply chain.

**THE OUTCOMES** of the workshop are a suite of solution directions ranging from revision of current legislation and jurisdiction, long term educational programs, tagging systems and a marketing scheme for theft awareness.

**THE FUTURE** of this issue is in the hands of the FRDC, the Professional Fishermen's Association and their members, the recreational sector and the seafood wholesale and retail markets. This report outlines potential solution directions. These are not finally resolved plans but are rather possible avenues of change.

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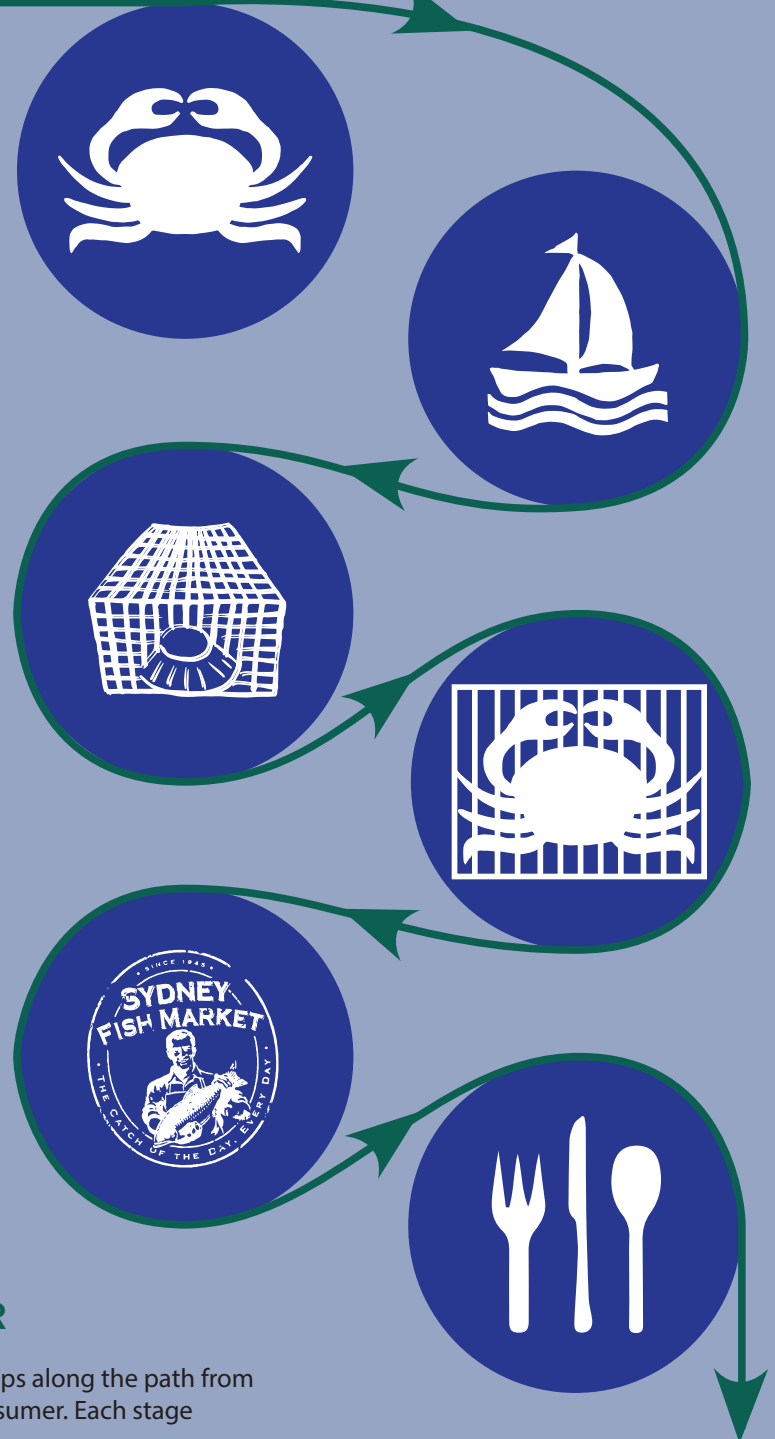
# ESTUARINE POT THEFT PROBLEM BACKGROUND

Commercial fishers are licensed to harvest and sell mud crabs; recreational fishers are permitted to catch small quantities but only for personal consumption. The theft of yield, and also catching pots, is well known but not yet quantified. It is understood that estuaries closer to populated areas have higher incidences of theft especially during weekends and holidays. Fishers have noticed an increase in the frequency of thefts.

A variety of pots are used – commercially made, home made, rigid and collapsible. Commercial and recreational fisheries regulations specify the size requirements and dimensions of the pots and the number of escape openings. Regulations also specify how many pots are permitted to be used by both commercial and recreational fishers. Pots are required to be marked by a float that will specify name (and if commercial, fishing licence number) to ensure that compliance officers can check correct number of pots.

Pots are baited and left to passively catch crabs, the pot is left unattended while crabs “smell” the bait and enter the pot. Mud crabs are highly prized and fetch high prices in seafood markets. This high price drives a thriving black market for mud crabs which is contributed to by both recreational and commercial fishers.

A discussion of possible solution directions is necessary with the rising incidences, and new and innovative measures will be required to prevent or discourage theft of mud crabs from estuarine pots in the future.



## JOURNEY MAP CRAB TO CONSUMER

The workshop reviewed all the steps along the path from crab growth to ultimately the consumer. Each stage revealed opportunities for theft.





# THE WORKSHOP

The NSW Professional Fisherman's Association in conjunction with the Fisheries Research Development Corporation pulled together a wide representation of participants from across Australia to join us for an intensive workshop addressing the theft issue. Facilitated by the Designing Out Crime Research Centre, the workshop demonstrated a unique multi-driver approach by addressing the problem space in a innovative and collaborative manner.

Friday July 15th, 2016  
Sydney Fish Markets  
9am - 5pm

## THE PARTICIPANTS

Patricia Beatty Executive Officer Professional Fisherman's Association	James Hohenhaus Officer QLD Boating & Fisheries Patrol	Darren Reynolds Fisheries Manager DPI	Tony Riesenwebber QLD Commercial Crabber	Paul Butcher Research Scientist NSW Fisheries
Ben Day QLD Commercial Crabber	Judy Lynne Member Sunfish/NRM	Maria Bobeldyk NSW Commercial Fisher	Lionel Riesenwebber QLD Commercial Crabber	Robert Gauta General Manager Newcastle Fisherman's Cooperative
Peter Jackson QLD Commercial Crabber	Will Bowman Aquatic Resources Manager NT Fisheries	Troy Billin NSW Commercial Fisher	Roger Burke QLD Entrepreneur	Chris Cleaver Product Manager Shimano Fishing Australia Pty Ltd
Kerrod Beattie Manager QLD Fisheries	Tristan Sloan Executive Officer AFANT	Danny Elliot NSW Commercial Fisher	Crispian Ashby Programs Manager FRDC	Julian Hughes Fisheries Researcher NSW Fisheries
	Chris Calogeras Representative NTSIC	Steve Ross-Kelly NSW Commercial Fisher	Skye Barrett Project Manager FRDC	

# WORKSHOP METHODOLOGY

With the aim of preventing or discouraging illegal interference with pots and crab catch, the workshop was designed using an evidence based innovation method which has been developed by the Designing Out Crime research centre specifically to deal with complex problems.

The workshop method used both analytical and creative exercises and tools designed to focus attention on the needs of victims.

Initially, the participants were asked to think about issues that arise at each stage of the 'crab to consumer' timeline:

1. Mud Crab
2. Location
3. Pots
4. Catch
5. Market
6. Consumer

These categories were chosen to understand the problem and what different prevention methods have previously been tried and tested. In discussion of previous solutions, we were able to identify aspects that might be useful and new directions that can be explored.

The following provides a description of the methods and objectives of each exercise undertaken by the workshop participants.

## WHAT:

Using a visual timeline from 'estuary to consumer' to help identify previous solution directions and potential pain points. The guiding questions for this stage were: "What has been tried before?" and "How successful have these methods been?"

## WHY:

Each fisherman and respective communities have different experiences based on their approaches and geographical conditions. Participants shared their experience and knowledge, which help us learn more about solution possibilities.

## WHAT:

Delving deeper into our journey map, participants were invited to discuss previous methods and what prevented their success as solutions. The guiding questions for this stage were: "What competing forces are at play?", "What are the deep underlying issues?"

## WHY:

This task encouraged deep and creative thought amongst our participants, we were able to identify the major areas of concern and any potentially positive aspects of past methods that might be useful in future conceptual development.

## WHAT:

This exercise sought to identify the stakeholders involved in situation. Stakeholders with a high degree of connection, agency and ability to impact upon crime were identified, as well as those people or organisations who are less directly connected. The guiding questions for this stage were, "Who has been involved so far? Who could be involved in the future?"

## WHY:

Thinking about who is currently affected by the issue provides a landscape overview of which groups and individuals could be involved in any future solution.

**JOURNEY  
MAPPING**

**EVALUATING  
PREVIOUS  
DIRECTIONS**

**STAKEHOLDER  
ANALYSIS**



## WHAT:

In the first stage of this workshop exercise, the participants sought to identify the values motivating the stakeholders that are affected by the issue. The question workshop participants asked was “What is important to each stakeholder?”

In the second stage, human-centered values were distilled from the responses to that question. Examples included ‘trust’, ‘stewardship’, ‘prosperity’, ‘justice’, etc. Participants then explored each theme in greater detail, using analogies, anecdotes, similes and antonyms to agree on a shared conceptual understanding of the theme.

## WHY:

The purpose of theme analysis is to identify and define the values that are commonly held among the stakeholders affected by the issue. Developing a deep, shared understanding of these positive values is crucial in designing interventions that will create the conditions for such values to flourish.

## WHAT:

A frame is an imaginative device that serves both a critical and creative purpose. It plays a role similar to the metaphorical lens: it allows new observations to be made, old problems to be interpreted differently, and new solutions to come to light. The way in which a problem or issue is framed is critically important to the manner in which that problem is interpreted or felt by those affected, as well as how it is managed by problem-solvers.

The creation of frames is a creative leap that draws inspiration from an exploration of the themes (stage 4), and can be quite a complex exercise in practice, involving many stages and activities. Explained simply using the theme of ‘justice’ as an example, a guiding question in frame creation might be: ‘what is an example of a situation in which a fisherman gets justice when his yield is stolen? How is the feeling of trust created, and how can we create or replicate that feeling in a new context?’

## WHY:

The value of a frame, and the types of insights it can offer, depends on how and where it is overlaid onto the problem context. For example, a frame could be used to look at the structure of a system (to provide, for example, ideas about how strict the penalties should be for those charged) or to define the ideal pathway for a key stakeholder (such as fishermen building a community to look out for each other).

## WHAT:

The participants were then divided in four groups lead by each facilitator. Using the insights and ideas generated by the frames created in stage 5, each group rapidly mapped a ‘solution development template’ for the possible solution directions. Each template generated ideas based on ‘action’ (form working group, construct prototype), ‘who’ (should be involved e.g. crab fisher, designer), ‘resources’ (e.g. Materials, specific technology) and ‘time’ (estimate). This exercise was completed in 40 minutes; however a thorough mapping exercise of this sort could be an invaluable tool in comprehending the challenges that face fishermen, and identifying solutions to these challenges.

## WHY:

In a design process, the design concepts provide new ideas about how to approach the problem; they indicate how a solution is likely to look. A phase of prototyping, testing and improving follows the concept development stage and precedes the implementation of ‘final’ concepts.

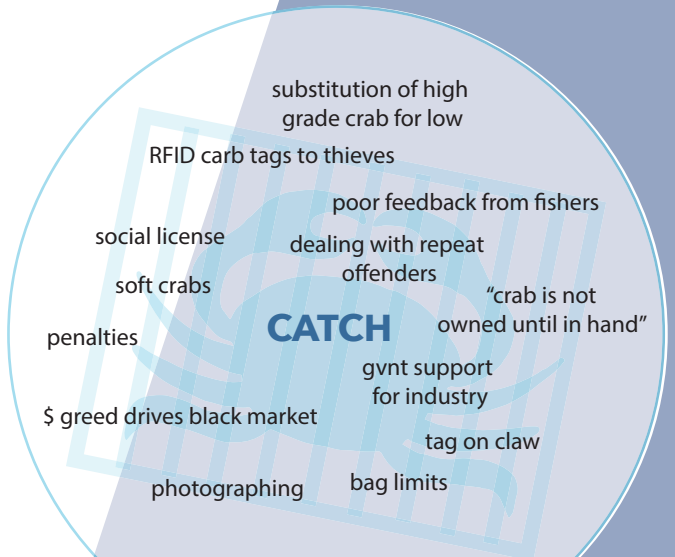
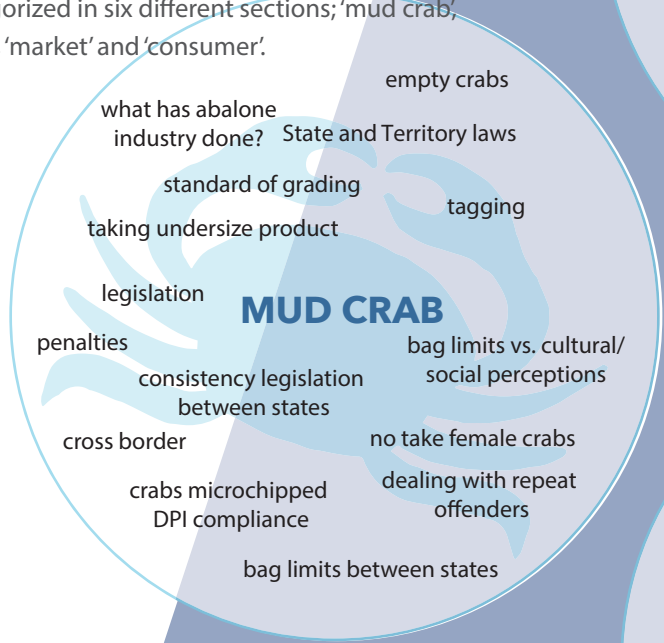
**THEME  
ANALYSIS**

**FRAME  
CREATION**

**CONCEPT  
DEVELOPMENT**

# REPORTING ON RESULTS

In Exercise 1 of the workshop, participants brainstormed issues and solutions present at each stage of the the journey. The responses were categorized in six different sections; 'mud crab', 'location', 'pots', catch', 'market' and 'consumer'.



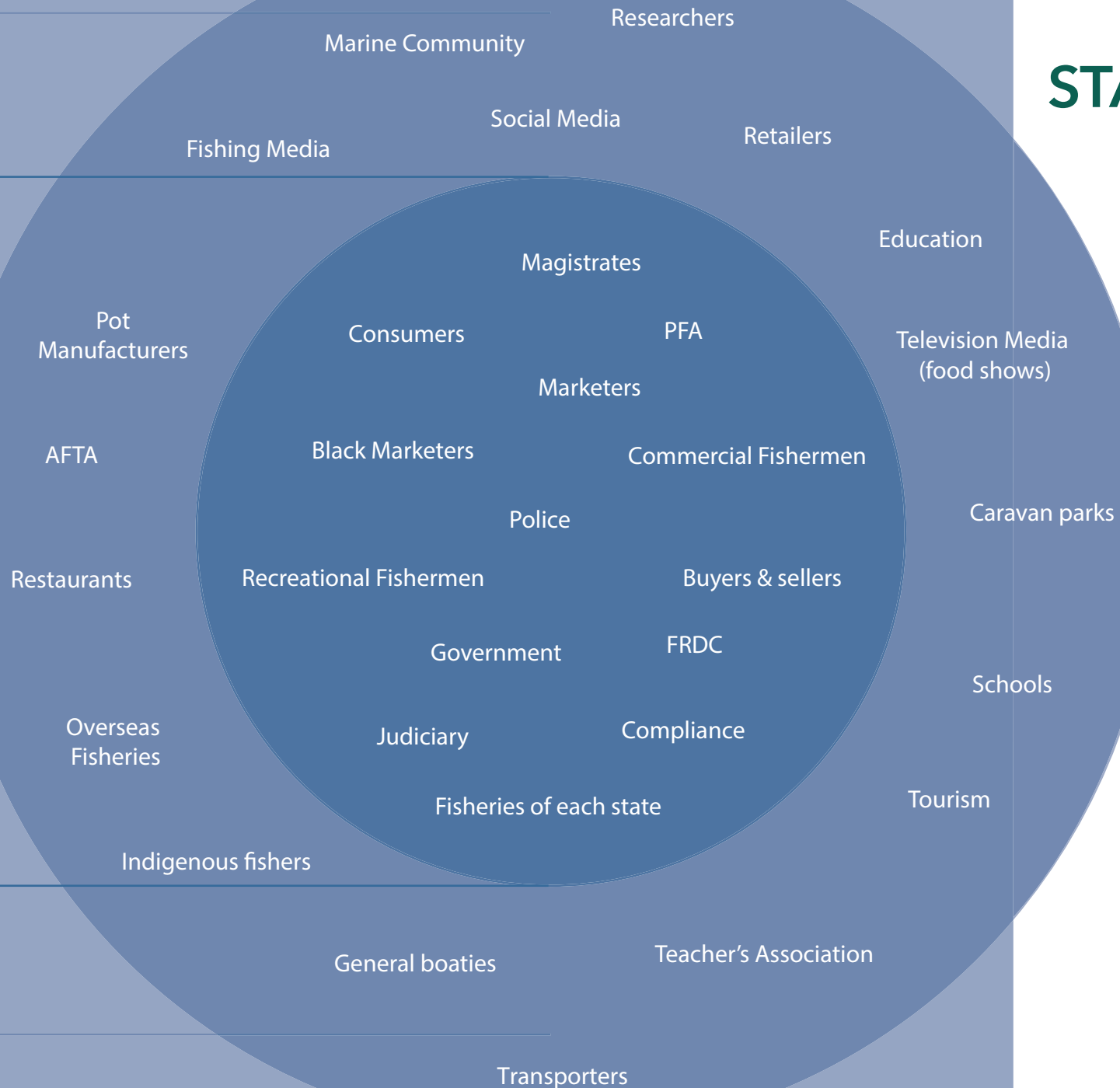
# IDENTIFYING STAKEHOLDERS

This diagram shows the stakeholders that were identified in our next stage of analysis. This exercise shows that there are multiple stakeholders who are, or could be involved in a solution to estuarine pot theft. It also reveals potential avenues for solutions that might not have been considered prior.

This list resulted from a rapid brainstorming session and is not exhaustive. Researching stakeholders in depth would provide a fuller understanding of the problem context and its players, and would represent a substantial body of work.

SECONDARY STAKEHOLDERS

PRIMARY STAKEHOLDERS



# SOLUTION DIRECTIONS





The concepts on the pages following are the result of the stakeholders workshop.

The concepts suggest potential solution directions that can be considered for further investigation

They are not 'finished products', but rather represent a solid starting point for further exploration of how the system can be remodeled to reduce the impact of estuarine pot theft.

# RESULTS

Many fisherman in NSW spend hours of their time planting the pots for their daily mud crab fishing only to find that all their worthy catch is lost with pots damaged or stolen altogether by some deceitful thief. This scenario is often heard from commercial fisherman in NSW and other states where the catch is later sold through black markets at the expense of commercial and recreational fishers.

The possible solution directions are necessary with the rising incidences and potential measures are required to prevent or discourage theft of mud crabs from estuarine pots.

This section outlines the main recommendations from the workshop. The ideas are still conceptual and require further development, but give a clear sense of the priority areas and issues identified. These approaches aim can build up a sense of security and trust within the fishing community.



**JUSTICE**

**AWARENESS**

**STEWARDSHIP**



**TRUST**

**INNOVATION**





# JUSTICE

Clarification of rules & regulations and a revision of their penalties would act as a deterrent for perpetrators and provide a secure support system for the fishing community.

Here are some potential solutions directed toward the final goal of justice. These solution directions rely on the cooperation of legal and government bodies with the marine community in order to progress.

**POLICE  
+JUDICIARY  
+LEGISLATION  
=JUSTICE**



## 1. LEGISLATORS & JUDICIARY

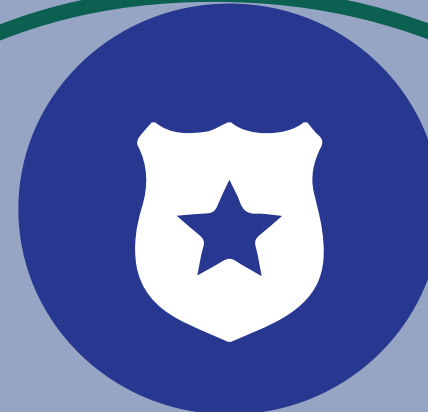
The issue of theft from estuarine pots appears to be of little priority to the relevant legal systems that are currently overseeing the issue (Police and Judiciary for eg.). The first step that needs to be taken is to ensure that jurisdictions are aware of how detrimental these crimes are to our Australian fishing industry. The scale of the impact on mud crab fisheries specifically is akin to the impact of shoplifting in the retail sector.

Actions that could be taken would include:

- a. Raising the profile of issue to police / enforcement agency / prosecutors / magistrates.
- b. Victims given access to standard 'Victim Impact Statement' (VIS template) that assists in then explaining clearly the impact

Estimated Timeline:

- Following funding, 35 hours to structure VIS template
- 6 months to 1 year for adaptation to system.





## 2. TOOLS TO ASSIST

In order to improve the way this theft issue is addressed within the legal system, we can bring awareness of estuarine pot theft to Police and other enforcement bodies, and work with them to improve on how they use their tools to assist in crime prevention.

- a. Standard reporting system to make it easier for police and victims
  - i. Crimestoppers
  - ii. eyewatch (NSW Police) and similar in other jurisdictions

Estimated Timeline:

- Following funding, 12 months



## 3. PENALTIES

There was a strong majority of those present at the workshop that believed the current penalties for those charged with tampering with pots did not fit the crime. Higher penalties for those charged, and also harsher punishments for those found to be repeat offenders would better match the impact that crimes have on fishers.

- a. Review current penalties across the jurisdictions and explore alternative penalty options such as:
  - On the spot penalties
  - Higher penalties for the repeated offenders (loss of boat/ fishing license, incarceration etc.)
- b. Make a case to legislators for a reconsideration of penalties to better meet the expectations of the fisher community

Estimated Timeline:

- Long term



# AWARENESS

The issue of estuarine pot theft is of a huge concern in the fishing industries in Australia, but it isn't a well known problem for the general public. Using specific avenues in order to spread the word and raise awareness would generate a sense of community support for the victims in a 'neighbourhood watch' style initiative.

**TARGET RESTAURANTS/  
CONSUMPTION  
=MARKETING  
+QUALITY**



## 4. SOCIAL MEDIA



Social Media is an extremely useful tool in dispersing targeted ideas and information quickly. Using this medium to raise awareness of the issue in a viral campaign would be ideal.

Actions that could be taken would include:

- Directing small story boards and video clips (positive stories) for YouTube on mud crab thefts
- Mobilisation of stakeholders across the Fisheries industry to participate in the campaign.
- Facebook advertising campaigns/events

Estimated Timeline:

- Marketing should be mainly targeted before summer or Christmas holidays in Southern states, in dry season (Winter) in NT
- Ongoing campaign.

Raising awareness of the black-market/legitimate market issue in conjunction with tourism advertising. Promoting local industry and legitimate recreational fishing, particularly in holiday periods. Cooking shows on television are a good platform to generate the effect of eating "Good Crabs" (the one which are bought legally from fisherman), or that you have caught yourself using approved recreational fishing methods.

Actions that could be taken would include:

- News and media campaign to advertise and spread the word, promoting mud crabs as a local delicacy
- Tourism industry, restaurants owners, and advertising agencies, students can play a vital role in developing such campaigns

Estimated Timeline:

- During busy summer period (in southern states), Dry season in the NT

Anticipated impact:

- Consumers become aware and discerning

## 5. FOOD TOURISM



## 6. "CERTIFIED - Good Crab"

Creating a certification program where retailers (seafood retailers and restaurants) display that they they only sell certified safe mud crabs/seafood. Educating customers on the importance of knowing that their produce is of a high quality and sourced legally and safely.

Actions that could be taken would include:

- a. Fishing industries, commercial fishing peak industry bodies, government together can create an awareness for consumers and retailers that only mud crabs bought legally from commercial fishermen can be sold in retail and restaurants.
  - i. A certification program that ensures good practice from the pot to the customer, linked in with existing food hygiene programs (including good practice packing and transporting, etc)
  - ii. Branding and advertising about the restaurants who buys only from commercial fisherman

Estimated Timeline:

- Ongoing certicication campaign



## 7. TAG

Marketing of a new system of tagging, raises awareness for the issue at the same time as implementing new manageable organisation of catch and ownership.

Actions that could be taken would include:

- a. adopting existing technology to a tagging system, options such as:
  - Traceability through Tagging system (by Smart phone)
  - RFID
  - Volunteers, compliance, FRDC and legislation can involve them to prioritise the system.

Estimated Timeline:

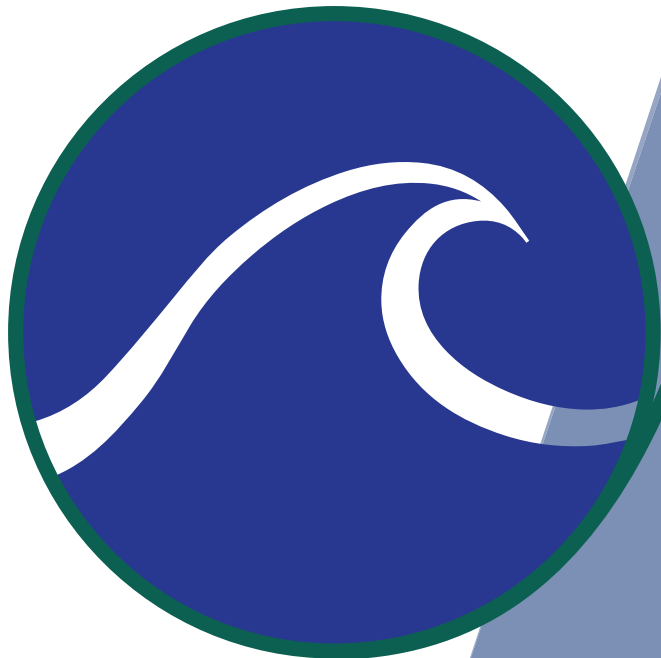
- 6 months - 1 year implementation, then ongoing revision, refining and marketing.



# STEWARDSHIP

Estuarine pot theft is an issue for both commercial and recreational fishermen. In collaboration with government bodies and sustainability programs, fishermen would benefit from maintaining a healthy habitat for their future prospects. By building a respected profile, the 'victimless crime' aspect of pot theft will be reduced.

**(HABITAT REHAB  
MANAGEMENT)  
STEWARDSHIP  
+GOOD HABITAT  
=CATCHABILITY**



## 8. UNITED REPRESENTATION



Individuals and associations can play an important role in creating a narrative of stewardship of the habitat.

Actions that could be taken include:

- a. United representation across jurisdictions, partnering on sustainability programs
- b. Fisheries and representative bodies come together to collaborate and promote a healthy physical environment

Estimated Timeline:

- Upto 6 months to develop a strategy

## 9. PROFILE BRANDING

Creating a strong profile and a character for the fisheries community will develop a branding effect on the consumers. This in turn will endorse the issue and cause responsiveness about the produce.

Actions that could be taken would include:

- a. Promoting the profile of Mud Crab Fishing
- b. PFA, Recreational, Government, UTS, Fish Habitat, Network, Environmental non-government organisations can promote the profile.

Estimated Timeline:

- Profiles can be developed within 6 months



# 10. FISHING CLINICS

Creating training programs for the future generation will help prevent such scenarios in the coming years. Education has always and will continue to play an important role in any system in generating awareness amongst the community. Awareness of legal means of fishing would remove excuses for pot thieves.

Actions that could be taken would include:

- a. Fishing clinics and Educational classes
- b. Schools, community groups, fishing camps, etc are good platform to create awareness

DPI could champion and promote these educational programs, engaging professional and recreational fishers in the delivery

Estimated Timeline:

- 6 months - 1 year implementation, then ongoing revision and refining.



The Crab Stewards program will help build a better community within the commercial and recreational fishers community. 'Volunteering' and 'looking out for each other' will strengthen the fishing process and gain trust and confidence with each other.

Actions that could be taken would include:

- a. Development of a 'CRAB' fishery stewardship strategy
  - i. Fisheries, Governments & NGO can then promote this program
  - ii. Time, personnel in-kind, contributors are essential in such programs.

Estimated Timeline:

- 6 months - 1 year implementation, then ongoing revision and refining.

# 11. CRAB STEWARDS



# TRUST

Changing the social perception and profile of the Crabbing Industry whilst simultaneously educating of its hardships and issues of theft will help generate community support. Recreational fishers include mum and dad crabbers who are fishing for fun or to feed their family. Educating those who are unaware of the theft issue and the impact it has on the marine community as a whole.

**AWARENESS  
+ EDUCATION  
+ SOCIAL LICENSE  
= COMMUNITY  
STANDING (TRUST)**



## 12. STAKEHOLDER EDUCATION

An internally focussed education campaign that provides up to date knowledge of what is happening as a result of the estuarine pot theft project. Actions that could be taken would include:

- a. For Recreational Fisherman
  - i. Challenging the notion that it is a victimless crime
  - ii. Making it easier for unexperienced recreational fishers to catch mud crabs legitimately

- b. For Commercial Fisherman

Information packs and delivery by passionate recreational fishermen, commercial fishermen, Indigenous Elders and DPI compliance educating the sector.

Estimated Timeline:

- Programs can be developed within 6 months



# 13. MEDIA EDUCATION

Connecting the issue with the people who are being effected will generate awareness and sympathy and get maximum exposure about the impact of theft.

Actions that could be taken would include:

- a. "Champion / Figure "can be used to generate hype
- b. Innovation, showing how the latest technology makes mud crab theft risky
- c. Emphasizing on real people, pictures and stories
- d. Lobby production companies, Media organization & personalities get involved in the campaign.
- e. Messages need to be consistent and results should be tracked and measured
- f. Campaign with a timeline – For example replicating the successful 21 days to change a habit.

Estimated Timeline:

- Immediate action with funding



# 14. CURRICULUM EDUCATION

Curriculum education as a part of current education system will help in creating preventive measures for future generations.

Actions that could be taken would include:

- Depart of Education, teacher's union; stakeholders with a unique career path should prepare a education program.
- Teachers should be provided with required resources, funding, instructional materials and expert support with training.

Estimated Timeline:

- Long term



# INNOVATION

Systems of innovation and invention that are defined by a combination of new technologies and years of fishing experience and knowledge. Utilising what we already know and pushing this understanding toward future innovation technologies.

**FUTURE  
+QUALITY  
+CATCHABILITY  
=INNOVATION**



## 15. TAGS

A tagging system was identified by the workshop participants as having great potential as a solution direction. A system that gives them confidence and hope in solving the theft issue could be met with enthusiasm by the broader sector.

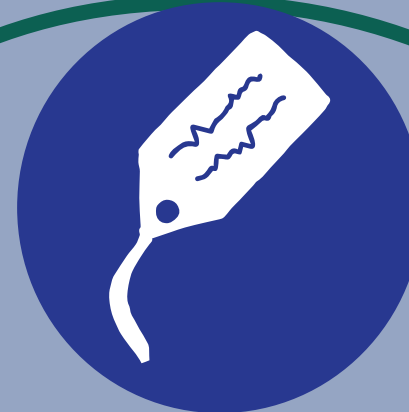
Actions that could be taken would include

- a. Develop a tagging system with stakeholders that is easy to use and assists in the efficiency of the pot to table journey.
- b. Investigate business cases for legislative led vs market led adoption of tagging system.

- Would assist with registration for commercially caught crabs
- Marketing opportunity for particular fishers/coops
- Making compliance easier to track

Estimated Timeline:

- Immediate investigation following funding





## 16. BUOYS

Mud crab pots in non-shallow water are easy to find by thieves largely because they are marked by buoys. It is legislated that buoys need to be attached to pots. By exploring the latest technology in the fishing industry, and more broadly, there is the possibility to find and create new solutions.

Actions that could be taken would include:

- a. Submersible buoys
  - Would require investigation and legislative change
- b. Above water
  - i. Mark to differentiate between commercial & recreational pot's floats (still does not solve the fellow commercial fishers' theft)
  - ii. POTWATCH App, neighbourhood watch for mudcrabs

Estimated Timeline:

- Immediate investigation following funding



## 17. POTS

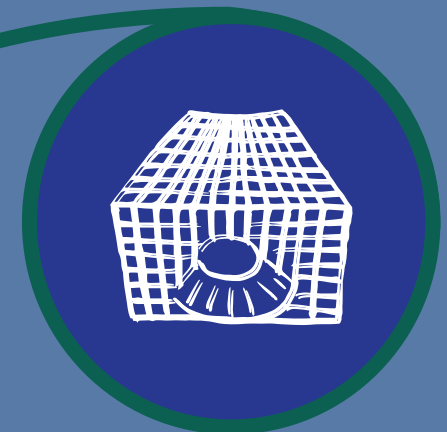
The pot is the most important tool for any mud crab fisher. Developing an innovative trap to help secure the yield will make the fisher feel confident and assured at the same time.

Actions that could be taken include:

- a. Design of new trap options, with the following characteristics:
  1. A trap that is theft resistant
  2. That is at least as efficient at catching crabs as existing options
  3. Easy to use and adaptable
  4. Designs out ghost catch
- b. Augmenting existing pots with technology:
  - i. Surveillance creating a best practice guide for Fishers who wish to use CCTV surveillance on or near the pot.
  - ii. Exploration of other surveillance options such as Tsunami buoy technology, drones, etc.
  - iii. Tag technology using GPS will help in better marking of the pots

Estimated Timeline:

- Immediate investigation following funding



# NEXT STEPS

The workshop identified a number of potential pathways forward and participants agreed that not one pathway alone would mitigate the impact of estuarine pot theft.

This report is submitted with 17 recommendations.

It was agreed at the workshop that the recommendations be presented as potential research directions and provide “solid starting points”.



Solution Direction	Enabling Partner	Engagement Action
<b>1. Justice: Legislators and Judiciary</b>		
<b>1a. Ministerial and Government liaison</b>	Key Government Ministers (eg. Attorneys General, Police, Primary Industries, Fisheries) and Departments	Strategic communications strategy developed and implemented (meetings with staffers, Ministers, relevant officials and dissemination of key facts through formal letters and information packs.)
<b>1b. Judiciary</b>	Police prosecutors	Develop and disseminate a standard Victims Impact Statement so that the Judiciary begins to receive a consistent voice from victims on the impacts of this crime.
<b>2. Justice: Tools to Assist</b>		
<b>2ai. Standard reporting systems</b>	Crime Stoppers	Meet with senior Crime Stoppers representative and discuss options for utilising the crime Stoppers network to improve reporting options
<b>2aii. Police social media</b>	Police agencies	Meet with senior police to explore how their social media networks (eye-watch in NSW, Vic, QLD) can be utilised to target theft from estuarine pots
<b>3. Penalties</b>		
<b>3a. Review current penalties and alternatives</b>	Researchers	Engage a qualified researcher to conduct a review of current penalties and alternatives
<b>3b. Make a case to legislators to reconsider current penalties</b>	State and Territory Governments	Following from action 1a. strategically engage staffers, ministers, and officials to receive recommendations through formal industry submissions.

Solution Direction	Enabling Partner	Engagement Action
4. Awareness		
4a. Social media	Production company and/or students	Engage with production company and/or students to produce a series of short video clips
4b. Dissemination strategy	Fisheries industry, Advertising agency, Fishers, and others	Engage and mobilise distribution channels
4c. Facebook events	Social media specialist	Engage a specialist to develop and implement a facebook event/campaign
Marketing: Food Tourism		
5a. Promotion strategy for hotspot locations	Local media, tourism agencies	Produce local news stories and cooking show content for TV and print that promotes mud crabs as a local delicacy, available in restaurants and by legitimate recreational fishing
5b. Content development	Tourism industry, restaurant owners, recreational fishers, advertising agencies, marketing students	Engage a body of knowledge specialists, and content developers to develop the collateral for the campaign.
6. Marketing: "Certified - Good Crab"		
6a. Cross agency working group	Fisheries, Recreational fishers, Government, Food Industry, Transporters	Engage supply chain in a process to develop a certification program that promotes safe and legal crab
7. Marketing: Tag		
7a. Market the introduction of a new tagging system through developing the system with stakeholders	System developers, legislators, professional and recreational fishers, marketers	Market action 15 to those who were not involved in the development of the new tagging system.

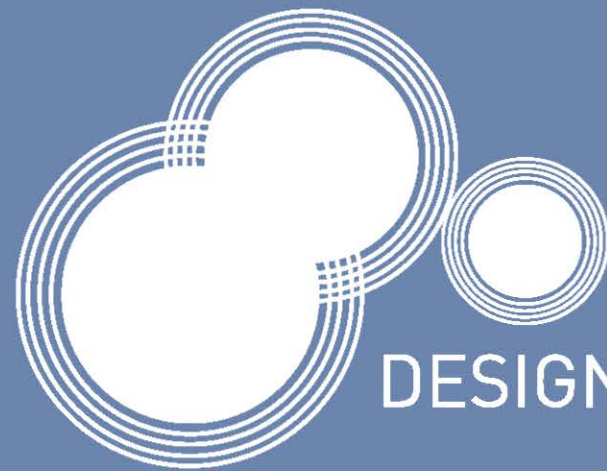




Solution Direction	Enabling Partner	Engagement Action
<b>Stewardship</b>		
8. Stewardship: United Representation	Sector support, Sustainability grant schemes	Create a narrative internally for the sector to take on stewardship of the estuarine environment. Partner with Sustainability grant providers to fund projects that reinforce this.
9. Stewardship: Profile Branding	Branding agency and/or marketing students	Engage branding agency and/or students to develop a brand for mud crabbers that shows them as stewards of the estuarine environment
10. Stewardship: Fishing Clinics	DPI, Tourism, schools, community groups	Develop a program of fishing clinics for roll-out across hotspot locations. Fishing clinics will promote legal recreational fishing.
11. Stewardship: Crab Stewards	Professional and recreational mud crab fishers	Develop a program that engages members as stewards of the estuarine environment, both from an environmental sustainability and industry sustainability perspective
<b>Trust</b>		
12a. Trust: Stakeholder Education - Recreational fishers	Education campaign developer, distribution channel	Develop an education package/strategy targeting recreational mud crab fishers to, update them on emerging issues as a result of this project, make legitimate fishing easier and to highlight the harm that theft creates, and the penalties
12b Trust: Stakeholder Education - Professional Fishers	Education campaign developer, distribution channel	Develop an education package/strategy targeting professional mud crab fishers that brings them up to speed on developments from this project.
13 Trust: Media Education	Media partners, campaign developer, industry participants	Develop a mud crab theft specific media campaign that complements the Marketing Food Tourism actions. This campaign will highlight the risks of stealing and the impact it has on 'mum and dad' fishers.
14 Trust: Curriculum Education	Departments of Education, Curriculum developers	Develop additions to school curriculums that help to create the next generation of mud crab fishers. A generation who is respectful of the estuarine environment, of mud crabs, and of their fellow fishers.



Solution Direction	Enabling Partner	Engagement Action
Innovation		
15a. Innovation: Tagging system	Systems designer	Engage a systems designer to create and develop a new integrated tagging system utilising existing tags and technology.  Test refine and scale either through legislation, or through finding cost efficiencies in the new system that makes voluntary adoption attractive
15b. Innovation: Investigate need for market led vs legislative led adoption of tags	Legislators	Create business cases for market led adoption and legislative led adoption of the tagging system and take these to the industry for consultation.
16. Innovation: Buoys	Entrepreneurs, Innovators, legislators, industry	Explore alternatives to the existing system through a 'hackathon' style event that invites entrepreneurs, innovators, and industry to create alternatives. Select the winning design and then test refine and scale either through legislation, or through finding cost efficiencies in the new system that makes voluntary adoption attractive
17. Innovation: Pots	Entrepreneurs, Innovators, legislators, industry	Explore alternatives to the existing system through a 'hackathon' style event that invites entrepreneurs, innovators, and industry to create alternatives. Select the winning design and then support the winner through a process of testing refining and scaling to market.



DESIGNING OUT CRIME