

**Consideration of Recreational Catch
Tags for the Tasmanian non-
commercial rock lobster fishery**

April 2016

**Report to the Minister for Primary
Industries and Water**

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EXECUTIVE SUMMARY

This paper has been prepared to assist the Minister in considering the use of catch tags to support the management of the annual recreational rock lobster catch from the East Coast stock rebuilding zone (ECSRZ – Eddystone Point south to Southport).

The essential questions to consider are -

- (1) will catch tags be effective in managing the total take of rock lobster by recreational fishers in the ECSRZ within its notional allocation to support the East Coast stock rebuilding strategy
- (2) If the answer to (1) is yes, what are the costs with the implementation and do these make the use of catch tags feasible.

The objectives of the use of catch tags need to be very clear. Catch tags are a mechanism to support a particular management framework. They are not a stand-alone management measure or management outcome in themselves.

It has been suggested that tags may serve a number of purposes, including:

- providing a mechanism to explicitly cap the recreational catch (through an individual seasonal allocation as the Quota Management System Total Allowable Catch does for the commercial sector);
- providing a mechanism to support a maximum individual seasonal limit for recreational fishers;
- to assist in resource sharing within the recreational sector and stop large individual annual catches;
- to measure the quantum of the recreational catch;
- to assist enforcement.

To date, catch tags and individual season limits are not established recreational fisheries management tools in Australia or internationally and remain largely untested. Catch tags are used in hunting and game management for various purposes, including limiting the total take, estimating harvest and facilitating compliance. The success and acceptance of catch tags in game management appears to relate to comparatively small numbers of participants and expectation of low season harvest limits.

Catch tags were used between 2003 and 2015 for Western Australia's Shark Bay Snapper Fishery to limit the catch in a part of the fishery to 5 tonnes, being 1,200 fish/tags (900 for recreational fishers and 300 for commercial fishers).

Based on the number of licensed recreational fishers, a catch tag model to explicitly cap the recreational catch by issuing only sufficient tags to ensure the amount of lobster caught in the ECSRZ is constrained within the annual 42 tonne notional recreational sector apportionment underpinning the East Coast Stock Rebuilding Strategy would see each licensed recreational

fisher issued 2-3 tags (i.e. lobster). This equates to 2 days fishing per season at current daily catch limits. Such a restrictive level of catch for an individual recreational fisher would likely generate significant opposition from the recreational sector and affect recreational fishers' attitudes towards compliance, thus creating enforcement issues.

Institute for Marine and Antarctic Studies (IMAS) data for the 2014/15 recreational rock lobster season shows that an individual season limit of 15 lobsters or less would be required in combination with the implemented daily bag limit reduction from 3 to 2, to have any likelihood of constraining the recreational catch from the ECSRZ to the 42 tonne notional apportionment. A potential model to achieve this would be;

- retaining existing recreational bag, possession, boat limits and seasons for the non-commercial fishery for the Eastern Region (Point Sorell, mid north coast east to Whale Head, south coast).
- introduction of annually reviewed individual recreational fisher seasonal limits for the Eastern Region administered by catch tags with an initial allocation of 15 tags (Noting that Marine Police has advised that a catch tag system should be introduced for the whole Tasmanian rock lobster fishery and not only for the Eastern Region).

Such an allocation would inevitably affect more “average recreational fishers” and correspondingly, likely be more strongly resisted by the recreational sector. Whilst the average seasonal catch is less than 10 lobsters per fisher, IMAS survey data of Tasmanian recreational fisher attitudes suggests that the seasonal aspirations of an average fisher is much higher than 15 lobsters.

An individual season limit system will not explicitly limit the recreational catch each year within the notional 42 tonne allocation and will require review / adjustment each year in light of the latest catch estimates to achieve the objective.

The options for “pulling existing management levers” harder or adding other new tools to the mix are limited. An individual seasonal limit administered through a tagging system is potentially deliverable and could, if effective, provide a useful tool, as part of the current management package, to further constrain individual activity and cap the maximum seasonal catch of individual fishers. It may also assist resource sharing within the recreational sector and enforcement. However, any further measures to constrain recreational take will be unpalatable to, and opposed by, recreational fishers.

A catch tagging system will not however provide a more accurate estimate of the recreational catch.

A number of critical and potentially complex issues would need to be resolved regarding the details of any potential system and how it might operate to implement a catch tag system. These issues (tamper proof / secure tags and policy for dealing with lost tags in particular) are significant risks and have the potential to completely undermine the viability of the system.

The ECSZR lies within the Eastern Region, which is a defined 'recreational management area' in the Rock Lobster Management Plan. The Eastern Region boundaries were determined for practical enforcement purposes and therefore any new catch controls such as an individual seasonal limit targeted at the ECSZR would need to apply to the entire Eastern Region as a minimum.

The Marine Police have expressed a very strong view that any tagging system must be statewide, not regional – otherwise effective enforcement is severely compromised, as once east coast lobsters have left the point of landing there will be no offence for rock lobster not being tagged.

There is a cost in the administration of the system and a regulatory burden on each fisher involved irrespective of their actual level of activity. A catch tagging system is relatively complex with hundreds of thousands of unique tags. Operationally, additional new regulations would apply to each recreational fisher. The acceptance of these regulations will influence recreational fisher acceptance of catch tags which in turn will influence levels of compliance and thus the enforcement task.

Additional regulation adds complexity to the enforcement and prosecution tasks of enforcement officers.

The implementation of a catch tag system supporting an individual seasonal limit may have unintended consequences, seeing "average fishers" changing fishing behaviors to increase fishing activity in attempts to ensure that they catch "their seasonal quota" to achieve value from their licenses or having family members take out licenses so that the catch entitlement for the family unit is increased. This may compromise constraining the recreational catch to within the 42 tonne seasonal notional apportionment in the ECSZR.

The practical issues of data requirements to account for potentially 600,000 unique catch tags (based on a State wide system for approximately 20,000 fishers with 30 tags each) and the processes for distribution etc. are significant and require resolution, presenting risk to successful implementation.

Specific consideration would need to be given to the complexities that would apply to the administration of catch tags for Aboriginal fishers engaging in Aboriginal fishing involving rock lobster.

The cost of the implementation of either an Eastern Region or a State wide catch tag system has been estimated at \$275,000. The ongoing annual cost of administering a State wide catch cap system has been estimated at just over \$400,000 per annum.

The current cost of a recreational rock lobster licence is \$51.80. Should a catch tag system be introduced assuming full cost recovery, recreational rock lobster fishers would need to pay an additional \$25 for their fishing licence.

Major risks to the implementation and ongoing administration of an effective individual season limit / catch tag system have been identified:

- Disallowance of required amendments to the *Fisheries (Rock Lobster) Rules 2011* by the Legislative Council;
- Major opposition to catch tag implementation by recreational fishers leading to low levels of compliance;
- Re-use of tags and ineffective enforcement resulting in objectives of constraining recreational catch in ECSRZ to the notional 42 tonne apportionment failing to be achieved (leading to criticism of the system by all stakeholders).
- Complexity of regulations makes enforcement and prosecution of breaches of compliance problematic.
- An effective solution for dealing with the issue of lost tags cannot be identified resulting in either a fundamental flaw in the catch tag system or strong disenchantment with system for recreational fishers.
- Unforeseen costs in system development and tamper proof tags could increase the costs of and delay implementation.

Unintended consequences may see the objectives of implementing the catch tag system failing to be met or even compromised.

INTRODUCTION

The Minister for Primary Industries and Fisheries has endorsed the East Coast Rebuilding Strategy designed to rebuild rock lobster biomass on the East Coast of Tasmania to greater than 20% of virgin biomass in ten years (by 2023).

IMAS modeling shows that to achieve the strategy objectives, the total annual take of rock lobster on the East Coast must be constrained to 200 tonnes in the East Coast Stock Rebuilding Zone (ECSRZ) for the life of the strategy. A catch cap for the commercial fishery was implemented in the 2014/15 rock lobster quota period as the key tool to constrain the annual commercial catch on the East Coast.

In October 2015, the Minister for Primary Industries and Water amended the *Fisheries (Rock Lobster) Rules 2011* to introduce additional measures (reduced daily bag limits, possession limits and boat limits) to constrain the take of rock lobster by recreational fishers in the Eastern Region. This action was taken in recognition amongst other things that the recreational take from the ECSRZ in the 2014/15 season had exceeded the notional apportionment to the recreational sector by approximately 10 tonnes.

In December 2015, the Minister advised the Tasmanian Rock Lobster Fishermen's Association (TRLFA) and the Tasmanian Association for Recreational Fishing (TARFish) of his decision to fix the share of the total annual rock lobster catch from the ECSRZ at 79% to the commercial sector (158 tonnes) and 19% to the recreational sector (42 tonnes) until the rebuilding target is reached or 2023.

While the annual commercial take can be effectively constrained to the 158 tonne share through the use of the catch cap and quota management system, constraining the catch for the recreational sector to its 42 tonne apportionment is problematic given the comparatively imprecise nature of the input based management controls used to limit the catch.

Both the TRLFA and TARFish have expressed concerns regarding the effectiveness of the current suite of management measures for constraining the recreational catch, particularly as East Coast rock lobster stocks re-build.

The Minister in recognising the potential risks to the East Coast rock lobster stock rebuilding strategy of an annual recreational take on the East Coast that cannot be effectively constrained, has directed the DPIPWE to prepare an options paper on the potential use of tags to support the management of the recreational take of rock lobster from the ECSRZ.

This paper has been prepared to assist the Minister in his consideration of the use of catch tags to support the management of the annual recreational rock lobster catch.

The fundamental issue which is the core of the management challenge is that the 200 tonne annual catch limit needed to rebuild stocks for a 10 year timeframe is insufficient to meet the competing expectations and aspirations of both the commercial and recreational sectors.

The use of tags in the management of the recreational rock lobster fishery has been strongly advocated by the TRLFA and some recreational fishers / groups as the “solution” to the regulating the recreational catch for a number of years.

However, the objectives to be delivered by a tagging system differs amongst proponents. Proponents from the commercial sector consider that a tagging system provides a means to constrain the total recreational take to a precise amount, providing an accurate count of the recreational rock lobster annually harvested and reducing the illegal harvest by recreational fishers.

Many recreational proponents see catch tags as a means to limiting individual fisher seasonal catches to a “reasonable” level, thus supporting a more equitable sharing of the resource within the recreational sector.

There are complex issues relating to the use of tags to support the delivery of both of these objectives that will be explored in this paper – essentially the costs versus the benefits and the risks.

Most importantly, it must be understood that tags are simply a mechanism to support a particular management framework. They are not a stand-alone management measure or management outcome in themselves

Given the Minister’s determination of the resources sharing arrangements on the east coast the key imperative is to identify the appropriate management measures that will enable the harvest of rock lobster from the ECSRZ by recreational fishers to be constrained to 42 tonnes per annum for the life of the stock rebuilding strategy.

To be effective any management measures have to deliver fishery management objectives at acceptable cost and acceptable risk.

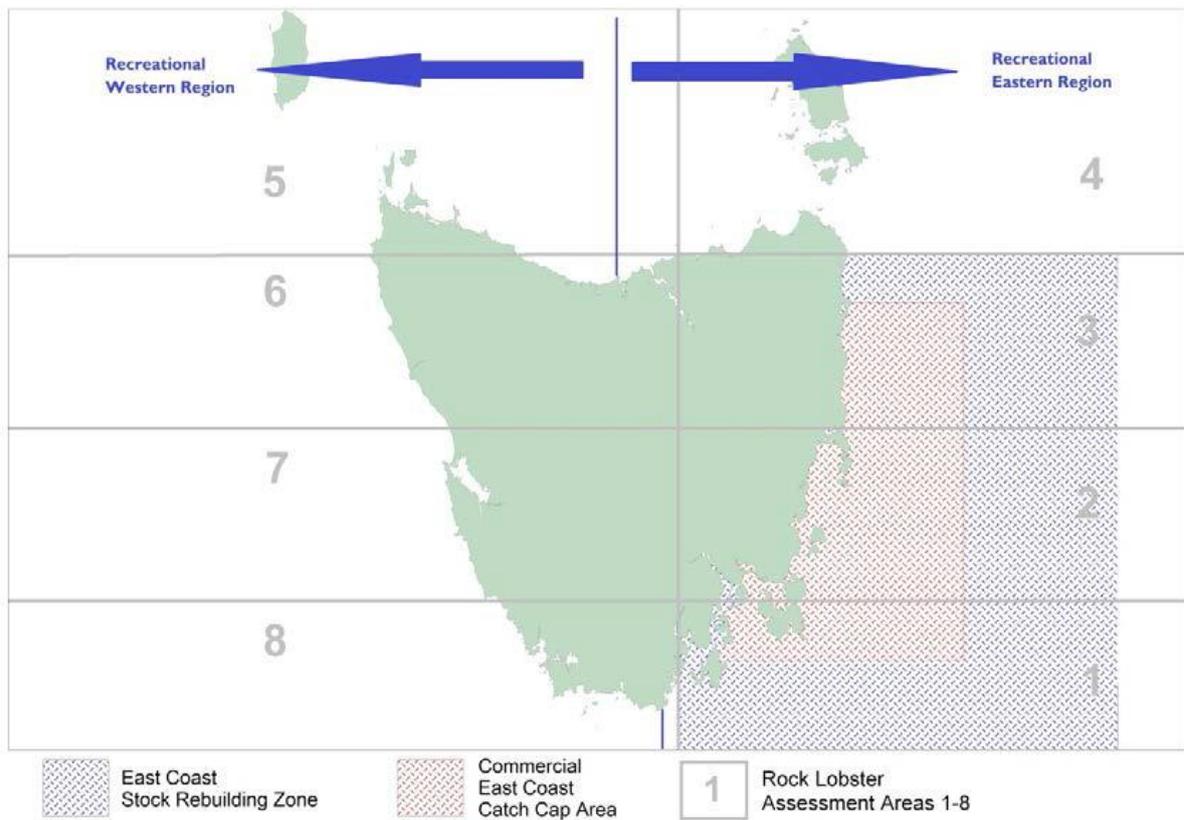
The use of tags to support the management of the recreational rock lobster harvest will be explored in this context in this options paper.

Recreational catch information used in this paper is primarily based the published IMAS report¹ for the 2014/15 fishing season.

The area and terminology used in this paper is depicted in Figure 1.

¹ Lyle, J.M. and Tracey, S.R. (2016). *Tasmanian recreational Rock Lobster and Abalone fisheries: 2014-15 fishing season*. Institute for Marine and Antarctic Studies Report, 42p.

Figure 1. Map depicting the Eastern Region and East Coast Stock Rebuilding Zone



The ECSRZ extends from Eddystone Point (North East) south to Southport (South East). The boundaries of the ECSRZ align with the boundaries of the IMAS stock assessment areas 1,2 and 3 combined, to streamline scientific monitoring and assessment of the stocks in the parts of the East coast that are of most concern.

The commercial catch cap area sits within the ECSRZ, but the boundaries do not align with the ECSRZ for commercial operational reasons relating to single zone fishing restrictions.

The Eastern Region is a ‘recreational management region’ which extends from Point Sorell (North Coast) to Whale Head (South Coast). This management region was incorporated into the Rock Lobster Management Plan in 2011 to facilitate different recreational catch controls between the eastern and western halves of the State. The boundaries were determined for practical enforcement purposes and therefore any new recreational catch controls targeted at the ECSRZ would need to apply to the entire Eastern Region.

OBJECTIVES OF CATCH TAGS

Overview

The fundamental question is “how can catch tags be used in a cost effective, low risk way to assist in limiting the recreational catch each season?”. Within this broad objective there are a number of different ways that catch tags could be used, with different levels of complexity, acceptability, costs and benefits and risk. The level of complexity relates to whether the objective is to explicitly limit the annual catch through an individual allocation or notionally limit the catch each season through an individual season limit.

Other considerations include whether catch tags would complement or replace some existing input controls and whether a catch tag system needs to be applied to Eastern Region or State-wide. The use of catch tags have also been suggested for improving enforcement, resource sharing (including catch equity within the recreational sector) and calculating the recreational catch. A brief evaluation against these objectives is discussed below.

Use of catch tags with an Individual allocation to explicitly constrain east coast recreational catch.

An individual allocation each season, could explicitly constrain the east coast recreational catch through allocating a share of the recreational catch allocation as a set number of tags.

Explicitly limiting the recreational catch to a set seasonal level would operate by dividing the ‘notional recreational catch’ by the average rock lobster weight to achieve a number and then issuing the corresponding number of tags. An explicit and rigid annual total catch allocation system would only be possible by operating it in accordance with the principles that apply to the commercial quota system. For the East Coast Stock Rebuilding Zone (ECSRZ), the total catch (42 tonnes) would be divided by the average weight of the fish to derive the allowable number of fish. The number of fish is then divided by the number of licences ‘anticipated’ for the season.

Under this system each tag is deemed to be 1 rock lobster harvested.

In 2014/15, 19,300 rock lobster licences were issued. The average weight of rock lobster derived from surveys for the ECSRZ is 940 grams. To constrain catch to 42 tonnes for this number of licences, and to give every recreational rock lobster licence holder access to the east coast (areas 1-3), each fisher would be allocated 2 - 3 tags (i.e. 2-3 lobsters) for the season for fishing in the ECSRZ. If the allocation was somehow restricted to the number of active participants, that is licence holders who did at least one fishing trip, (survey estimate ~11,000 in 2014/15) in the eastern region, then the allocation would be 4-5 tags, i.e. around 4 - 5 lobsters.

Under current bag limits this is effectively restricting fishers to 2 days fishing on the east coast per year. Such a restrictive level of catch in the ECSRZ for an individual

recreational fisher would likely generate significant opposition from recreational fishers and affect attitudes towards compliance creating enforcement issues.

The variation in the participation (days fished) and fishing levels (annual catch) also makes an individual quota allocation somewhat problematic. Of particular relevance is the number of fishers who take out a licence and may not actually fish, an allocation system assumes a licensee would fish and would be issued the catch tag allocation. In reality peoples' intentions and circumstances may change with time and therefore are unpredictable.

In 2014/15, recreational fishing survey data shows that 19,306 people had a recreational rock lobster licence, but only about 75% (14,500) actually went fishing and only 11,500 (60%) actually caught a lobster.

Other major issues include:

- Process regarding 'forecasting' the number of licences to determine the number of tags to be allocated to fishers would be contentious each year;
- Any increase in licence numbers would see individual allocations further reduce;
- Tag design would require high levels of security, i.e. tamper proof/not be able to be reused;
- Policies re "no tag - no fishing", replacing lost tags etc would need to be draconian if catch tags were to be effective and loopholes to avoiding their use created.
- Consideration would need to be given to policy regarding the transferability / sale of tags between licensed recreational fishers. Transferability of catch tags would increase administrative complexity and costs.

Use of catch tags with an individual season limit to indirectly constrain east coast recreational catch

An individual season limit would set the maximum number of lobster that an individual recreational fisher can take in one season (fishing year), with each licence being issued the relevant number of catch tags to facilitate compliance with the season limit. The rationale / methodology behind setting "the number" makes this very different to the individual allocation discussed above. An individual limit explicitly limits the catch of each fisher, but not the sector as a whole.

Data collected and surveys undertaken by IMAS would be crucial for assessing the potential impacts of different levels for a seasonal limit, and potentially setting (and subsequently reviewing) any seasonal limit introduced. Catch estimates through the annual IMAS rock lobster surveys could be compared to the east coast notional recreational catch allocation (42t). IMAS can provide advice on the theoretical impact on east coast catch if different levels of individual Eastern Region seasonal limit had been applied. This advice could then be used to guide setting the individual Eastern Region seasonal limit for the next season.

For example, IMAS has modelled the data collected for the 2014/15 recreational rock lobster season to estimate the potential impacts of different management arrangements from that catch year. Note the seasonal limit simulations are based on fishing data when the daily bag limit in the Eastern Region was 3.

Simulations of different levels of individual Eastern Region seasonal limits and the corresponding reductions in catch from the ECSRZ were made as below. This is compared to the simulated effect of the new bag limit.

Table I

Management Control	Catch estimate (t)	Tonnes saved	% reduction
Seasonal limit 5	28	27.6	49.6
Seasonal limit 10	40.8	14.8	26.6
Seasonal limit 15	47.2	8.4	15.1
Seasonal limit 20	50.8	4.8	8.6
Seasonal limit 30	53.7	1.9	3.4
Bag limit 3 to 2	48.7	6.9	12.4

The major difference between an individual allocation and an individual seasonal limit is that the potential catch constraint impacts the high catching fishers, therefore more significantly impacting on avid fishers and not the average fisher.

From the 2014/15 survey, 6% of fishers reported a catch of more than 20 lobsters for the season, and around 3% took more than 30. As such, an individual Eastern Region season limit of 20 would theoretically affect a relatively small number of fishers in terms of their current access to the east coast but would likely fail to constrain the seasonal recreational catch of rock lobster on the East Coast to the sectors apportioned notional 42 tonnes.

The IMAS scenarios suggest that an individual Eastern Region season limit of 15 or less would be required in combination with the bag limit reduction from 3 to 2, to have any likelihood of constraining the recreational catch from the ECSRZ to 42 tonnes. Such a level would inevitably affect more “average fishers” and correspondingly, likely be more strongly opposed by the recreational sector.

It is also important to understand that an individual Eastern Region season limit system will not explicitly limit the recreational catch each year within the notional 42 tonne east coast allocation and will require review / adjustment each year (likely to be a contentious process) in light of the latest catch estimates to achieve the objective. The effectiveness in constraining the actual recreational catch in a season will depend on the seasonal limit determined, other management levers (bag limits, seasons etc) and fisher behaviours.

Other major issues include:

- Unintended consequences of low catching fishers increasing their fishing perceiving the seasonal limit as a target/ “quota” allocation to be caught rather than a limit (particularly given the increased cost in the licence fee – may lead to fishers catching more fish to get “value’ from taking out a licence);
- Total number of tags would not equal a sustainable level of fishing or the notional allocation;
- Tag design would require high levels of security, i.e. tamper proof/not be able to be reused;
- Policies re “no tag - no fishing”, replacing lost tags etc would need to be draconian, risking disaffection of the recreational sector, if catch tags were to be effective and loopholes to avoiding their use created.
- Annual determination of the individual season limit likely to be contentious and thus resource intensive to manage.
- There will be criticism that the individual season limit is being applied to the entire Eastern region not just to the ECSRZ.

Summary: A key issue for a catch tag system that might be introduced is that it may not be supported/accepted by recreational fishers due to the number of tags issued. That is, the catch limits imposed (for stock rebuilding) and the sectors allocation within those limits, do not deliver the level of access desired by the recreational sector to which it considers it has an entitlement. As such, any public resistance to a tagging system and the individual seasonal limit may be due to disaffection with the resource sharing/stock issues rather than necessarily the basic premise of an individual seasonal limit.

In addition widespread lack of acceptance to the introduction of catch tags risks potential compliance issues requiring increased enforcement with the attendant cost or compromised effectiveness with respect to constraining catch.

Tagging systems do not deliver a ‘silver bullet’ for addressing those basic and fundamental aspirational issues within a stock rebuilding process.

Use of catch tags to address resource sharing issues within the recreational sector

Catch tags could be used to address resource sharing issues within the recreational sector by reducing the ability of any individual fishers to take a high number of lobsters during the season. It may assist reducing the angst towards divers who tend to be more successful in achieving their bag limits or the avid pot fishers.

Again the rationale / methodology behind setting “the number” in this situation makes this model very different to the individual allocation and individual Eastern Region seasonal limit discussed above. The limit to the number of lobsters an individual can take in a season would be an amount considered “fair and reasonable” - not to achieve any targeted level of total catch.

The individual season limit with an objective of reducing intra-sectoral resource sharing issues would be likely to be higher than a limit aiming to reduce catch. The IMAS wash up survey in 2015 reported views that the average “fair and reasonable” individual season limit is 37 for the Eastern Region and 57 for the Western Region.

Such an approach would be of little practical benefit in management of the East Coast recreational catch to constrain it to the notional 42 tonne allocation.

Use of catch tags to assist compliance

Issuing an individual a limited number of tags per season, particularly with a unique number on each tag, would have a number of potential compliance benefits in relation to the opportunity for illegal sale of recreational lobsters as well as policing bag limit and possession limits.

Preliminary advice from the Marine Police indicates that the key potential compliance benefit if catch tags are effective is that every lobster caught recreationally will be identifiable with traceability back to licence holder. The Police believe this will discourage the illegal sale of catch and is of significant compliance benefit.

However, whilst the actual policing of the tags is relatively straight forward i.e. does the lobster have a tag on, is it done up properly, have the tags been issued to the person in possession, the Police highlighted a number of critical issues that would need to be addressed; otherwise the compliance benefits would be severely compromised. These include: the tagging system needs to apply Statewide, not regionally and clear cut legislation for offences and policies to deal with lost or stolen tags. There would also be an impact on Police resources as there is capacity for a significant increase in offences.

The compliance benefits are solely predicated on developing a catch tag which is secure and there is minimal risk of reuse. It will also be strongly influenced by acceptance of the system by recreational fishers. Low levels of acceptance and low tag security will lead to increased levels of non-compliance and motivation to attempt to re-use tags. In this environment, increased enforcement will be necessary impacting upon resources and enforcement costs.

The quantum of improved compliance if all recreational lobsters had to be tagged prior to landing is very hard to estimate compared with the existing compliance measures.

If improved compliance was the sole objective for introducing catch tags, more substantial input from the Marine Police / Regional officers would be required to get a more comprehensive understanding of the costs/benefits of catch tags compared with modifying existing compliance measures.

If catch tags are introduced to meet other primary objectives, then any improved compliance benefits can be viewed as “an added bonus”.

Use of catch tags to calculate the recreational catch

To accurately calculate the recreational catch it would be critical to have precise information on the number of tags issued to recreational fishers and for every unused tag to be returned at the end of the season or accurately accounted for. Unused tags returned by fishers to supply outlets such as Service Tasmania shops would need to be accurately counted. An incentive system to return unused tags issued to fishers would be needed, which would require substantial resources and add complexity and cost. Even with an incentive system, there would be various disincentives for fishers to return unused tags – including that the effort would not be worth the benefit, or the perception that unused tags may affect their entitlement in future years, which could substantially undermine the accuracy of the catch estimate. In short, a reliance on a large numbers of individuals to bother, or remember, to do the right thing, is problematic. This is likely to significantly diminish the accuracy of the catch calculation.

The Tasmanian telephone/diary survey has been reviewed by an international, independent expert and confirmed to be the most cost effective way of accurately estimating recreational rock lobster catch. Tagging was dismissed by the reviewer as not practical due to the large numbers of participants in the fishery.²

Catch tags may offer stratification and sampling improvements by identifying high catch fishers. They would not reduce the cost or replace the current surveys as the surveys provide more comprehensive information than a catch tag, including the days fished, method of capture and fishing areas.

Issuing a quantity of tags does not necessarily equate to the numbers of lobster caught, as fishing activity is highly diverse. For example ~25% of fishers who take out a licence do not fish at all, around 40% of fishers who actively fish, harvest between one and five lobsters per season.

PRACTICAL ISSUES GENERIC TO ANY CATCH TAG SYSTEM

There are a number of significant issues that are common to all catch tagging systems that have the potential to significantly influence recreational fishers' attitudes towards a catch tag system and/or if not resolved, pose a risk to a catch tag system achieving the management objective. A number of important issues identified to date are briefly discussed in this section.

² Pollock, K (2010) *Review of the Telephone Diary Survey of the Tasmanian Recreational Rock Lobster Fishery* Tasmanian Association for Recreational Fishing Inc. (TARFish). Report, June 28, 2010.

On line licence purchases – delay in being able to go fishing

Currently fishers can apply for a rock lobster licence on-line and go fishing immediately. This will not be possible with a catch tagging system and may be perceived as an unacceptable restriction / impost by recreational fishers.

Fishers renewing their fishing licence could be sent tags with their licence renewal form, with these becoming 'active' upon licence purchase, or at the time of licence purchase (there are a number of such delivery options). This option would involve wastage of tags for people sent renewal notices that decide not to renew their licence.

Licence purchase may remain available from *Service Tasmania* outlets or via on-line. If fishers purchase their license from a *Service Tasmania* outlet, tags could be distributed at that time with the licence card sent at a later date (as is currently the case). Under this scenario, pre-numbered tags are "linked" to that licence at *Service Tasmania* upon issue. Other potentially more expensive models might see tags with the licence number issued at a later date with the card – with a corresponding delay in fishing.

If a licence is purchased on-line, the tags could be sent with the licence card and there will be an administrative and postage delay in receiving tags with the fisher not able to go rock lobster fishing until the tags are received (this process may take around 14 days).

Practicality of attaching the tags to rock lobster at sea

From a compliance perspective, catch tags would need to be attached to the lobster prior to landing – probably immediately after catching and measuring. However, there are practical issues associated with having to place tags on spiny rock lobster horns in small boats in inclement sea conditions involving people with diverse experience and competence; or even high wind resulting in tag loss.

Shore divers, and ring fishers may also have issues associated with having their tags lost with inclement sea and weather conditions. A requirement for using catch tags for commercial Western Australian abalone was withdrawn shortly after implementation, as it was found to be impractical to secure tags at sea.

Recreational fishers are already required to clip or punch recreational rock lobster after measurement and this has proven practical at sea. The real degree of the difficulties of applying a tag to a rock lobster might, however, not become clear until a system was implemented or a trial undertaken.

A significant compliance issue that requires consideration is the risk of people failing to apply tags and the capacity to detect these breaches. There is a likelihood that recreational fishers fishing from vessels wanting to cheat the system would only partially lock off the catch tags (so that they could be reused) and only locking the tags off completely if they are approached by marine police. Such behaviour has been an issue in the use of tags to limit the take of deer, so it is not unreasonable to consider that it may also apply in this instance.

The current antennae tags available on the market provide scope for re-use with low risk of detection. There would be issues in developing rules that can be effectively enforced regarding the application of the tag on the rock lobster and the variable size of rock lobster would enable potential reuse of tags (a tag placed at the base of the antennae of a large rock lobster could readily be reused on a smaller rock lobster with limited scope for detection).

No tag - no fishing

It would have to be an offence to land a recreational rock lobster without a tag if a system involving the use of catch tags was to have the requisite integrity. However this would be highly contentious to implement given the implications for a recreational fisher who finds themselves without tags having left them at home after traveling any sort of distance for their fishing trip, lost their tags in transit, lost their tags overboard, damaged etc.

This reality is likely to see recreational fishing stakeholders seeking dispensations to the rules to accommodate circumstances that would enable recreational fishers to take rock lobster when they are unable to mark their catch with their tags. There is no simple solution as any 'allowance' would create a loop hole and have the potential to undermine achieving the management objective and compromise enforcement.

Loss of tags

There will be an expectation by the recreational sector for a simple administrative policy / process to deal with reported loss of tags in a way that is perceived to be fair and equitable for "genuine losses".. **However there is no obvious practical policy to deal with this issue and safeguard the integrity of the individual season limit.** The Marine Police strongly advised against an unlimited Statutory Declaration provision as this would represent an additional administrative burden and undermine the integrity of the system as there is no easy verification mechanism. A policy to replace an allocation of a seasons tags could potentially double the tags a recreational fisher could legitimately be issued in a season.

Tamper proof tags

A catch tag similar to the antennae tag type used for retail sales for Tasmanian rock lobster would appear to be the most suitable 'off the shelf' tag. A catch tag must have a unique code, single use and have security features that prevent fraudulent copying such as thermal impregnation. Bar codes or scan codes may assist recording tag numbers in the database on issue and for compliance checks - associating the lobster/tag to the fisher.

The importance of single use cannot be overstated. If it is easy to reuse the tags, the integrity of the catch tag system and achieving the objective will be severely threatened. Marine Police advice was to consider a cable tie style tag put through a hole punched in the tail of the lobster. This too would present risk of tag re-use.

Tag design will impact on practicality for use at sea and cost.

Increased cost to purchase a licence

Implementation and ongoing costs are discussed in more detail later in the paper, however, it is estimated that the cost of a recreational rock lobster licence would need to increase by approximately \$25 (~ 40%) to cover the costs of the introducing and running a catch tag system. Any increase in licence costs carries political risk.

EVALUATION OF CATCH TAGS

To date, catch tags and individual season limits are not established recreational fisheries management tools in Australia or internationally and remain largely untested.

Catch tags are used in hunting and game management for numerous purposes, including limiting the total take, estimating harvest and facilitating compliance. The success and acceptance of catch tags in game management may relate to:

- number of participants;
- tendency for low season harvest limit;
- game tags can be much larger, and less likely to be lost;
- the environment in which they are used is not as challenging as the sea environment.

A literature search confirms that catch tags are seldom used to constrain recreational fishing or used as recreational fisheries management tools. Examples include: Paddlefish (Missouri River, USA), Salmon and trout (Ireland), Cod (Newfoundland), Game fish (North Carolina), the Shark Bay Snapper Fishery and the Californian abalone fishery. The latter two are used as examples.

The use of catch cards and tear off tags (non-secure) were introduced in 2002 in California to estimate the abalone catch. Despite incentives for, (and penalties for not) returning catch cards, return rates were low (just over 50%) and telephone surveys were still required. Catch cards did, however, inform survey estimates.

Limiting the individual seasonal catch in combination with area closures, day time harvest restrictions and seasonal closures has assisted in limiting the total recreational catch. The seasonal limit has been reduced since implementation to further reduce the recreational catch, combined with other management measures.

There appears to be no published rigorous evaluation of that management regime, however, media articles refer to public concerns about the reduced seasonal limit, issues for compliance (e.g. avoidance of tagging the catch), and perceptions that the restrictions are not in line with stock status (recovery).

The California abalone example is more analogous to the individual seasonal limit model for tags.

Catch tags were used between 2003 and 2015 for Western Australia's Shark Bay Snapper Fishery to limit the catch in a part of the fishery to 5 tonnes, being 1,200 fish/tags (900 for recreational fishers and 300 for commercial fishers).

Recreational fishers applied to be issued up to two tags/fish per year by entering a lottery. The management regime, which also involved seasonal closures, area closures, bag limit reductions and size limit changes, has seen the fishery rebuild.

Of note is that the bag limits combined with minimum and maximum sizes applied to the entire Shark Bay fishery (which consists of two gulfs approximately 150 km long 50 km wide) whilst the seasonal limit/tagging system applied to only a portion of one gulf. For comparative purposes this could be crudely compared to applying a catch tag system in the Great Oyster Bay portion of the east coast of Tasmania.

The catch tag and tag lottery system was withdrawn from the Shark Bay recreational snapper fishery at the end of 2015, as the management targets were achieved, returning to the traditional management tools of size limits, catch limits and season closures.

The effectiveness of harvest (catch) tags in the Shark Bay snapper fishery was assessed by Jackson et al. (in review)³ who commented that as key or iconic fisheries come under increasing recreational fishing pressure, management regimes that are more effective at limiting the catch may be required.

The study showed that harvest tags were successful in limiting snapper catches in Freycinet Estuary, Shark Bay, and thereby played a role in stock recovery during a 10-12 year period. The authors propose that harvest tags offer an effective option for managing recreational catches in some other fisheries. However, the costs and complexities of tag administration along with fisher acceptance are critical and need to be considered prior to implementation.

This example is analogous to the individual allocation model for tags. It is important to note that the number of tags issued to recreational snapper fishers to take snapper in Shark Bay was comparatively small (900 per annum) compared to hundreds of thousands that would be required for the Tasmanian recreational rock lobster fishery. The number of fishers issued tags were orders of magnitude less than the potential ~20,000 that would be impacted in the Tasmanian recreational rock lobster fishery.

The relative lack of uptake of catch tags for fisheries management suggests that other management tools are generally considered to provide better cost/benefit outcome.

³ Jackson, G., Ryan, K. Green, T., Pollock K and J Lyle (2016 in review) *Assessing the effectiveness of harvest tags in the management of a small-scale, iconic marine recreational fishery in Western Australia*. ICES Journal of Marine Science.

Attitudes to the use of catch tags

Information on recreational fishers' attitudes to catch tags to support an individual season limit has been collected by IMAS. There is no equivalent information on an individual season allocation. The IMAS survey shows majority support from those surveyed for the general concept of an individual season limit and tags. Two thirds of the respondents to the IMAS recreational 2014/15 survey indicated support for introducing seasonal limits rather than further bag limit reductions. The support may reflect that the Eastern Region bag limit of 2 was proposed at the time, and this is considered by many recreational fishers as the minimum acceptable bag limit. Comments submitted during public consultation for the 2010 rock lobster management plan review also indicated general support by many recreational fishers for the concept of a catch tag system.

Inevitably, support for an individual season limit will relate to what a fisher views as a reasonable catch for themselves and for other fishers. Fishers taking large amounts of lobsters may be viewed as greedy and impacting on others' fishing opportunities.

Individual season limits of around 30 lobsters per season have been mentioned in previous management reviews. **The IMAS 2014/15 survey reports that expectations about the quantum of an individual Eastern Region season limit varied widely amongst respondents, with averages of 37 as 'fair and reasonable' and 24 the "lowest acceptable" number..** The numbers for an individual Western Region season limit were 57 and 36 respectively.

The expectations of the catch savings that might be realised from a seasonal limit need to be aligned with the catching patterns in the fishery and any proposed limit. Expectations of savings may not be realised depending on the limit implemented.

The IMAS surveys indicate similar trends State-wide and in the eastern region for individual catch levels. Only 6% of fishers take more than 20 lobsters per year and 3% take more than 30 per year.

The IMAS scenarios (reference Table 1 above) suggest that an individual Eastern Region season limit of 15 per season (combined with current bag limits and seasonal closures) would be required to constrain the recreational take on the East Coast to the notional 42 tonnes for the sector. Such a level will inevitably affect a lot more "average fishers" and correspondingly, may be more strongly resisted by the recreational sector.

Whilst the average seasonal catch is less than 10 lobsters per fisher, IMAS survey data of Tasmanian recreational fisher attitudes suggests the seasonal aspirations of an average fisher will be much higher. As suggested previously, support for a seasonal limit will be directly related to the seasonal limit determined. The global catch limitations and sectoral allocations may well see a limit required that will not be supported by large numbers of recreational fishers. The underlying issue here is that the catch limits cannot fulfil the aspirations and wants of fishers – however this is the reality of the stock status that cannot be avoided.

This suggests that support for an individual Eastern Region seasonal limit will be highly influenced by the limit determined. IMAS research indicates that there is an expectation amongst recreational fishers of a relatively high limit, reflective of existing catches. Such a limit if adopted would not be effective in constraining the recreational catch of rock lobster from the ECSRZ to the notional 42 tonne apportionment.

Support for the measure by recreational fishers will influence attitudes towards compliance and thus link to the levels of enforcement that will be required to support the management objectives of catch tags being realised.

Slightly more than 40% of respondents to the IMAS recreational 2014/15 wash up survey indicated that they would not be willing to pay anything over and above current licence costs. Among those willing to pay for tags, two thirds indicated that they would be willing to pay \$10 or less.

Attitudes to the introduction of a catch tag system supporting individual Eastern Region seasonal limits may result in unpredictable, unintended consequences. “Average fishers” may change fishing behaviors to increase fishing activity in attempts to ensure that they catch “their seasonal quota” to achieve value from their licenses. It could lead to licenses being taken out for family members so that the catch entitlement for the family unit is increased. This may compromise the objective of constraining the recreational catch to within the 42 tonne seasonal notional apportionment for the ECSRZ .

ASSESSMENT OF AN INDIVIDUAL SEASON LIMIT (WITH CATCH TAGS) AGAINST CURRENT MANAGEMENT TOOLS

Recreational fisheries management measures are generally blunt, simple, broad scale, easy to understand, cost effective to implement and relatively easy to administer. In contrast, many measures imposed on commercial fishers are more expensive and complex in line with the nature of commercial operations – such costs are often cost recovered from the beneficiaries (i.e. the licence holders).

An individual seasonal limit supported by a tagging system would be administratively complex and expensive in comparison to the management tools generally applied to recreational fisheries management. Some of the attributes of tools currently utilised are discussed below.

An important issue with the tools currently used in the fishery is how much further each management “lever” can be practically adjusted (or if additional levers are required). For example, although seasons can be altered relatively easily and remain flexible, the ability to use and justify some other tools may be more limited.

Bag limits – A bag limit of 2 applies to the Eastern Region. This may be the lowest daily bag limit that would be considered acceptable by the recreational sector. A further reduction in

the daily bag limits (from 2 to 1) would be expected to constrain total recreational catch but could significantly impact participation levels and be perceived to affect the average fisher more than the avid fisher. Although there is capacity for people to respond to the lowered bag limits by increasing the frequency of days fished, survey data suggests that many fishers have time limitations for fishing activities. The impact of the bag limit of 2 introduced in November 2015 will not be known until preliminary results from the 2015/16 recreational survey are available later this year.

Boat limits – Boat limits have only recently been introduced for rock lobster in Tasmania - being reduced from 15 to 10 in the Eastern Region. There is capacity for further reductions, however, the capacity for this tool to further constrain total catch is difficult to quantify. Further reductions in the capacity for all members of a fishing party to take their individual bag would be resisted, however, it remains a tool that could be utilised.

Seasons – The effect of season closures depends on the timing and length. Some fishers may increase the number of days they fish to maintain their catch. However, there are many examples where short seasons with low bag limits are used to sustainably manage recreational fisheries in a cost effective manner. For example, in Florida USA a 2 day season for recreational taking rock lobster with a bag limit of 6 per day – 12 in total for the season). In Western Australia, the recreational Roes abalone fishery is only open on Sundays for a short period with a bag limit of 5. Using this tool to further constrain east coast catch, would require seasonal closures during the peak fishing months from November – March.

Individual season limit – irrespective of the available days or bag limit, a seasonal limit sets a total cap for the individual to restrict avid fishers particularly. The number set would determine how many fishers would have their current level of fishing activity directly impacted by the limit, and the corresponding level of support / opposition. It may encourage the carriage of other fishers who normally would not be licensed and “use their tags” etc.

Some fishers have suggested that if catch tags were introduced other management catch controls could be removed or relaxed. The Department’s view is that this would not be advisable or effective for an individual seasonal limit, which is an indirect fishery-wide catch control measure. To meet catch limit targets, the seasonal limit would need to be a part of a package of measures that collectively make ongoing catch savings i.e. it would provide an additional tool to be used in that mix. As such, other potential benefits in compliance, catch sharing and reduction of gross catching behaviours would be gained.

In conclusion, the options for “pulling existing management levers” harder or adding a new tool to the mix are very limited. The reality is any further recreational constraints will be unpalatable and opposed by recreational fishers. The rebuilding target and sectoral allocations required to achieve the target, may not be accepted by many in the sector, who will argue that the commercial fishery should be progressively cut to allow for the aspirations of the recreational sector.

The challenge, if/when further limits are required, involves a proper consideration of the costs and benefits of each measure available. For a seasonal limit the question is; “can it be effectively implemented and, then, is it worth it” for the benefits achieved.

BASIC OPERATIONAL ASPECTS OF CATCH TAGS

Fishers would be required to attach the tag to the lobster. Fishers could be issued either a single batch or multiple batches of single use uniquely coded tags.

Each tag/batch would be recorded on the FILMS (DPIPWE licencing database) and attributable to each individual fisher via a database. This will require database and system modifications to FILMS and STARS (*Service Tasmania*).

The systems development requirements and process for providing unique tags to fishers are significant issues and costs. This issue cannot be underestimated in consideration of the utility of a tagging system.

Compliance effort would need to be directed to ensure fishers only land rock lobsters which are tagged with unique tag corresponding to the tags issued to that particular fisher and that reuse of catch tags does not occur. The Marine Police will require real time access to the FILMS database. Barcoding of tags and scan reading devices may assist in communicating with the FILMS data base.

Different coloured tags would be issued each year for ease of recognition for enforcement purposes.

SUMMARY/ CONCLUSION

Any potential catch tagging system needs to be assessed within considerations of the cost and benefit. Given the number of licence holders and the quantum of the potential number of individualised catch tags, the practicalities of any system are a key part of those considerations.

In terms of the different objectives a catch tagging system may deliver, the Department considers that some are not practicable, whilst some other models might be considered and potentially could be delivered.

The Department believes that an individual seasonal allocation model for the ECSRZ is untenable, essentially due to the very low individual allocation / access (2 – 3 tags per fisher per season) that would result.

An individual season limit supported by a tagging system, is potentially deliverable but presents substantial risk.

Some additional benefits of an effective catch tag system to implement an individual seasonal limit might include:

- help address intra-sector resource sharing within the recreational fishery e.g. pot fishers' angst towards divers;
- limit excessive catch by avid fishers leading to a more equitable distribution of the recreational catch;
- facilitated enforcement by providing the ability to attribute lobster to the licensed fisher (or Aboriginal person) who captured it (assuming the satisfactory security of catch tags can be achieved);
- reduce the opportunity for recreational fishers to legally catch large amounts of lobsters that can lead to excessive gifting and illegal sale (including 'gifting' for reward).

A potential model would be;

- retaining existing recreational bag, possession, boat limits and seasons for the non-commercial fishery for the Eastern Region.
- introduction of annually reviewed seasonal limits for the Eastern Region administered by tags with an initial allocation of 15 tags (Noting that Marine Police has advised that a catch tag system should be introduced for the whole Tasmanian rock lobster fishery and not only for the Eastern Region).

However, as detailed in this paper, and suggested by the report on the WA snapper fishery, such a model should only be considered recognising the details of the burden on fishers, administrative and practical issues and various cost implications and assessing if it is "worth it". That is, does the cost benefit comparison warrant progressing such a measure in contrast to the other tools available and their attributes (e.g. seasons).

It is also important to understand that an individual season limit system will not explicitly limit the recreational catch each year within the notional level allocation and will require review / adjustment each year (likely to be a contentious process) in light of the latest catch estimates to achieve the objective.

The Department does not believe that a tagging system will provide a more accurate estimate of the recreational catch, and introducing a system with a relatively high number of tags per fisher for resource sharing, or compliance benefits, alone does not stack up from a cost/benefit perspective.

A key issue for any tagging system that might be introduced is that it will likely not be supported by recreational fishers due to the number of tags allocated, if East Coast stock rebuilding objectives drive the seasonal determination. That is, the catch limits imposed (for stock rebuilding) and the sectoral allocations within those limits, do not deliver the level of access desired by both the recreational and commercial sectors. As such, any public resistance to a tagging system and the tags number may be due to disaffection with the resource sharing/stock issues rather than necessarily the basic premise of an individual seasonal limit. Tagging systems do not deliver a 'silver bullet' for addressing those basic and fundamental aspirational issues within a rebuilding process.

Notwithstanding this information, if a catch tag system were to be progressed, a number of basic and potentially complex issues will need to be resolved regarding the details of any potential system and how it might operate. A number of these policy or operational issues have been highlighted in the section “practical issues generic to any tagging system”. These issues (single use tags and management of lost tags in particular) are significant and if unresolved have the potential to make the system unworkable.

The second part of this paper provides some additional details on how an individual seasonal limit catch tag system might operate and some of the key administrative issues that will need to be addressed. The costs and risks involved for implementation and the ongoing administration of a system are also discussed. This may further assist any consideration on the cost and benefits of an individual season limit supported by catch tags.

PART 2 ADMINISTRATIVE ISSUES, COSTS AND RISKS

SETTING, MONITORING AND EVALUATION OF AN INDIVIDUAL SEASON LIMIT

Data collected and surveys undertaken by IMAS would be crucial for assessing the potential impacts of different levels for a seasonal limit, and potentially setting (and subsequently reviewing) any individual recreational fisher seasonal limit introduced.

Catch estimates through the annual IMAS rock lobster surveys could be compared to the east coast notional recreational catch allocation (42t). IMAS can provide advice on the theoretical impact on east coast catch if different levels of individual seasonal Eastern Region limit had been applied. This advice could then be used to guide setting the individual seasonal Eastern Region limit for the next season.

A consultative process for stakeholders to provide advice on “the number” for the individual seasonal limit each year will also need careful consideration as the statutory management plan amendment process would not be practical. The consultation process in place for setting the Total Allowable Catch may be a more suitable template.

A challenge would be “making up” an over run in previous years – for example the catch may be reduced in 2015/16 to 42 tonnes, however, the 13 tonne over run made in the 2014/15 season has not been made up. Therefore, other management levers may need to compensate to account for these catches.

Statewide or regional

The primary driver for an individual seasonal limit is to constrain the recreational catch from the ECSRZ, however there are a number of practical considerations as to whether the system should apply just to catch from the ECSRZ, the Eastern Region or Statewide.

The Eastern Region is a ‘recreational management region’ that was incorporated into the Rock Lobster Management Plan in 2011 to facilitate different recreational catch controls between the eastern and western halves of the State. The boundaries were determined for practical enforcement purposes and therefore any new catch controls targeted at the ECSRZ would need to apply to the entire Eastern Region, noting that this may generate criticism from recreational fishers who fish in the far North East or between Southport and Whale Head in the far South East.

The Marine Police expressed a very strong view that any tagging system must be Statewide not regional – otherwise effective enforcement to deliver east coast catch constraint is severely compromised (once east coast lobsters have left point of landing there will be no offence for rock lobster not being tagged).

However, applying one individual season limit State-wide in order to have a limit that constrains the catch in the ECSRZ would place an unwarranted constraint on the Western Region when the same management concerns in relation to the recreational take do not exist.

If a State wide system was introduced, to address this issue, there will need to be further consideration of having different eastern and western seasonal limits with different coloured tags. The compliance benefits need to be weighed up against the increased costs, as the number of tags required for a Statewide system is much higher. There will also be an ongoing risk that Eastern Region lobsters will be tagged with Western Region tags, undermining the integrity of the Eastern Region season limit.

Alternatives to tags for complying with an individual season limit

Logbooks could be used, however it would not be practical to administer given the number of licence holders. In addition logbooks have durability issues when used in small boats and in shore areas (divers).

In the future, electronic catch reporting systems, including the use of SMS messaging or recording in smartphone Apps may be feasible.

ADMINISTRATIVE ISSUES

Licence Database Requirements

The practical issues of data requirements to account for many thousands of unique tags and the processes for distribution etc. should not be underestimated.

The licensing database (FILMS), DPIPWE web page interface and the Service Tasmania (STARS) interface between FILMS will require significant design and development work to record catch tag codes and business rules to restrict the number of tags issued to individuals. There is currently no funding for such significant FILMS development and it would be critical for sufficient funds to be allocated.

Upon completion, the systems would need to provide for the receipting, printing and issue of licences/tags across all Service Tasmania outlets; the licence card provider and the Web. Access to FILMS will require the ability to interrogate the system to ascertain fishers and their tag numbers, including who they were issued by. This information must be available for both internal/external Departmental enquiries as well as the Police for on land or at sea enforcement purposes. In addition, provision for a tag distributor to record unique tag numbers on FILMS is required.

Distribution

There are different possible mechanisms for the provision/delivery of tags to individual fishers. Importantly, the timing or delay of the receipt of tags may vary markedly under different models. Some models may provide for immediate provision of tags at point of sale, with the

tag numbers being assigned to that individual fisher through the database at that time. Other systems might see a delay similar to that of receipt of the licence card for tags being received. For example, tags might be distributed using the current point of sale for recreational licence cards;

- Service Tasmania outlets provide a walk in service – where licence payments are received, and a card issued at a later date via the licence card distributor.
- On-line - licence card distributor - (where licence payments are received, a card issued by a card distributor or an image of the licence card can be downloaded).

Catch tags might be provided immediately at Service Tasmania if that functionality was developed, otherwise a later mail out of the tags would be required. Tags for on-line licence purchases would be sent with the licence cards, which could take up to 14 days.

The distribution costs from Service Tasmania appear to be marginally lower than the card distributor due to postage and handling costs. For the purposes of cost estimation they are assumed to be the same.

Aboriginals engaged in Aboriginal fishing activity relating to rock lobster fishing.

To protect the integrity of the system, all non-commercial rock lobster would need to be identified using catch tags.

However, Aboriginal persons do not require a licence to engage in Aboriginal activity relating to rock lobster fishing, where a recreational licence might be required. However for gear (e.g. rock lobster pots) which recreational fishers must mark with their Unique Identification Code (UIC), certain rules require an Aboriginal person to also mark their gear with a UIC.

For persons taking lobster by diving a UIC is not required, however, they may be required to prove that they are an Aboriginal person as defined under the relevant legislation.

The Department has a policy regarding the issuing of UICs to Aboriginal persons which sees them allocated by either DPIPW or certain recognised Aboriginal organisations.

DPIPWE allocates UICs to individuals who can provide verification from a recognised Aboriginal organisation. The details are recorded on the FILMS database. However there is also provision for those organisations themselves to issue numbers to individuals which may not be reconciled individually on FILMS.

Thus there may be significant issues potentially reconciling catch tags issued to Aboriginal persons against individuals.

For effective enforcement a process of catch tag allocation to Aboriginal persons at a level of all individuals for all methods of capture including diving would be required. This may be opposed by those groups who believe their organisation should perform this role and divers who have not been part of this system in the past.

The experience from negotiating administrative arrangements for UIC with Aboriginal organisations indicates that this will likely be a sensitive issue at this time – particularly as the process for recognition of Aboriginal persons may be under review.

In addition the catch estimates and the Eastern Region catch do not include any catch from the Aboriginal sector.

Matching catch tags to the licence holder

Another FILMS database issue to be addressed is how to deal with recording tags against a licence holder. A fisher can hold up to three licence types for recreational rock lobster fishing (dive, ring, pot) but for effective database and catch tag management tags should only be allocated to one licence type. To deal with this issue it may be necessary to develop a separate licence type in addition to the current licence categories. This may also be advantageous if a regional approach is taken for a tagging requirement by having an Eastern Region licence category and a Western Region if each region has separate tag requirements.

Administration of tags

The administration of the system is complicated by the relatively large number of fishers (12,000 - 20,000 fishers depending if restricted to Eastern Region or State-wide), combined with the number of catch tags per individual (15-30). This amounts to 180,000 to 600,000 catch tags.

Utilising the services of the current distributor of recreational licence cards and Service Tasmania may streamline processes.

Issuing catch tags to fishers in a single initial batch would reduce handling costs. Issuing an initial batch of a low number of catch tags may however, reduce the amount required for spare stock and may reduce wastage. Marine Police have also suggested that issuing in small batches may deliver compliance advantages. Catch tag manufacturers, however appear to produce catch tags in batches of tens – which may present challenges with splitting batches, if the individual Eastern Region limit was 15 for example.

COSTS AND REQUIRED RESOURCES

The costs for a catch tag system would involve an initial investment in resources to develop an appropriate policy framework, management of the statutory process to amend the Rock Lobster Management Plan, funding the database development and the operational tasks associated with developing and implementing a catch tag system.

Ongoing costs will involve maintenance of the databases and the costs of issuing and administering catch tags each fishing season.

The figures provided below are indicative based on current level of understandings and assumptions to provide an estimate of the costs.

Costs have been estimated for both a Statewide and Eastern Region only system for comparative purposes. **However, when considering the costs in relation to the benefits, the enforcement issues highlighted by the Marine Police of a regional only system, may preclude the Eastern Region only option.**

Implementation costs:

Implementation would require detailed design of any system proposed, database development through FILMS and STARS, review of the Rock Lobster Management Plan to implement the new rules (including the mandatory public consultation process and scrutiny through Parliament), then implementation of the system including public education and publicity regarding the new system.

The implementation costs of a Regional or Statewide system are considered to be similar.

Development and implementation time is estimated to take around 18 months and estimated to cost ~\$275,000 and include:

- Database development, testing and implementation (~\$96,000);
- Drafting legislation, public notices, advertising / printing costs for management plan review (~\$5000);
- Project Management and Development (~\$169,000 based on a Professional Officer Level 2 position for 18 months);
- Consultation, education and publicity (~\$5,000);

The implementation costs do not include substantial resources that will be required from existing staff within the Marine Resources Group.

Annual and on-going cost

The annual and on-going costs depend on whether a State wide or Regional system is introduced. Costs relate to:

- Tag supply, distribution and issue;
- administrative support (0.25 FTE); and
- stock control (spare stock).

Unforeseen costs may relate to additional policing resources to deliver effective enforcement, alternative catch tag types if current tags cannot provide requisite security.

For the purposes of cost estimations it is assumed:

- A plastic horn tag is used;
- The Eastern Region Season Limit is 15;
- For a Statewide system a total of 30 tags issued, of which only 15 colour coded catch tags can be used in the Eastern Region;

- Catch tags are issued to the fishers as a single batch - not multiple batches; and,
- Recreational rock lobster fishing licence holder numbers are based on 2014/15.
- Spare stock is held at each tag distributing outlet around the State, not centrally.
- Different coloured tags are issued each year.

Costs for a Statewide System:

The estimated on-going cost for issuing a batch of 30 catch tags to 20,000 fishers is \$401,125. This equates to \$20.06 per fisher. (This estimate is based on 690,000 tags).

If the implementation costs are added and averaged over a three year period, the cost is \$24.64 (per fisher).

Costs for an Eastern Region System only:

The estimated on-going cost for issuing a batch of 15 catch tags to 12,000 fishers for the fishing in the Eastern Region is \$165,000. This equates to \$13.75 per fisher. (this estimate is based on 225,000 tags – allowing for spare stock to ensure tags are available at each Service Tasmania and the licence card distribution centre)

If the implementation costs are added and averaged over a three year period, the cost is \$21.40 per fisher.

Estimated Total Costs for a Tagging System

The total estimated annual cost for a Statewide catch tag system averaged over three years is \$492,775 p.a.

The total estimated annual cost for a Eastern region only catch tag system averaged over three years is \$257,000 p.a.

It must be emphasised that the actual costs of any future catch tagging system will highly dependent on the specific operational design of the system.

The estimated costs of a State wide catch tag system at around \$500,000 p.a is relatively high in comparison to existing fisheries management tools.

The current cost of a recreational rock lobster licence is \$51.80. Should a catch tag system be introduced assuming full cost recovery, recreational rock lobster fishers would need to pay an additional \$25 for their rock lobster fishing licenses. If the Government funded the ~\$275,000 implementation cost, depending on the system, the increase would be between \$13.75 and \$20.06. i.e The cost of a single rock lobster licence may need to increase from \$52 to between \$66 and \$77

There is no capacity to absorb any of these costs within the current Fishwise revenue stream.

Funding and use of excess revenue

The costs and revenue associated with a catch tags system is difficult to predict. Should a catch tag system proceed it is recommended that revenue be placed in the Fishwise special deposits holding account. This will then assist to ensure excess revenue from one year may fund shortfalls in future years. In addition any build-up of substantial revenue could be used to fund recreational fishing projects.

RISKS TO IMPLEMENTATION

Four major risks to the implementation of a catch tag system have been identified.

- **Funding.** There is no capacity within the existing Fishwise Program budgets to fund the upfront implementation or operational cost. Treasury allocating funds in the Budget to cover the implementation costs upfront at least 18 months before the funds can be cost recovered. This is essential for the recruitment of a project officer, the development of the FILMS database and the purchase of tags.
- The required amendments to the Rock Lobster Fishery Management Plan to implement the individual season limit / tagging system have to be approved by the Minister and not be disallowed by the Parliament. The Legislative Council can disallow all or part of amendments to a Management Plan. This is a risk to implementation as well as a budget risk. The time for the Legislative Council to consider legislation is quite lengthy, however, depending on the targeted implementation date, it may be necessary to invest significant project management and database (IT) resources months in advance of the Parliamentary scrutiny processes reaching completion.
- There is no capacity within the current FILMS database development resources to commence a new significant project of this complexity. Additional resources will be required, however as these resources are highly specialised there is a significant risk that resources may not be available immediately or within required timeframes for the project. Again, level of risk is highly influenced by the target implementation date.
- Unforeseen complications with respect to elements of the catch tag system that have not been identified through the current investigation such as the need to develop a secure tag in the event that current tags available on the market are inadequate.

Ongoing risks

- Changes to fisher behaviour following the introduction of catch tags result in the catch constraint not being realised. The individual limit has to be adjusted downwards affecting more “average” fishers. Fisher support for the system decreases. The

process for continuous adjustment will have ongoing impact on management resources and may generate potentially significant political challenges.

- The additional cost of a licence may reduce fisher participation resulting in a decrease in licence revenue. This would impact on the capacity of the Recreational Fishing Section to deliver current programs and management services for recreational fisheries as well as potentially impact on the ongoing delivery of the catch tagging system.
- Manipulation / re use of tags undermines the integrity of the season limit and thus the catch constraint is not realised and compromised credibility of the system leads to loss of confidence in key stakeholders. .
- Provisions that may be implemented for lost / stolen tags are rorted to a level that it undermines the integrity of the season limit and thus the catch constraint is not realised.

TIMING FOR IMPLEMENTATION

Implementation of a catch tag system has an estimated lead time of a minimum of 18 months and would have to be timed with the start of a recreational fishing season in November. All aspects of the catch tag system including the FILMS database modifications, catch tag supply and distribution contracts and educational material would need to be finalised by 1 August of the implementation year.

Targeting implementation in November 2017 is not considered to be feasible due to the lack of time to deal with any of the significant implementation risks and the requirement for an upfront funding allocation in the 2016/17 budget.

Implementation in November 2018 is possible notwithstanding the implementation risks identified above.