



Department of
**Primary Industries and
Regional Development**

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Western Australia.*

Review of West Coast Rock Lobster Harvest Strategy and Control Rules 2014-2019 – transitioning to ARMA

Discussion Paper (February 2023)



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Acronyms

AHL	Allowable Harvest Level
ARMA	<i>Aquatic Resources Management Act 2016</i>
ARMS	Aquatic Resource Management Strategy
ARUP	Aquatic Resource Use Plan
ESD	Ecologically Sustainable Development
EBFM	Ecosystem Based Fisheries Management
FRMA	<i>Fish Resources Management Act 1994</i>
IFM	Integrated Fisheries Management
MAR	Managed Aquatic Resource
MEY	Maximum Economic Yield
MSC	Marine Stewardship Council
MSY	Maximum Sustainable Yield
SCCMF	South Coast Crustacean Managed Fishery
TAC	Total Allowable Catch
TACC	Total Allowable Commercial Catch
TARC	Total Allowable Recreational Catch
WAFIC	Western Australian Fishing Industry Council
WCRLMF	West Coast Rock Lobster Managed Fishery
WRLC	Western Rock Lobster Council
WRLHS	<i>West Coast Rock Lobster Harvest Strategy and Control Rules 2014-2019</i>

1. Purpose

This discussion paper has been designed to both support the review of the *West Coast Rock Lobster Harvest Strategy and Control Rules 2014-2019* (WRLHS) as required for Marine Stewardship Council (MSC) certification; and to begin the process to align the harvest strategy for this resource with the legislative principles and procedures specified within the *Aquatic Resources Management Act 2016* (ARMA) as outlined within the ARMA-Based Harvest Strategy Policy (DPIRD, 2023a).

The review initiates the step wise pathway that will be used to transition management of the western rock lobster resource to be ARMA compliant. The first step will focus on updating the harvest strategy components used to calculate the annual TAC, TACC and TARC during the transition period using the current management objectives and sectoral allocations.

A review of all the components, including the main objective and sectoral allocations, required within an Aquatic Resource Management Strategy (ARMS) will be undertaken when it becomes a formally managed resource sometime after ARMA has been fully proclaimed in November 2023.

2. Introduction

2.1 Harvest Strategies

Harvest strategies are a key component of all contemporary fishery management systems and a requirement for certification under MSC.

To ensure a consistent and integrated approach for harvest strategy development was adopted for all WA resources, a [Harvest Strategy Policy and Operational Guidelines for the Aquatic Resources of Western Australia \(2015\)](#) (2015 Policy) was developed. This policy was consistent with the principles of Ecological Sustainable Development (ESD) and Ecosystem Based Fisheries Management (EBFM) and required that harvest strategies not only considered the management of target species abundance but also incorporate relevant ecological, social and economic considerations including delivering sectoral allocation decisions plus the management of unacceptable risks to other ecological resources. Consequently, the definition of a 'harvest strategy' in WA is:

A harvest strategy establishes clear and specifically articulated performance levels and associated management actions designed to achieve the agreed objectives for the resource and relevant fishery sectors.

As summarised in the 2015 Policy, they establish the specific set of decision or controls rules that determine the appropriate harvest levels for all sectors to meet the ecological, economic, and social objectives, plus any allocation decisions established for the resource. Importantly, harvest strategies are not the vehicle to make these decisions, only deliver them.

Most WA commercial fisheries now have a Harvest Strategy. The new ARMA-Based Harvest Strategy Policy replaces the existing 2015 Policy has been developed to ensure future harvest strategies align with ARMA. Importantly, most of the key principles remain the same, but a number of the elements that were optional under the *Fish Resources Management Act 1994* (FRMA) will become mandatory.

2.2 History of Harvest Strategies and Decision Rules for Rock Lobsters

There is a long history of applying and refining the decision rules, indicators and performance measures for what are now referred to as harvest strategies for the sustainable management of the rock lobster fishery (see Donohue et al., 2010 for full details).

The 1990s

The first formalised decision-making framework for maintaining the sustainability of the rock lobster fishery was established in 1993 with the adoption of the management objective: *That management arrangements maintain, or restore as the case may be, the abundance of breeding lobsters at or above the levels in 1980.* This biologically based objective identified the breeding stock as the indicator and the level of coastal breeding stock in 1980 as the 'Threshold' reference point.

This combination of having a specific indicator and reference point underpinned the development of the significant set of management changes that were implemented during the 1993/94 and 1994/95 seasons which resulted in a rapid rebuild of the breeding stock (DoF, 1993). For the next ten years the management of the fishery was based on achieving this sustainability objective of ensuring the breeding stock remained above this reference level and enabled the commercial fishery to achieve Maximum Sustainable Yield (MSY) through a 'constant exploitation approach largely using Individual Transferable Effort (ITE) system based on pot usage limits to restrict overall effort.

Early 2000s - ESD, EPBC and MSC

In the early 2000s, coinciding with adoption of the principles of ESD (Fletcher, 2002) to meet the new requirements of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) (CoA, 1999) and those of the then new MSC processes (MSC, 2000), a *Decision Rules Framework* was developed in conjunction with the then Rock Lobster Industry Advisory Committee (RLIAC) to enable management decisions to be made using explicit, clear and targeted objectives (Bray, 2004). This decision rules framework provided stakeholders with a greater understanding of why and when management changes would be needed and therefore a greater opportunity to become involved in developing future management strategies to meet the ESD objectives of the fishery (DoF, 2004).

This framework was a significant advance on the 1993 version by including operational objectives, indicators and specific performance levels for each zone based on model-based assessments that utilised both fishery dependent and independent data. It also outlined the clear set of actions that would occur if the performance levels were breached.

Early 2010s – Low Puerulus

A review and development of a formal harvest strategy for the fishery was initiated in 2010 based on the set of management responses imposed during the period of low puerulus settlements (Donohue et al., 2010). The outcomes of this review included the adoption of:

- specific measures of uncertainty (75%) in the estimates of the performance indicators, e.g. the egg production (breeding stock);

- explicit consideration of moving to reduce harvest rates (levels of exploitation) down from MSY based levels to be in line with Maximum Economic Yield (MEY);
- assessing future stock status in each zone by using projected future breeding stock levels based not only on the known recruitments but extending this out to a five-year time horizon by assuming the fifth 'unknown year' would have a relatively low puerulus settlement. This 'no-surprise approach' ensures that the next seasons set of puerulus numbers will not cause a major drop in predicted future catch and stock levels.
- develop a MEY based target level in addition to threshold and limit levels.

Mid 2010s – Shift to Quota/Output based management

Most of the principles, settings and assessment methods initially proposed in the 2010 review of the harvest strategy for the fishery were subsequently adopted in the 2014 updated West Coast Rock Lobster Harvest Strategy and Control Rules 2014-2019 (2014 WRLHS) developed to accommodate the shift from ITE based input controls to output based quota-based management and the adoption of explicit Integrated Fisheries Management (IFM) sectoral allocations (DoF, 2014).

The 2014 WRLHS was developed in consultation with the Western Rock Lobster Council (WRLC), as the peak representative body for the West Coast Rock Lobster industry. It has since been used to determine the Allowable Harvest Level (AHL) (*i.e.*, the total quantity of western rock lobster that can potentially be taken by the commercial and recreational sectors combined as a key input for the setting of each season's Total Allowable Commercial Catch (TACC) and Total Allowable Recreational Catch (TARC).

The TARC has been generated by a direct calculation using the sectoral allocation percentage (5%) of the AHL. The TACC setting process under the current WRLHS has allowed a consultative approach between industry and the Minister for Fisheries to determine the final value.

The current WRLHS is due for review but remains in place until a new harvest strategy has been approved by the Minister for Fisheries.

3. Overview of Harvest Strategy review

3.1 Scope

The review provides the opportunity to continue an ongoing process of 'contemporising' the harvest strategy but also ensure it becomes consistent with the relevant ARMA based principles and policies in preparation for the full commencement of the ARMA which will occur on 1 November 2023. Specifically, the updated harvest strategy will need to be consistent with ARMA principles and processes as outlined within the ARMA-Based Harvest Strategy Policy (DPIRD, 2023a).

As specified in the Purpose, and consistent with the 2015 HS Policy, this review of the 2014 WRLHS will only update the harvest strategy elements that would be within Part 3 of an ARMS (Figure 1). Updating a harvest strategy does not include a review of objectives or sectoral allocations, the review of these components would need to be undertaken as a specific initiative established by the Minister and completed now under the processes specified in the ARMA-Based Objective and Allocation Policy (DPIRD, 2023b). This broader process will be undertaken as part of preparation for this resource formally moving under the Managed Aquatic Resource (MAR) framework.

The harvest strategy review will, therefore, utilise the current: (1) description and scope of the resource, (2) the current uses and associated high-level objectives and (3) the current sectoral allocations as the basis for the developing the updated Harvest Strategy.

Adopting this step wise approach to update the harvest strategy is also appropriate given the likely changes that will occur to overall catch levels during this transition period which will result in shifts in regional abundance levels. Understanding the implications of these shifts is needed to enable the longer-term planning and allocation decisions required during the formulation of an ARMS.

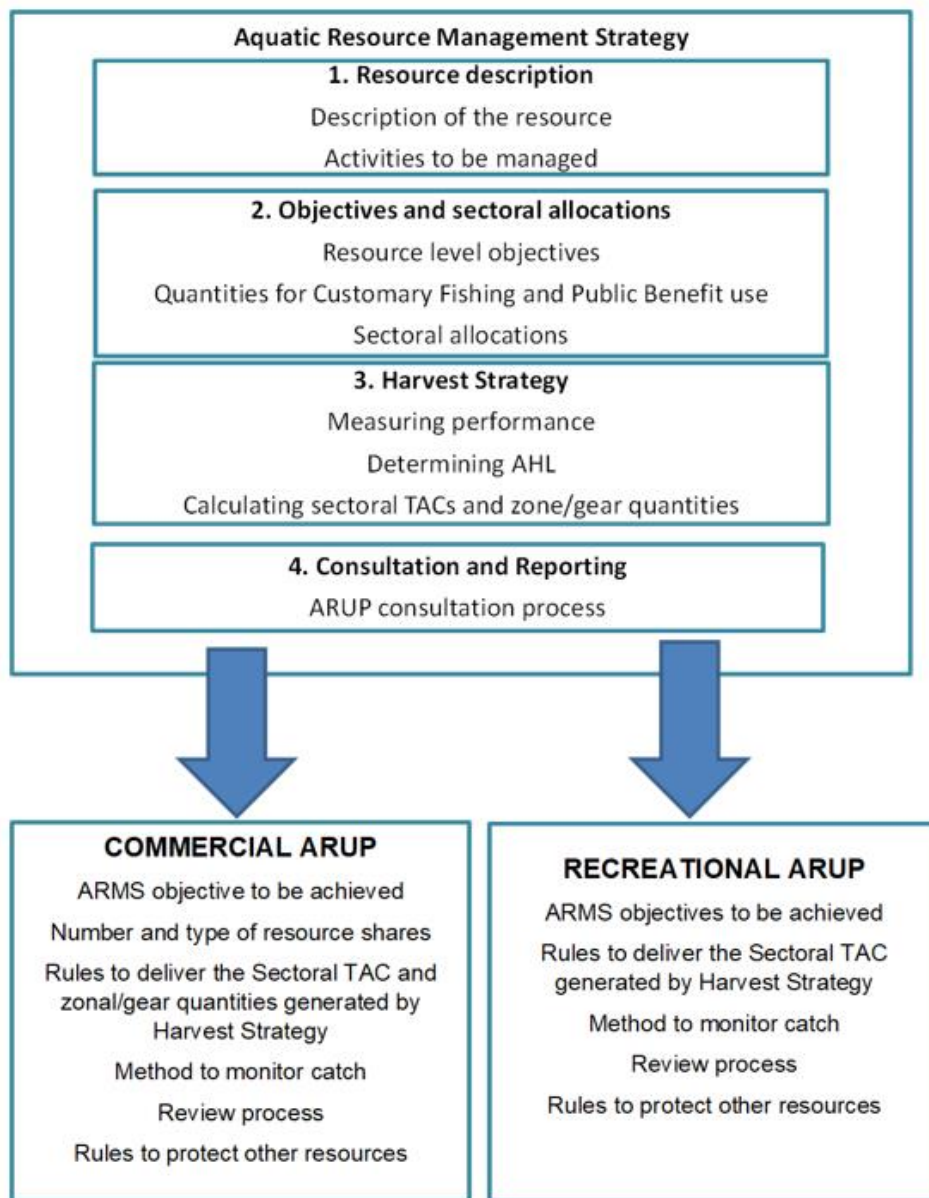


Figure 1. Standard outline of the four key components required under the MAR framework for the ARMS and the relationship with the sectorial level ARUPs designed to deliver the ARMS. *Note -only Component 3 - Harvest strategy – elements will be addressed in full within this review.*

3.2 Harvest Strategy issues

There are several specific issues that need to be formally considered in updating the harvest strategy for the rock lobster resource including accommodating the requirements of ARMA plus addressing relevant recommendations from recent MSC audits. For each of these issues, the discussion document will present background information, a summary of the current situation plus any potential options for comment by stakeholders.

It is recognised that the list of issues presented in this document may not cover all the harvest strategy related issues that stakeholders may wish to discuss. Additional issues may be raised by stakeholders for consideration as part of development of the revised harvest strategy.

It is also recognised that there are associated issues and ideas that may be raised during discussions can be captured for use in future processes associated with completing the full transition of this resource to be managed under the ARMA framework. While all ARMA elements will be formally reviewed at the time when the resource transitions to be a MAR, to assist with this transition, specific questions and options that are likely to form part of this process have been included here to initiate discussions.

3.3 Next steps and timeframes

The Department of Primary Industries and Regional Development (Department) will be seeking comments on the issues and options presented in this document plus the identification of any additional issues for consideration from the WRLC, WAFIC, Recfishwest and Marine Tourism WA.

The key documents considered in the development of this discussion paper and the proposed options include:

- Harvest Strategy Policy and Operational Guidelines for the Aquatic Resources of Western Australia (2015)
- Independent referees report from the 2018 western rock lobster stock assessment review
- MSC guidelines
- MSC Assessment Report for the WCRLMF (2022)
- ARMA-Based Harvest Strategy Policy (2023a)
- ARMA-Based Objective and Allocation Policy (2023b)

To assist in this process the Department will establish a cross-sectoral working group to consider feedback received on the issues and options outlined in this discussion paper and progress the development of a revised harvest strategy.

A Technical Paper will also be prepared for consideration by the working group to support consideration of finer-scale details for the updated methods for calculating the AHL/TAC/TACC and commercial intrasectoral allocations during the transition phase.

It is expected that after receiving comments on these issues, a draft updated harvest strategy will be circulated for public consultation during 2023 with the final harvest strategy published by mid-2024 to meet MSC conditions on the WCRLMF.

4. Definition and scope of the resource

The existing WRLHS covers the commercial take of western rock lobsters from Cape Leeuwin to Northwest Cape (*i.e.*, the waters of the WCRLMF), as well as recreational (and charter) take on a state-wide basis *i.e.*, including take south of Cape Leeuwin and north of Northwest Cape.

This review provides an opportunity to begin consideration of what the longer term definition and scope of the western rock lobster resource and management should be in readiness for its full transition to ARMA.

ARMA promotes a holistic resource-based approach, with management strategies designed to consider use by all sectors with a clear definition of the scope of the resource and the activities to be managed needs to be declared by the Minister for Fisheries before management strategies and plans are prepared.

Western rock lobsters in Western Australia (WA) are considered to be one genetic stock and therefore it could be appropriate to expand the definition of the resource to incorporate the take of western rock lobster in all areas of WA. This would result in the commercial take of western rock lobsters by the South Coast Crustacean Managed Fishery (SCCMF) being incorporated into the ARMS. Alternatively, as the SCCMF operates in a different bioregion and also targets southern rock lobsters it could also be more practical and appropriate to maintain their separation. Discussion on these options can begin now.

Current situation:

- WRLHS covers the commercial harvest of western rock lobster from Cape Leeuwin to Northwest Cape, *i.e.*, within the waters of the WCRLMF.
- Commercial harvest of western rock lobster south of the WCRLMF is not considered within the scope of the WRLHS.
- The recreational take of western rock lobsters is managed on a state-wide basis. State-wide catches are used to monitor catch against the TARC.
- Separate management plans are in place for the WCRLMF and SCCMF, with recreational fishing arrangements provided via Regulations.

Proposals for updated harvest strategy:

- Maintain the current scope of the WRLHS *i.e.*, the waters of the WCRLMF for the commercial sector
- Consider aligning the monitoring of the recreational take to be within the boundaries of the WCRLMF.

Potential future options under a MAR framework:

- Maintain the current scope of the WRLHS.
- Expand the scope of the harvest strategy to define the resource as all western rock lobsters in WA waters (*i.e.*, incorporate the take of western rock lobsters by the SCCMF).

Feedback is sought on the potential benefits or issues associated with maintaining or changing the definition and scope of the resource when it moves under a formal MAR framework.

5. Main objective

Current Uses/Value Proposition

Based on the current uses and indicative value propositions, an interim main objective has been drafted for use during the transition period.

The western rock lobster is a formally shared resource that:

- continues to be the basis for WA's most valuable commercial fishing industry that supplies lobsters to local, national, and international markets,
- enables an ongoing level of access for recreational fishers, and
- supports the potential for increasing levels of tourism (including charter-based and back of boat sales) opportunities.

Interim Main Objective

Deliver predictable, ecologically sustainable harvest levels and allocations of western rock lobsters that maintains the stock near an MEY-based target level that optimises the opportunities for fishers to generate overall, long term economic returns to the state from commercial lobster fishing, processing, and ancillary activities, while optimising experiences for recreational and charter sectors.

Future

When the resource fully transitions to be under the MAR framework, each of these elements will be reviewed in a formal manner using the ARMA-Based Objective and Allocation Policy.

6. Ecosystem Based Fisheries Management Objectives

The 2015 Policy required the formal incorporation of ecosystem-based objectives into the harvest strategy. As the current WRLHS predated this policy, it only focussed on the harvest of western rock lobster (target species), and lacked explicit objectives, performance indicators and reference levels for the management of non-target retained species, bycatch, Endangered, Threatened and Protected (ETP) species and other ecological components (e.g., habitat). The lack of these objectives was identified in the most recent MSC re-assessment of the WCRLMF, resulting in a condition on the fishery's certification.

Addressing these components is not likely to impact on the setting of the target species annual catch levels, therefore, the discussion on the Ecosystem Based Fisheries Management objectives will be considered by the harvest strategy working group.

7. Allocations

Current

As outlined above, updating a harvest strategy does not include review of the intersectoral allocations.

Future

A key principle for establishing ARMA was to improve the level of security rights for each of the sectors is that once an ARMS has been established, the sectoral allocation proportions are to be “fixed for the duration of each strategy”.

To ensure the integrity of the agreed set of future uses and delivery of the main objective outcomes, any permanent reallocations must remain the decision of the Minister on behalf of the entire community, not the individual fishing sectors, to ensure the best overall return to the State.

To assist with this approach, an ARMA-Based Objective and Allocation Policy has been prepared and will supersede previous IFM-related documents. This policy will be used to review the main objective and the sectoral allocations for this resource when it formally transitions to the MAR framework. Until then, the existing sectoral allocations will continue to operate.

7.1 Intersectoral Allocations

The current formal allocations for the western rock lobster in the West Coast bioregion were determined via [the IFM allocation process](#).

Current

- Commercial allocation = 95%
- Recreational allocation (including charter) = 5%
- Customary allocation of 1 tonne / year

Future

Using ARMA principles, the allocation of access refers to how the annual AHL and the Total Allowable Catch (TAC) are to be shared among users of the resource, *i.e.*, commercial, recreational, or customary fishers. This will include priority allocations of the AHL for each resource for customary fishing and public benefit¹ purposes. These priority allocations specify ongoing quantities (*e.g.*, number of kg or tonnes) of the resource that are available for these purposes within each fishing period.

The allocations to the commercial and recreational fishing sectors will be described as proportional allocations of the TAC for each fishing period, where the TAC represents the (variable) quantity of the resource that can be sustainably taken once the quantity for customary fishing and public benefit uses has been accounted for (Figure 2).

¹ Public benefit use would be for research or education purposes.

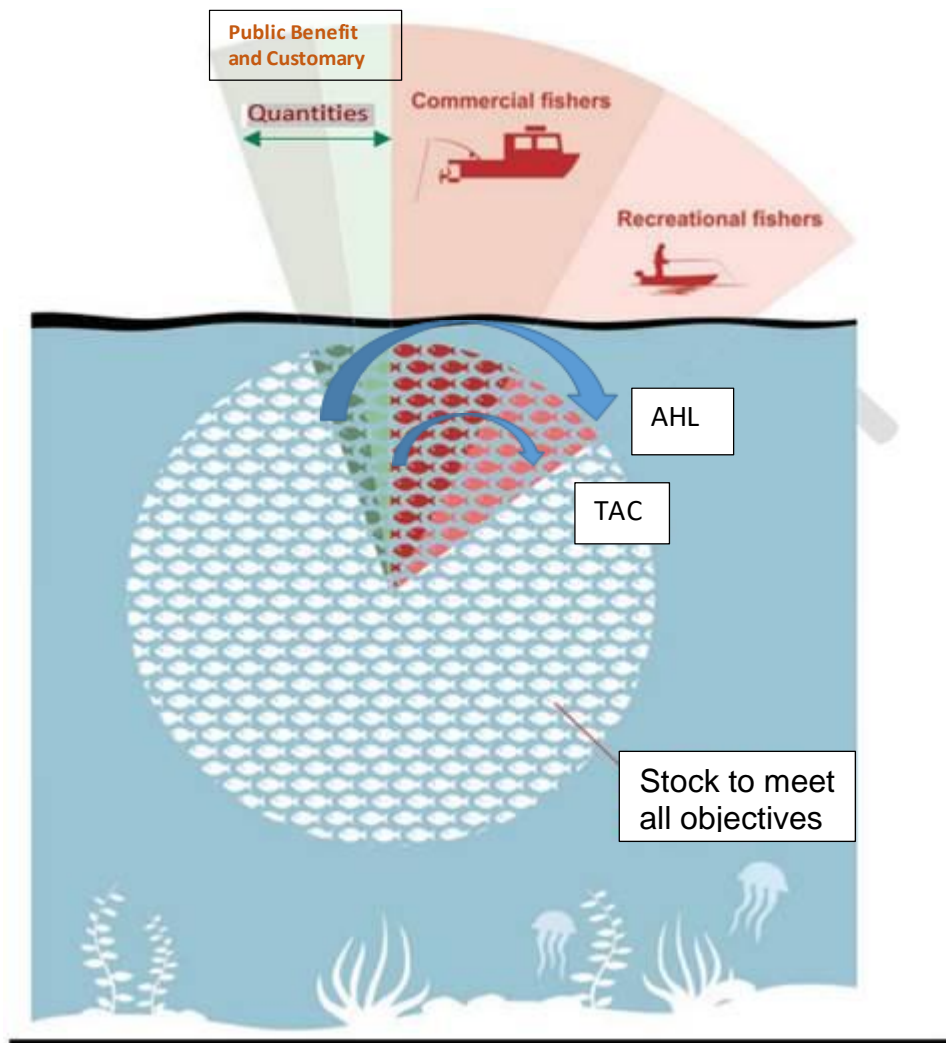


Figure 2. Diagram of allocation hierarchy under ARMA (note – there is currently no public benefit allocation for the western rock lobster resource).

7.2 Intrasectoral allocations

7.2.1 Intrasectoral commercial allocations between zones

Current

The intrasectoral allocation of the TACC is currently based on using fixed allocations of this value among the three rock lobster management zones, with zones A, B and C being allocated 18%, 32% and 50% of the TACC, respectively. Under the current harvest strategy, if the sustainability objective is not met in any one of the Breeding Stock Management Areas (BSMA), then the potential legal proportion harvested (LHP) in the relevant zones(s) would be reduced to bring the egg production indicator above the threshold. However, as this reduced LHP then informs the fishery-wide TACC, this decline is spread amongst the three zones due to the use of fixed percentages.

This methodology results in the total catch level being determined by the least performing zone of the Fishery. Having a fixed allocation decision does not allow for the maximum economic return to be realised because it does not reflect the biology and population dynamics of the resource can vary among zones. It does not account for the

likely changes in stock abundance and relative distribution which may occur as a result of climate change.

Shifting to a biologically based allocation process is consistent with the principles of ARMA for the setting of fishing season catch levels. It is also consistent with the 2018 Peer Review of the Science and Assessment which recommended that this fixed allocation should be removed and be based on the abundance of lobsters within each zone (Linnane *et al.*, 2018)². The report on this management of climate change impacts (Caputi *et al.*, 2015b) also suggested that consideration should be given in harvest strategies to providing greater flexibility to respond to long-term changes in stock distribution, acknowledging the potential impacts of climate change to differentially affect recruitment levels among the different zones.

Current situation:

- There is a fixed allocation of quota between the three zones (Zone A - 18%, Zone B - 32%, Zone C - 50%). For example, the TACC for Zone A = $AHL * 0.95 * 0.18$.

Transitional Arrangements in revised harvest strategy.

- Maintain current intrasectoral allocation process.

Future potential options under MAR framework

- Maintain fixed allocations of quota.
- Adopt biologically based proportions when moving to formal ARMS.

Initial feedback is sought on potential future options for allocating the TACC when it moves under a formal MAR framework.

7.2.2 Intrasectoral recreational allocations

Current

Unlike the TACC, TARC is currently set on a state-wide basis and therefore does not include zones. As outlined above there is the option of aligning the TARC to the same geographic boundaries as the commercial fishery.

Future

Fishing pressure from recreational fishers varies significantly between regions and is most intense around metropolitan centres. There is potential for consideration of having zones for the TARC within future harvest strategies to provide greater flexibility to respond to long-term changes in stock distribution, acknowledging the potential impacts of climate change.

Current situation:

² Recommendations from the 2018 Peer Review included:

- a. In addition to egg production (and any recommendations from MSC) consider adopting a reference point based on puerulus count.
- b. In relation to spatial allocation, consider adopting a dynamic allocation procedure where regional TACC's are based on the current biomass in each region.

- Currently using state-wide catch rather than catch within the commercial fisheries boundaries with no zones.

Potential option in revised harvest strategy:

- Align the boundary of the recreational catches used to monitor the TARC to mirror the boundary of the resource (TACC) *i.e.*, use catches from both sectors within the boundary of WCRLMF, or state-wide catches from both.

Future potential options under MAR framework zones (for which a recreational ARUP will be generated).:

- Maintain a single TARC.
- Allocation of the TARC among zones.

Feedback is sought on:

- **the potential re-alignment of the boundary for monitoring the TARC and;**
- **the options for allocating the TARC among the zones when it moves under a formal MAR framework.**

7.2.3 Intrasectoral allocation for charter

Charter catches are currently considered as part of the recreational catch and therefore part of the 5% recreational IFM allocation. A five-year trial of new rock lobster fishing charter management arrangements has been jointly developed by the WA Government, Recfishwest and the charter industry, under which the charter catches are expected to increase from approximately 5 tonnes to 20 tonnes. The Department intends to monitor the increase in charter catches as part of the trial and revise the management arrangements as required, to ensure the notional 20 tonne catch limit is not exceeded.

Current situation:

- Charter fishing rules align closely with recreational fishing rules.
- Charter catches are considered a sub-set of the recreational catches.
- A charter trial is in place between November 2019 and November 2024 with a notional catch limit of 20 tonnes.

Potential option in revised harvest strategy:

- Identify/allocate a specific charter catch (expressed as a percentage or in tonnes), as a subset of the recreational allocation.

Future option under MAR framework:

- Consider methods for allocating and trading quota amongst charter operators as part of the transition to full MAR framework.

Feedback is sought on the options and timing for a separate intrasectoral allocation of the TARC to the charter sector.

8. Determination of AHL, TACC, TACC and TARC

This section considers the processes for setting the AHL, TACC, TARC plus the magnitude of inter-annual increases in the TACC resulting from the adoption of ARMA principles. Importantly, to minimise disruptions to each sector, it proposes a clear transition pathway towards an ARMA-based approach to setting the TACC/TARC.

8.1 AHL setting process

Current

Under the current WRLHS, the AHL is defined as the total quantity of western rock lobster that could be taken in the next season by the commercial and recreational sectors combined based on the current available legal biomass and the MEY based harvest rate.

Future

To achieve more stable and secure outcomes, the future determination of the AHL will take a longer-term approach based on determining an MEY based proportion of the harvestable biomass that generates a total catch level that can consistently be taken for the next five years. This will ensure that the stock approaches or remains near the target levels for the entire 5-year period.

Basing the calculation of AHL on a catch level associated with MEY that must be able to extend for five years has the advantage of minimising interannual variations which will assist in maximising economic returns from the resource and better ensure that the biomass levels remain at an MEY based target level (which must be at least 20% above that associated with MSY).

In determining the specific harvest rate and target level that will be applied, broader economic issues (*e.g.*, ancillary industries), social (*e.g.*, employment, optimising recreational fishing experience) and environmental (*e.g.*, fishing footprint) will also be considered in addition to the commercial fishing operation and processing profitability.

Previous work on MEY in the rock lobster fishery has shown there is a small range of harvest rates (*e.g.*, 0.3 – 0.4) that generate maximum profitability for fishing operations *i.e.*, MEY is based on long-term fishing operations and not subject to market-driven factors affecting supply chains. These MEY levels are significantly lower than those associated with even a conservative estimate of MSY (~0.6 – 0.8) (Caputi *et al.*, 2015a; Caputi *et al.*, 2018).

Depending on where the harvest rate is set, there are varying costs and benefits experienced by the commercial and recreational fishing sectors, the WA community, and the State (Caputi *et al.* 2015a). When considering this approach in the context of providing the best overall return to the state, a harvest rate of 0.39 approximates the level of fishing consistent with MEY whilst also maximising employment opportunities. Currently, the target harvest rate is 0.39 with values of 0.3 and 0.4 bounding the MEY range (Caputi *et al.*, 2018).

An MEY modelling project, in conjunction with the WRLC, is currently underway and aims to produce a contemporary MEY-based stock assessment methodology that will be considered in the final determination of the longer-term target harvest rate for the resource.

Current situation:

- The resource level AHL is calculated by adding up of three separately calculated zone level AHLs.
- The AHL in each zone is calculated using the MEY harvest rate³ (currently 39%) based on the current harvestable stock level in that zone for that year.

Proposed method for setting the AHL for the transition period:

- The AHL will be generated from the zonal level AHLs by multiplying the estimated biomass of legal lobsters in each zone that is available for the next five-year period by the target harvest rate.

Future:

- The future target harvest rate will consider the outcomes of the MEY modelling project.

Feedback is sought on the use of 0.39 as the target harvest rate during the transition period.

8.2 TACC / TARC setting process

Current

- TACC / TARC setting process is undertaken based on a single season estimate of the AHL.
- 1 t is set aside for customary take.
- TARC is determined as 5% of the AHL.
- Consultation is undertaken with the WRLC (and its TACC Committee) to set the annual TACC which has resulted in a lower TACC than the potential TACC (95% of the AHL).
- The commercial sector has also been allocated an additional 1.5% quota to account for water loss between gross and net weighing of landed catch.

Future

Under ARMA, the allocations for the commercial fishing sector (TACC) and the recreational fishing sector (TARC) are both determined solely using their proportional allocations of the TAC *i.e.*, AHL minus customary and public benefit allocation (Figure 2). Any change (increase or decrease) in the calculated AHL for a fishing season (as determined by the parameters outlined in the harvest strategy section of the ARMS) due either to fishing or non-fishing impacts on stock levels will result in the same proportional change to both the TACC and TARC being applied (Figure 3).

This is a significant deviation from the current TACC setting process where the TACC may be set below that calculated from the TAC. Under ARMA, the full allocatable amount becomes the basis for all catch allocations, and consistent with providing

³ The harvest rate is the proportion of the legal biomass of lobsters taken each season. A harvest rate of 0.39 means that 39% of the lobsters which are classified as legally able to be taken (due to size, spawning status etc.), are able to be harvested.

stronger access rights to shareholders, there is no provision for a consultative TACC setting process that results in less quota being issued to shareholders. Each shareholder does, however, have the individual right not to catch all their allocated quota.

The 'water loss / drip loss' factor applied to the commercial sector has created challenges for reporting and can give the misleading impression that catch quotas for the commercial sector have been exceeded. Such additions to the TACC are also not consistent with ARMA principles and therefore the water loss element will not continue.

Proposed Transitional situation:

- TACC / TARC setting process will be undertaken based on the long-term (5-year) estimate of the AHL.
- No additional quota for 'water loss / drip loss'.
- Noting there is a significant difference between the current TAC (~7100 t) and the long-term AHL (~8500 t), transitional measures are proposed in Section 8.4 to move towards use of the long-term harvest rate to set the AHL and TACC/TARC in a structured manner.

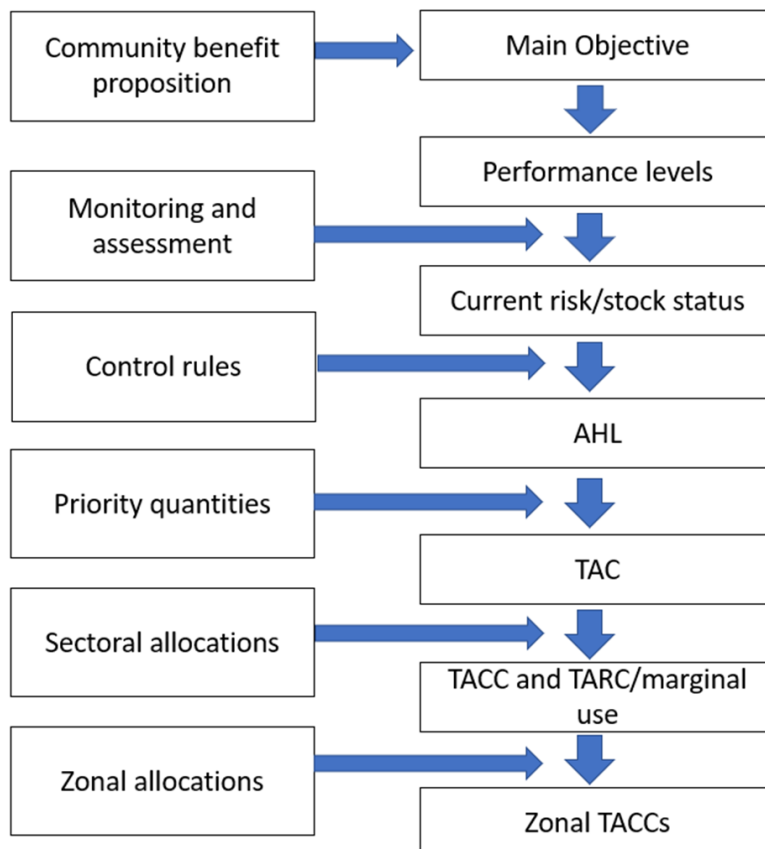


Figure 3: Outline of the ARMA Harvest Strategy processes and inputs used to develop the AHL, TAC, TACCs and TARC for each fishing period for this resource once it moves under the MAR framework.

8.3 TACC / TARC setting period

Currently the TACC/TARC is set annually for the following season. The Department will continue to undertake an annual stock assessment to monitor the management objectives of the resource.

Current situation:

- TACC/TARC is set annually for the following season.

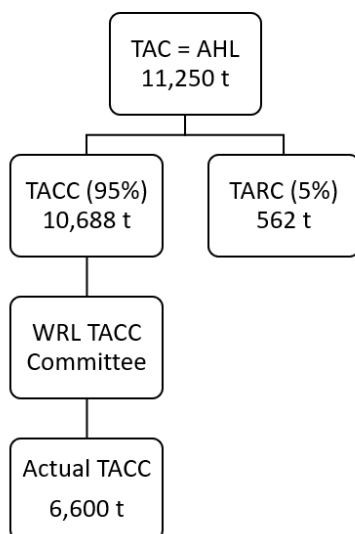
Future situation:

- Under ARMA, the TAC setting process will be undertaken for the resource on annual basis but as the AHL will be based on what can be taken for the next five years, an indicative TAC for the following year and the likely five-year trajectory will also be generated as part of the assessment process to provide all sectors with strong ability to plan for the future.

8.4 Transitioning to full capture of the AHL

Given there is a significant difference between the TAC for the 2023/24 season (combined TACC and TARC of ~7,800 t) and the long term AHL-based TAC (~8,500 t), there is merit in the commercial sector taking progressive steps to increase the TACC towards the target harvest rate to transition to the ARMA-based approach (Figure 4).

Current state (2021/22)



Future state

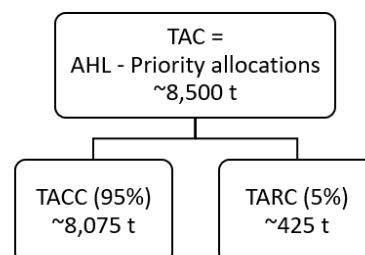


Figure 4: Schematic of current state of TACC/TARC setting in comparison to the future state under an ARMA-based approach, assuming a long-term AHL of ~8,500 t. Note, during the transitional period, the customary allocation will remain as 1 t and there is no specified amount for public benefit.

A transitional plan will be set for a period of time (3 or 4 years) and involve steadily adjusting the TACC by increments (maximum 300 or 400 t) to reach 95% of the long-term AHL currently estimated to be 8,500 t.

To minimise impacts on the recreational sector, during this time, it is proposed that the TARC continue to be set as 5% of the single-year AHL (i.e., continue current methodology). The available biomass is expected to gradually reduce during the transitional period until the biomass is equivalent to the long-term AHL. The TARC will similarly reduce as a percentage of the AHL.

Potential transition options:

- Adopt a three or four year transition period to achieve full capture of the AHL.
- During the transitional period:
 - Increase the TACC annually by a maximum of 300 or 400 tonnes.
 - Continue to set the TARC at 5% of the single-year AHL.
- Once the transitional period is over or when the combined commercial and recreational catch is close to the long-term AHL, shift the annual calculation of the TARC and TACCs to be based on the longer term AHL.

Noting there may be lag in the decline in recreational catch (i.e. recreational catches may not decline at the same rate as the annual TARC), it is proposed that no additional management actions will be taken during the transitional period even if annual catches exceed the TARC.

Notwithstanding this, appropriate reductions to the TACC or TARC and management arrangements will be undertaken if required for sustainability reasons.

Feedback is sought on the transitional options for setting of the TACC and TARC to achieve full capture of the AHL.

9. Measuring performance

Harvest strategies are designed to provide a transparent method to measure fishery performance against documented reference levels and ensure risks are maintained at an acceptable level (i.e., medium, or lower) for each ecological objective or, where the risk is currently high or severe, return the risk to an acceptable level. It is important that suitable performance indicators are identified to measure the fishery's performance (or impact) against each objective. A performance indicator can be a quantitative or qualitative measure of some attribute of the fishery.

To interpret the current or expected future value of a performance indicator in relation to the objective requires defining the levels that separate acceptable performance from unacceptable performance. These performance or reference values are used to guide what management actions may be required and can include:

- a target (where you want the indicator to be),
- a threshold (where you review your position), or
- a limit (where you don't want the indicator to be).

The Ecological Risk Assessment for the western rock lobster resource provides an up-to-date assessment of the ecological components of the fishery and will assist to determine appropriate performance indicators and reference levels. For example, if the

current level of bycatch is identified as low risk, the target reference level may be set at the current level. If it was identified as high risk, the current level of bycatch may be set as the limit reference level *i.e.*, where you don't want to be.

For the target stock, threshold and limit reference levels are generally biologically-based with the minimum threshold level having been set at Bmsy since the 2015 Policy was published.

The target reference level for the lobster stock is to be based on meeting the objective for the uses of the resource (see Section 5) but this must be at least 20% above Bmsy.

For the other ecological components (bycatch, etc) a Technical Paper outlining proposed metrics (performance indicators and reference levels) to assess each of the ecological objectives will be provided to the Harvest Strategy Working Group for consideration.

Once performance levels and reference levels have been identified for these other components, appropriate decision rules can be considered which will generally be given effect through management plan or regulatory changes. The Harvest Strategy Working Group will be asked to provide input into decision making rules.

9.1 Recreational Fishery

9.1.1 Measuring the recreational catch

Accurate measures of recreational catch are required for stock assessment, and to ensure recreational catch is maintained within the 5% allocation. Currently the recreational catch is estimated (not directly measured) by a range of methods (e.g., recreational mail-survey, phone survey, phone diary, iSurvey), and often there are substantial time lags before the estimate for a particular period is able to be generated. In addition, survey methodologies have changed over time, each with varying levels of accuracy. At the time that the 5% recreational allocation was made, the recreational catch estimates were assessed via mail surveys (and phone/diary surveys), and the basis associated with this methodology should be considered. For further details, see de Lestang et al. (2016). Under an ARMS there will be greater requirements to accurately measure the recreational take of the rock lobster resource in near real-time.

Charter catches (which are considered to be a subset of the recreational catch) are directly measured (not estimated) via mandatory catch logbooks for each fishing tour undertaken.

Current situation:

- Recreational catch is estimated predominantly using phone-based survey techniques. Survey methods are reviewed to ensure on-going improvement and to increase precision of estimates.
- Charter catches are directly measured via logbooks and added to the recreational catch estimates.

Potential options:

- Consider the timing for adoption of alternative options to directly measure the recreational catch, such as compulsory catch reporting. DPIRD's Fisheries Digital Transformation Project will consider digital mechanisms for recording recreational catch. Digital catch reporting is being developed for the recreational

take of West Coast Demersal Scalefish as a priority and may have potential extension for rock lobster.

Feedback is sought on the option and timing for recreational catch monitoring.

9.1.2 Comparing the recreational catch to the TARC

Current

As recommended by the IFM Allocation Advisory Committee (Department of Fisheries, 2007), recreational catch estimates are currently compared to the TARC on a five-year rolling average basis.

This decision was based on the considerable challenges associated with managing recreational allocations on a year-to-year basis at that time. Furthermore, there can be significant variations in recreational catches from year-to-year, due to changing abundance from recruitment or resulting from transient changes in the spatial distribution of effort across the fishery.

Future

As the provision of recreational catch data becomes more timely (as a result of ARMA requirements and digital solutions), consideration will be given to reducing this timeframe.

Current situation:

- The state-wide recreational catch of western rock lobster is used to monitor catches against the TARC.
- To monitor the recreational catch against the sector's 5% allocation, the five-year rolling average of both the estimated recreational catch (including charter) and TARC are compared.

Proposed transitional options:

- During the transitional period outlined under section 8.4, recreational catches will continue to be monitored but it is proposed to exempt the recreational sector from meeting the TARC.

Potential future options:

- Align the boundary of the recreational catches used to monitor the TARC to mirror the boundary of the commercial resource (TACC) i.e. use catches from both sectors within the boundary of WCRLMF, or statewide catches from both.
- Assessment period:
 - Maintain the existing arrangements using a five-year rolling average
 - Consider adopting a three-year rolling average
 - Consider utilising annual assessment

Feedback is sought on the option for assessing recreational catch against the TARC.

10. Feedback

The Department is seeking comments on matters raised within this discussion paper and/or identification of any additional issues by the end of April 2023.

Please send any feedback to Aidan Walsh, Fisheries Management Officer, at Aidan.Walsh@dpird.wa.gov.au.

Feedback will be considered by the Department and cross-sectoral working group and assist in the preparation of a revised harvest strategy.

11. References

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