



Review of approaches for determining commercial fisheries compensation

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Abbreviations

ABARES: Australian Bureau of Agricultural and Resource Economics

AIP: Asset Impacts Payment

ARMA: *Western Australia Aquatic Resources Management Act 2016* (ARMA)

BDO: BDO EconSearch

BOEM: United States Bureau of Ocean Energy Management

BRA: Business Restructuring Assistance

CALM: *Conservation and Land Management Act 1984* (CALM Act),

CCSCF: Cockburn Sound Commercial Crab Fishery

CFAS: Compulsory Fisheries Adjustment Scheme

CMSFRAC: South Australian Commercial Marine Scale Fishery Reform Advisory Committee

CPUE: Catch per Unit Effort

DBCA: Western Australian Department of Biodiversity Conservation and Attractions

DFWA: Western Australian Department of Fisheries (former)

DPIRD: Western Australian Department of Primary Industries and Regional Development

DCF: Discounted Cash Flow

EEM: Excess Earnings Method

EPA: Environmental Protection Authority

EU: European Union

FAS: *Fisheries Adjustment Schemes Act 1987* (FAS Act)

FBRA: Full Business Restructuring Assistance

FLOWW: Fishing Liaison with Offshore Wind and Wet Renewables Group

FRDC: Fisheries Research and Development Corporation

FRICMA: Fishing and Related Industries Compensation (*Marine Reserves Act 1997*)

FWG: Fisheries Working Group

GBRMP: Great Barrier Reef Marine Park

GVP: Gross Value of Production

LNG: Liquefied Natural Gas
MPA: Marine Protected Area
MSF: Marine Scale Fishery
MVL: Market Value of Licence
NRSMPA: National Representative System of Marine Protected Areas
ONPMF: Onslow and Nickol Bay Prawn Managed Fisheries
OREI: Offshore Renewable Energy Installation
PAP: Profit Adjusted Payment
PBBAP: Port Phillip Bay Commercial Netting Adjustment Program
PIRSA: South Australia Department of Primary Industry and Regions
SAP: Structural Adjustment Package
SBRA: Simplified Business Restructuring Assistance
SP: Solatium Payment
TAC: Total Allowable Catch
TURFS: Territorial use rights in fisheries
VFA: Victorian Fisheries Authority
VFAS: Voluntary Fisheries Adjustment Scheme
WA: Western Australia
WAFIC: Western Australian Fishing Industry Council
WCADA: West Coast Abalone Divers Association
WCECF: West Coast Estuarine Commercial Fishery

Executive Summary

Competition for access to and use of the marine environment is an ongoing issue in fisheries management. Increasingly, commercial fishers are being called on to surrender their fishing rights in part or in full. The surrender of rights may be voluntary or compulsory, but critical to the success of either is the establishment of an effective, transparent and equitable compensation process.

Setting an appropriate level of compensation is inherently difficult, given the divergent goals of the parties. Fishers justifiably seek to receive the best price possible for surrendering their rights, while Government seeks the best overall value for all parties.

This process is further complicated when it involves small scale commercial fisheries with few licence holders, limited trade or no trade in fishing rights, where limited public information is available about fishing activities and financial performance, and a prevalence of 'lifestyle' focused fishers. In these circumstances the negotiating parties (government and fishers) typically operate in an environment with less than perfect information. It is often the case that there are information asymmetries, whereby one party has more information than the other. This frustrates and impedes the process of determining fair and reasonable compensation.

In Western Australia (WA), fisheries compensation processes are guided by the *Fisheries Adjustment Schemes Act 1987* and the *Fishing and Related Industries Compensation (Marine Reserves) Act 1997* (FRICMA). While the legislation provides high level guidance, it lacks a robust and transparent basis for determining compensation (instead providing a high level of ministerial discretion). There is the potential for conflict and undesirable outcomes, as shown in recent compensation schemes conducted in WA.

These outcomes are not unique to WA. The research documented in this report demonstrates that similar issues have been experienced in other Australian jurisdictions too when implementing compensation schemes. Therefore, the findings and recommendations emerging from the research have application more broadly to fisheries outside of WA.

Past experience with fisheries compensation in Western Australia

To date, most of the WA schemes have been implemented as voluntary schemes. While they have all been successfully concluded, the processes employed have not been without considerable difficulty and effort by those involved. In the five schemes reviewed in this study, a range of issues were evident. Feedback obtained from scheme managers and fishers that participated in the schemes indicated several common areas of concern:

- **Lack of transparency** – industry expressed frustration over the lack of detail about how compensation offers were determined, which made it difficult to understand initial offers and engage in negotiation. There was a perception that the process was designed to initially make a “low-ball” offer, making licence holders suspicious of the process from the outset.
- **Poorly timed** – some processes were arguably triggered later than they should have been and often because of political engagement by industry. More importantly, many processes were lengthy, running for two or more years, using up resources and creating significant uncertainty and emotional distress for industry.
- **Data challenges** – limited trading in fishing rights has made it difficult to use market-based approaches to estimate licence values and information on the value at which fishing rights are

traded is not collected or maintained by the WA Department of Primary Industries and Regional Development (DPIRD). Application of income-based valuations is limited by a lack of detailed economic data, while reliance on gross value of production (GVP) approaches is complicated by potential inaccuracies in beach prices.

- **Planning issues** – in some cases, the broader purpose of the compensation scheme has not been completely clear to fishers. There also appears to be a lack of clarity around when a process is voluntary versus compulsory, with examples of schemes run as voluntary schemes where the context appeared to be more consistent with compulsory acquisition.
- **Lack of relevant expertise and knowledge** – as compensation is not DPIRD’s core business, it potentially limits their capacity to administer compensation schemes. Likewise, Committees¹ are not provided with documented guidance to guide their deliberations. Where external experts have been relied on, there was a perception that they did not have relevant industry knowledge or experience.
- **Mistrust** – there typically appears to be a level of distrust going into a compensation process and the role of the Committee as an independent body, amplified by its lack of transparency and general inaccessibility. The sense of mistrust is also magnified by compensation offers that fall well below initial industry expectations, which in turn reflect the initial lack of transparency regarding the compensation process and methodologies.
- **Reliance on industry leadership** – while successful processes were often associated with strong industry leadership, it should not be a requirement for successful compensation. However, there may be benefits to WA Fishing Industry Council (WAFIC) building up its expertise in the space and taking on a greater role given its frequent exposure to compensation processes.
- **The focus on market value impacts under FRICMA** – FRICMA requires compensation to be based on negative impacts on the market value of fishing rights. This approach is problematic given the thin markets for fishing rights, data constraints and with the limited available market values being influenced by multiple factors. But most importantly, the disutility caused for an individual licence holder may be larger than the change in market value of a licence (which is an indicator of impact for the entire fishery)

Because of these experiences, and given that compensation issues will continue to arise, it is appropriate to consider the general issue of compensation in fisheries management, the lessons from previous compensation schemes and how processes and valuations can be improved going forward.

This report does this with a focus on recent experience including feedback from stakeholders involved. General principles of compensation are married with the experience from recent schemes to develop best practice principles for implementing fisheries compensation.

Recommendations for improvement

The report makes the following recommendations for improving the operation of fisheries compensation for small-scale commercial fisheries:

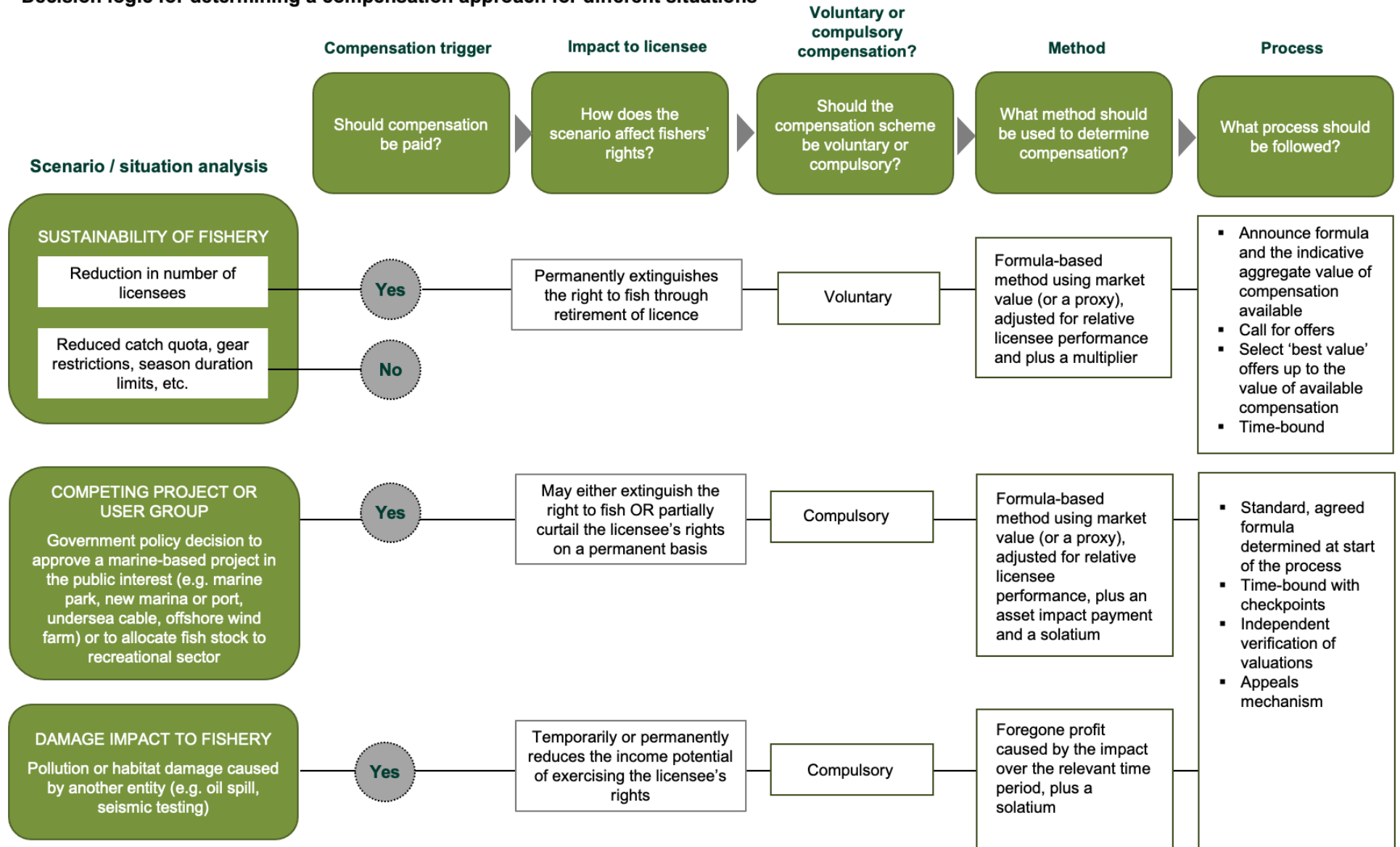
- For most of the foreseeable cases, compulsory schemes should be favoured.
- Each scheme needs to begin with clear criteria to guide the triggering of the compensation process.

¹ Compensation legislation in Western Australia requires the establishment of ‘committees of management’ to assist the Minister in establishing, implementing and administering compensation schemes, including assessing compensation claims and providing advice on compensation offers.

- Schemes should have comprehensive guidance available to participants on the compensation process, planning and implementation, including the time frame for completion.
- Schemes should have guidance on how compensation amounts should be determined, including specified compensation formulas for licence acquisition processes, requirements to use external valuers to determine the market value component, and decision criteria to guide the choice of methods to determine a right's market value.
- A process should be developed whereby critical elements (time frame, formula, valuers, etc.) can be agreed upon early in the process by representatives of the Government and the fishers.
- Provision should be made for individuals to appeal the outcome of the compensation process based on their individual circumstances.

The core of the preferred approach is summarised in the following diagram, which sets out the decision logic for determining an appropriate compensation method under a range of different situations (reproduced from Figure 8 in this report)

Decision logic for determining a compensation approach for different situations



A forward work plan

The above processes should be supported and informed by further work on the following:

- Design a 'pro forma' for affected fishers that incorporates relevant information on the formula to be used, including a section prefilled with required information available from the relevant agencies (e.g., estimated licence value, catch history, gross value of production (GVP), beach prices, solatium percentage) and a section for fishers to submit relevant information on their operation (e.g., financial history, income, operating costs). Information from the two sections can then be used to calculate the compensation to be offered.
- Undertake research to identify relevant GVP multipliers for determining values for specific fishery types that exist in WA.
- Amend or replace FRICMA to move away from compensating for change in the market value of rights to focus instead on expected loss of income.
- Make sure that processes identify and communicate pre-defined strategies for determining compensation when value adding and/or vertical integration exists.
- Improve data available for supporting compensation determination, including improving the spatial granularity of collected catch and effort data, exploring opportunities to capture data on the values at which rights are traded, and considering the use of economic surveys for WA's larger, more valuable fisheries.

It needs to be emphasised that in carrying out these recommendations, judgment will be needed. The effort to collect data and pursue processes needs to be commensurate with the economic size and significance of the fishery. In the case of small-scale commercial fisheries, the additional gains to government and fishers from extensive data collection may not warrant the extra investment. Sometimes it may simply be more efficient to be 'generous' in applying the formulas (for example, in setting the GVP of income multiplier) than spend significant resources collecting data and researching values to unwarranted levels of accuracy.

Keywords: property rights, fishing rights, compensation, compulsory, voluntary, fairness, valuation

Introduction

Background

Commercial fishing rights represent any entitlement for an entity or person to engage in a fishery, typically defined by some means of operating in the fishery. This can be in terms of a right to participate (e.g., a fishing licence), a right to catch (e.g., quota), a right to expend effort (e.g., an effort entitlement) or even a right to fish a specific spatial location (e.g., territorial use rights in fisheries [TURFs]). Such fishing rights can also be transferrable (or tradable) or non-transferable between entities.

Fishing rights are central to the governance arrangements of most Australian commercial fisheries. Their use prevents open access to a fishery and allows a fishery manager improved control over fishery harvests to prevent overfishing.

While fishing rights provide an entity with an ability to exercise a claim within a fishery, the privileges given to the owner of those rights, and thus the ability for those rights to generate a benefit, are not fixed nor necessarily permanent. The value generated by a fishing right can be negatively affected by several external factors, such as:

- Changes to fishery management arrangements.
- Changes to the status of the fishery resource.
- Environmental variability.
- Competing uses for and/or reduction in access to the fishery resource, including:
 - alternative extractive uses (e.g., recreational and charter fishing and Indigenous traditional fishing)
 - alternative non-extractive uses (e.g., tourism and recreational diving, renewable energy)
 - conservation (through the establishment of marine parks).
- Urban and industrial development activities and projects.

In other cases, fishery managers will identify a need to remove licences from a fishery. This may be in response to variability in fish biomass, fluctuating market conditions, poor management and/or changes in the environment (including climate change), which can lead to circumstances where a fishery becomes overfished and unprofitable. By removing licences, the fishery manager can reduce pressure on fishery stocks and promote structural adjustment beyond what can be practically achieved through standard fishery management adjustments (i.e., to catch and effort settings).

In all the above situations, there will often be a need to compensate the affected owners of fishing rights. Where fishing rights are negatively impacted by some external event, right holders may be compensated for that impact and any associated damages. In situations where right holders are being asked to surrender their rights, right holders need to be compensated for the value of those rights.

In both cases, compensation would involve a transaction taking place whereby a right holder receives the appropriate financial compensation from the relevant external party. That compensating party is most often the fishery manager on behalf of the relevant government, but it can be funded by the fishing

industry itself (where compensation is for surrender) or by the external private entity that is having a negative impact on the fishery (where compensation is being paid for impact).

A key challenge for compensating fishery right holders is determining an appropriate compensation amount that fairly compensates licence holders for losses suffered while also achieving value for money. This is complicated by several factors. Different stakeholders will have different interpretations of what is deemed “fair” compensation. Compensation is also contextual and can depend on the circumstances of the fishery, the specific rights at issue and/or the situation that has led to the need for compensation. Further complicating the compensation question is that the landscape for fisheries compensation is changing from one focused on traditional drivers (such as biological management and resource sharing), to more novel and complex contexts such as facilitation of conservation efforts (through marine parks) and responding to complex and unique industrial developments.

The compensation question can be acutely challenging for small-scale fisheries. These fisheries are often characterised by few licence holders, limited trade in fishing rights, more general data limitations, including financial data limitations, and, in some cases, a ‘lifestyle’ focus (rather than profit) by fishery participants. These characteristics complicate any valuation of fishing rights for compensation.

While there are challenges to determining compensation for fisheries, they are largely practical and are not insurmountable. Furthermore, the principles that guide the compensation of fisheries are generic and broadly applicable to a range of fisheries (including small-scale fisheries).

The Western Australian context

In WA, increased resource competition, industrial development and sustainability issues have increased the need for fisheries compensation. This trend is likely to continue with future marine developments that are currently being planned and/or explored (e.g., marine parks, seismic surveys, wind farms and carbon sequestration).

Fisheries compensation processes in WA are primarily guided by two pieces of legislation. Compensation for surrender schemes is governed by the *Fisheries Adjustment Schemes Act 1987* (FAS Act), while compensation for the impacts of marine parks is determined by negotiation under the *Fishing and Related Industries Compensation (Marine Reserves) Act 1997* (FRICMA Act).

Whilst the legislation provides high level guidance on how fisheries compensation schemes should be delivered, it lacks a robust and transparent basis for valuing the licences that are being targeted in a scheme (instead providing ministerial discretion). Similarly, the legislative framework does not make compensation a right for the holders of fishing rights, nor does it clearly articulate when compensation should be offered. This potentially allows significant scope for discretionary decision-making around when to trigger a compensation process.

Given these shortcomings, there has been evidence of industry dissatisfaction across several recent compensation processes implemented in WA and against a variety of measures. This includes not just the compensation amounts paid out to licence holders, but also in terms of the compensation procedure followed and its fairness.

This project

Research need

The lack of clarity around best practice approaches to licence valuation and compensation has likely contributed to the variability in the success of schemes in WA. Considering these issues and in the context of several recent and ongoing compensation schemes in WA, both WAFIC and the Fisheries Research and Development Corporation (FRDC) have identified a need to better understand compensation approaches available for small-scale commercial fisheries for the purpose of improving current approaches in WA.

Research objectives and scope

Synergies Economic Consulting (Synergies) has been engaged by the FRDC to deliver a project that addresses the following objectives:

1. To review and summarise methods that can be used to value fishery access rights for compensation purposes, including each method's advantages, disadvantages and appropriateness for given circumstances.
2. To understand the views and perspectives of those that hold or trade fishery access rights regarding how they value fishery rights.
3. To identify and recommend compensation calculation approaches that are most suitable for WA's small-scale fisheries and that could readily be adopted in WA Government legislation, policy, or processes.

Initially, the project's scope was focused on valuation methods in alignment with Objective 1. However, it became apparent during the project that the fisheries compensation process was as important for small-scale fisheries as the valuation method. The scope of the evaluation was thus broadened to also consider process.

The project's scope was also guided by the following definition of a small-scale fishery: *"A fishery with few vessels primarily operated by individuals and/or families (with few employees) in localised coastal or nearshore waters using low-impact fishing methods (such as handlines or traps) to take small catch volumes often at a low profit."*

The project's scope is broad in terms of the potential recommendations that it may make, with a focus on what makes for a fair and robust compensation framework. This implies that some recommendations may require legislative change.

This report

This *Project Report* captures the findings of the project. It outlines the principles of compensation (both generally and in the fisheries context), considers approaches to fisheries compensation in WA and elsewhere, and then identifies some best practice principles for fisheries compensation process and valuation methods. Building on the project findings and the identified best practice principles, several potential improvements are identified for WA's fisheries compensation framework.

The paper is structured as follows:

- Section 2 outlines the project methodology.
- Section 3 summarises the general principles of compensation.
- Section 4 outlines the principles and available methods for fisheries compensation and includes examples of compensation approaches applied elsewhere.
- Section 5 considers the fisheries compensation framework in WA and recent schemes that have been implemented under that framework.

- Section 6 concludes the report by identifying compensation best practice principles and potential improvements for WA.

Method

The project's delivery was divided into two phases: (i) an information-gathering phase and (ii) an evaluation phase, both of which are further detailed below. The overall approach was guided by a project steering committee composed of representatives from FRDC, WAFIC and the Department of Primary Industries and Regional Development (DPIRD).

Information gathering phase

Desktop research

A desktop literature review was undertaken to develop our understanding of issues relevant to fisheries compensation in WA, including:

- WA's current situation:
 - Characterising WA's fisheries, and specifically, its small-scale fisheries.
 - Outlining the WA legislative and policy framework that currently governs the approach to valuing, compensating and buying back fishing rights.
 - Summarising recent fishery compensation experiences in WA.
- Approaches to valuing and compensating fishing right holders:
 - The general economic principles of compensation.
 - Features of best practice compensation process to achieve procedural fairness.
 - The principles that guide the selection of valuation methods for fishing rights, including how these might vary for different circumstances.
 - The specifics of compensation methods and how they should be applied, including relative advantages and disadvantages.
 - Consideration of methods relevant to compensating right holders in small-scale fisheries and the issues that are typically encountered.

Consultation case studies

Our desktop research informed the identification of case study compensation schemes for consultation. Compensation schemes underway at the time of the project were considered out of scope because of the commercial sensitivities of the compensation negotiation process and a concern that the project might influence their expectations.

Three compensation schemes were initially selected as case studies:

- WA Area 7 Abalone Fishery - Ocean Reef Marina scheme (Abalone Scheme).
- WA West Coast Estuarine Fishery Adjustment Scheme (Estuarine Scheme).
- WA Chevron Wheatstone Compensation scheme (Wheatstone Scheme).

The *WA Cockburn Sound Managed Crab Fishery adjustment scheme* (Crab Scheme) was later included in the consultation phase given the low number of consultation responses in other case studies and its

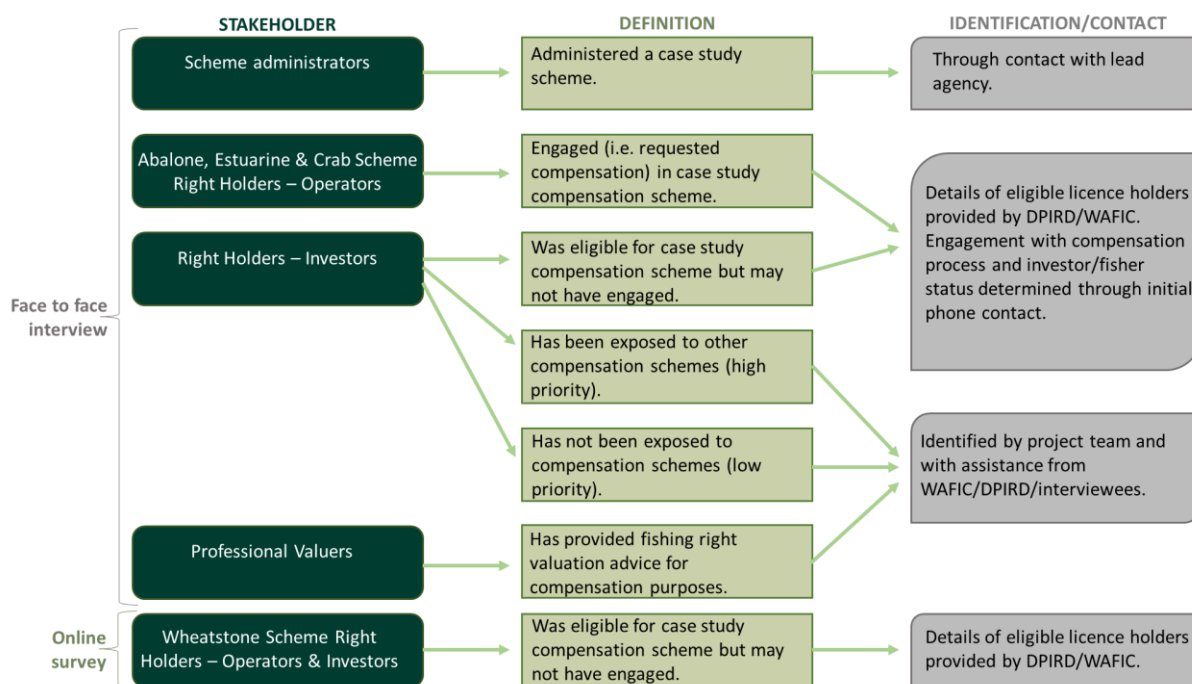
overlap with the Estuarine Scheme. The *Commonwealth Parks Australia – Fishing Business Assistance Program* (Parks Scheme) was also incorporated as a ‘compensation for impact’ scheme but with project consultation limited to an interview with those involved in the scheme’s administration.

Project consultation had two primary objectives:

- Build an understanding of the methods applied under previous case-study compensation schemes and be cognisant of the issues and practicalities faced.
- Understand the views of fishing right holders and those engaged in fishing right markets regarding their valuation of rights and how this compares to compensation valuations.

The survey approach is summarised in Figure 1 below.

Figure 1 Summary of survey sampling approach



Source: Synergies Economic Consulting

For the sampling of licence holders, DPIRD provided a list of licence holders for each case study fishery that existed as at the point in time at which the relevant compensation scheme was announced. Our sampling approach then involved contacting all licence holders to determine if they engaged in the process (i.e., did they request compensation) and, if they did, requesting their participation in the survey. For other stakeholders (i.e., non-licence holders), they were identified and contacted based on the knowledge and input of the project team and steering committee.

For most entities consulted, semi-structured interviews were conducted via face-to-face, virtual or telephone interview. For some compensation processes, licence holders consulted were requested to provide formal consent for DPIRD to release correspondence from the licence holder’s engagement with the process, which was used to better understand the process.

For right holders that engaged in the Wheatstone Scheme, an online survey was used given the large number of right holders (94) that were exposed to the process across multiple fisheries (8 fisheries).

The outcomes of the full consultation process are summarised in Table 1. There were no investors surveyed reflecting the small-scale fisheries targeted.

Table 1 Summary of project consultation outcomes

Stakeholder	Number of stakeholders sampled	Description
Scheme administrators	4	<ul style="list-style-type: none"> Two interviews held with current DPIRD staff members involved in the administration of the Abalone Scheme, Estuarine Scheme and Crab Scheme. One interview held with a previous DPIRD staff member involved in the administration of the Wheatstone Compensation Scheme. One interview held with Parks Australia staff (from the Commonwealth Department of Climate Change, Energy, the Environment and Water) who administered the national <i>Fishing Business Assistance Grants program</i>. One interview with Victorian Fisheries Authority staff who were responsible for designing and implementing compensation schemes.
Right holders - operators	15	<ul style="list-style-type: none"> Five Abalone Scheme right holders interviewed (total population of 10). Four Estuarine Scheme right holders interviewed (total population of 9). Three Crab Scheme right holders interviewed (total population of 6). Three Wheatstone Scheme right holders that engaged in the compensation scheme responded to the survey (another nine responded that had not engaged in the scheme) (total population 94).
Professional valuers	3	<ul style="list-style-type: none"> One interview was held with a current licence/boat broker and a retired broker. One interview held with a fisheries specialist professional valuer. Three bank valuers were contacted via email. One responded and advised that they liaise with fishery brokers when valuing licences. The others did not respond.

Source: Synergies Economic Consulting

Project Issues Paper

The outcomes of the information gathering stage were captured in a *Project Issues Paper*, which formed the basis of a workshop and evaluation process to identify and assess options to improve fisheries compensation approaches in WA.

Evaluation phase

Project workshop

A project workshop was held with the project steering committee with the following purpose:

- Review project findings to date contained within the *Project Issues Paper* and seek Project Steering Committee feedback.
- Seek agreement on best practice principles for fisheries compensation WA, which were to be used as evaluation criteria to assess the current fisheries compensation framework for WA.
- Explore and consider potential improvements for fisheries compensation in WA.

Identification of options for improvement

Drawing on the outcomes of the project workshop, the *Project Issues Paper* was expanded to become the current *Project Report* to include identified best practice principles presented at the workshop and elaborate on some potential directions for improving the way fisheries compensation is implemented in future in WA.

Results and Discussion

General principles of compensation

When developing a compensation framework for a specific industry such as a fishery, it is useful to start with the general principles of compensation from economics and related disciplines. This can assist with determining both an appropriate valuation method and how best to apply the method to derive a compensation amount. A principles-based approach can also assist with guiding the overall compensation process.

This section distinguishes between three forms of compensation:

- Compulsory acquisition.
- Compulsory partial acquisition.
- Compensation for damages.

Specific principles are relevant within each of these compensation types, as discussed further below.

Compulsory acquisition compensation

Compulsory compensation is most frequently, but not solely applied in relation to real private property (usually land) in market economies. Most market economies have procedures and legislation in place to manage compulsory property acquisitions. However, the economic principles are completely general and can be instructive in understanding how compulsory acquisition might work for other property rights, including fishing rights.²

The Hicks-Kaldor criterion and achieving an equivalent variation

The most common justification for exercising a power of compulsory acquisition is that a proposed project serves a larger public purpose, which is worth compromising the private property rights of a few owners. Good examples are acquisitions associated with major infrastructure projects like underground rail and freeways, but environmental conservation projects such as marine reserves, achieving sustainable fishery harvests and protecting endangered species can also fall into this category^{3,4}.

The compensation principle in economics (known as the Hicks-Kaldor criterion) guides the evaluation of such proposed changes based on the potential for winners to compensate losers. It is a decision rule used to select between pairs of alternative feasible social states. According to the principle, if prospective winners could compensate all prospective losers and leave no one worse off, the alternate state should be selected.

The implication of the principle is that compensation should strive to keep the losers as well off as they were before a change so as to achieve an *'equivalent variation'*. For example, if a major infrastructure project requires compulsory acquisition of properties, leaving affected property owners as well off as

² This idea is expressly reflected for example in the Swedish Expropriation Act governing all forms of compulsory acquisition including, in addition the more conventional acquisitions for urban development and infrastructure, acquisitions to preserve public fisheries and to create national parks.

³ Acquisition also occurs as a rectification of market failure. For example, negative externalities associated with activities on a parcel of land where the owner fails to 'make good' are sometimes dealt with via compulsory acquisition. Refusing to fix dangerous buildings or maintain heritage sites often come into this category.

⁴ Stroup, R. L. (1997). The economics of compensating property owners, *Contemporary Economic Policy*, 15(4), pp. 55–65. doi: 10.1111/j.1465-7287.1997.tb00489.x.

they were before will require determining a level of compensation that is equivalent to the level of benefit they were deriving from the ownership of that property.

Market value

The concept of market value is central to compensation considerations and is defined in Box 1. Observed market values for property arise based on transactions between willing buyers and sellers. Critical to this is that these transactions are voluntary. Both buyer and seller give free prior and informed consent, and no party is compelled or coerced into taking part. Transactions happen because each party expects, based on their own assessment, to be better off from participating in the transaction. That is, each party's expected gains outweigh any expected costs associated with the transaction.

Box 1 Definition of market value

The International Valuation Standards Council (IVSC) defines market value for the purpose of valuing an asset as:

"the estimated amount for which an asset or liability should exchange on the valuation date between a willing buyer and a willing seller in an arm's length transaction, after proper marketing and where the parties had each acted knowledgeably, prudently and without compulsion".

This definition comprises several elements that the IVSC provides further guidance on, which is summarised as follows:

- market value reflects the "*most probable price*" obtainable in the market and excludes the influence of any special circumstances, which can include atypical financing, the granting of concessions, or value realisable by a specific seller or buyer.
- market value reflects a time-specific value that reflects the market's state and circumstances as at the valuation date.
- "*a willing buyer*" refers to an entity who is motivated but is not compelled, obliged or anxious to buy and who intends to make a purchase in alignment with current settings and expectations.
- "*a willing seller*" is similarly motivated to sell for the best price obtainable the market and is not over-eager nor are they being forced to sell.
- the reference to "*arm's length transaction*" implies that market value reflects a transaction that is between two independent, unrelated parties.
- "*after proper marketing*" assumes that the asset being sold has been appropriately revealed to the market in terms of marketing method and time, so as to realise a price that is consistent with the market.
- the definition also assumes that buyers and sellers are well-informed about the asset and the market and strive to achieve a price that is in their best interest.

Source: International Valuation Standards Council (IVSC) (2022), *International Valuation Standards (IVS)*, Effective 31 January 2022.

The need to compensate beyond market value

While a focus on determining the market value of properties being acquired compulsorily is central to compensation considerations, there are two factors that create a need to compensate beyond market value when compulsorily acquiring property. These are outlined as follows.

Unwilling sellers

A key component of the definition of market value is that it is a transaction between willing sellers and buyers. In voluntary market transactions, property owners sell if the market price corresponds to (or is above) their reservation price. The reservation price refers to the price at which the property owner is ready to voluntarily sell the property (absent threats of compulsion). It reflects their own valuation of their property and the benefits they derive from its possession.

A compulsory acquisition transaction is, by definition, not voluntary. The seller of the right is compelled to take part in the transaction, thus making them an unwilling seller. The transaction only takes place because the buyer (usually a government agency) has the requisite power to coerce the unwilling property owner to take part and surrender their property.

For unwilling sellers that are not currently contemplating a voluntary sale of property at the prevailing market price, their reservation price is almost certainly higher than the market value. Put another way, an unwilling seller has no interest in selling their property at market price if the market price is below their reserve, because they are receiving some benefit from its ownership over and above that which is

reflected in the market price. Achieving an equivalent variation through compensation would therefore require an amount to be paid that is above the market price.

The Endowment Effect

The endowment effect is well understood in economics. It refers to the case where the disutility from the loss of a property that is within the endowment of the seller, is greater than the utility associated with acquisition of the same or equivalent property. Put simply, individuals have been shown to place a greater value on items they already possess compared to identical items that they do not possess. It implies that an individual will overvalue what they own simply because they already own it and will be reluctant to sell the item at a price that may seem economically rational.

Property ownership is likely to be associated with an endowment effect, meaning there will be a difference between an individual's willingness to pay for property and their willingness to accept compensation for that property once it is in their ownership (the latter of which will be higher). This effect is likely to be greater the longer the property has been owned and the greater the owner's personal connection with the property.⁵ Once again, when determining compensation to support the compulsory acquisition of a property, compensation must likely exceed the market value of the property to account for any endowment effects and achieve an equivalent variation.

Compulsory acquisition compensation in practice

Solatum and ex-gratia payments

Having unwilling sellers and the existence of endowment effects mean that compensation that is determined solely on market value will likely be lower than the total loss experienced by the forced seller^{6 7}. A compulsory compensation outcome under this scenario would violate the Kaldor-Hicks compensation principle because the losers receive compensation that leaves them worse off than they were before.

While theoretical, these issues are recognised in some compulsory purchase systems when additional payments are made to recognise that the sale is compulsory and not of the seller's choosing. For example, in WA, the *Land Administration Act 1997* allows for payments of up to 10% to be made over and above the market-based property value for land acquisitions, consistent with the existence of an endowment effect. Similar allowances are allowed in other Australian jurisdictions (including for fisheries in Victoria), with further allowance usually made for government (through the Minister) to increase it where circumstances warrant a higher solatium payment.

The practice also applies in other international jurisdictions. For example, under the *Swedish Expropriation Act 1972*, compulsory compensation payments must reflect the market value of the property being acquired as well as a further 'increment' of 25% of market value. The rationale is that compensation equal to market value is not sufficient because of the broader consequences experienced

⁵ In the case of a fishery, this may be the case for example, when a fisher has long term family involvement in a fishery and is in part a lifestyle fisher. Or when a farmer has invested in protecting habitat and species, activities not reflected in the commercial value of the property. Long term residents giving up the family home also fall into this category. The "home loss" premium payable in UK compensation is a recognition of this effect.

⁶ Application of the endowment effect, reflects the idea in economics that there is likely to be a gap between willingness to pay and willingness to accept.

⁷ Kahneman, D., Knetsch, J. L. and Thaler, R. H. (2019) 'Anomalies: The endowment effect, loss aversion, and status quo bias', *Choices, Values, and Frames*, 5(1), pp. 159–170. DOI: 10.1017/CBO9780511803475.009; and Shu, S. B. and Peck, J. (2011) 'Psychological ownership and affective reaction: Emotional attachment process variables and the endowment effect', *Journal of Consumer Psychology*, 21(4), pp. 439–452. DOI: 10.1016/j.jcps.2011.01.002.

by the property owner. The Swedish legislation attempts to give property owners compensation closer to their suffered loss.⁸

Compensation precedence in the commercial sector

Sometimes the decision to compulsorily acquire property is driven by a commercial project that is expected to generate significant commercial benefits (potentially alongside broader public benefits). For example, a mining development may require a corridor of land for its infrastructure and operations. In practice, a purely commercial transaction plays out where compensation is a voluntary negotiated price that ends up being above the market value of the property, allowing for some 'endowment effects'. The result is that some of the commercial project benefits extend to the property owners surrendering their property.

Such situations in a purely commercial context show the importance and precedence set in compensating above market value. There is a recognition in the commercial context that compensation of unwilling sellers should be above market value, but it may also be characterised by a desire to allow the commercial benefits of the planned project to be realised sooner rather than later. While less discernible in the public policy context, compensation schemes for the purpose of public good should also be implemented and resolved, keeping in mind the expected flow of benefits that are being strived for.

Practical challenges determining market value

Even where solatium or ex-gratia payments are incorporated into compensation, determining the asset's market value can still be a significant challenge. Ideally the asset being considered will be traded in a well-established market, with good information and a high volume of trade, and so market value can be readily determined. But in some circumstances, the market in which the property is traded may not be robust or have adequate depth, or alternatively, the asset may have unique characteristics. Under these circumstances, compensation becomes more heavily reliant on valuation methods that determine value based on the characteristics of the asset. However, available evidence suggests that these valuation methods when applied can vary significantly, even before further complications such as endowment effects are considered.⁹

Compensation for compulsory partial acquisition

The circumstances under which compensation may be required extend beyond the case where property or a right is being wholly acquired. A circumstance considered here is compensation for the partial acquisition of property. This arises when a project or policy requires that not all the property be acquired. Examples include:

- Infrastructure development – when constructing infrastructure such as highways, railways, pipelines or utility lines, there may be a need for the partial acquisition of land to locate the infrastructure and/or provide right-of-way and/or access points.
- Urban development – for example, a government entity may need to acquire a portion of land to accommodate new buildings, public spaces, or expand existing public facilities such as schools or hospitals.

⁸ Thomas K, Sjodin E, Norell L, Paulsson, J (2011) *Compulsory Acquisition and Compensation*, 2nd edn, KTH Architecture and the Built Environment, Stockholm. Page 35.

⁹ A recent review of valuations under the Dutch compulsory purchase system is illustrative. Assessing professional valuations of the same properties and in the same system the reviewers find significant variation in valuations. They find that in 94 appeals, the final offer of compensation was average 56.7% higher than the last compensation offer from the buyer. The differences in valuation are attributed to differences in valuation methodologies and different interpretations of the valuation requirements under the compulsory purchase legislation. Source: Holtslag-Broekhof, S. et al. (2018) 'Exploring the valuation of compulsory purchase compensation', *Journal of European Real Estate Research*, 11(2), pp. 187–201. DOI: 10.1108/JERER-04-2016-0018.

- Environmental conservation – portions of land may need to be acquired to protect critical habitats, establish buffer zones, and/or protect species under threat.
- Restricted access, such as a fisher being excluded from a fishing area because an alternative and non-compatible activity requires access to the area.

Under such scenarios, the general principles of compensation still apply. That is, compensation should leave the affected party as well off as they were previously and equate to the level of disutility¹⁰ experienced by the holder of the property right. Exactly what the level of disutility is, however, becomes more complicated in this context and will depend on the exact circumstances. But once again, relying solely on the market value of the acquired property will likely understate the damage and therefore the compensation required to leave the affected party as well off as before.¹¹

Consider two examples in the case of partial land acquisition:

- A dairy farm loses part of its land to compulsory acquisition. The farm is now smaller and fragmented. The management regime, including the way cows are managed and pasture rotations, must be changed. Herd size must also be reduced. The farm now has excess capacity in sheds and equipment. Overall operating costs are higher, and profits are smaller. Future opportunities are reduced.
- A landowner has a portion of land acquired to allow for an industrial activity such that this new activity will be next to the remaining land, which is scheduled for residential development. This impacts the opportunities for residential development on their remaining portion of land and impacts the value of that property.

In both examples, compensation based on the market value of the property acquired will understate the compensation required to achieve an equivalent variation and leave the owner of the property as well off as they previously were. Factors that could be accounted for in the compensation determination (besides the market value of the portion of land that is being acquired) include:

- The value of any improvements made to the land (e.g., crops planted).
- Any financial advantage offered by the land's ownership.
- Loss in value to remaining land owned by the affected owner.
- Costs associated with relocating assets from the portion of land.
- Costs associated with reorganising business (e.g., farming operations).
- Loss in value of any business displaced by the acquisition.
- Legal advice costs.¹²

A key question when compensating under a partial acquisition context is determining at which point full acquisition becomes warranted because the portion of land being partially acquired is a significant proportion of a landowner's total land holding. Using a consultative approach and/or providing the option for full acquisition are strategies that can be employed to help address this issue.

¹⁰ In economics, disutility is a measure of an individual's displeasure, detriment or reduction in well-being suffered from an action or event.

¹¹ FAO (2008) *Compulsory acquisition of land and compensation*, FAO Land Tenure Studies, 10, Food and Agriculture Organisation of the United Nations, Rome.

¹² FAO (2008) *Compulsory acquisition of land and compensation*, FAO Land Tenure Studies, 10, Food and Agriculture Organisation of the United Nations, Rome.

In some cases, the value of the portion of land that is not acquired but retained by the owner may, in fact, increase because of a project. For example, if farmland is in close proximity to newly installed rail infrastructure, its value may increase because of its proximity and access to this transport infrastructure. A condition referred to as '*betterment*' can be incorporated into the compensation calculation to account for such impacts, which sees the compensation paid for acquired land adjusted for any positive impacts on the landholder's remaining land.¹³

All the above issues demonstrate that the estimation of compensation for landowners in a partial context may be particularly complicated.

These issues equally arise when it is a right as opposed to land that is being acquired. For example, if a fishery is required to surrender a productive fishing area and the associated catch to facilitate an alternative project, it can have implications for the efficiency and profitability of their business and any associated businesses. Examples here potentially include the development of offshore wind farms and Marine Parks, where exclusion zones will diminish access to fishing areas/stocks and increase the costs of accessing more distant areas. Like the farm case above, there may be consequential excess capacity (e.g., the vessel is now too large) and implications for associated businesses such as integrated processing.

Compensation for damages and/or impact

The second partial compensation case arises when an otherwise legitimate project or activity causes damage to surrounding users, but no property rights must be acquired because the project does not require direct access to the property of the affected party. The following are relevant examples:

- Construction or development-related damages – during construction or development activities (e.g., of a highway or tunnel), neighbouring property owners may experience damages such as cracks in structures and water damage.
- Environmental impacts – if land or property becomes contaminated because of activities such as chemical spills, improper waste disposal or industrial pollution. Compensable impacts can include the cost of remediation, property devaluation, health impacts, and related financial losses.
- Encroachment – when a neighbouring property builds structures or makes improvements that encroach upon someone else's land, the affected landowner may seek compensation for damages caused by the encroachment.
- Changes to land use planning – a change in land use zoning that has a negative impact on the pre-existing properties in an area. For example, an area previously zoned as residential might become zoned as mixed use to support an entertainment precinct, with pre-existing residents suffering from noise related impacts.¹⁴

Unlike with partial acquisition, in these cases the affected party can continue operating with no change to the property right but with the negative effect from the third party activity. These are all examples of a classic externality in economics.

This distinction is important because in most developed market economies there is already a range of policies and regulations designed to deal with such externalities and these will determine whether a property owner has a right to compensation. Such policies and regulations include pollution taxes, noise abatement regulations, emissions standards, and operating restrictions (e.g., time of day restrictions).

¹³ FAO (2008) *Compulsory acquisition of land and compensation*, FAO Land Tenure Studies, 10, Food and Agriculture Organisation of the United Nations, Rome.

¹⁴ For example, the Swedish framework for compensation referred to earlier has provisions for (1) compensation for restrictions on land use (i.e. through planning changes) and (2) environmental injuries caused by an adjacent property.

Where a right to compensation exists, the compensation would need to be based on the value of damage caused. This, once again, may or may not be reflected in a change in market values. A before and after assessment may, for example, may show a diminution of market value (land or business) but this is likely to understate the compensation required for the same reasons given previously. In theory, compensation for diminished value plus a sale at the reduced value would allow the affected party to replace the property (land, business etc.) and be as well off as before. But, if the externality is the driving force for such a sale, it is at best a quasi-compulsory sale, and applying a market value before and after approach will understate the disutility to the affected party.

Acquiring the property right of the affected party is not a core policy for dealing with externalities. But it is not ruled out and sometimes may be the best, or only, way to achieve an efficient and equitable outcome. For example, a new industrial development might be expected to have pollution or emission impacts in its immediate surrounding area. Given sufficient net benefits from the project, the most efficient way to manage the impacts of the development may be for the government to acquire surrounding properties, thereby preventing impacts and removing any associated development constraints, and leaving the affected parties as well off as they were before.

Compensation and procedural fairness

The challenges and uncertainties around determining fair compensation are significant. The focus of work on compensation has flowed directly from the Hicks-Kaldor criterion and has been on accurate valuation using valuation techniques. Getting the right value defines 'just compensation'. Grievance, appeal, or arbitration mechanisms are then structured to focus on the value of compensation and its components. However, experience and evidence suggest that valuers can reach significantly different valuations of the same assets, so complete avoidance of perceived unfairness is unlikely just through a focus on valuation techniques.

As a result, much of the compensation literature now puts an emphasis on the process and procedures that are followed to determine compensation, rather than the valuation techniques themselves, to achieve 'fairness' or 'procedural justice'. Much of this literature has been developed in relation to large infrastructure projects where stakeholder consultation has become a central component of project development and implementation. But it directly applies to any compensation initiative.

General principles advised in the literature are that a process that transparently seeks prior informed consent from property owners about the compensation approach will serve better than one that uses unchallengeable valuation techniques. Similarly, processes are more likely to be supported and valuations accepted if the process is perceived as procedurally fair and based on a clear understanding of the property rights involved.

Having one's assets compulsorily acquired can be a daunting experience for the seller, even psychologically traumatising. A fair process allows opportunities for sellers to become fully informed about the process, the project/policy, the methodologies to be used, and the rights to be valued. Being involved in the process allows them to express their grievances and opinions and to make informed decisions to protect their personal and family interests to the best possible extent. Stakeholder consultation is increasingly being presented as an integral component of compensation schemes.¹⁵

One focus of process should be the elimination of information asymmetries. These exist when affected property owners are not party to the same information as the compensating agency and cannot, therefore, make fully informed decisions. The most common example in this context is when the compensating agency plans to follow a valuation method without informing affected property owners. The affected property owner may then assess their property value based on an alternative method

¹⁵ Rao, J., Tiwari, P. and Hutchison, N. (2018) 'No way to say "no": Stakeholder analysis for compulsory purchase for public infrastructure project in Australia', *Property Management*, 36(1), pp. 37–66. DOI: 10.1108/PM-09-2016-0050.

producing a different valuation. Reviews of compulsory acquisition for infrastructure projects indicates that these asymmetries create distrust of the process and perceived ‘unfairness’.¹⁶

The research is clear that people are morally concerned with not only outcomes but also the processes through which such outcomes are achieved¹⁷. A fairer process is likely to reduce this sense of loss and improve social cooperation and compliance with unfavourable decisions.

Understanding what makes for procedural fairness in compulsory acquisition is not well-researched. However, some general criteria have been suggested, for example, the WA Ombudsman has developed guidelines for procedural fairness.¹⁸ Criteria typically include, but are not limited to the following:

- Consistency of treatment and outcomes over time and across affected parties.
- Lack of bias and transparency of process and decision making.
- Accuracy.
- Ability to be corrected.
- Respectful treatment of all recipients during implementation of the procedures.
- Agreed timelines for both acquirer and seller to provide information and respond.

Getting the process right is important in any compensation context, but its importance increases as compensation valuation becomes more complex or uncertain.

Compensation in fisheries

Having considered the general principles of compensation and how these are often applied in the context of land based compensation schemes, this section explores compensation in the context of fisheries. While the general principles outlined in the previous section still apply, the fisheries context also presents some unique issues. This section first introduces some of the defining characteristics of fishing rights and then outlines types of compensation schemes implemented in fisheries. It then considers approaches to determining compensation separately for acquisition schemes and schemes focused on impact. This includes examples of previous applications in Australia and internationally.

Characteristics of fishing rights

Fishing rights as a contract based intangible asset

Unlike other physical assets, fishing licences are intangible assets defined as:

“a non-monetary asset that manifests itself by its economic properties. It does not have physical substance but grants rights and/or economic benefits to its owner”.¹⁹

More specifically, fishing rights are a ‘*contract related*’ intangible asset. They represent a contract between the holder of the right and the government, which provides some entitlement to participate in a fishery and derive an income from it under certain pre-specified conditions.

As an intangible asset, fishery rights have characteristics that are quite different to the land-based assets for which much of the compensation theory has been developed. The expected earnings from a parcel of land depend on its physical characteristics (e.g., its location, biophysical characteristics, etc.), which will

¹⁶ Rao, J., Tiwari, P. and Hutchison, N. (2018) ‘No way to say “no”’: Stakeholder analysis for compulsory purchase for public infrastructure project in Australia’, *Property Management*, 36(1), pp. 37–66. DOI: 10.1108/PM-09-2016-0050.

¹⁷ While the evidence for this outcome, in social psychology is extensive, researchers are not agreed on exact reasons for these behaviours.

¹⁸ Ombudsman of Western Australia (2019) *Guideline Procedural Fairness (natural justice)*. Ombudsman of Western Australia, Perth, pp. 10–15.

¹⁹ International Valuation Standards Council (IVSC) (2022) *International Valuation Standards (IVS)*, Effective 31 January 2022.

be heterogenous across different parcels of land. Expected earnings depend also on who owns or utilises the parcel of land (based on the owners' characteristics, skills, and capacities).

As a contract related intangible asset, the earning capacity of a fishing right is largely determined by the privileges that the right bestows on its owner. However, in most fisheries, there are numerous equivalent fishing rights that provide the same privileges. That is, all equivalent rights are equal and homogenous. Therefore, the ability for a right to generate an income relative to other equivalent rights depends primarily on who utilises the right and their individual characteristics (including where they operate²⁰), their skills, and capacities. For compensation, this means that the characteristics of the entity's use of the right will be an important determinant of fair compensation, as much as the right itself.

Variability in the property right characteristics of fishing rights

In many compensation contexts, compensation as a formal process often comes about because of the existence of property rights. A property right is a legally recognised and enforceable entitlement that bestows an entity with exclusive control, use, and ownership over an asset. Property rights have several key characteristics:

- Divisibility – the ability to partition an asset.
- Duration – the permanence or perpetuity of an asset and/or the ability to renew it.
- Exclusivity – it belongs to an individual entity who can exclude others from it.
- Flexibility – the degree to which a right can be modified or adapted to suit specific circumstances or changing needs.
- Quality of title – the enforceability of the property right and the certainty and security of the right that is provided to its owner.
- Transferability – the ability to transfer and trade a property right to other entities.²¹

The degree to which fishing rights have these characteristics varies and is often not clear to small fishers. It can vary by fishery but can also vary according to a jurisdiction's legal framework. In developed countries with well-established legal systems and fisheries management arrangements, fishing rights are often granted to individuals or organisations that can be bought, sold, leased, or inherited and that provide exclusive access to the right to catch or expel effort in the fishery. Such rights are more akin to a property right. At the other end of the spectrum, fishing rights can comprise non-transferable licences or permits that grant temporary access to fish in a particular area or under certain conditions.

Even when fishing rights have strong property right characteristics, there can be disagreements over whether they are a true property right.²² Ensuring that the right that is being compensated is fully understood by all involved in a compensation process is essential for supporting well-informed negotiation and determining fair compensation.

Types of fishery compensation schemes

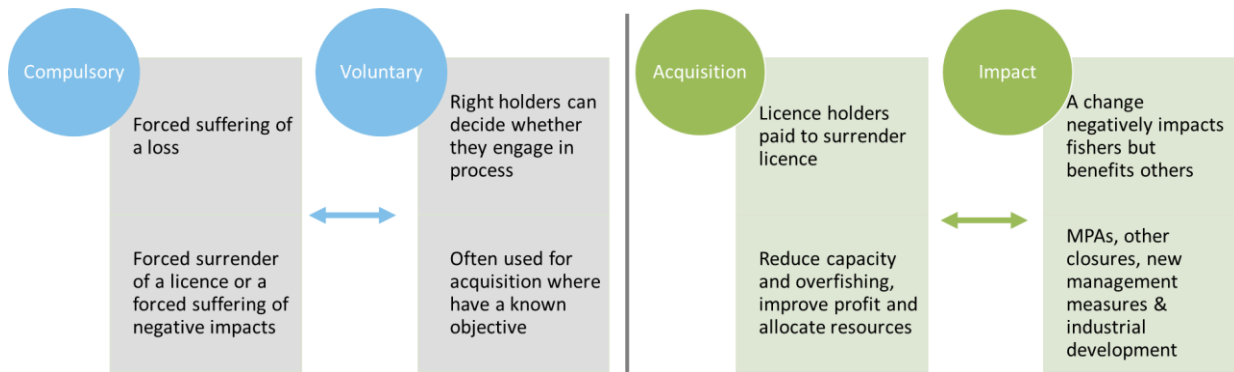
As summarised in Figure 2, compensation schemes in the fisheries context can be distinguished in terms of whether they are for acquisition or impact (or damages) as well as whether they are voluntary or compulsory.

²⁰ Where an individual is located and operates will also influence their ability to generate a return from a fishing right, given that fishery resources are not spatially uniform (i.e. some areas are more productive than others).

²¹ For example, see Guerin K (2003) *Property Rights and Environmental Policy: A New Zealand Perspective*, New Zealand Treasury Working Paper, No. 03/02; and Scott, Anthony (1988) 'Development of property in the fishery' *Marine Resource Economics* 5(4): 289–311.

²² Huppert, D.D (2005) 'An Overview of Fishing Rights', *Rev Fish Biol Fisheries* 15, 201–215.

Figure 2 Distinguishing features of fisheries compensation schemes



Source: Synergies Economic Consulting

Voluntary schemes are unique to fisheries and other natural resource regimes managed with natural resource rights (such as water). The types of schemes applied in the fisheries context and their distinguishing features are further explained below.

Compulsory versus voluntary compensation schemes

Compulsory compensation schemes

A compulsory process in the fisheries context is used in a situation where a right holder is being told they will compulsorily have to suffer some loss, for which compensation is being offered. This loss can be through the negative impact of an external event (such as a marine protected area [MPA] or industrial development) or the surrender of their fishing right. The distinguishing feature here is that it is known at the start of the process who is being impacted and thus who is to be compensated through the scheme.

In compulsory fisheries buybacks, for example, rights to be surrendered are identified by the administrator at the start of the process, and those right holders are told that they must exit the fishery. The objective of the compensation process is then to identify a compensation amount that is considered “fair” on the part of the licence holder and “value for money” on the part of the administrator (and the public).

Compensation for impact in a compulsory context implies that there is going to be an unavoidable impact on licence holders. So, fair compensation needs to be determined based on that impact. Such schemes are sometimes delivered on a ‘take-it-or-leave-it’ basis, reflecting that the impacts will eventuate irrespective of whether compensation is accepted by right holders or not.

Voluntary compensation schemes

Voluntary compensation processes leave it up to right holders to decide whether they want to engage with the process and accept compensation. Such approaches are most often used for compensation for surrender schemes. The voluntary nature of these processes makes the compensation transaction more like a market-based transaction.

The administrator of the scheme typically has some objective that they are trying to achieve, for example, a quantum reduction in vessel numbers. The implicit aim of a voluntary process is then to pay compensation amounts that incentivise enough licence holders to exit the fishery voluntarily to meet the objective of the process. For some schemes, it does not matter who exits the fishery as long as the scheme’s desired effort reduction is met. Other schemes may attempt to prioritise rights in specific locations or with certain catch characteristics (e.g., unused rights). Having the scheme’s objectives clearly stated at the start of the process can ensure that the scheme is appropriately designed to deliver a more equitable and efficient compensation process.

The concept of a voluntary acquisition scheme is unique to fisheries and other natural resources where property rights have been allocated, such as water. This is because the management focus for these systems is achieving a targeted reduction in resource use or extraction to enhance the sustainability of the system. In contrast, in the land compulsory acquisition context, it is often specific properties that need to be acquired for a project (e.g., the building of a highway) to proceed.

Compensation for acquisition versus impact

Compensation for acquisition

Compensation for acquisition sees compensation paid to a licence holder to surrender their fishing right(s) (and in some cases associated tangible assets such as vessels and fishing gear) and exit the fishery. Such processes are commonly referred to as fishery buybacks, structural adjustment schemes and/or decommissioning schemes.

These processes are most often used to reduce capacity in fisheries that are characterised by overcapacity and overfishing as an attempt to rebuild stocks and/or increase the fishery's profitability. However, other purposes may include supporting the allocation of fishery resources to other purposes (such as recreational fishing or conservation) or facilitating a fishery's transition to new management arrangements.²³

Acquisition schemes are typically government funded, but they can also be funded by the fishery itself or funded by an external industry or sector.²⁴ They can also be voluntary or compulsory, as defined previously.

Partial acquisition in the fisheries context

Partial acquisition, as it applies to land ownership, does not apply in the fisheries context because individual fishing rights cannot be divided up like a parcel of land. However, partial acquisition may involve the removal of some proportion of a fishery's or licence holder's rights (e.g., this could be in response to a spatial closure). In effect, this is simply a compulsory acquisition of a set number of rights. Similarly, partial compensation might involve a reduction in the allowable catch per right because of some other external impact (and not in response to the normal management of the fishery) for which the right holder might be compensated.

Compensation for impact schemes

Fisheries compensation for impact and/or damages occurs when there is a change in circumstances that benefits one entity or group but negatively impacts a fishery and its licence holders. Such schemes see compensation paid to right holders (and potentially lessees or other businesses that depend on the fishery) to offset any negative impacts that have already occurred or that are expected to occur.

Compensation for loss of access to fishing grounds due to the introduction of marine protected areas (MPAs) (for conservation purposes) or closures to commercial fishing (e.g., for the benefit of recreational fishers) have become increasingly common. The direct impacts here are a reduction in future catches and income. But indirect impacts can also result, including increased travel time to access open fishing grounds, the need to adopt new fishing gear, or the need to fish in less productive fishing grounds, all of which impose a cost on the right holders.

²³ For example, see: Squires, D. (2010) 'A review of fisheries buybacks'. *Fish and Fisheries*, Vol. 11, pp. 366–387; and Teh, L., Hotte, N and Rumaila, U.R., (2017) 'Having it all: can fisheries buybacks achieve capacity, economic, ecological and social objectives?', *Maritime Studies*, Vol 16, Issue. 1; and Holland, D. Gudmundsson, E. and J. Gates. (1999). 'Do Fishing Vessel Buyback Programs Work: A Survey of the Evidence'. *Marine Policy* 23: 47–69.

²⁴ Holland, D.S., Steiner, E. and Warlick, A. (2017) 'Can vessel buybacks pay off: An evaluation of an industry funded vessel buyback', *Marine Policy*, Vol. 82, pp. 8–15.

Compensation for impact can also extend to cases where fishery operators are mandated to use fishing approaches that reduce environmental impacts (e.g., bycatch) but also reduce catch efficiency and profitability.²⁵ Such compensation schemes are implemented in recognition of the view that private entities (licence holders) should not have to bear the cost of a government policy change made for the public good or a specific group (e.g., recreational fishers).²⁶

Compensation for impact can also occur when an entity or industry outside of the fishery sector undertakes activities that negatively impact commercial fishers. Examples include offshore and coastal resource mining projects, undersea infrastructure (e.g., cables or pipes), coastal infrastructure (such as marinas) and residential development (e.g., canal developments). The impacts imposed can be temporary (e.g., dredging plumes during construction that impact stock productivity and/or catch rates) or more permanent (e.g., loss of access to fishing areas due to the location of infrastructure).

Determining compensation for fishery right acquisition

Defining fair compensation for the acquisition of fishing rights

Similar to the land-based compensation context, many of the previously outlined compensation principles apply. Compensation should leave right holders as well off as they were prior to the change or event, which will generally require that compensation exceed the market value of the right being surrendered to account for endowment effects and the unwillingness of the seller.

There are other factors that contribute to a divergence between a right holder's valuation of their right and the right's market value in the fisheries context. For example, non-pecuniary benefits are often experienced by operating fishing right holders as lifestyle, recreation and food benefits with some studies showing many low-profit fishers continue to operate in a fishery because of such benefits²⁷. Non-pecuniary benefits may also be present simply from being self-employed.²⁸ "Option values" may also be present that reflect an ability to exercise alternative ways of fishing (e.g., in new areas), which assist fishers to manage income and risk.²⁹ Compensation schemes (including those that have been applied in WA) sometimes explicitly account for option values.

A complicating factor in the determination of compensation in acquisition schemes is that a substantial reduction in the number of licences in a fishery will lead to a sudden increase in the number of underutilised tangible assets associated with the fishery (e.g., primarily fishing vessels and fishing gear but can also relate to onshore storage and processing capital). With an increase in the supply of available tangible assets that often have limited use outside of the fishery, there will often be a reduction in the value of these tangible assets, further leaving right holders worse off.

Determining compensation to fully account for all the above factors would be difficult and often speculative in practice. However, the existence of these factors demonstrates the likely need to compensate above market value when acquiring rights to achieve an equivalent variation and fair compensation.

²⁵ Holland, D., E. Gudmundsson, and J. Gates. (1999). Do Fishing Vessel Buyback Programs Work: A Survey of the Evidence. *Marine Policy*, 23, 47–69.

²⁶ MRAG Pacific (2010) *Adjustment Assistance for Public Good Marine Conservation: A review of past Australian practice and implications for future measures to offset impacts on the seafood industry*.

²⁷ For example, see: O'Donnell, K. et al. (2013), *Understanding values in Canada's north Pacific: capturing values from commercial fisheries*, published by T Buck Suzuki Environmental Foundation and Ecotrust Canada; and Karpoff, J.M. (1985) 'Non-Pecuniary Benefits in Commercial Fishing: Empirical Findings from the Alaska Salmon Fisheries', *Economic Inquiry*, Vol. XXIII, January; and Smith, C.L. (1981) 'Satisfaction Bonus from Salmon Fishing: Implications for Economic Valuation', *Land Economics*, Vol. 57, pp. 181–196.

²⁸ Hamilton, B. H. (2000) 'Does entrepreneurship pay? An empirical analysis of the returns to self-employment', *Journal of Political Economy*, 108(3), 604–631.

²⁹ Sethi, S.A. (2010) 'Risk management for fisheries', *Fish and Fisheries*, 11(4), 341–365.

Accordingly, compensation calculation methods for the acquisition of fishery rights typically involve a component focused on determining the market value of the right, combined with a second component that incorporates additional adjustments. Such adjustments may reflect a solatium or ex-gratia payment. Alternatively, adjustments may also be included to account for the historical effort, catch and/or returns of individual licence holders. Such adjustments can be viewed as an attempt to account for the difference between a licence holder's reservation price and the market value of the right (i.e. to account for an ability to generate a higher return relative to the average).

Methods for determining the market value of rights

This section outlines common methods used to determine the market value of fishing rights and draws primarily on the International Valuation Standards Council (IVSC) *International Valuation Standards (IVS)* guidance document³⁰.

Market-based comparable transactions method

Market-based approaches to valuing assets involve using information about other similar assets that have been traded and for which market price information is available. The '*comparable transactions method*' is the main market-based approach relevant to tradable fishery rights. Its application requires:

- a market in which the fishery right is traded.
- a sufficient frequency of observable trades at, or close to, the point in time at which market values need to be estimated.
- information about the prices at which fishery rights were traded and, where relevant, the characteristics of the rights themselves.

The main advantage of the approach is that it uses actual market information to estimate the market value of a fishing right (rather than attempt to indirectly replicate the market's valuation of an asset). The use of market information also makes for a relatively quick and easy approach to estimating market value, which is readily understood.

The disadvantages of using market-based approaches for fisheries rights include that it obviously cannot be used for fisheries rights that are non-tradable. A key issue for small-scale fisheries is that there are often few fishing rights and/or trades in fishing rights, meaning that there are limited data points from which to estimate value. Recent work in the European Union (EU) noted the irregularity of transactions in fishing rights was a key compensation challenge in EU fisheries, which was accentuated by limited recording of information on trades in rights by management agencies.³¹ Where no formal recording and monitoring of trades exists, inaccurate and biased recording of trade prices may also be an issue.

Other issues with using a market-based approach to valuation is that observed market values can be heavily influenced by market conditions at the point in time at which the valuation is made, but may not reflect the long term earning potential ascribed to rights by the majority of owners. A further issue is that there is potential information asymmetry around future benefit flows embedded in a market price for a fishing right, which is an issue if those who operate in the fishery have insider knowledge around the fishery's current performance and there are significant trades with new entrants.

Income-based approaches

Income approaches to valuing assets involve estimating value according to the projected flow of benefits from an asset. For fishery rights, this typically equates to the expected flow in net income (or profits) that

³⁰ IVSC (2022) *International Valuation Standards (IVS)*. Effective 31 January 2022.

³¹ Doring, R. (2019) *Strengthening Regional cooperation in the area of fisheries data collection* – MARE/2016/22 Socio-economic data collection for fisheries, aquaculture and the processing industry, Work Package 4: D4.2 D.4.2: Guidelines for the valuation of intangible assets of fishing fleets in the EU, May 2019.

could be generated from using the right in the fishery, or alternatively, leasing it out. Income approaches assume that market value is tied to the expectation of receiving a return. The income approach is preferred when the income-producing capability of the asset is crucial to its value, reasonable projections of future income can be made, and there are limited or possibly no comparable transactions to use for a market-based approach. Examples of income-based approaches are as follows.³²

Discounted cash flow

The discounted cash flow (DCF) method is the dominant income-based method, with most other income-based methods being a variation of DCF. The method involves projecting future expected cash flows of an asset and discounting those cash flows to a present value. The discounting process accounts for the time value of money³³ and the risk profile of the asset. Application of the method involves the following key steps:

- Select cash flow type – for example, pre-tax or post-tax? Nominal or real?
- Select the forecast period – will depend on several factors including asset life, the reliability of forecasted data, and coverage of business cycles.
- Forecast cash flows – should reflect market participant expectations and capture cash flow timing (as delayed cash flows will be discounted more heavily).
- Determine a terminal value (if required) – a terminal value of the asset needs to be determined and discounted if its life extends beyond the forecast period.
- Select an appropriate discount rate – needs to consider several factors including asset risk, the time horizon, the cost of capital and market rates of returns.
- Discount forecasted cash flows (and, if specified, terminal value) – the discount rate is applied to future cash flows and summed to derive an asset valuation³⁴.

The key disadvantages of the DCF method are that many aspects of the analysis involve uncertainty and potential for error, particularly in relation to the forecasting of cash flows, estimating risk, selecting a forecast period and determining an appropriate discount rate. The method also has a heavy reliance on detailed data. For fishery licences, data requirements include estimates of future fishery performance in terms of catch, catch prices, and fishing costs. Properly valuing all benefits and costs can also be difficult. For example, a common challenge in fisheries is properly accounting for unpaid labour. One consequence is that the use of the discounted cash flow model can produce significant differences across analysts in their assessments.

Income Capitalisation Method

The income capitalisation (or capitalisation of earnings) method estimates the value of an asset by capitalising its expected income stream. That is, a future maintainable income amount is first estimated (typically using historical earnings data) and then divided by a suitable capitalisation rate to determine the asset value. The capitalisation rate selected represents the desired rate of return that one would expect to earn from the asset. This is informed by market-based information about rates of return on

³² Several other income methods are relevant to fishery licences but are not considered here. These include the 'Relief from royalty method', the 'With or without method', and the 'Profit apportionment method'. For brevity, these methods have not been detailed here and the reader is referred to the IVSC guidelines for further detail. The methods presented in this report are ones that are most relevant and most applied in fisheries contexts.

³³ The time value of money implies that a dollar now is worth more than a dollar in future periods. The concept can be demonstrated by the fact that money received now can be invested and generate a return in future periods. If the same amount of money is instead received in a future period, those investment returns have been foregone.

³⁴ Further detailed at: IVSC (2022) *International Valuation Standards (IVS)*. Effective 31 January 2022.

other similar assets. The method differs to the DCF in that it involves capitalising a single representative earnings figure rather than discounting a stream of individual annual cash flows.

For the purpose of valuing fishery licences, the income capitalisation method offers simplicity and efficiency and is a method that is readily understood by stakeholders. The use of market-derived capitalisation rates also means that it should reflect market expectations. However, the method's accuracy is sensitive to income assumptions and may not be suitable for fisheries with unstable income patterns. Another potential drawback is that unlike the DCF method, the capitalisation method does not explicitly account for risk, although it could do implicitly if a market based capitalisation rate is adopted. The accuracy of the method is also strongly reliant on the availability, relevance, and quality of market data used to derive the capitalisation rate, which can be particularly problematic for fisheries.

Excess Earnings Method

The excess earnings method (EEM) calculates the value of a fishery licence by determining the difference between the earnings attributable to the licence and a fair return on the fishing businesses' tangible assets (i.e. boats and fishing gear). The fair return is typically estimated using a capitalisation rate determined based on the returns observed on other similar tangible assets. The method focuses on isolating the excess earnings directly attributable to the licence itself and then capitalising those excess returns using an appropriate rate to determine the licence value.

The method focuses on isolating and quantifying the value of the intangible asset and conceptually aligns with the focus of market transactions, which would consider the excess earnings attributable to that specific asset. The method's shortcomings include that it involves some subjectivity in determining the level of excess earnings attributable to intangibles and estimating the reasonable return on tangible assets. Like other income based methods, where the method's application relies on historical data, it may not capture future expectations or changes in the business or broader industry.

Multiplier Approaches

Multiplier approaches involve applying a multiple to a financial metric associated with the fishery licence's income stream. For example, a commonly used metric is the annual revenue generated by the licence. The multiple is derived from comparable market transactions or industry benchmarks. The licence value is then estimated by multiplying the selected financial metric by the appropriate multiplier. Inherent fluctuations and unforeseen events can be allowed for by averaging the metric over time. For example, annual fishing revenue/income is often average over the best recent years, say the best three years in the last five.

The multiplier approach offers simplicity and practicality, making it accessible and efficient for valuing fishery licences. Despite these features, it remains credible when it utilises multiples derived from comparable industry benchmarks. For these reasons, the method is particularly attractive for small-scale fisheries where financial data are limited, and their low value means that a detailed financial analysis is unlikely warranted. The approach is also broad in its applicability, as it can accommodate different licence and/or asset types and also allows for customisation of the multiplier based on the specific financial metrics that are available for a given fishery.

The obvious drawback of the multiplier approach is that it is likely to lack the precision of other income-based methods, and its accuracy may be sensitive to the unique characteristics of individual fisheries. For example, it will not account for non-financial factors that influence licence value, such as the fishery's regulatory arrangements or the status of its fish stocks. Where there is limited availability and reliability of comparable industry benchmarks, the method becomes far less dependable and attractive.

Process for determining compensation for fishery right acquisition

The approaches typically used to determine compensation in schemes that focus on acquiring rights typically fall into one of four categories:

- **Negotiation** – a negotiation process occurs between the entity responsible for administering the scheme and those wishing to exit the fishery.
- **Independent valuation** – an independent third party is relied upon to place a value on the fishing right(s) and/or assets being purchased under the scheme, plus any additional required compensation amount.
- **Fixed prices and/or formula** – a fixed price (or a price set according to some fixed formula) will be paid for the surrender of a fishing right (and associated assets if relevant), with right holders invited to indicate whether they accept or reject the offered price.
- **Auction (or bidding) based approaches** – processes that involve right holders indicating their willingness to accept compensation to surrender their right and exit the fishery, which can involve various types of auction processes (e.g., single or multiple rounds of bidding, open or closed bids, etc.). Auction based approaches can be considered advantageous given the asymmetric information held by right holders about their intentions and overall economic performance.³⁵

In practice, a combination of the above approaches is often used to determine compensation. For example, a bid-based process may first be implemented, followed by direct negotiation with some bidders, which may also be guided by independent valuation. Similarly, fixed price approaches can be informed by independent valuation.

No matter what process is used, the approach should be clear to all stakeholders from the start of the scheme and ideally should involve a collaborative or co-management approach when setting out its design.³⁶ This can involve seeking agreement on the valuation methods and inputs, as well as on any valuation panel members and/or valuation experts used. Correction of compensation amounts via appeal should also be provided for in any compensation process to ensure procedural fairness.³⁷ The complexity and cost of all aspects of the process should be commensurate with the scale of the fisheries involved.

Compensation for acquisition example – South Australian Marine Scalefish Fishery

Background

The recent *Marine Scalefish Fishery (MSF) Voluntary Licence Surrender Program* run in South Australia provides an example of a compensation process applied to a relatively large, valuable, and data rich fishery using advanced valuation methods. The program was implemented following a South Australian state government commitment of \$22 million to remove up to 150 commercial licences from the MSF.³⁸ This amount was later adjusted to \$24.5 million.³⁹ The program was part of a broader reform process focused on moving the MSF from input controls to an output based tradable quota management system

³⁵ For example, see Squires, D. (2010) 'A review of fisheries buybacks', *Fish and Fisheries*, Vol. 11, pp. 366–387; and Holland, D., Gudmundsson, E, and J. Gates (1999) 'Do Fishing Vessel Buyback Programs Work: A Survey of the Evidence', *Marine Policy*, 23, 47–69.

³⁶ Squires, D. (2010) 'A review of fisheries buybacks'. *Fish and Fisheries*, Vol. 11, pp. 366–387.

³⁷ FAO (2008) *Compulsory acquisition of land and compensation*, FAO Land Tenure Studies, 10, Food and Agriculture Organisation of the United Nations, Rome.

³⁸ Department of Primary Industries and Regions (N.D.). *Marine Scalefish Fishery voluntary licence surrender program*. Accessed at: https://www.pir.sa.gov.au/primary_industry/commercial_fishing/commercial_fisheries/marine_scalefish_fishery/reform/voluntary_licence_surrender_program#:~:text=PIRSA%20is%20administering%20the%20voluntary,adviser%20is%20observing%20the%20process.

³⁹ Regional Development Australia (2020) *Commercial Fishing Reform*. Accessed at: <https://www.rdaep.org.au/historic-fisheries-reform-gets-underway/>.

and rationalising the fishery.⁴⁰ The surrender program was implemented to allow licence holders to voluntarily exit prior to the changes coming into effect.

Approach

To support the reform process, a Commercial MSF Reform Advisory Committee (CMSFRAC) was established to develop recommendations on the reform package in consultation with the fishing industry. The Committee included representatives of the Marine Scalefish Fishery, the recreational fishing sector, PIRSA appointed scientists and an independent Chair and economist. The CMSFRAC was requested to deliver a report that outlined the method, timeframe and estimated expenditure to achieve a 30% reduction in licences. To support this, BDO EconSearch were engaged to review available valuation methods, recommend a suitable method and estimate licence values for compensation purposes.⁴¹

BDO EconSearch's analysis focused on estimating the market value of a licence held by the average "Net and line" and "Line only" licence holder based on several methods/sources:

- **Transfer values** – derived from PIRSA collected and held data on licence transfers.
- **Industry survey valuations** – values reported by licence holders' own assessment through BDO EconSearch historical economic and social indicators surveys.
- **Licence holding cost** – estimated value based on the cost of holding a licence and an anticipated investment return of between 6% and 8% for inactive "investor" licence holders and an investment return of between 9% and 11% for active/industry licence holders (noted as being indicative of a minimum value).
- **Productive value** – estimated through the application of the DCF method (further detailed in Box 2) utilising historic financial survey data collected for the fishery, including data on fishing income, variable costs (e.g., labour, fuel, bait, repairs, and maintenance), fixed costs (e.g., licencing, insurance, leasing) and capital value (including gear, equipment, and licences).
- **Broker estimated values** – derived from discussions with fishing licence brokers.
- **Further survey based estimates** – licence valuations based on "quartile averages" and "averages over 5 years" using BDO EconSearch (2019) survey results.

⁴⁰ Department of Primary Industries and Regions (N.D.) *Marine Scalefish Fishery voluntary licence surrender program*. Accessed at: https://www.pir.sa.gov.au/primary_industry/commercial_fishing/commercial_fisheries/marine_scalefish_fishery/reform/voluntary_licence_surrender_program#:~:text=PIRSA%20is%20administering%20the%20voluntary,adviser%20is%20observing%20the%20process.

⁴¹ BDO (2019) *Licences in the MSF Valuations Report*, 12 September. Accessed at: https://www.pir.sa.gov.au/_data/assets/pdf_file/0005/360734/20190912_Licences_in_the_MSF_-_Valuations_Report.pdf.

Box 2 Explanation of BDO’s application of the Discounted Cash Flow method

BDO first calculated the value of the average business for both net and line licence holders and line only licence holders. They do this by calculating the discounted perpetual value of after-tax cash flows of the average fishing business in each sector. To do this, they assume that the cash flows observed for the fishery in the 2017-18 financial year are maintained.

To discount future cash flows, they apply a discount rate of between 10.6% and 13.3%. This discount rate was estimated using a Weighted Average Cost of Capital approach and assumed:

- A commercial interest rate of 5.75% to account for the cost of debt.
- A rate of 6.6% to 9.3% for the cost of equity, determined using a capital asset pricing model (CAPM) approach assuming:
 - A risk-free rate of 1.38% based on the 10 year Australian Government Bond rates (which were expected to increase).
 - An equity beta rate (a measure of a company’s value sensitivity to movements in the overall market) of 0.7 to 0.8, based on equity betas of comparable listed aquaculture companies.
 - A market risk premium of between 6% and 8% (based on BDO analysis).
 - An expectation that a licence holder’s capital structure comprises 25% debt.
- The application of an Alpha of 4% to adjust for the small size and lack of diversification of licence holders in the fishery relative to the comparable companies that were considered to determine the CAPM assumptions.
- A small business company tax rate of 27.5%.

To determine the productive value of licences, the estimated value of the average business was adjusted to remove the value of tangible assets (i.e. primarily boats and fishing gear), estimated at \$140,000 for net and line operators and \$127,000 for line only operators. The final derivation of productive licence values is shown in the table below.

		High (\$,000)	Low (\$,000)
Net and line licence	Average business value	155	188
	Less average value of tangible assets	140	140
	Implied licence value	15	48
Line only licence	Average business value	138	167
	Less average value of tangible assets	127	127
	Implied licence value	11	40

Source: BDO (2019) *Licences in the MSF Valuations Report*, 12 September. Accessed at: https://www.pir.sa.gov.au/_data/assets/pdf_file/0005/360734/20190912_Licences_in_the_MSF_-_Valuations_Report.pdf.

Estimated values by valuation methodology are summarised in Table 2 for each licence type. Where a valuation methodology is not shown in the table, it indicates the methodology was not applied due to inadequate available data. The implied productive value of licences determined using DCF were between \$15,000 and \$48,000 for Net and Line licences and between \$11,000 and \$40,000 for Line only licences, significantly below the values estimated using other methods. BDO EconSearch advised that its estimates of productive value using DCF “would result in few if any, buybacks” for the average licence holder.

Bringing its analysis together, BDO advised for net and line licences that “[a] buyback in the range of \$150,000 to \$211,000 would be greater or equal to the productive value achieved by the bottom 50% of the number of active net and line licence holders”; while for line only licences “[a] buyback in the range of \$112,000 to \$168,000 would be greater or equal to the productive value achieved by the bottom 70% of the number of active line only licence holders”.⁴²

⁴² BDO (2019) *Licences in the MSF Valuations Report*, 12 September. Accessed at: https://www.pir.sa.gov.au/_data/assets/pdf_file/0005/360734/20190912_Licences_in_the_MSF_-_Valuations_Report.pdf.

Table 2 BDO estimated licence values for the MSF by licence type

Valuation methodology	Line only licences		Net and line licences	
	Low (\$'000)	High (\$'000)	Low (\$'000)	High (\$'000)
Industry survey valuation	112	168	150	211
Productive value (DCF determined)	11	40	15	48
Holding cost	37	42	69	84
Broker estimated	150	165	-	-
Transfer value	151	174	-	-
BDO EconSearch 2019 (quartile averages)	150	165	155	204
BDO EconSearch 2019 (average over 5 years)	151	174	178	208

Source: BDO (2019) *Licences in the MSF Valuations Report*, 12 September. Accessed at: https://www.pir.sa.gov.au/_data/assets/pdf_file/0005/360734/20190912_Licences_in_the_MSF_-_Valuations_Report.pdf.

The final prices adopted for the buyback were \$180,000 for Net and Line licences and \$140,000 for Line only licences. Using these prices, PIRSA administered the process by:

- Receiving compensation proposals from licence holders.
- Assessing the proposals against the scheme's guidelines and criteria.
- Providing recommendations to the Minister.
- Notifying licence holders of their assessment (within 6 weeks of submission).

The key evaluation criteria applied to compensation proposals related to whether a proposal nominated a compensation value that was less than or equal to the identified surrender prices. The assessment of proposals did not consider other information such as licence holder catch history, fishing area, other licence and/or quota holdings, given its focus on a singular objective to remove at least 30% of licences.

Outcomes

Outcomes from the MSF Voluntary Licences Surrender Program are summarised in Table 3. A total of 135 licences (or 44% of licences in the fishery) submitted a proposal to surrender, of which 96 (or 71% of those that submitted a proposal) exited the fishery. This was equivalent to a 31% reduction in licence numbers, thus meeting the program's 30% reduction target. While no public information was sourced around industry satisfaction with the process, the fact that a significant number of licence holders engaged with the process and successfully exited is indicative of some positive outcomes for industry.

Table 3 Outcomes of the South Australian MSF surrender program

	Before reform	Proposals received	Surrendered	Remaining licences
Line licences	253	119	89	164
Net licences	54	16	7	47
Total	307	135	96	211

Source:

https://www.pir.sa.gov.au/primary_industry/commercial_fishing/commercial_fisheries/marine_scalefish_fishery/reform/voluntary_licence_surrender_program#:~:text=PIRSA%20is%20administering%20the%20voluntary,adviser%20is%20observing%20the%20process.

Summary

The South Australian MSF surrender program had access to a wealth of data to support the market valuation of licences. Interestingly, the application of DCF derived significantly lower values relative to other sources, with BDO instead opting to recommend licence values aligned with industry estimates reported in BDO's economic surveys of the fishery. These estimates also aligned with broker sourced estimates and historical transfers, demonstrating the advantages of using multiple information sources for cross-checking licence valuations. The MSF scheme also utilised a more efficient and transparent approach (relative to WA's VFAS approach) whereby at the start of the process, the administrator determined a realistic benchmark valuation that would be accepted by industry and achieve the scheme's licence reduction target, avoiding any unnecessary expenditure of funds on an unsuccessful scheme and industry frustration (e.g., as occurred in the case of the Cockburn Sound Commercial Crab Fishery (CSCCF)).

Compensation for acquisition example – Victorian Fisheries legislated formula

Background

In Victoria, the *Fisheries Act 1995* provides the overarching framework for the management and sustainable use of the state's fisheries resources. As in many other jurisdictions, the *Fisheries Act 1995* provides for fisheries rights to be granted to individuals or entities to engage in commercial fishing. The legislation further recognizes that these rights are associated with a value and establishes provisions for compensating the holders of rights in certain circumstances.

Approach

Compensation is triggered under the *Fisheries Act 1995* when licence holders have their licences cancelled. The Act specifies a process for assessing eligibility for compensation and determining the value of compensation, which requires investigation of the value of licences, the extent of use by licence holders and any additional reasonable expectations of the right holder in terms of the compensation they believe they are entitled to. More specifically, licence holders are entitled to compensation for the following:

- The assessed market value of their licence.
- The assessed market value of any losses that would be incurred if the fishing boat and equipment used under the licence were to be sold.
- Up to 3 years of lost net income (determined based on historical net income).
- A solatium (or payment of grace) of up to 10% of the value of the combined compensation amounts determined against the factors outlined above.

The Act also notes that the final compensation amount will be less any amounts paid to the holders of registered financial interests in the licence.

The subsidiary *Fisheries Regulations 2019* provide further details on the compensation calculation formula to be followed, first for transferrable licences as:

- “[A + (B – C) + D + E] – Y”, where:
 - “A is a fair and reasonable valuation for the licence, including any quota entitlement issued in respect of the licence, as determined by the valuer-general.
 - B is an income support payment equal to 3 times the average of the 4 highest net incomes before tax expressed in current dollars and returned from the 7 fishing seasons immediately before the cancellation of the licence, and based on catch records held by the Victorian Fisheries Authority.
 - C is a discounted amount determined by the independent negotiator to adjust for the benefit gained from receiving a lump sum in lieu of future income.
 - D is a fair and reasonable sum for any financial loss suffered as a natural and direct consequence of the cancellation of the licence that is not met by A or B.
 - E is a solatium of not more than 10% of the result of A + (B – C) + D.
 - Y is the total amount of the entitlement of the holders of a registered financial interest in the licence.”

For non-transferable licences, the market value of the right (component A) is removed from the formula, given that the right is non-tradable and has no market value.

For tradable licences, the market value of the licence (component A) must be determined by the Valuer-General (i.e., the valuer that values land under Victoria’s *Valuation of Land Act 1960*). Further supporting the compensation calculation, the regulations require item B (income support payment) to be supported by financial documentation (e.g., accountant prepared financial statements). The regulations also allow for item D to be supported by any documentation that the Secretary deems relevant. The regulations also provide the Secretary with the ability to appoint an independent negotiator with valuation expertise to provide the Secretary with advice on the compensation payable and the financial documentation that can be used in the process.

Summary

The Victorian approach and calculation method for compensating for cancelled licences is outlined in its legislation. As indicated, compensation is required to go beyond market value and include payments for lost income and solatium (of up to 10%). The other distinguishing features are that the compensation approach provides for the Valuer-General to make a market value determination and for an independent negotiator to determine other aspects of the calculation method, removing responsibility for determining compensation from the fishery regulator.

Consultation with staff from the Victorian Fisheries Authority has indicated that the circumstances under which a licence would be cancelled and the above formula would be applied are rare. However, the formula demonstrates some of the key components that have been identified as relevant to compensating right holders in fishery right acquisition schemes.

Where fisheries acquisition schemes have been progressed in Victoria, the *Fisheries Act 1995* is typically amended to allow for this. Two recent schemes include one aimed at supporting the restriction of commercial net fishing in Port Phillip Bay and the other focused on removing Gippsland Lakes Fishery Access Licences. Details of these two schemes are briefly considered in the two subsections that follow. The key elements of the compensation formula discussed above are central to both cases.

Compensation for acquisition example – Victorian Port Phillip Bay Adjustment Program (PBBAP)

Background

In 2015, the Victorian government amended the *Fisheries Act 1995* to provide a scheme to phase out all commercial net fishing in Port Phillip Bay over an eight-year period, ceasing after 1 April 2022.⁴³ The scheme supported the Victorian government’s commitment to phase out commercial netting in Port Phillip Bay as a part of its ‘Target One Million’ plan over an eight-year period. The *Port Phillip Bay Commercial Netting Adjustment Program’s* (PBBAP) goals including netting removal by April 2022, introducing a non-net fishery for select licences, and providing compensation solutions.⁴⁴

Forty-two commercial licences existed for the Port Phillip Bay fishery in 2015, which authorised licence holders to undertake net and line fishing for a variety of species. The Scheme also applied to a single Purse Seine Access Licence. As this single licence only permitted net fishing, the licence holder was required to surrender it.

Approach

Two types of compensation packages were offered to affected licence holders:

- A surrender package for those exiting the fishery.
- An adjustment package for the 8 fishers eligible to remain in the non-net fishery after 1 April 2022.

The first of these packages paid for the cancellation of licences on 1 April 2016. The structure of each compensation package is outlined in Table 4.

Table 4 PBBAP Compensation Scheme

Surrender package	Adjustment package
<p>For those licence holders who opted to exit the fishery in the first year of the scheme (April 2016), compensation consisted of:</p> <ul style="list-style-type: none">• the assessed market value of the licence, assessed by the Victorian Valuer-General as \$310,000;• an allowance of \$75,000 for commercial fishing equipment such as vessels and nets to account for the reduced market value of such specialised gear given the prohibition on netting; and• an amount to provide compensation for loss of income based on three times the average annual catch value taken over the five fishing years from 1 April 2009 to 31 March 2014 under the licence.• The Licence Surrender Package’s compensation was designed to reduce by 10% of the total package for each Election Period after 1 April 2016 and up to 1 April 2022. This reflected the fact that licence holders are able to continue to generate an income while they remain in the fishery.	<p>For the eight Western Port/Port Phillip Bay Fishery Access Licence holders remaining in the non-net fishery after 1 April 2022, an adjustment package was to be paid on 1 April 2022 consisting of:</p> <ul style="list-style-type: none">• 50% of the assessed market value of the licence, in recognition of the reduced utility and earning capacity of the licence without the authority to use nets; and• an allowance of \$50,000 to account for the reduced market value of specialised gear, given the prohibition on netting.

Source: Australian Tax Office, Class Ruling 2016/7. Income tax: treatment of compensation payments received under Division 5 of Part 8 of the Fisheries Act 1995 (Vic) relating to phasing out commercial net fishing in Port Phillip Bay. Access at: <https://www.ato.gov.au/law/view/document?DocID=CLR/CR20167/NAT/ATO/00001>.

The market value of licences was determined by the Victorian Valuer-General from historical licence sale values, and administrators of the scheme indicated that this approach was the most defensible particularly given the availability of data on licence trades. The Valuer-General also consulted brokers in Victoria to inform valuations.

⁴³ Premier of Victoria. (2015). *Labor Government To End Netting In Port Phillip Bay*. Access at: www.premier.vic.gov.au/labor-government-end-netting-port-phillip-bay.

⁴⁴ State of Victoria (2015) *Port Phillip Bay Adjustment Program Information Booklet*, p. 5. Access at: <https://www.ruralfinance.com.au/industry-programs/port-phillip-bay-adjustment-program>.

Administration of the scheme was also conducted by an independent third party in the form of Rural Finance (a Division of Bendigo and Adelaide Bank), who had previous experience running fisheries compensation schemes in Victoria.⁴⁵

Communications around the scheme also directed impacted licence holders to the Rural Financial Counselling Service to seek free financial support for the duration of the scheme. This was done in recognition of the impacts on the livelihoods of fishers and their families and to better ensure the scheme was run in a respectful manner.⁴⁶

Outcomes

Thirty-three fishers decided to exit the fishery on 1 April 2016. Eight fishers nominated to remain post 2022 and two had made no decision at the time the scheme concluded.⁴⁷ Consultation with the scheme's administrators indicated that fishers in Port Phillip Bay generally did not have issues with the compensation process but were instead dissatisfied with the initial political decision about the fishery. The scheme did receive some criticism, however, for confining compensation to licence holders, not lessees or employees.

Summary

The surrender and adjustment compensation packages for commercial net fishers under the PBBAP appears to have been relatively successful. Following an increase in the total compensation available to the scheme from \$20 million to \$27 million, more than 75% of licences were surrendered in the first election period of the scheme. The total catch of these licence holders comprised 87% of the commercial catch of fish targeted by recreational fishers⁴⁸. Key features of the scheme of note were:

- The use of an independent authority and expert in the form of the Valuer-General to determine the market value of right.
- Administration of the scheme by an independent body with relevant expertise and experience in the form of Rural Finance.
- The application of a compensation formula that was communicated to all licence holders at the start of the scheme and compensated above market value by including adjustments for the value of physical assets and providing a relatively generous payment for loss of income.

Compensation for acquisition example – Victorian Gippsland Lakes approach

Background

As part of its "Target One Million" election commitment, the Victorian government pledged to ban netting at the mouth of the rivers of the Gippsland Lakes in 2015.⁴⁹ This commitment was expanded under its 2018 'Go Fishing Phase 2' election promise to phase out commercial fishing in the Gippsland Lakes through a compulsory buyout.⁵⁰ The impetus for this reform was based on evidence that the lake

⁴⁵ Victorian Fisheries Authority (2016) *Frequently asked questions*. Draft document provided by VFA via consultation.

⁴⁶ Victorian Fisheries Authority (2016) *Frequently asked questions*. Draft document provided by VFA via consultation.

⁴⁷ Victorian Fisheries Authority (2016) *Target One Million: The nets are coming out of the bay*. Accessed at: <https://vfa.vic.gov.au/recreational-fishing/go-fishing-victoria/target-one-million/pulling-nets-out-of-the-bay>.

⁴⁸ Victorian Fisheries Authority (2016) *Target One Million: The nets are coming out of the bay*. Accessed at: <https://vfa.vic.gov.au/recreational-fishing/go-fishing-victoria/target-one-million/pulling-nets-out-of-the-bay>.

⁴⁹ Victorian Fisheries Authority (2016) *Netting of Gippsland's river. Mouths*. Accessed at <https://vfa.vic.gov.au/featured/current-consultation/netting-of-gippslands-river-mouths>.

⁵⁰ Victorian Fisheries Authority (2018) *Go Fishing Victoria Phase 2*. Accessed at: <https://vfa.vic.gov.au/recreational-fishing/go-fishing-victoria/gfvphase2>.

had reached a tipping point, after which it could no longer support both a quality recreational fishery and a viable commercial fishery. To support the ban, a compensation package was implemented.

Approach

The compensation package comprised three components, which were consistent with the PPBAP:

- A fixed amount of \$371,000, which represents the market value of the fishing licence as assessed by the Victorian Valuer-General.
- A fixed amount of \$60,000 for redundant fishing vessels and all commercial fishing equipment. This amount was to account for the reduced value of the fishing vessels and fishing equipment given the prohibition on netting and, therefore, the reduced market demand for the specialised equipment. Fishing vessels or equipment owned by a licence holder at the time of licence surrender continued to be the property of the licence holder.
- Loss of income, based on three times the annual average catch value of the catch taken under each licence over the five-year period between 1 April 2012 to 31 March 2017.

Calculation of the package is outlined in Table 5 below. Licences surrendered after 1 April 2021 were reduced in value by 20%, which was designed to incentivise licence holders to exit the fishery early. Like the PPBAP, the scheme was administered by Rural Finance.

Table 5 Calculation of licence cancellation compensation

Compensation Period	Formula for determining compensation
<p><u>From 1 April 2020</u></p> <p>Fixed compensation for the market value of fishing licences and redundant fishing vessels and equipment, compensation for loss of income.</p>	<p><u>2020 Compensation package (A)</u></p> <p>$A = R + S + (3 \times T)$</p> <p>Fixed \$371,000 compensation for market value of the fishing licence (R)</p> <p>Fixed \$60,000 compensation for redundant fishing vessels and fishing equipment (S)</p> <p>Average annual catch between 2012-2017 (T)</p>
<p><u>From 1 April 2021</u></p> <p>80% of value of compensation package.</p>	<p><u>2021 Compensation package (B)</u></p> <p>$B = A \times 8 / 10$</p>

Source: Parliament of Victoria (2022) *Fisheries Act 1995 No. 92 incorporating amendments as at 29 March 2022*. P. 382. Accessed at: <https://www.legislation.vic.gov.au/in-force/acts/fisheries-act-1995/100>.

Outcome

By 1 April 2020, all of the 10 remaining Gippsland Lakes commercial net fishers accepted the cancellation of their licences in exchange for compensation packages and exited the fishery. It is worth noting that an Australian Tax Office Class Ruling related to the scheme found that licence compensation payments are subject to capital gains tax.⁵¹

Summary

The Gippsland Lakes scheme was delivered in much the same fashion as the PPBAP and appears to have been similarly successful.

⁵¹ Australian Tax Office (2019) 'Class Ruling 2019/84: Treatment of compensation payments received under the *Fisheries Act 1995* (Vic) relating to the removal of commercial net fishing from the Gippsland Lakes'. Accessed at: www.ato.gov.au/law/view/pdf/pbr/cr2019-084.pdf.

Determining compensation for fishery right impacts

Defining fair compensation for impacts on fishing right holders

The basic aim of compensating for impact is like that of compensation for acquisition. That is, to compensate the right holder to leave right holders as well off as before. However, in this case, the right holder should be compensated for the forgoing of future benefits because of the impact of an event, but the licence holder maintains their right and can continue to earn a benefit (although reduced) from that right.

While there may be impacts on the market value of a fishing right, this should generally not be the focus of compensation for impact schemes. The main issue is that the negative impacts of an event may vary substantially across licence holders, and, most importantly, for some licence holders, it will be greater than the observed reduction in the market value of rights. For example, if a MPA closes access to only one fisher, the impact of that MPA on the market value of the fishing right is likely to be minimal as it has had no impact on the expected future earnings of most licence holders. However, for the licence holder that has been impacted, the impact on that individual fisher's viability would be significant. While an extreme example, it demonstrates that individual impacts on fishers will not necessarily be reflected in the market value of their fishing right(s).

Methods for calculating compensation for impact

Given the focus on loss of income, there is a need to be able to understand how the changed circumstances impact the ability of a licence holder to derive benefits (e.g., income) from their fishing right. However, this can be difficult and associated with significant uncertainty.

For example, where a new MPA is being implemented, it can be difficult to separate the predicted impacts of the MPA on commercial fishers from other management measures introduced with the MPA.⁵² The mobile nature of most fish stocks also means that preventing commercial fisher access to one area does not prevent access to the stock more generally. Over time, MPAs can also develop into a recruitment source point for targeted fish species, providing spillover benefits for the broader fishery by supporting higher productivity and catch rates across the fishery.⁵³ The degree to which such impacts eventuate is difficult to predict.

More generally, where a significant amount of fishery effort is being displaced it is widely recommended that the design of a compensation scheme be underpinned by a detailed socio-economic impact analysis which properly attempts to quantify the likely impacts of the initiative in question and that this be guided by stakeholder engagement⁵⁴. This can support administrators at the start of the process to understand what the potential impacts may be at the fishery level and to some degree the operator level, which can inform planning and budgeting.

The basis for predicting impact in such analyses typically utilises data on historical catch and effort levels as a proxy for future catch and effort. These are then used to determine the potential loss of income. The ability for a compensation scheme administrator to be able to do this is dependent on the quality and granularity of data that has historically been collected for the fishery, which for small fisheries may not be sufficiently granular.

⁵² MRAG Asia Pacific (2010) *Adjustment Assistance for Public Good Marine Conservation: A review of past Australian practice and implications for future measures to offset impacts on the seafood industry*, August 2010.

⁵³ Abesamis, R.A., and Russ, G.R. (2005) 'Density-Dependent Spillover from a Marine Reserve: Long-Term Evidence', *Ecological Applications*. Vol. 15, Iss. 5, pp. 1798-1812.

⁵⁴ Sen, S. (2010) 'Developing a framework for displaced fishing effort programs in marine protected areas', *Marine Policy*, Vol. 34, pp. 1171-1177.

MRAG Asia Pacific (2010) *Adjustment Assistance for Public Good Marine Conservation: A review of past Australian practice and implications for future measures to offset impacts on the seafood industry*, August 2010.

Once the impact is understood, it can serve as the basis for determining compensation value. A DCF approach applied to determine a present value of net earnings (i.e., income less costs) foregone is a common approach. The fundamental features, advantages, and disadvantages of the DCF approach outlined previously still apply in the context of compensating for impact, the only difference being that the method is being applied to anticipated earnings that are foregone (rather than anticipated earnings).

As for acquisition schemes, formula-based and multiplier based approaches can also be applied to determine a compensation amount. Multipliers can be applied to anticipated forgone income (or gross value of production) as a proxy to determine the full compensation amount, but again, should best be set using evidence about the fishery's profitability. The Parks Australia compensation process outlined previously provides an example of a formula-based approach for compensating for the impacts of MPAs and to assist licence holders to transition to the new framework.

Processes for determining compensation for impacts on fishery rights

Compensation for impacts on fishing rights can be determined via the following means:

- **Formula-based approach** – formulas typically take into account the loss of catches and/or revenue associated with the impact and will often apply a multiplier to the value of catch lost. The intent is to explicitly value the foregone future earnings of the impacted licence holder and typically involves the use of historical catch, beach price, and effort data for each licence (in the absence of more detailed revenue and cost data).
- **Consultation and negotiation** – a process occurs whereby the entity responsible for administering the scheme seeks to gather information from and/or negotiate with impacted entities to quantify the impact of an event and the associated compensation valuation.
- **Independent valuation** – an independent third party is relied upon to place a value on the impact and the associated foregoing of net income, plus any additional required compensation amount.⁵⁵

Once again, a mix of the above approaches is often used. For the application of formula approaches, Sen (2010) notes that “there may be disagreements between applicants and assessors as to the information to be used as inputs to the formula, and if there are no robust and independent mediation processes, conflicts can arise. Designing a fair and equitable formula may also require extensive consultation and expert design and review.”⁵⁶ This points to a need for processes to be built on strong stakeholder engagement, collaboration, and transparency.

Similarly, Teh et al. (2017)⁵⁷ highlights the need for improved communication and trust between the scheme administrator and industry. They note that a collaborative, co-management, power sharing approach can assist with this and also provide an increased understanding of the heterogeneity of impacted fishers, help deal with moral hazard issues on the part of fishers and support a more efficient and smoother process.

MRAG Asia Pacific (2010)⁵⁸ identify several principles to guide compensation for impact processes focused on offsetting the impacts of MPAs, which are summarised in Box 3.

⁵⁵ For example, see: Squires, D. (2010). A review of fisheries buybacks. *Fish and Fisheries*, Vol. 11, pp. 366–387; and Holland, D., Gudmundsson, E and J. Gates. (1999) ‘Do Fishing Vessel Buyback Programs Work: A Survey of the Evidence’, *Marine Policy*, 23, 47–69.

⁵⁶ Sen, S. (2010) ‘Developing a framework for displaced fishing effort programs in marine protected areas’, *Marine Policy*, Vol. 34, pp. 1171–1177.

⁵⁷ Teh, L., Hotte, N and Rumaila, U.R., (2017) ‘Having it all: can fisheries buybacks achieve capacity, economic, ecological and social objectives?’, *Maritime Studies*, Vol 16, Issue. 1

⁵⁸ MRAG Asia Pacific (2010) *Adjustment Assistance for Public Good Marine Conservation: A review of past Australian practice and implications for future measures to offset impacts on the seafood industry*, August 2010.

Box 3 Principles of compensating for marine park impacts identified by MRAG (2010)

- **Equity** – this principle should be an overriding principle across compensation processes and implies that all stakeholders should be treated equally in the compensation process. It further implies that where actions are taken to generate a public good for the broader community, one sector or group of stakeholders (e.g., the fishing sector) should not disproportionately bear the cost of that action.
- **Inclusivity** – a process should aim to compensate all those that are directly impacted by an MPA (e.g., the fishing industry) but also those indirectly impacted (where the impact is significant). This can include businesses in the local community that support or rely on the local fishing sector.
- **Integrity of fisheries management arrangements** – compensation schemes should be designed to minimise any negative impacts on fishing rights, including their value, tradability, and their property right characteristics.
- **Transparency in administration** – ensuring that the objectives, principles and decision rules of the process are clear and transparent is critical to maintaining trust in the process, protecting the process from any actual or perceived bias, and ensuring accountability.
- **Value for money** – schemes typically (but not always) use public funds, which implies that funds must be used efficiently and effectively to deliver the outcomes desired under the compensation scheme at least cost. This can involve avoiding the purchase of latent (or unused) fishing rights and ensuring claims for impact are legitimate.
- **Adequate resourcing** – processes should be adequately resourced in terms of the funding made available for compensation but also in terms of the resourcing applied to the delivery of the process, including its administration, communication and technical advisory support.
- **Stakeholder participation** – application of participative (rather than consultative) processes involving key stakeholders impacted by an initiative (e.g., an MPA, a restructure) as well as key knowledge experts can ensure both the design of the compensation process and also the initiative that it is supporting better meet their objectives.
- **Reasonable flexibility** – unforeseen impacts will often require a degree of flexibility in the design of the compensation process to allow refinements to the process to ensure that scheme's objectives are met.

Source: MRAG Asia Pacific (2010) 'Adjustment Assistance for Public Good Marine Conservation: A review of past Australian practice and implications for future measures to offset impacts on the seafood industry', August 2010.

A specific issue relevant to impact schemes is that some individual licence holders may be impacted to a point that makes fishing no longer viable. This may require the scheme administrator to determine when acquisition might be warranted. Alternatively, running complementary voluntary acquisition processes can allow licence holders to opt in to surrender their right if they anticipate an unviable future.

Compensation for impact, for example – assistance for the National Representative System of Marine Protected Areas

Background

Parks Australia oversees Commonwealth marine parks in Australia. These parks lie in Commonwealth waters over three nautical miles off the coast and comprise management zones which allow different activities.⁵⁹

In 2012, the former federal Labour Government announced an initiative to expand Australia's *National Representative System of Marine Protected Areas*. New management plans for six new marine park networks were initially enacted but were then repealed in late 2013 by the new Coalition Government, with the intent of reviewing and potentially adjusting the arrangements.⁶⁰

New management plans and associated zones were created and enacted from July 2018 for each of the six marine park networks around Australia.⁶¹ The new zoning system outlines 'Class Approvals', which set

⁵⁹ Australian Marine Parks (N.D.) *Management plans for marine parks*. Parks Australia (Commonwealth of Australia) Accessed at: <https://parksaustralia.gov.au/marine/management/>.

⁶⁰ Butterly, L., and Richardson, B.J. (2014) 'Marine park review looks set to repeat past mistakes', in *The Conversation*. Accessed at: <https://theconversation.com/marine-park-review-looks-set-to-repeat-past-mistakes-32869>.

⁶¹ Australian Marine Parks. (N.D.) *Management plans for marine parks*. Parks Australia (Commonwealth of Australia) Accessed at: <https://parksaustralia.gov.au/marine/management/>.

out where commercial fishing can occur, the fishing methods that can be used and any attached conditions.⁶²

While the redesigned plans were estimated to halve the financial impact on the commercial fishery sector (from \$8.2 million under the previous plans down to \$4.1 million⁶³), negative impacts were still expected. As a result, a compensation scheme was launched under a \$35 million *Fisheries Assistance and User Engagement Package*.

There were four grant streams within this package⁶⁴, with the *Fishing Business Assistance Grants program* stream providing direct grant assistance to affected commercial fishers with recent fishing history in Australian Marine Parks to assist their transition to the new operating environment.⁶⁵

Approach

With the new management plans in place in mid-2018, the Director of National Parks released a Position Paper for stakeholder feedback, which outlined proposed compensation arrangements for the *Fishing Business Assistance Grant program* for affected fisheries.⁶⁶ As described in that paper, the package was designed to:

- “Provide fair and reasonable assistance to commercial fishers directly affected by new Australian Marine Park management arrangements to assist them in transitioning to the new operating environment.
- Be delivered within the funding provided for the package.
- Be transparent in delivery, including methods of calculating assistance and eligibility.
- Be equitable, evidence-based, and systematic in its application.
- Be deliverable across relevant jurisdictions efficiently and within an appropriate timeframe.”

The Position Paper proposed a formula-based compensation approach, to support an efficient and transparent process that avoided case-by-case assessment. Consultation was intended to provide greater certainty for industry that compensation would be fair.

The following formula was proposed in the Position Paper:

Assistance amount = (average annual income forgone) x 25% x 4 years

Where:

- **Average annual income forgone** is the estimate of the average annual income calculated to have been displaced.
- **25%** is the assumed profit retained by a commercial fisher.
- **4 years** is the period over which the assistance is calculated.

⁶² Australian Marine Parks. (N.D.) *Commercial fishing in Australian Marine Parks*. Parks Australia (Commonwealth of Australia) Accessed at: <https://parksaustralia.gov.au/marine/pub/factsheets/commercial-fishing-factsheet.pdf>.

⁶³ Larcombe, J., and Marton, N. (2018) *Potential displacement of commercial fisheries by an Australian Marine Parks zoning scheme: Report on recommended management plan zoning*, ABARES technical report, Canberra, CC BY 4.0

⁶⁴ The other three streams comprised the Our Marine Park Grants Program (to help marine users and industries engage in marine park management), the Electronic and Vessel Monitoring Assistance Program (supported commercial fishers to adopt electronic vessel monitoring) and the Coral Sea Fishery licence buy-out (to support fishery exit given the inability to use trawl or trap methods under the new arrangements).

⁶⁵ The Department of the Environment and Energy (2019) *Fisheries Assistance and User Engagement Package - Fishing Business Assistance Program Grant Opportunity Guidelines*.

⁶⁶ Fishing Business Assistance (2018) *Position Paper: Australian Government and Australian Marine Parks*.

Calculation of ‘*estimated average annual income forgone*’ was to involve three steps:

1. Calculate catch displacement – taken as total catch between 2012 and 2017 within areas that could previously be fished and are now affected, using ABARES catch displacement estimation methods.
2. Calculate income displacement - applying beach prices⁶⁷ determined by ABARES to the calculated catch displaced.
3. Selection and inclusion of relevant focus years – took the average of the three financial years between 2012 and 2017 with the highest displaced income.

A key feature of the approach was the use of existing catch and effort data held by state fishery management agencies, which was viewed as a pragmatic approach to determining compensation given the number of licences, fisheries, and jurisdictions being dealt with. The approach also proposed to compensate those directly impacted by the new arrangements, including fishery operators that had leased their fishing rights.

Following the conclusion of the consultation period, the “*Fishing Business Assistance Grants - Consultation Report*” was released in December 2018. It included Parks Australia’s responses to submissions and decisions on key issues raised in consultation⁶⁸. Twenty entities (14 of which were from WA) made submissions during the consultation period. The outcomes of the consultation are summarised in Table 6 below.

The changes announced following consultation were anticipated to increase average assistance payments to individual fishers by 50% above that outlined in the previous Position Paper⁶⁹. The changes were also further expected to reduce regulatory burden on fishers and assist fisheries to transition to a more ecologically and economically sustainable future. The final compensation calculation was as follows:

Assistance amount = (average annual income forgone) x 30% x 5 years

The Fishing Business Assistance Grants program opened on 20 March 2019 with the release of the *Fishing Business Assistance Program Grant Opportunity Guidelines*. The closing date for applications was 7 May 2019.

Table 6 Summary of consultation outcomes

	Change	Reasoning
Changes accepted	Increase the period of assistance from four to 5 years	<ul style="list-style-type: none"> • Some fishers will need to amend current fishing practices • This carries an economic cost, so assistance period will be increased
	Increase the profit assumption from 25 per cent to 30 per cent.	<ul style="list-style-type: none"> • Some businesses will have fixed costs that cannot be avoided in the short term • Director is unable to appropriately deal with these issues without going to a case by case assessment
	Reduce the minimum payment threshold to \$100	<ul style="list-style-type: none"> • Some fishers will have multiple entitlements below \$1000 that might add to over \$1000 • To reduce this occurrence, the minimum payment threshold is lowered to \$100

⁶⁷ Beach prices are the value received for the fisher’s catch ‘at wharf’ and prior to other costs being considered such as transport, storage or further processing.

⁶⁸ Australian Government and Australian Marine Parks (2018) *Fishing Business Assistance Grants – Consultation Report*. December.

⁶⁹ Australian Government and Australian Marine Parks (2018) *Fishing Business Assistance Grants – Consultation Report*. December.

	Change	Reasoning
Changes rejected	Submissions seeking an increase in beach prices	<ul style="list-style-type: none"> • Recognises that beach prices will not always reflect prices received by individual fishers • Beach prices will derive from information and methods that States, the Northern Territory and the Commonwealth use to report on the value of their fisheries • Considered the best approach in order to deliver an assistance program that is national in scope • Will ensure that the prices applied will be tailored at both the jurisdictional and individual fishery scale
	Submissions seeking changes in how displacement of income is calculated	<ul style="list-style-type: none"> • Proposed approach is sound and provides the fairest verifiable method • Ensure they are calculated (by ABARES) using the best available data while ensuring consistency across fisheries • The calculation makes the assumption that catch loads cannot be increased elsewhere, which is generally not the case
Other	<p>Issues on eligibility, needing a review process, assistance for vertically integrated fishing businesses, inclusion of exceptional circumstances provisions, class approval issues, Sea Lion closures in WA were also discussed.</p> <p>Commitment made to a \$5 million first round of the <i>Our Marine Park Grants</i> program being opened at or around the same time as the opening of the <i>Fishing Business Assistance Grants</i> program to further address fishery impacts. To be informed by fishing industry representative bodies to identify sectoral, regional and national impacts not directly resolved in the Fishing Business Assistance Grants program.</p>	

Source: Australian Government and Australian Marine Parks (2018) *Fishing Business Assistance Grants – Consultation Report*. December

Outcomes

A total of 420 entities received compensation as part of the process⁷⁰. The project team were unable to source public information providing more detail on the outcomes of the process nor industry satisfaction with the process. However, advice from Parks Australia indicated that while some industry stakeholders were not satisfied with the process, they felt that the majority of industry stakeholders were generally satisfied.

Summary

The Parks Australia *Fishing Business Assistance Grants* process provides an example of a compensation for impact process in the context of implementing a large network of marine parks. The national scale of impacts and large number of licence holders impacted saw a reliance on a one-size-fits-all approach, albeit an arguably generous one, to attempt to deliver fair and reasonable assistance.

Some of the key features of the approach included:

- The design of marine protected areas and the compensation package were linked to minimise significant impacts on industry as much as possible and to better allow improved budgeting, planning and communication of approach to stakeholders.
- Attempts were made to make the compensation calculation method as transparent as possible by communicating it publicly at the start of the process, consulting on the method and making adjustments to it in response to stakeholder feedback. Parks Australia also advised that individual compensation calculations were clearly set out in correspondence with licence holders and operators.
- Use of a calculation formula that relied solely on catch and effort data and that did not require detailed economic and financial data or analysis.

⁷⁰ Personal communication, Parks Australia.

- To accommodate the shortcomings of applying a one-size-fits-all approach, an arguably generous compensation formula was applied (i.e., a 30% return).

While our assessment has been informed by desktop research and consultation with Parks Australia, it would have benefited from consultation with industry who engaged in the process across Australia, but this was beyond the resources of the current project.

Compensation for impact example – Great Barrier Reef Marine Park

The majority of the following section contains information from the “Review of the Great Barrier Reef Marine Park Structural Adjustment Package”⁷¹, with supporting evidence from “Improving the cost effectiveness of displaced fishing effort adjustment programmes using ex post socio-economic impact analysis”⁷² and “Adjustment Assistance for Public Good Marine Conservation: A review of past Australian practice and implications for future measures to offset impacts on the seafood industry”⁷³.

Background

The Great Barrier Reef Marine Park Structural Adjustment Package (SAP) was an initiative by the Australian Government to mitigate the impacts of the 2003 Zoning Plan on the fishing industry and related businesses. The Zoning Plan significantly altered the areas of the Marine Park that were open for extractive uses, particularly fishing. The SAP was designed with two primary objectives: to assist those adversely affected by the Zoning Plan and to manage any displaced fishing effort in a manner that would not have unsustainable ecological or economic impacts.

The SAP was a comprehensive program with various components, including Exit Assistance, Fishing Business Exit Assistance, and Business Restructuring Assistance (BRA). While each part played a role in assisting affected businesses, the focus here is on the BRA component of the package, which comprised 75% of the total SAP. This component was designed to provide financial and strategic support to businesses remaining in the sector that needed to adapt to the new regulations.

Notably, the component underwent several amendments to better suit the needs of the industry, such as allowing businesses to use restructuring assistance to purchase fishing entitlements.

Approach

The BRA was created to help businesses adapt to new marine park regulations. It focused on assisting two groups: licenced fishers affected by zoning changes who did not participate in licence buyouts and businesses reliant on the fishing industry that faced negative impacts because of reduced fishing activities.

The BRA component of the SAP was divided into two categories: Full Business Restructuring Assistance (FBRA) and Simplified Business Restructuring Assistance (SBRA). These categories were designed to offer tailored solutions to businesses based on their size, complexity, and specific needs.

The calculation for the size of the BRA payment was based on the individual circumstances of each business, including the effects of the Zoning Plan on profitability and potential capital investment options to restore profitability. The BRA was designed to be highly adaptable to the evolving needs of the fishing industry. Initially, the component allowed businesses holding multiple fishing licences to sell some through the licence buyout component and then access BRA for the remaining licences. This approach

⁷¹ Gunn, J., Fraser, G., and Kimball, A. (2010) *Review of the Great Barrier Reef Marine Park Structural Adjustment Package*. June.

⁷² Sen, S. (2011) *Improving the cost-effectiveness of displaced fishing effort adjustment programmes using ex-post socio-economic impact analysis*.

⁷³ MRAG Pacific (2010) *Adjustment Assistance for Public Good Marine Conservation: A review of past Australian practice and implications for future measures to offset impacts on the seafood industry*.

was later amended to allow fishing businesses to use the restructuring assistance to purchase fishing entitlements, thereby providing more flexibility in how the assistance could be used.

The component also underwent several financial changes to better suit the needs of the industry. Initially, there was a cap of \$200,000 on the amount available under FBRA, which was later increased to \$500,000. Eventually, even this cap was removed to accommodate businesses that could not successfully restructure for less than \$500,000. Payments under this component were also increased by 20% in recognition of the hardship experienced by the fishing and related industries.

In terms of total payments, FBRA saw a total of approximately \$162.4 million disbursed (an average of \$374,000 per payment), while SBRA allocated \$10.1 million (\$25,000 per payment).

Outcomes

The outcomes of the BRA were mixed. On the positive side, the program was successful in providing financial assistance to businesses, enabling them to restructure and adapt to the new regulatory environment. However, the program also faced criticism for not fully meeting the needs of all stakeholders, while delays between the application for funding and the final payment left many businesses feeling financial and personal stress. A majority of stakeholders felt that the package failed to adequately compensate them for the impacts of the Zoning Plan.

In many cases, the final use of BRA money was different to the original intention of the grant applications. Funds were largely used to pay off debts, which enabled businesses to stay afloat.

The assistance package also faced challenges in stakeholder communication. The complexity of the package, combined with multiple changes to its scope, made it difficult to effectively communicate its features and benefits to stakeholders. This led to some level of dissatisfaction among the affected businesses.

Moreover, the complexity associated with the approach compromised the efficient and effective implementation of the package. For example, many stakeholders opted for the SBRA due to the need for immediate financial support and later regretted their decision, feeling they would have received more if they had applied for FBRA.

Despite this, a minority of stakeholders acknowledged that the package had assisted them in restructuring, reducing debt, or remaining solvent during a challenging period. The FBRA and SBRA components, in particular, were designed to address equity and fairness considerations, providing a level of financial relief to businesses that were disproportionately affected by the Zoning Plan.

The review of the Great Barrier Reef Marine Park SAP conducted in 2010⁷⁴ made a number of recommendations. One significant recommendation was the re-evaluation of the strategy to assist a broad spectrum of individual businesses. While the initial approach was designed to foster a tailored solution for each business, it inadvertently introduced a high level of complexity to the package's administration. This complexity not only hampered the efficiency of the program but also deterred individuals from seeking assistance. To mitigate this, the authors proposed a more streamlined approach, potentially involving a panel of business advisors to offer consistent and reasonable guidance to the affected parties, thereby enhancing the accessibility and effectiveness of the advisory component.

Further, the report emphasises the necessity for a clear articulation of the objectives and the scope of any future structural adjustment initiatives. It advocates for a well-defined strategy that delineates the exact changes aimed to be achieved through structural adjustments, ensuring that they are crafted to effectively manage the levels of fishing efforts and catches in response to reduced resource access. This involves a meticulous pre-implementation phase where the scope, objectives, and components of the

⁷⁴ Gunn, J., Fraser, G and Kimball, A (2010) *Review of the Great Barrier Reef Marine Park Structural Adjustment Package*, June.

adjustment package are defined in consultation with all pertinent stakeholders, thereby fostering a program that is both inclusive and attuned to the actual needs and impacts on the ground.

Lastly, the report underscores the importance of financial prudence in the execution of future structural adjustment packages. It recommends the imposition of a cap on the funds allocated for the package, a strategy derived from a careful consideration of the scope and nature of the necessary adjustments. This financial cap is seen as a tool to foster competitive allocation of adjustment funds, thereby ensuring judicious use of resources. Moreover, it encourages a harmonised approach where the Commonwealth aligns its fishery restructuring strategies with relevant state government policies and programs, fostering a more coordinated and unified approach to marine conservation and business restructuring. This set of recommendations, grounded in the lessons learned from the SAP, aims to guide the development of more effective and efficient structural adjustment programs in the future.

Summary

The Great Barrier Reef Marine Park SAP was a complex and drawn out process that appears to have suffered from poor planning and an attempt to achieve a case-by-case approach to determining compensation (the latter of which was confirmed with administrators of the program through consultation). The many learnings of this program informed the approach taken by Parks Australia delivering compensation for the *National Representative System of Marine Protected Areas*, arguably in a much improved fashion.

Compensation for acquisition – New Zealand quota holders

Background

New Zealand's *Fisheries Act 1996* includes provisions that create an arbitration and compensation process to support aquaculture development in New Zealand waters while protecting existing quota right holders. The subsidiary *Fisheries (Aquaculture Compensation Methodology) Regulations 2012* provides guidance as to how the New Zealand government should assess and determine the relative economic value of proposed aquaculture activities versus the value of existing fishing activities in an area of water. If a proposed aquaculture activity is projected to generate a sufficiently greater economic value than the existing fishing activity, approval of that aquaculture project is subject to compensation requirements for fishery right holders. These requirements are outlined in the regulations.

Approach

Schedule 2 of the *Fisheries (Aquaculture Compensation Methodology) Regulations 2012* outlines the methodology for determining compensation for loss of value of quota affected by aquaculture activities. It first specifies a determination of compensation value as follows:

compensation payable = $(cl \times qv \times qs) \times dc$

where:

- **cl** is the percentage of the estimated average annual catch loss for the fish stock (as specified in the reservation made under section 186E of the Act) above the threshold at which the chief executive considers the potential catch loss for that stock is undue (taking into account any increased fishing costs).
- **dc** is 1.2, which is the multiple by which the arbitrator must increase the compensation payable to account for any consequential disruption costs that the quota owners may incur as a result of the proposed aquaculture activities, which includes a sum by way of solatium.
- **qs** is the number of quota shares for that fish stock held by the quota owner.
- **qv** is the value, in dollars, of 1 quota share.

The regulations then provide further guidance that quota value should be determined based on:

- The annual catch entitlement trade price⁷⁵ (divided by an appropriate discount factor to derive the net present value) or, the quota trade price, or both.
- Any recent transfers of the quota or associated annual catch entitlement.

The regulations also allow for the arbitrator to consider other data provided by right holders if, in their opinion, the above statistics do not provide a reliable indication of the quota value for a fish stock. The arbitrator may also adjust the quota value for inflation, using information provided by impacted entities.

Summary

While no information could be sourced around the application and effectiveness of the *Fisheries (Aquaculture Compensation Methodology) Regulations 2012*, it provides an excellent example where compensation for impact measures have been incorporated into the legislative framework to support competition for marine areas with other sectors.

Compensation for impact example – international approaches to windfarms

Background

With the increased development of windfarms and supporting infrastructure in oceanic areas, there has been an increase in attention focused by government entities and researchers on how to mitigate the impacts of these projects on fishery stakeholders, including through compensation mechanisms.

Approaches

In the United States, the Bureau of Ocean Energy Management (BOEM) has recently developed guidelines for proponents of energy projects to guide their mitigation of impacts on commercial and recreational fisheries. It identifies five best management practices, one of which includes financial compensation.

The onus is on proponents to provide financial compensation to fishers (rather than the government). It identifies potential actions that can be taken by proponents, which include:

- Support for fishermen to develop wind facility-safe fishing gear, facilitating safe operations near the offshore wind facility and requiring discussions with fishers.
- Enhancing fishing port and shore-side facilities to improve efficiency and safety for fishing vessels, again informed by discussions with fishers and the broader community.
- Compensation for gear loss and income reduction, evaluating various factors related to fishing activities, and considering compensation options such as access enhancement, cost reduction, seafood promotion, and more.
- Investigate measures to benefit fishing, potentially enhancing fishery production in wind facility areas through public mooring buoys and turbine foundations.

BOEM recommends that proponents assess the “revenue exposure” of their project. They define revenue exposure as “the total amount of fishery revenue generated within a defined area (e.g., an offshore wind energy project area) and based on historical data that could be foregone if vessel operators no longer fish within that area due to offshore wind energy construction and operation activity”. BOEM identifies for which fisheries and species there is a high degree of confidence in revenue exposure and provides some ‘Derived Fishery Revenue Exposure Products’ to assist lessees determine their project’s revenue exposure. BOEM also recommends that proponents evaluate data derived from vessel monitoring

⁷⁵ The annual catch transfer price is published by Commercial Fisheries Services Limited, or a person specified by the chief executive of the relevant government department, by notice in the Government’s Gazette.

systems to better understand finer scale vessel activity, annual variation in fishing activity, and transit routes to fishing locations.

In the United Kingdom, the 'FLOWW Best Practice Guidance for Offshore Renewables Development: Recommendations for Fisheries Disruption Settlements and Community Funds'⁷⁶ have also been developed to guide the management of impacts of offshore renewable projects (primarily wind farms) on fishery operators. The document notes that while minimising disruption and/or displacement of fishing effort in the first place is best practice, compensation arrangements will often be required.

The document refers to the payment of disruption settlements whereby "Monetary payment for demonstrable loss of fishery access or economic disadvantage caused directly to active fishing vessels by disturbance or displacement by an OREI [offshore renewable energy installation]" Consistent with the principles of compensation discussed previously, it further notes that "The overall aim of any settlement is to achieve a position whereby fishing interests are neither advantaged nor disadvantaged by the OREI. Given the variation in fishing methods and prosecution across the strategic areas identified for development, no single approach is likely to be suitable for all sites." As such, the document provides guiding principles rather than prescriptive guidance.

Its guidance on compensation approaches identifies several principles, which are summarised as:

- **Negotiating mandate** – all parties involved should have a mandate to represent their interests, and all relevant interests should be included in the process.
- **Transparency** – is required despite the requirement for commercial confidentiality in compensation settlements. This can be achieved through various means, including developing terms of reference, agreeing on statements of common ground, creating mitigation plans, recording meeting minutes, and defining terms in final agreements.
- **Placing settlements within a wider framework** – settlements should be aligned with a broader framework for coexistence and mitigation to facilitate agreement.
- **Evidence-based** – ensure evidence-based monetary settlements, particularly for individual business payments, while maintaining proportionality and practicality in collecting evidence to authenticate claims.
- **Honour agreements** – ensure enduring and transferable agreements, even when OREI projects change ownership or have separate assets.
- **Build trust** – effective implementation of the identified principles should build trust and increase cooperation between project developers and the fishing industry.
- **Alternative dispute resolution** – should be an option if mutually agreed settlement is not reached and conducted by a neutral third party agreed upon by both sides of the dispute.

For the valuation of settlements, it recommends that the following factors may be taken into account (but notes that each settlement case will have its own circumstances):

- "The period of impact, taking account of seasonality, number of vessels and intensity, and historic patterns of use.
- Proportion/importance of area lost to fishing.
- Significance of any deviation while transiting to fishing grounds.

⁷⁶ Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW) (2016) *FLOWW Best Practice Guidance for Offshore Renewables Development: Recommendations for Fisheries Disruption Settlements and Community Funds*, August.

- Accessibility to other similar fishing grounds and stock.
- the costs of gear relocation or removal".⁷⁷

The FLOWW guidance notes that settlements should not be for a complete loss of revenue but should account for the ability of operators to adjust their operation.

As mentioned, the FLOWW guidance is not prescriptive on the specifics of the valuation method, but it does provide some examples of potential approaches including valuation of landings over agreed reference periods, generating values using catch per unit effort, or segmenting fishery wide impact values according to vessel length. It further notes that valuation should be supported by appropriate evidence agreed to by both parties, which may include vessel certificates, historical fishing records, sales notes, fishing accounts, and fisheries landings data.

Where there is a lack of prescribed guidance on how compensation should be delivered, there has sometimes been dissatisfaction with compensation processes related to windfarms and a desire for an evidence based, standardised approach.⁷⁸ But even where there is specific guidance, dissatisfaction can still result. In Taiwan, for example, compensation requirements for wind power projects are far more prescriptive and are guided by the local fisheries management agency's "*Fisheries Compensation Standards for Offshore Wind Power Plants*".⁷⁹ These standards include a detailed compensation calculation formula to compensate for fishery losses and impacts on fisher livelihoods as is shown in Box 4. Despite clearly setting out the compensation formula, consultation with fishers has shown that they mistrust the formula and claim that it is unfair, and some refuse compensation as a result. Fisher dissatisfaction with the compensation process has seen windfarm developers face disputes as well as conflicts at sea.⁸⁰

Box 4 Compensation calculation method for fishers impacted by windfarms in Taiwan

Compensation is calculated as follows:

- For windfarms, compensation is calculated as:

$$OC = C1 * n * rA + C2 + C3 * rA$$

- OC is the wind farm compensation amount;
- C1 are losses for the management of fishery rights;
- C2 Increased costs of fishing vessels bypassing wind farms;
- n is the construction period plus operation period in years;
- rA is an affected area ratio;
- C3 Losses of net gain from fishing catches, which is further defined as:

$$C3 = V * D * ((1+r)n-1)/(r(1+r)n)$$

Where V is average net income;

D is a productivity abundance ratio;

r is a one-year fixed deposit average annual interest rate taken from specified banks.

- For undersea cable impacts, compensation is calculated as:

⁷⁷ Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW) (2016) *FLOWW Best Practice Guidance for Offshore Renewables Development: Recommendations for Fisheries Disruption Settlements and Community Funds*, August

⁷⁸ Reilly, K., O'Hagan, A.M., and Dalton, G. (2016) 'Developing benefit schemes and financial compensation measures for fishermen impacted by marine renewable energy projects', *Energy Policy*. 97. pp. 161–170.

⁷⁹ Tsai, H. H., Tseng, H. S., Huang, C. K. and Yu, S. C. (2022) 'Review on the Conflicts between Offshore Wind Power and Fishery Rights: Marine Spatial Planning in Taiwan', *Energies*, 15, 8768. <https://doi.org/10.3390/en15228768>.

⁸⁰ Tsai, H. H., Tseng, H. S., Huang, C. K. and Yu, S. C. (2022) 'Review on the Conflicts between Offshore Wind Power and Fishery Rights: Marine Spatial Planning in Taiwan', *Energies*, 15, 8768. <https://doi.org/10.3390/en15228768>.

$$CC = (C1 + V * D) * rB * rt$$

- CC is the compensation amount for submarine cables applicable to areas of the fishing rights;
- rB is the affected area ratio;
- rt is the affected time ratio; and
- all other variables are as defined above for the windfarm compensation calculation.

The total compensation payable to a fishery right holder is then the sum of the two components.

Source: Tsai, H. H., Tseng, H. S., Huang, C. K. and Yu, S. C. (2022) 'Review on the Conflicts between Offshore Wind Power and Fishery Rights: Marine Spatial Planning in Taiwan', *Energies*, 15, 8768. Access at: <https://doi.org/10.3390/en15228768>.

Summary of available methods

Table 7 presents an assessment of the high-level methods that are available for determining fisheries compensation, with a focus on relevance to small-scale fisheries.

Table 7 Assessment of fishery compensation methods and relevance to small-scale fisheries

Method	Description	Scheme type relevance	Data availability	Ease of interpretation	Cost and ease of application	Accuracy	Likelihood of disagreement	Relevance to small-scale fisheries
Market based methods (for determining market value)	Observations of previous trades in fishing rights are used to determine market value.	Primarily compensation for acquisition.	✘	✔	✔	-	-	-
	Typically, there few rights and limited trade in rights in small-scale fisheries to support valuation. Method and valuation are readily understood. Is low cost and easy to apply. Is the most accurate indicator of market value, but only if sufficient trade and data. Low likelihood of disagreement, but only if sufficient trade and data. Only relevant if sufficient trades and data.							
For fuller discussion and application example of market based methods see the South Australian Marine Scalefish Fishery (page 22). For an example of market value used in a formula for compensation see the Victorian Gippsland Lakes (page 29).								
Income based methods (for determining market value and foregone income)	Projects future income and returns to determine market value of rights and/or foregone income. Discounted cash flow is generally most favoured, followed by income capitalisation.	Compensation for acquisition and impact.	✘	✘	✘	✔	✘	✘
	Method is data intensive and requires data that is not readily available. Calculation method not readily understood or easily communicated. Typically requires an expert to undertake the calculation. Is considered to be accurate (although results can vary with assumptions and opinion). Potential for disagreement is high given various assumptions and difficulties understanding the method. Cost, complexity and data intensive makes it less relevant to most small-scale fisheries.							
Reliance solely on income based methods is rare, but the DCF calculations were considered as part of the overall compensation assessment and negotiation in the South Australian Marine Scalefish Fishery (page 22) and the West Australian Abalone fishery (page 51).								
Formula based methods (for determining total compensation)	Applies a prespecified formula that incorporates elements that have been identified as relevant to compensation.	Compensation for acquisition and impact.	✔	✔	✔	-	-	✔
	Can be designed to utilise readily available data. Can be designed to be readily understood. Generally is low cost and readily applied, and can be designed to suit scheme objectives. The application of a single formula to all right holders reduces accuracy. While there is reduced scope for disagreement once formula is set, there may still be some disagreement about its inputs. Adaptability to various contexts, low cost and ease of interpretation make it relevant to small-scale fisheries.							
Formula based methods are most prevalent in compensation schemes. For examples, including formulas used, see the Victorian Fisheries legislated formula (page 26), Victorian Gippsland Lakes (page 29) and discussion of the Marine Protected Areas formulas (page 33).								
Multiplier based methods	Applies simplistic multiplier to income or gross value of production to determine a compensation value.	Compensation for acquisition and impact.	✔	✔	✔	-	✔	✔
	Utilises readily available data. Readily understood. Low cost. The application of a single multiplier reduces accuracy, but accuracy can be improved if evidence based. Simplicity provides less scope for disagreement, but there can still be disagreement about the level at which it is set. Low cost and ease of application make it relevant to small-scale fisheries, but best applied if evidence based.							
Income multipliers are most often used as one part of a formula determining compensation. Examples of income measures and multipliers used are given in the Victorian Fisheries legislated formula for acquisition of licences (page 26) with a multiplier = 3, and the Marine Protected Areas for partial displacement (page 33) with a multiplier = 0.30 for 5 years, and the use of an income multiplier as part of the final outcome for the voluntary adjustment scheme implemented for the West Coast Estuarine Fishery (page 54) with a multiplier = 3.0.								

Fisheries compensation approaches in Western Australia

Relevant legislation in Western Australia

DPIRD manages 47 fisheries⁸¹ across nearly 12,900 kilometres of coastline⁸². Fishery compensation mechanisms are used to assist with the management of these fisheries to facilitate change in resource use, structural change, and marine conservation.

Most compensatory processes are governed by two pieces of legislation: the *Fisheries Adjustment Schemes Act 1987* (FAS Act) and the *Fishing and Related Industries Compensation (Marine Reserves) Act 1997* (FRICMA). For processes that have not been governed by this legislature, they have often been guided by it.

In what follows, key details about both the FAS Act and FRICMA are outlined to provide a synopsis of how compensation processes are intended to be run in WA. The impending introduction of the *Aquatic Resource Management Act 2016* (ARMA Act) (which will replace the current *Fish Resources Management Act 1994*) will influence future approaches to fisheries compensation in WA. While beyond the scope of the current study, a brief outline of what we understand to be the key elements of the ARMA Act that may have a bearing on how fishing rights are valued and compensated is also provided.

Fisheries Adjustment Schemes Act 1987

Compensation schemes for the surrender of fishing rights in WA are governed by the *Fisheries Adjustment Schemes Act 1987* (FAS Act). The FAS Act was established to “enable the establishment, financing and administration of fisheries adjustment schemes for the surrender or cancellation of certain authorisations, or the reduction of certain entitlements, under the *Fish Resources Management Act 1994* with the payment of compensation, and for related purposes”⁸³.

The FAS Act provides for two types of adjustment schemes: (i) voluntary fisheries adjustment schemes (VFAS) and (ii) compulsory fisheries adjustment schemes (CFAS). Each scheme type is outlined in more detail below.

Voluntary fisheries adjustment schemes (VFAS)

Provisions to support the application of VFAS under the FAS Act include:

- The provision of powers to the Minister for Fisheries (the Minister) to provide notice in the Gazette to establish a scheme to reduce the size of a fishery/fisheries by enabling the surrender of rights (or parts of rights) in exchange for the payment of agreed compensation. This notice must specify the scheme’s objective, relevant fisheries and, who is entitled to participate in the scheme, and how the scheme will operate.
- The establishment of ‘committees of management’ to assist the Minister by:

⁸¹ DPIRD (2021) *Annual Report 2020/21*. As presented in Table A1, Appendix 3, excluding the South West Recreational Freshwater Angling Fishery and the Recreational Marron Fishery.

⁸² Geoscience Australia (2023) *Border Lengths - States and Territories*. Australian Government. Accessed at: <https://www.ga.gov.au/scientific-topics/national-location-information/dimensions/border-lengths>.

⁸³ The FAS Act makes provisions for a FAS Trust Account to hold and distribute funds for the purpose of compensating fishing right holders and purchasing fishing boats/gear through a fisheries adjustment scheme as well as for the purpose of administering the FAS Act.

- considering the desirability of establishing a VFAS.
- assessing offers made by right holders and providing the Minister with advice on how they should respond to each right holder’s offer (i.e., accept, reject or counter-offer).
- assisting with the general administration of the scheme.
- Guidance on how a VFAS should be administered, including:
 - that eligible fishing right holders should be invited to surrender their right.
 - right holders should submit to the committee of management an offer amount for which they would be willing to surrender their entitlement.
 - the Minister is to respond in writing to all offers with an offer of acceptance, decline, or a counter-offer.

The FAS Act does not provide guidance on how a fishing right should be valued for the purpose of a VFAS, with it being implicit that the valuation of a right is determined by a confluence of factors, primarily:

- The offers made by right holders.
- The objective of the VFAS (e.g., what level of reduction in fishing rights is the scheme intended to achieve).
- The valuation approach applied by the committee of management (for which the FAS Act provides no guidance).

Beyond these factors, the Minister then has the final decision on what he/she views as an appropriate compensation amount.

Compulsory fisheries adjustment schemes (CFAS)

The FAS Act establishes a clear preference for VFAS processes over CFAS processes when it indicates at section 14B:

“The Minister must not establish a scheme under this section unless in the Minister’s opinion it is either not possible, or not appropriate, to achieve the necessary reduction in the size of the fishery or fisheries by a voluntary fisheries adjustment scheme.”

It further requires that the Minister specify in its notice to licence holders why a compulsory scheme is necessary and justify why specific authorisations have been selected for targeting under the scheme (where this is the case).

More generally, the FAS Act provides more detail around the process that must be followed under a CFAS relative to a VFAS. This reflects its compulsory nature and the resulting need for greater clarity around process.

Similar to the VFAS provisions, the FAS Act includes detail around the steps that are to be taken to establish a CFAS for cancelling or reducing rights within a fishery. Many of these requirements are similar to a VFAS. Key differences include that the proposed CFAS must first be advertised for public comment. Guidance is provided on how authorisations should be selected for cancellation or reduction (where the scheme isn’t to be applied across the entire fishery).

Provisions for CFAS processes also include more detail on the approach to be taken to determining compensation. The FAS Act notes under section 14G:

“(1) An affected person is entitled to fair compensation for any loss suffered by the person as a result of the cancellation of an authorisation, or the reduction of an entitlement, under a scheme.”

“(2) The value of an authorisation that is to be cancelled, or part of an entitlement that is to be reduced, under a scheme, is to be assessed as the market value of the authorisation or entitlement.”

It notes that the market value should be assessed as the market value of the fishing right as at the day before the notification of the intent to establish a CFAS was published for public comment.

The FAS Act provides a mechanism for affected persons to apply and negotiate for compensation with the Minister under a CFAS. This involves a right holder submitting information using the scheme’s prescribed form that outline’s their offer and the justification for their valuation (which may include operational and financial records, and/or independent valuations). If an affected person doesn’t apply for compensation, the Minister has powers to determine a compensation amount for that person.

The FAS Act further provides powers for either party to apply to the State Administrative Tribunal (SAT) to determine the compensation amount if an agreement has not been reached within 60 days. Once a negotiation progresses to SAT, the negotiation process can be lengthy and costly to resolve (as has been demonstrated by the recently initiated and ongoing Ngari Capes compensation scheme). It is worth noting that the FAS Act still allows for negotiations between the Minister and the right holder to be resolved outside of the SAT despite an application to SAT already being made.

To date, a CFAS has never been implemented in WA.⁸⁴ However, feedback from consultation with industry indicates that the prospect of a CFAS being used in circumstances where a VFAS has not been successful (e.g., where there have been no willing sellers due to the compensation on offer not matching industry expectations) has influenced their decision to accept a compensation offer under a VFAS.

Fishing and Related Industries Compensation (Marine Reserves) Act 1997

Schemes focused on compensating for the impacts of marine parks in WA are guided by the *Fishing and Related Industries Compensation (Marine Reserves) Act 1997* (FRICMA). Specifically, FRICMA provides for “*the payment of compensation to holders of leases, licences and permits under the Fish Resources Management Act 1994 and Pearling Act 1990 on account of the effect of marine nature reserves and marine parks constituted under the Conservation and Land Management Act 1984, and for related matters...*”.

FRICMA includes several provisions that outline how a compensation negotiation process can progress. The Minister must notify affected persons of the “*relevant event*” and their intent to launch a compensation process in relation to that event. A relevant event can relate to the coming into being of a marine nature reserve or marine park, an amended or substituted management plan, or the classification of an area of a marine park as a sanctuary area, recreation area, or special purpose area. The Minister is also required to advise on how compensation can be applied for once a compensation process is established.

Once the Minister receives applications for compensation, the Minister has 30 days to respond to an application otherwise the person can apply to SAT. If a person is advised they are not entitled to the compensation, that person may also apply to the SAT to appeal the decision. If agreement on a compensation amount cannot be reached after 60 days, either party may apply to the SAT.

On the matter of compensation, the FRICMA notes that “A person who holds an authorisation is entitled to fair compensation for any loss suffered by the person as a result of a relevant event”. A fishing right holder is only entitled to compensation if they are an affected person and can show that the market value of their entitlement has been reduced by a relevant event. This impact must relate to one of several specified reasons that relate primarily to:

⁸⁴ Personal communication, DPIRD.

- An inability to renew an entitlement in whole or part (i.e., it can only be renewed for part of the previously authorised area) or for the same area (i.e., it can only be renewed for an alternative area).
- A fishing area not being available for fishing after an entitlement is renewed.

FRICMA explicitly requires that it be determined whether a reduction in market value has been suffered by a person and what that amount is. It further requires consideration of whether any negative impacts on market value have been offset by a VFAS or CFAS run under the FAS Act because of the relevant event.

The focus on the market value of impacts implies a focus on the “macro” impacts of a marine reserve at the scale of the entire fishery and not any “micro” impacts on the economic viability of an individual entitlement holder, and as outlined previously 0 can be problematic for achieving fair compensation for impact). It also requires an ability to be able to separate out the impacts on a fishing right’s market value from other drivers of value (such as fish prices, stock productivity or input costs).

DPIRD’s “Principles for market value”⁸⁵ document (Principles Document) provides further guidance on the principles to apply when estimating changes in market value for the purposes of determining compensation under FRICMA. It has been used to guide recent FRICMA compensation negotiations since being published in 2020 and were assessed and endorsed by the *Valuations and Property Analytics Branch* of Landgate (Valuation Services). The principles are summarised in Box 5.

The nine principles set down the stepwise process for determining levels of compensation. The principles as outlined have parallels with approaches and principles applied in other jurisdictions for similar compensation circumstances. The Principles Document provides further guidelines around each principle, its interpretation, and any relevant estimation steps which is to be administered by DPIRD.

The Principles Document prioritises the use of information on market value before and after a “relevant event” where it is available (Principle 2). However, it implicitly acknowledges that such information may not be readily available by providing guidance on how to derive licence market values where the market value information is not available (Principles 4 to 7). This includes guidance on how to use catch, GVP or catch per unit effort (CPUE) data on either side of relevant events to determine market value (Principle 4), estimating proportional catches in catch blocks to determine impact (Principle 5) and applying a coefficient to adjust for species mobility (Principle 6).

The application of a species mobility coefficient reflects the expectation that for greater species mobility, there would be a lower loss in catch from a marine reserve. For example, mackerel (as a mobile pelagic species) would be expected to have zero catch losses, whereas abalone (given its sessile nature) would be expected to be totally lost from the fishery due to a marine reserve closure.

Principle 7 sets out guidance for the calculation of total compensation for the fishery using GVP, taking into account Principles 5 and 6. It sets out the overall compensation calculation as follows:

‘Total fishery compensation’ = ‘proportion of block closed’ x ‘a multiplier for permanent closure’ x ‘Average kg from block’ x ‘Average GVP of catch’ x ‘Mobility multiplier’.

The Principles Document provides high level guidance. It lacks detailed guidance on aspects such as the setting of key parameters such as the multiplier for permanent closure and the mobility multiplier or the number of years to be used in calculations of average catch. Furthermore, the guidance provided is unlikely sufficient for addressing specific challenges that arise for small-scale fisheries. For example, when catches are patchy, and a reserve’s impacts are granular (most fishery data in WA is collected for large 60x60nm or 10x10nm blocks). Notwithstanding the general validity of the principles, it is likely that disagreements will always arise over the setting of the various parameters and the associated

⁸⁵ DPIRD (2020) *Marine park compensation (FRICMA)*, Government of Western Australia.

compensation formula unless actual implementation adheres to the best practice process practices discussed previously.

Another potential criticism of the Principles Document is the focus on GVP rather than profit. This is problematic in that GVP is removed from the concept of market value (although the '*multiplier for permanent closure*' in the compensation calculation formula is probably set to account for this). The focus on GVP can also be an issue where there is value adding, and the prices realised by industry are above beach prices.

Box 5 Principles for market value under FRICMA

- **Principle 1 - Eligibility to be considered for compensation** - To be eligible to be considered for compensation, an applicant must be a registered holder of an authorisation listed in FRICMA s3(1) on the day a relevant event (FRICMA s4) occurs and any reduction in market value of the authorisation must be for a specified reason (FRICMA s5).
- **Principle 2 – Preferential use of market value** - Where it is possible to determine the market value of an authorisation before and after a relevant event, then these should be used as the basis for any compensation.
- **Principle 3 – Reduction in the Allowable Harvest Level** - Consistent with the future direction provided by ARMA, when estimating the potential loss in market value, consideration should be given as to whether there has been a reduction in the Allowable Harvest Level associated with implementation of the marine park.
- **Principle 4 – When using catch and related information to calculate a change in market value** – Both before and after a relevant event, it is preferable to use multiple years of catch, GVP and/or CPUE to determine an average that can be used for calculating change in market value, and that the metric used is the same either side of the event.
- **Principle 5 – Estimating the proportion of the catch lost from a fishery when an area is closed to commercial fishing** - Consideration of compensation claims need to have regard to both the proportion of relevant catch-reporting blocks closed to fishing and that fish or the ability to catch fish, may not be distributed equally across a block.
- **Principle 6 – Accounting for species mobility when determining loss of catch from closed areas** - The mobility of commercial species in relation to a closed area which has historically been fished is a relevant consideration when determining compensation since it will affect the degree to which that fish can be caught outside the closed area.
- **Principle 7 – Calculating total fishery compensation to account for closures** - The calculation of total fishery compensation has several factors, including the proportion of the block closed, catch from the block and GVP. In addition, multipliers of the proportion of the block closed and for mobility are included in the calculation consistent with Principles 5 and 6.
- **Principle 8 - Fisheries where it is not possible to establish a GVP** - In fisheries where the Department has no GVP data, each authorisation holder should receive a “flat” payment.
- **Principle 9 – Valuing other authorisations listed under FRICMA** - Fishing Boat Licences have a low market value given their access right refers only to open access fisheries of which none of substance remain and their utility is generally unaffected by marine parks. Commercial Fishing Licences have nil market value since they are unlimited in number and cannot be traded. Fish Processing Licences have nil market value since they are unlimited in number. They can be traded, but there would be no value lost or gained when doing so.

Source: DPIRD

There had been relatively few instances of compensation processes being applied under the FRICMA prior to the current project. Previous schemes occurred over a decade ago and related to the declaration of the Ningaloo Marine Park, Montebello Marine Park and Eighty Mile Beach protected area. More recently, the Ngari Capes process has been run under the FRICMA to support the creation of the Ngari Capes Marine Park, which is considered as a case-study below.

Aquatic Resources Management Act 2016

Fisheries management within WA is about to undergo significant change with the introduction of the new *Aquatic Resource Management Act 2016* (ARMA Act), which will replace the current *Fish Resources Management Act 1994* and the *Pearling Act 1990*. The ARMA Act is intended to move fishery management in WA to an approach focused on aquatic resources (rather than the traditional fishery- or fishing activity-based approach) so as to facilitate an integrated and sustainable management approach.

Work on implementing the ARMA Act is ongoing, with attention focused on the development of essential subsidiary pearling legislation and ARMA regulations. Full proclamation was anticipated in November 2023, however, this date has been extended indefinitely to allow all stakeholders to gain a common

understanding of ARMA principles, operational implications and policy/system requirements.⁸⁶ Existing management arrangements and resource access rights will remain effective for the State's fishing industries until each resource is migrated to Part 3 of the new legislative framework under the Managed Aquatic Resource Framework. The pearling resource is to be operational under the framework immediately on proclamation.

What the new approach means for compensation processes currently implemented under the FAS Act and FRICMA is currently unclear. For FRICMA specifically, DPIRD has indicated that the ARMA Act will amend the future application of FRICMA so that: *"in a Managed Aquatic Resource, any loss in market value must be associated with a reduction in the Total Allowable Catch (TAC) for the resource. This provides guidance as to how situations where it is currently not possible to directly determine changes in market value should be dealt with"*.⁸⁷ Amendments under Part 19 of ARMA facilitate both changes to the FAS Act and FRICMA. Section 349 inserts a new clause providing compensation for loss suffered in respect of resource shares and amendment of the amount of allocated catch. It is not clear how this will work in practice. DPIRD has indicated that the FAS Act will not apply to an aquatic resource managed formally under Part 3 of the ARMA Act⁸⁸, which represents a future risk for the commercial fishing sector where external developments impact resource access or the aquatic resource itself.

Recent fisheries compensation experiences in Western Australia

This section summarises recent experiences with fisheries compensation in WA. It draws on both desktop-based research and stakeholder consultation. For some processes, licence holders consulted provided consent for DPIRD to release correspondence from the licence holder's engagement with the process, which was used to describe the compensation process here. The feedback primarily reflects the fishers' various experiences with the schemes.

As noted previously there has not been a CFAS implemented in WA. The schemes considered were therefore all implemented under VFAS. The FAS Act does not provide guidance on how a fishing right should be valued (valuation approach) for the purpose of a VFAS, and no guidance is offered to fishers or the committee of management. Under VFAS, offers are solicited from fishers, which are either accepted or rejected by the Minister. Adjustments to offers are made until the objective of the VFAS (e.g., to reduce fishing effort by a specified amount) is achieved.

In this context, it is important to note that most of these schemes were successfully concluded in that they achieved the principal objective, which is the desired reduction in rights and provided 'acceptable' outcomes for those fishers voluntarily accepting the offer. Nevertheless, the consultation process has identified several common areas of concern for stakeholders, primarily relating to process, transparency, mismatched expectations, protracted timing and level of stress.

The case studies considered are as follows:

- Area 7 Abalone Fishery - Ocean Reef Marina scheme (Abalone Scheme).
- West Coast Estuarine Fishery adjustment scheme (Estuarine Scheme).
- Cockburn Sound Managed Crab Fishery adjustment scheme (Crab Scheme).
- Chevron Wheatstone Compensation scheme (Wheatstone Scheme).
- Ngari Capes Compensation Scheme.

⁸⁶ Punch, D. (2023) Letter from the Minister for Regional Development; Disability Services; Fisheries; Seniors and Ageing; Volunteering to Mr Darryl Hockey, Chief Executive Officer, Western Australian Fishing Industry Council. 13 July 2023.

⁸⁷ DPIRD (2020) *Principles for market value*, Government of Western Australia.

⁸⁸ Personal communication with DPIRD regarding consultation on the ARMA Act.

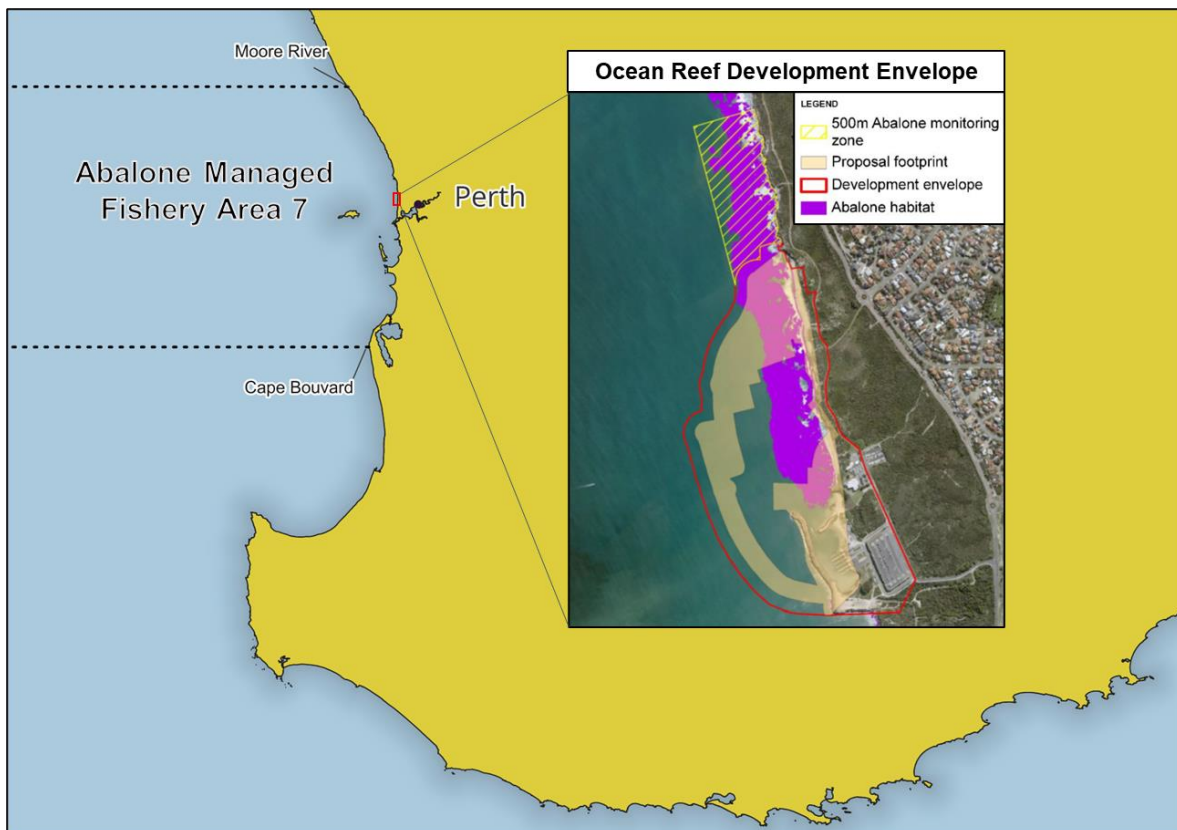
Ocean Reef Marina - Abalone Area 7 Fishery compensation

Background

Area 7 of WA's Abalone Managed Fishery covers the Perth coastline, extending from Cape Bouvard south of Perth to Moore River approximately 140km north (Figure 3). The commercial fishery is managed with an annual total allowable catch allocated to licence holders as individually transferable quotas, which are used to target Roe's abalone.⁸⁹

Commercial catches are taken by hand collection (via wading or diving) and are primarily exported to Asian markets, although a lucrative local live market has recently been developed. The annual commercial catch has varied around 100 tonnes but has been lower since a marine heatwave in 2011. The stocks rebuilt following this marine heatwave event⁹⁰ and the fishery received Marine Stewardship Certification in 2017.⁹¹

Figure 3 Location of Ocean Reef Marina development envelope and abalone habitat



Source: EPA (2019) Ocean Reef Marina. Western Australian Land Authority (T/A LandCorp), Report and recommendations of the Environmental Protection Authority, Report 1629. Department of Fisheries 2017, Fisheries Management Paper No. 283 Abalone Resource of Western Australia Harvest Strategy 2016-2021

A key component of the fishery's historical operating area occurs off the new Ocean Reef Marina (Figure 3). Construction of the marina started in April 2021 and was still underway at the time of writing. Its development has been led by Development WA and involves enlarging the pre-existing Ocean Reef Boat

⁸⁹ DPIRD (2022) *Abalone Recreational fishing guide 2022/23*.

⁹⁰ Department of Fisheries (2017) *Abalone Resource of Western Australia Harvest Strategy 2016-2021*, Fisheries Management Paper No. 283 Perth Western Australia.

⁹¹ Newman, S.J., Wise, B.S., Santoro, K.G., and Gaughan, D.J. (2023) *Status Reports of the Fisheries and Aquatic Resources of Western Australia 2021/22: The State of the Fisheries*, DPIRD, Western Australia.

Harbour through the installation of two new rock-wall breakwaters, dredging of sand and rock and the installation of jetties.

In order for the project to go ahead, the WA Environmental Protection Authority (EPA) undertook a review of the proposed development. It identified the proposal as environmentally acceptable but ascertained that the marina's development would result in the loss of 12.4 hectares of abalone reef habitat⁹² (Figure 3) and alter local hydrodynamics, potentially resulting in the loss of abalone up to 500m north of the site.

Considering the anticipated impacts to the commercial Abalone licence holders in Area 7 and following efforts by the West Coast Abalone Divers Association (WCADA)⁹³, Development WA approached DPIRD to assist it in delivering compensation to affected abalone fishers.⁹⁴

Compensation approach

The normal elements of a VFAS process were followed, with the desirability of implementing a VFAS investigated and approved by a Committee of Management. A VFAS was then gazetted by the Minister for Fisheries on 29 September 2020 to "*enable the surrender of authorisations, or parts of entitlements (as the case may be), by eligible persons for the purpose of sustainability given the loss of abalone habitat associated with the [Ocean Reef Marina] Development*".⁹⁵

The scheme was scheduled to run until 31 June 2021 but was extended to 30 June 2022.⁹⁶ Offers were opened on 3 October 2020 to a total of 13 licence holders that held permanent units in Area 7 (a total of 7,200 units). Industry's engagement with the compensation scheme was led by the then WCADA president on behalf of all Area 7 licence holders.

The initial objective of the VFAS was to remove 1,440 units (or 20% of units) from Area 7, which was calculated consistent with the proportion of abalone habitat expected to be removed or damaged as a result of the development.⁹⁷ The basis for the 20% calculation, however, was not made clear to licence holders at the outset.⁹⁸ At a later point, it was agreed with industry that loss to Area 7 would be equivalent to 5,300kg or 1,200 units.⁹⁹

Industry made an initial bid in August 2020 (before the VFAS gazettal) that indicated unit market value of \$1,853 per unit, estimated by an independent valuer using a discounted loss of future earnings approach, with assumptions that included:

- A 30 year forecast period over which future income flows were discounted.
- The adoption of a live market price (assuming all Area 7 product would be sold live), exceeding \$40/kg (the actual price used was not specified).
- A discount rate based on the 5 year bank rate (actual rate quantum not specified).

⁹² Environmental Protection Authority (2019) *Ocean Reef Marina*, Western Australian Land Authority (T/A LandCorp), Report 1629, February.

⁹³ Sourced through consultation with industry.

⁹⁴ Personal communication, DPIRD.

⁹⁵ Lawn, G. O. (2020) *Western Australian Government Gazette*, No. 163, 29 September 2020, pp. 3353-3354. ISSN 2204-4264.

⁹⁶ Personal communication DPIRD Senior Management Officer.

⁹⁷ Information sourced from DPIRD officers.

⁹⁸ Brindle, J. (2020) Letter to Mr Ralph Addis Director General DPIRD, "*RE: Compensation for Area 7 Metropolitan Roei Abalone licence holders as a result of Proposed Ocean Reef Marina Development*".

⁹⁹ Harrison, N. (2021) Email to John Brindle, Subject: Revised Offer, 14 October.

- Total allowable catch returning to previous levels, equating to the catch per unit increasing from 3.67 in 2022 to 5.0 by 2024 and being maintained at that level.¹⁰⁰

On 31 May 2021, the Minister responded to licence holders and following the Committee of Management's advice presented an offer of \$308 per unit¹⁰¹ (84 per cent below industry's initial suggested offer). Key aspects of the Minister's offer included:

- A beach price of \$27.86/kg (below that which was adopted by industry).
- An assumed 3.68kg of catch entitlement per quota unit.
- The application of a 3X multiplier to the beach price.

The Minister's offer was rejected by all licence holders. A revised counter-offer estimate of \$1,384 per unit was provided by the industry representative to the Minister on 1 July 2021 on behalf of all Area 7 licence holders based on analysis prepared by the same valuer.¹⁰² A loss of future earnings (discounted cash flow) was again used, assuming:

- A beach price that assumed the proportion of catch sold live would be restricted to a maximum of 50% over the long term, with a market price of \$31.30/kg adopted for canned product and a live product price of \$41.66/kg (these prices were estimated based on invoice documentation sourced from all Area 7 licensees).
- A discount rate of 5.5%, which was declared to be "the median of discount rates published in the 24 upcoming Initial Public Offering Prospectus available on the Australian Stock Exchange website on 22 June 2021".
- An assumed 5kg of catch entitlement per quota unit.¹⁰³

On the 29 July, the Minister responded to this counter-offer by offering to arrange a meeting with the Chair of the Committee and noting that he would be open to considering revised offers where "*a licence holder can provide complete and verifiable evidence that the overall average beach price they received for their abalone was greater than [what] was used to generate the current offers.*"¹⁰⁴, effectively focusing the negotiation on beach prices.

Following this meeting in October 2021, a DPIRD officer presented the industry representative with a revised offer of \$754.38 on behalf of the Minister. This revised offer applied the same price and discount rate assumptions nominated by industry but adjusted the projection period down to 10 years (from thirty), with the justification linked to uncertainty around future cash flows and catches. It was further advised that were a longer analysis period to be used, a higher discount rate would be required.

DPIRD then engaged KPMG to further assess unit values. They provided a revised valuation that assumed a discount rate of 16%. DPIRD facilitated a meeting between relevant DPIRD staff, the industry representative, and advisers the method and assumptions (particularly the discount rate), without resolution. The industry representative at this point sold most of his units to a buyer for \$1,400 per unit to leave the industry and demonstrate the market value of units.

¹⁰⁰ Brindle, J. (2020) Letter to Mr Ralph Addis Director General DPIRD, "RE: Compensation for Area 7 Metropolitan Roei Abalone licence holders as a result of Proposed Ocean Reef Marina Development".

¹⁰¹ Punch, D. (2021) Letter to licence holder, "Offer to surrender Area 7 Abalone Managed Fishery Units to the Abalone Managed Fishery Voluntary Fisheries Adjustment Scheme", 31 May 2021.

¹⁰² Brindle, J. (2021) Letter to Hon. Don Punch, MLA Minister for Fisheries. "Re. Ocean Reef Marina Development Abalone VFAS". 1 July.

¹⁰³ Graeme Stewart and Associates (2021) *Loss of earnings due to the enlargement of the Ocean Reef Marina Redevelopment*. Report prepared for the West Coast Abalone Divers Association Inc. 23 June.

¹⁰⁴ Punch, D. (2021) Letter to Mr John Brindle, President West Coast Abalone Divers Association, 29 July.

The final offer to industry was made by the Minister in May 2022, which adopted a unit price of \$1,115 per unit that took into account the recent sale of Area 7 units and the revised independent valuation (and represented middle ground).

Outcomes

A meeting was held between the industry representative and licence holders on this final offer. The view that the Minister's offer was final resulted in licence holders as a group agreeing to accept the offer, with eleven of thirteen licence holders selling 1200 units of quota. The compensation process took just under 2 years. While successful in achieving its intended reduction in units, consultation feedback indicates that the final price paid per unit was viewed as too high by government and too low by industry.

Summary

A lack of transparency and certainty around the compensation methodology and assumptions at the start of the process contributed to a lengthy process. This first played out through both parties, starting at significantly divergent unit valuation points. But it further resulted in a protracted and unfocused debate, which was initially about the method (i.e., GVP multiplier versus a discounted cash flow approach) and was then about key assumptions (i.e., first beach price, then forecast period, then discount rate).

Further contributing to the length of the process was an inability to directly engage and collaborate with the Committee. The use of independent expertise (with knowledge of the abalone industry) at the start of the process, particularly around the valuation methodology and determination of relevant risk-based discount rates, could have also facilitated a more efficient process.

The industry representative acting on behalf of all licence holders played a key role in achieving a compensation outcome that better aligned with industry expectations. This included leading communication with process administrators, facilitating the valuation of units, organising meetings and even demonstrating unit values through the sale of their own quota units. It was acknowledged by licence holders consulted that the frustrations with the lengthy process had taken a toll on the industry representative.

West Coast Estuarine Fishery buyback

Background

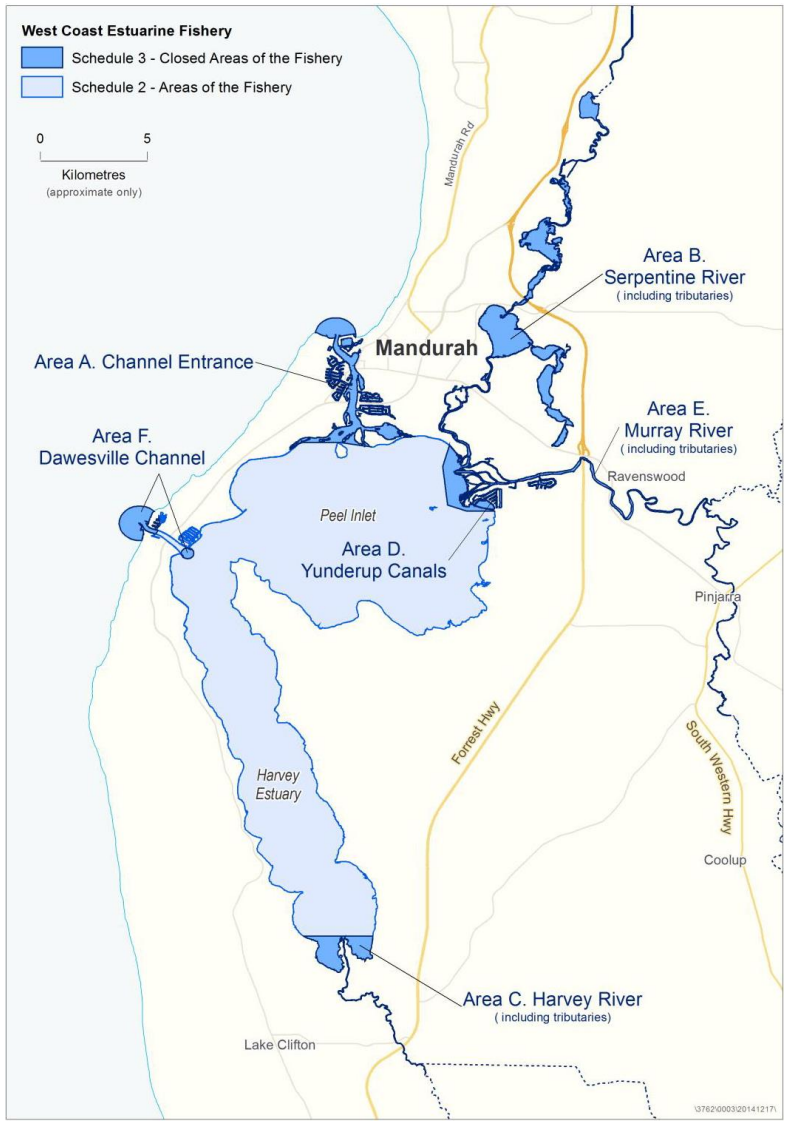
The West Coast Estuarine Commercial Fishery (WCECF) Area 2 is a small fishery operating south of Perth on the Peel-Harvey estuary, Mandurah (Figure 4). The fishery targets finfish species with gillnets and haul nets and Blue Swimmer Crabs with pots. Resources are shared with a growing recreational sector. The fishery previously serviced local bait markets but now primarily lands for human consumption, with widespread value adding by fishers to maximise prices through handling, processing, distribution and retailing.¹⁰⁵

The WCECF is managed through with input controls on boat numbers, fishing gear (e.g., net length and mesh size, pot numbers), operating season and times, fish size, and fishing areas. The recreational sector is similarly managed with restrictions on fishing method, catch size and quantity catch. The fishery is Marine Stewardship Council certified.¹⁰⁶

¹⁰⁵ Johnston, D.J., Smith, K.A., Brown, J.I., Travaille, K.L., Crowe, F., Oliver, R.K., Fisher, E.A. (2015) *Western Australian Marine Stewardship Council Report Series No. 3: West Coast Estuarine Managed Fishery (Area 2: Peel-Harvey Estuary) and Peel-Harvey Estuary Blue Swimmer Crab Recreational Fishery*. Department of Fisheries, Western Australia.

¹⁰⁶ Newman, S.J., Wise, B.S., Santoro, K.G., and Gaughan, D.J. (2023) *Status Reports of the Fisheries and Aquatic Resources of Western Australia 2021/22: The State of the Fisheries*. DPIRD, Western Australia.

Figure 4 Location of West Coast Estuarine Commercial Fishery (WCECF) Area 2 Peel Harvey



Source: Fisher, E.A., Evans, S.N., Desfosses, C.J., Johnston, D.J., Duffy, R., and Smith, K.A. (2020) *Ecological Risk Assessment for the Peel-Harvey Estuarine Fishery*. Fisheries Research Report No. 311. DPIRD, Western Australia.

As part of the 2017 WA state election, a commitment was made to develop a program to improve the health of the Peel-Harvey estuary. At the same time, WAFIC and Recfishwest advised government that a scheme was needed to allocate the estuary’s fishery resources (primarily Blue Swimmer Crab and Yellowfin Whiting) to the recreational sector. Our consultation with industry indicated that the then President of the *Mandurah Licenced Fishermen’s Association* actively made a VFAS a priority.

Following the election in June 2018, a Committee of Management was set up to consider the desirability of implementing a VFAS, after which a VFAS was announced in October 2018 by the then Minister for Fisheries.¹⁰⁷ A total of \$1.5 million was allocated to the scheme, which was partly funded by the *Recreational Fishing Initiatives Fund* (sourced from recreational fishing licence fees¹⁰⁸). Consistent with WAFIC and Recfishwest advice, the intent of the VFAS was to reduce the number of operators in the

¹⁰⁷ Kelly, D. (2018) *Peel-Harvey election commitment to improve recreational fishing underway*. Media statement. Accessed at: <https://www.wa.gov.au/government/media-statements/McGowan-Labor-Government/Peel-Harvey-election-commitment-to-improve-recreational-fishing-underway-20181011>.

¹⁰⁸ Recfishwest (2018) *Peel Harvey Voluntary Fisheries Adjustment Scheme*. Accessed at: <https://recfishwest.org.au/rfif/>.

WCECF to increase recreational access to Blue Swimmer Crab and Yellowfin Whiting resources in the estuary.

Approach

The VFAS opened for offers 12 October 2018 with an application submission deadline of April 30, 2019. At the time, a total of 11 licence holders were permitted to use nets for finfish species, of which 10 were also permitted to target Blue Swimmer Crabs using traps. Compensation application forms were sent to all 11 licence holders to seek their offers. It included a field for licence holders to specify the amount of compensation they were seeking for licences and another field for “*Other*” compensation sought. However, there was no guidance provided on how compensation should be determined nor justified.

In mid-May 2019 (around two weeks after the close of applications), the Minister provided a response to licence holders that sought compensation. In it, it was noted that all applications were considered consistently and comprised the following:

- A base payment for Fishing Boat Licences of \$5,040.
- A base payment for licences that “recognises equal right of access of each licence and the economic reliance of fishers operating in the Fishery based on the average value of the Fishery from 2013 to 2017 with a 2X multiplier”, equivalent to a value of \$173,026.
- An additional catch history payment based on “*the value of the average individual recorded catch*” for the licence being surrendered over the period 2013 to 2017.¹⁰⁹

Our understanding is that no licence holders took this initial offer, with at least one licence holder questioning the multiplier factor of 2X.¹¹⁰

Subsequently, on the 30 July 2019, the Minister for Fisheries wrote to licence holders who had applied for compensation with a revised offer. The letter advised:

“Having taken into account industry feedback on previous offers to the Scheme, I have reviewed the methodology and criteria associated with all offers made to the Scheme. Given Government’s commitment to the Scheme, I now consider it appropriate and justifiable to increase the base payment of all offers from a 2X multiplier to a 3X multiplier.”

DPIRD has advised that the VFAS period expired on 30 June 2020. This would imply that the process ran for just under 2 years.

Outcomes

The initial formula to determine compensation offers was subsequently revised with the multiplier increasing from 2x to 3x. For one licensee, this multiplier adjustment increased the value of their offer by 50%. The objective of a VFAS is to strike a value that causes the appropriate surrender of rights to be achieved. The revised formula for this VFAS resulted in a total of four licence holders exiting the fishery and the advice from DPIRD to the project team was that this outcome fully met the scheme’s objectives.

Licence holders consulted, including those who accepted, raised the following issues in relation to the scheme:

¹⁰⁹ Kelly, D. (2019) Letter to licence holder. Offer to surrender a West Coast Estuarine Managed Fishery licence to the West Coast Estuarine Managed Fishery Voluntary Fisheries Adjustment Scheme.

¹¹⁰ Licence holder email to Minister Kelly, Subject: *RE: Offer to Surrender a West Coast Estuarine Managed Fishery Licence*, 27 May 2019.

- The lack of transparency around the compensation calculation and its components and their perception that industry was initially presented with a “*low-ball*” offer that ignored industry’s compensation requests. This created some suspicion about the process.
- Many noted that their value adding to catch meant that the use of GVP to determine compensation was problematic (with one licence holder believing that compensation should be based on an individual’s tax return-based financials).
- The importance of having an industry leader to establish the scheme, lead negotiations and unify the industry was noted widely, but it was also recognised that the scheme had taken a significant toll on this person in the case of the WCECF.
- One licence holder believed that compensation should not be worked out on catch history as they asserted that each licence has the same income earning potential. They referenced an example of one licence holder who received an unfair compensation offer as a result of not operating for 3 years due to poor health.
- Some licence holders noted that their boats were primarily built for the Peel-Harvey estuary, and so had little value outside of the fishery.

Summary

The WCECF was a VFAS. Initial offers were sought. These were then translated into a formula for calculating offers to individual fishers. Feedback on the formula resulted in the multiplier being increased from 2x to 3x. Indications are that offers increased significantly. Enough fishers (4) accepted revised offers to allow the VFAS to achieve its objective.

Nevertheless, the feedback was that the process lacked transparency. Initial calculation method and assumptions (i.e., the multiplier) were not obvious to fishers and this created a protracted and frustrating process for industry. The process may have benefited from improved communication around the calculation method, but also a more collaborative and engaged approach. The initial setting of the multiplier and then its revision also appears somewhat arbitrary. However, revising a multiplier via feedback and negotiation is not uncommon, as the previous discussion of the Parks Australia process illustrates. This process also provides another example where a strong industry leader appears to have added value and played a pivotal role in the scheme being initiated and its outcomes.

Cockburn Sound Crab Fishery voluntary buyback

Background

The commercial Cockburn Sound Crab Fishery (CCSCF) is a small commercial fishery that targets Blue Swimmer Crabs using baited pots within the waters of Cockburn Sound south of Perth (Figure 5). Operators engage in a range of value adding activities to maximise prices including delivery of live crabs to local buyers, inter-jurisdiction sales (i.e. to Sydney Fish Markets) and cooking and freezing for the domestic market.

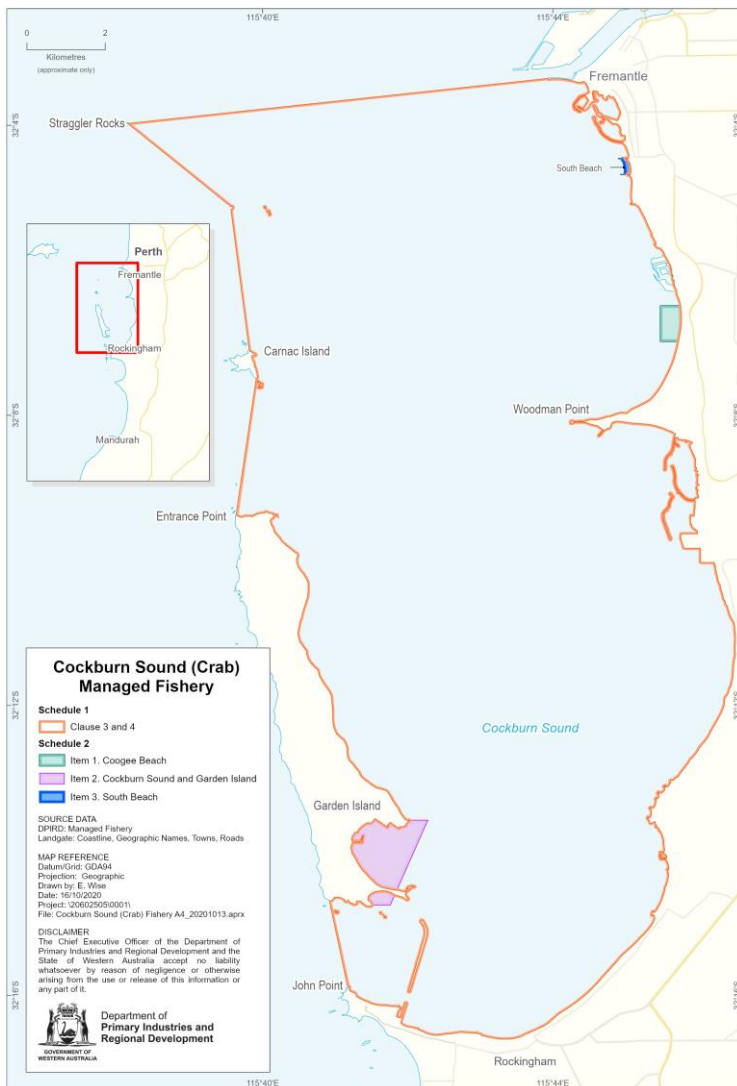
The fishery is managed through a system of input controls on crab pot numbers, which are complemented by a range of other restrictions including on crab size, the no-take of “berried” females, and controlled fishing seasons. The resource targeted by the CCSCF also underpins a popular and competing recreational fishery.

The CCSCF has had multiple closures in recent times. It was closed for 3 years between December 2006 and December 2009 due to environmentally driven low stock recruitment. A marine heat wave then negatively impacted recruitment and the fishery was closed in April 2014 and has remained closed

since.¹¹¹ The most recent assessment of the CCSCF stock is “environmentally limited”, and DPIRD notes that “it is unlikely that the stock will return to historical high levels, mainly as a result of changing environmental conditions (e.g., decline in nutrients and primary production)” and that “declines in abundance are believed to be substantially attributable to environmental changes, rather than fishing”.¹¹²

A review of the broader south-west Blue Swimmer Crab resource in 2018-19 identified a need to better protect the resource’s breeding stock through the closure of three commercial fisheries that access the resource – the CCSCF, the *Warnbro Sound Crab Fishery* and the *Mandurah to Bunbury Development Crab Fishery*. As a result, in August 2019, the state government announced a VFAS to buy back licences in these fisheries.¹¹³

Figure 5 Location of Cockburn Sound Commercial Crab Fishery



Source: DPIRD (2023) Digital library. Accessed at: https://library.dpird.wa.gov.au/gis_manf/29/.

¹¹¹ Newman, S.J., Wise, B.S., Santoro, K.G., and Gaughan, D.J. (2023) *Status Reports of the Fisheries and Aquatic Resources of Western Australia 2021/22: The State of the Fisheries*. DPIRD. Western Australia.

¹¹² Newman, S.J., Wise, B.S., Santoro, K.G., and Gaughan, D.J. (2023) *Status Reports of the Fisheries and Aquatic Resources of Western Australia 2021/22: The State of the Fisheries*. DPIRD. Western Australia.

¹¹³ The Warnbro Sound Crab Fishery had only one licence holder and the Mandurah to Bunbury Development Crab Fishery only had one operator and thus were not focused on as a case study.

Approach

Advice from DPIRD to the project team noted that the aim of the VFAS was to enable the surrender of all authorisations in the CCSCF for the purpose of sustainability. At the time, the CCSCF had already been closed to fishing for 6 years. There was a total of 12 licences held by around 6 licence holders who held permanent units (a total of 800 units).

The VFAS opened for offers on 15 February 2020. All licence holders were provided the opportunity to fill a “*Offer to Surrender Authorisation/s*” form. The form required that the respondent indicate their requested compensation and justify their request. However, limited direction was provided to licence holders on how to estimate compensation, how the Committee would be estimating compensation, nor how to provide justification.

In one instance, we are aware that one licence holder nominated compensation amounts for their licences, unsaleable fishing gear and, income loss and “*business hibernation costs*”. Another nominated amounts for their licences, plant and equipment, and loss of earnings compensation. In both cases, no evidence was provided to support these claims, nor was a detailed breakdown of how they arrived at their claim provided. However, no direction nor space was provided in the application form to do so.

Counteroffer letters were sent to licence holders from the Minister for Fisheries in early August 2020, which advised that:

- Regard had been given to a range of matters including the long term history of the fishery and that all applications were to be considered consistently.
- A payment was being offered for the value of the fishing boat licence of \$5,040.
- A base payment for the “average valuation of the catch for the entire fishery for the period 2005 to 2014 (not including the years the fishery was closed) divided by number of licence holders”, which was \$21,000.
- A unit value based on the average valuation of catch for the entire fishery between 2005 and 2014 (not including closed years) and the application of a multiplier of 2X, divided by the total units in the fishery, which gave a value of \$630/unit.

Licence holders consulted were generally scathing of the initial counter-offer and noted:

- There was a lack of transparency in the Minister’s letter on the specifics of the compensation calculation (e.g., how the calculation rules were set, how the fishing boat licence value was determined, and the actual annual catch values that were used).
- Some viewed the offer as unfair for active licence holders, who received the same compensation amount as licence holders who had been inactive in the fishery when it was open.
- There was no consultation or engagement on the part of DPIRD to provide explanation or allow questioning of the compensation offer.¹¹⁴
- The offer was well below industry requests and expectations (e.g., for licence holders spoken to, their requests were between eight and sixteen times the amount offered).

¹¹⁴ Where these claims were made, we can confirm that in at least one instance there was email communication clarifying some of the matters such as the selection of the time period, but based on the feedback from this licence holder we anticipate that the level of clarification was not to their satisfaction.

In response to the lower-than-expected counter-offer, one industry member arranged for an independent valuation of CCSCF licences on behalf of (and with support from) other licence holders.¹¹⁵ This valuation was provided to the project team by multiple licence holders. The valuation report states that it was prepared in alignment with *generally accepted principles and standards* as well as DPIRD's "*Principles for market value*" document and incorporated the following key elements:

- A 2006 sale value of \$4,000 per trap (as no sales were believed to have occurred since then), which was extrapolated using the "*Principles for market value*".
- Average CPUE from 2004 to 2006 is used as a proxy for abundance prior to closures, and average CPUE from 2017 to 2019 is used as a proxy for abundance at the time of the compensation process.
- Derives a trap value of \$8,243 and applies the same multiplier of 2 (which it notes was used in offer to licence holders) to derive a compensation per trap of \$16,486.

There was no further negotiation beyond this point. The lack of further opportunity to negotiate was raised by some licence holders as a disappointing shortcoming of the process. In response to requests from industry, the deadline for submitting acceptance of the offer was extended from August 28, 2020, by a week to 4 September 2020 to provide industry with more time to consider the original counter-offer.¹¹⁶

It is worth noting that one licence holder consulted noted that while WAFIC had initially been helpful when the process was set, they were not helpful during the negotiation process, with no WAFIC representatives being engaged and involved in the process.

Outcomes

The VFAS process ran for just over ten months and closed on 31 December 2020. Only one CCSCF licence holder accepted an offer, although advice from industry was that this licensee held few units and was less affected by the low unit valuation.

Summary

The CCSCF scheme had several shortcomings. Firstly, it was run as a voluntary process but arguably had a compulsory element to it, given the indication that the fishery was to be closed. Further, the compensation offered to industry fell extremely short of industry expectations and resulted in no licences being purchased despite the significant investment of time and resources by both government and industry in the scheme. Some prior investigation to gauge or estimate industry expectations around compensation may have avoided this unnecessary expenditure of resources. The divergent compensation expectations combined with a lack of transparency and engagement has also created a low level of industry trust in DPIRD and high levels of frustration.

The fact that the fishery had been closed for six years raises questions around whether the process should have been implemented earlier (indeed, industry noted that they requested a scheme through WAFIC in 2012). The delayed timing of the scheme also presented some challenges and disagreement around at what point in time licences should be valued (i.e., prior to the fishery being closed for environmental reasons or after it was closed), issues that could have been better dealt with in a collaborative fashion.

¹¹⁵ This was the same valuer used in the case of the Abalone Area 7 Managed Fishery scheme.

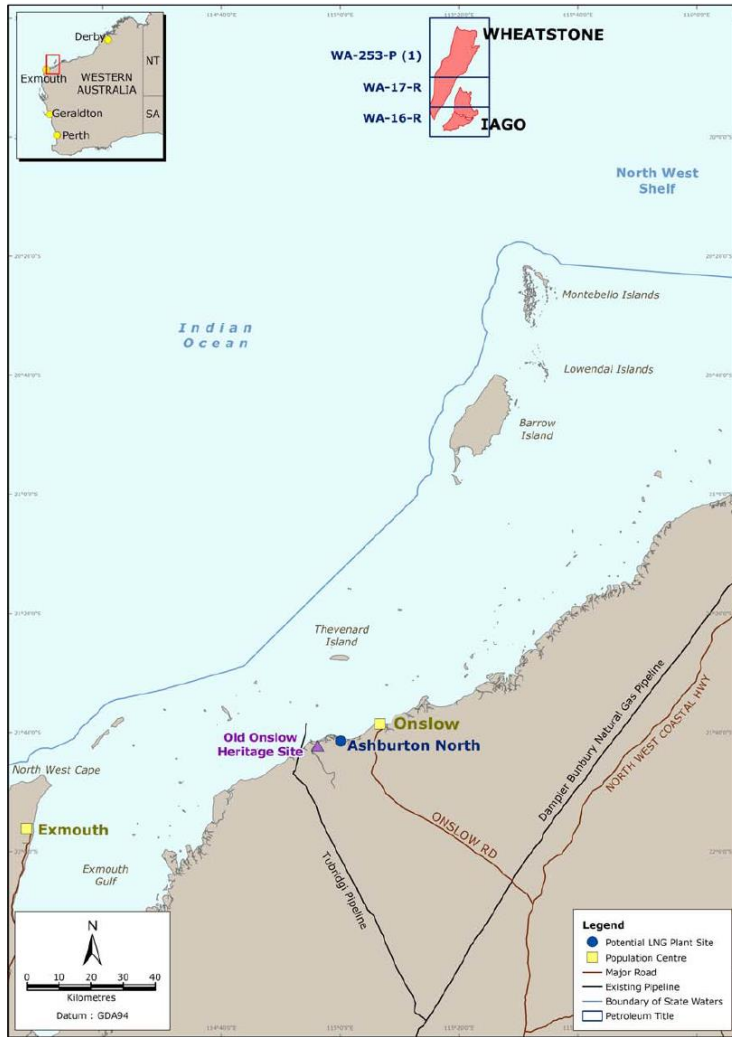
¹¹⁶ Cridland, M. (2020) Email to licence holder with subject: "Cockburn Sound Crab Managed Fishery and Warnbro Sound Crab Managed Fishery Voluntary Fisheries Scheme".

Wheatstone compensation process

Background

In 2008, Chevron Australia announced it would proceed with its Wheatstone Project, a Liquefied Natural Gas (LNG) facility to be constructed 12 kilometres south-west of Onslow on the Pilbara Coast in northwest WA (Figure 6). The plant was to include gas gathering, export and processing facilities on land and water.¹¹⁷

Figure 6 Location of Chevron Australia's Wheatstone Project



Source: Chevron Australia Pty. Ltd. (2009) *Wheatstone Project Environmental Scoping Document*, June 2nd.

At the time of the project's announcement, a number of fisheries operated off the Pilbara coast including the Onslow and Nickol Bay Prawn Managed Fisheries (ONPMF), the Pilbara Managed Trap Fishery, the North Coast Blue Swimmer Fishery, the Pearl Oyster Managed Fishery, the Pilbara Line Fishery, the Mackerel Managed Fishery, the Specimen Shell Managed Fishery and the Marine Aquarium Fish Managed Fishery.

The proximity of Wheatstone to these fisheries meant there was the potential for several impacts on the operations of these fisheries through:

¹¹⁷ Chevron Australia Pty Ltd. (2016) *Wheatstone Project Dredging and Dredge Spoil Placement Environmental Monitoring and Management Plan*, document no. WSO-0000-HES-RPT-CVX-000-00086-000.

- Dredging activities on the plant site.
- Construction of inshore infrastructure.
- The establishment of marine exclusion zones, restrictions on fishing vessel manoeuvrability and restricted access to historical fishing grounds.¹¹⁸

The ONPMF was identified as a fishery that would be most directly affected, particularly the fishery's 'Area 1' management zone. The fishery's 'Area 2' and 'Area 3' were identified as potentially being impacted but to far less of a degree.¹¹⁹

In recognition of the potential impacts, WAFIC approached the then Department of Fisheries WA (DFWA, now DPIRD) to assist the industry in seeking compensation from Chevron. Collaboration between Chevron, DFWA and WAFIC saw the design of a scheme to allow Chevron to compensate affected fishery licence holders for the impacts of the project. A compensation process was announced in October 2012.¹²⁰

Approach

This Wheatstone compensation process is an example of a compensation for impact scheme. However, it was run as a non-statutory VFAS process (rather than a FRICMA scheme) with a committee established. DFWA officers were assigned to assist the Committee, and the Committee made its recommendations to Chevron (instead of the Minister). DFWA's role included establishing the Committee, providing it with administrative, data and analysis support and supporting the committee to make initial assessments of offers. Chevron then progressed compensation payments independently with fishers.¹²¹

Licence holders had until 30 November 2012 to submit their requests for compensation (within about five weeks of the scheme's announcement). Twenty-two applications were submitted. The Committee prepared a report for Chevron that indicated the eligibility of licence holders for compensation and the quantum of compensation that it recommended (with supporting analysis and justification). DFWA provided the project team with access to a redacted version of the Committee's advice to Chevron, which has informed the summary of the compensation process provided here.¹²²

Being a compensation for impact process, there was a need for applicants to justify their compensation request. For example, for the ONPMF (the main fishery impacted and which generated the most compensation requests), the key reasons for compensation raised by licence holders were identified by the Committee as follows:

- *"Location and potential impact from developing the facilities for the [Wheatstone] Material Offloading Facility and Product Loading Facility"* – concerns primarily related to the impacts on prawn nursery areas, habitat loss and loss of access to fishing grounds. The Committee verified and assessed these claims using information about areas trawled, catches and catch rates relative to the locations of Wheatstone facilities.
- *"Potential relocation of fishing effort from Area 1 to Areas 2 and 3 from infrastructure development in Area 1 and habitat impacts in Areas 2 and 3"* – the Committee agreed that effort may redistribute from Area 1 to Areas 2 and 3 and cause negative impacts on profitability. The Committee also

¹¹⁸ Chevron Australia Pty Ltd. (2016) *Wheatstone Project Dredging and Dredge Spoil Placement Environmental Monitoring and Management Plan*, document no. WSO-0000-HES-RPT-CVX-000-00086-000.

¹¹⁹ Chevron Australia Pty Ltd. (2016) *Wheatstone Project Dredging and Dredge Spoil Placement Environmental Monitoring and Management Plan*, document no. WSO-0000-HES-RPT-CVX-000-00086-000.

¹²⁰ Hon. N. Moore (2012) *Gas project considers commercial fishers*, Media Statement, 23 October.

¹²¹ Hon. N. Moore (2012) *Gas project considers commercial fishers*, Media Statement, 23 October.

¹²² *Report from the Onslow Committee of Advice*, April 2013.

acknowledged habitat and recruitment impacts from dredging and turbidity in Area 2 as potentially compensable.

- “Loss of licence or market value following the announcement of the Wheatstone Project” – industry’s view was that the market value of their licences had ‘dissolved’ following the March 2008 announcement to proceed with the Wheatstone Project.
- Increased vessel numbers, which would negatively impact trawl vessels, particularly given the limited operating windows within a year to target prawns.

The Committee’s assessment of claims was informed by a *Wheatstone Project Fisheries Working Group Final Report August 2012* (FWG Report), which was released publicly in October 2012. This report summarised the Wheatstone project and some of its anticipated impacts for fisheries. The Committee also sought advice from DFWA’s Research Division on the potential impacts of the Wheatstone Project on key fisheries. It was also guided by several principles that it had identified as follows:

- “That the direct impact of the Wheatstone Project on commercial fishing activities has not yet occurred, and that there have been only indirect impacts to date”.
- “To only consider the direct impacts of the proposed development, generally described in the FWG Report, and not to have regard for general development in the area for the last 3 to 5 years”.
- “That regard may be given to circumstances where there is a demonstrable impact from developing the Wheatstone Project on licence values”.
- “The Onslow Prawn Fishery has been uneconomic for a period of time (since 2006) in ordinary circumstances, through a combination of poor prawn prices and high operating costs”.
- “The assessment assumes a 3 year impact of the temporary impacts of dredging and port construction”.

It further noted that “[a] valuation method, such as that used in voluntary fisheries adjustment schemes, should be used to determine a base amount (of compensation) for each Area that should be applicable to all licence holders. The amount of compensation that could be considered would then be the sum of the compensation calculated for each Area that a licence holder is entitled to operate. Additional premiums should then be considered on an individual basis to take into account such matters as catch history and whether a licence has been utilised”.

In the case of the ONMPF for Class A licences with access to Areas 1, 2 and 3, further specific assumptions were made relating to the impacts on fishing capacity from construction of the facilities and the dredging plume that the recent decline in fishing activity was a direct result of low profits and also that the previous cost of buying licences incurred by licence holders were not a relevant compensation consideration.

For Class A ONMPF licences, the compensation calculation method involved:

- Calculating a base compensation amount using aggregated catch data over the 2006 to 2011 period to determine a nominal average annual catch per licence.
- Agreeing on a net dollar value for the nominal catch for a Class A licence (gross value of product minus operating costs)
- Applying a three times (3X) multiplier to the latter figure.

Compensation premiums were also considered and recommended in cases where licence holders had consistently been actively engaged in a fishery.

Outcomes

There is no public information on the outcomes of the Wheatstone compensation process. The Synergies project team attempted to better understand industry perceptions of the Wheatstone process through an online survey of relevant licence holders. While 12 licence holders responded to the survey, only three had sought compensation through the scheme, which limits our ability to provide much insight into the industry's views of the process. A high-level summary of the 3 responses is as follows:

- Each respondent was from a different fishery.
- All respondents indicated that they sought advice from WAFIC and others in industry. Two respondents also sought advice from an independent expert.
- One respondent had their initial request rejected and was offered an alternative amount on a “*take-it or leave-it*” basis, one respondent had their request rejected with no further negotiation, and one had their request accepted.
- As would be expected, those who had their request rejected indicated that their expectations had not been met and, that the process could have been improved and that it was not clear how their licence had been valued. The licence holder whose request was accepted was satisfied with the process.

Summary

Given the lack of completed FRICMA processes in the last decade, the Wheatstone project was included as a compensation for impact case study scheme. While reasonable information could be presented on the Committee's process, limited information could be obtained about process outcomes and industry views (partly due to the elapsed time).

The case study demonstrates some features that were prevalent in other case studies. This includes independent decision making by the Committee and limited engagement and/or collaboration with licence holders (although it should be noted that the FWG Report is likely to have provided some industry consultative mechanism). The process relied upon industry submissions and DPIRD/Committee assessment of fishery catch and effort data. However, the process did allow for subsequent negotiation between Chevron and licence holders (but it is not known whether this took place).

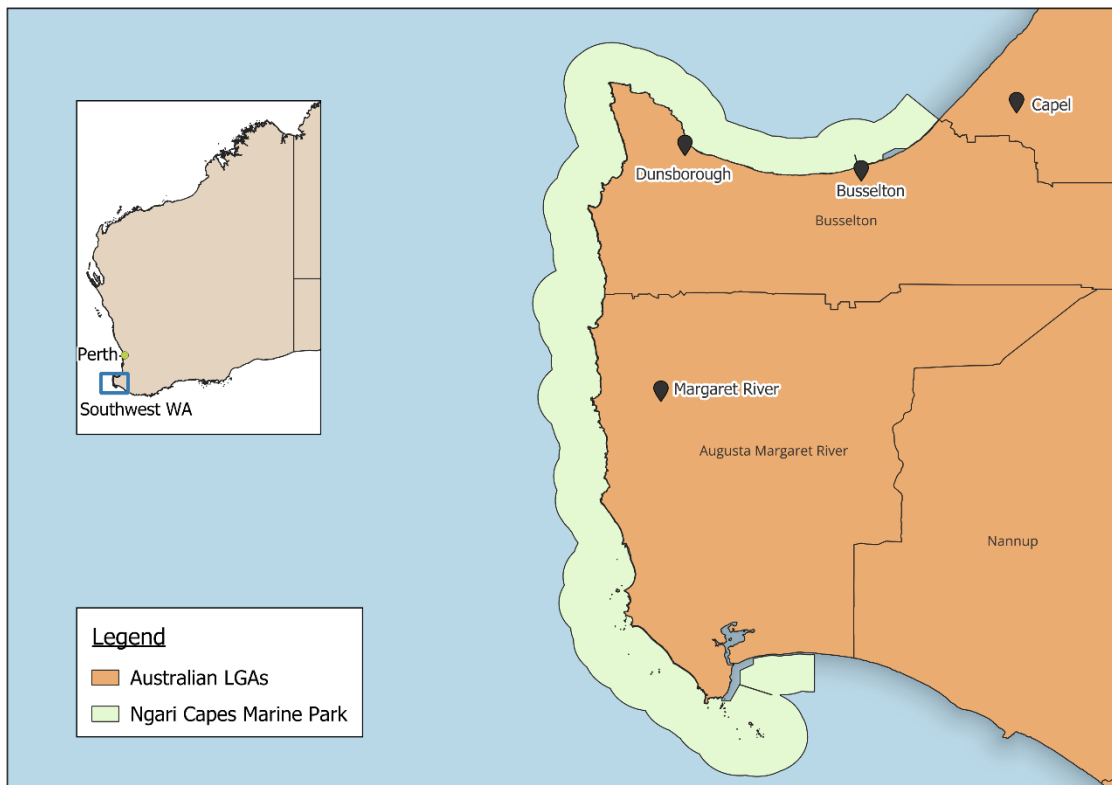
Ngari Capes compensation process

The Ngari Capes Marine Park compensation process was still underway at the time the current project was underway and thus was considered out of scope for consultation. However, given the lack of recent FRICMA processes run in WA and the fact that some stakeholders interviewed were also exposed to the Ngari process, a summary of the process is presented here together with some high-level observations about it.

Background

The Ngari Capes Marine Park was created in June 2012 and covers an area of coastline in WA's south-west that extends from just north of Busselton (capturing a southern portion of Geographe Bay) down to just east of Augusta (encapsulating part of Flinders Bay). The total size of the marine park is 123,700 hectares. In April 2018, the zoning scheme for the park was gazetted, and associated fishing prohibitions were to take effect in April 2019 (allowing for a transition period).

Figure 7 Location of Ngari Capes Marine Park



Source: DBCA (2022). Legislated Lands and Waters (DBCA-011), Geopackage. Access at: <https://catalogue.data.wa.gov.au/dataset/dbca-legislated-lands-and-waters>.

Approach

A FRICMA compensation process was gazetted in January 2019. The process had an application closing date of 28 February 2019, with entitlement holders in thirteen fisheries identified as potentially being eligible for compensation.¹²³ The Park's creation dates and zoning scheme gazettal dates were identified as 'relevant events' as defined under FRICMA¹²⁴. The submission date was extended to 31 May 2020, and in the intervening period, letters were sent to several fisheries to initiate negotiations.

The long delay to the scheme's implementation reflected an issue in the *Conservation and Land Management Act 1984* (CALM Act), which is administered by the Department of Biodiversity Conservation and Attractions (DBCA) and guides the creation of marine parks. An amendment to the CALM Act was required before the marine park zones in Ngari Capes Marine Park could be classified under section 62 of the CALM Act (which provides powers for the relevant minister to classify land and marine waters as protected). The making of a section 62 CALM Act notice is a "relevant event" under FRICMA, meaning the event can give rise to an entitlement to compensation. However, the CALM Act required amendment to provide for 'types' of fishing activity to be prohibited in certain areas. Until this occurred, the compensation process under FRICMA could not fully commence.¹²⁵

Following the closing date, a Committee of Advice was formed to advise the DPIRD Director General (on behalf of the Minister for Fisheries WA) on the eligibility of an applicant for compensation and what should be considered fair and reasonable compensation. In August 2020, the Committee developed the

¹²³ WAFIC (2018) *Ngari Capes Marine Park – Gazettal of Zoning Scheme*. Accessed at: <https://www.wafic.org.au/ngari-capes-marine-park-gazettal-zoning-scheme/>.

¹²⁴ McRae, K.J. (2019) *Western Australian Government Gazette*, No. 8, 18 January 2019, pp. 112–113.

¹²⁵ Personal communication, DPIRD Senior Management Officer.

“Principles for Market Value Paper” (see Box 5, page 49) to be applied to compensation cases under FRICMA.

The Ngari Capes process has been drawn out, and as indicated by DPIRD in its *Ngari Capes Marine Park compensation update*, “much has been learnt in recent times about how to apply FRICMA, and it is anticipated that this will speed up future compensation processes”.¹²⁶

Outcomes

As at August 2023, 30 applicants covering 39 licences have accepted offers of compensation for Ngari Capes Marine Park. Several licence holders from three different commercial fisheries commenced proceedings in the SAT. Two matters settled, with one matter still ongoing.¹²⁷

Summary

Some key issues with the Ngari scheme identified by the project team and/or raised by stakeholders exposed to the process included:

- Some shortcomings with the early planning and implementation of the process led to a significantly protracted timeline from the date that the MPA was proclaimed (June 2012) to the date of the process being gazetted (January 2019).
- Dissatisfaction with the valuation of licences.
- Dissatisfaction with the process followed to estimate compensation and a feeling that once the scheme was opened, administrators were pushing the process along at the expense of providing industry sufficient time to participate in the process.

Summary of shortcomings in Western Australia

Our review of recent compensation experience in WA shows that for the majority of schemes (the Abalone, Estuarine, Wheatstone and Ngari Capes schemes), the adjustments targeted in each scheme were largely achieved using the VFAS. The Cockburn Sound Crab scheme was the only scheme where objectives were not met.

Whilst recognizing these outcomes, our review does suggest that there are areas associated with the current design and implementation of fishery compensation schemes in WA that can be improved. These negatively impact the efficiency and effectiveness of schemes. Common shortcomings across schemes can be summarised as follows:

- A lack of transparency.
- Poor timing.
- Data challenges.
- Planning issues.
- A lack of relevant expertise and knowledge.
- Mistrust.
- Reliance on industry leadership.

¹²⁶ DPIRD. (2020) *Ngari Capes Marine Park compensation update*. Accessed at: <https://www.fish.wa.gov.au/Fishing-and-Aquaculture/Commercial-Fishing/Commercial-Fishing-Licences/Documents/Ngari%20Capes%20Marine%20Park%20compensation%20update%20August%202020.pdf>.

¹²⁷ Personal communication, DPIRD Senior Management Officer.

- The focus on market value impacts under FRICMA.

Each of these shortcomings is further detailed below.

Lack of transparency

Across all case-study processes, industry expressed significant frustration over the lack of clarity around how compensation amounts were determined by the relevant Committee of Management. In most cases, licence holders received letters that explained the components of the valuation but not how the Committee arrived at the assumptions that went into its compensation calculation.

The lack of transparency would often result in licence holders having to liaise with DPIRD representatives to try to understand the Committee's valuation and its key assumptions. With no understanding of the methods or parameters applied to the valuation, industry noted that it was then difficult to argue their case and/or negotiate.

These frustrations were amplified by a common perception that the Committee's first offer was simply a "*low-ball*" offer and further that the setting of compensation calculation components (e.g., GVP multiplier factors) was arbitrary, undermining licence holder trust in compensation process and its procedural fairness.

Poor timing

There were two common timing issues. The first related to when a process was initiated. Most schemes required industry leadership and political engagement to make the case for compensation and to see a process triggered. In the case of the CCSCF, these factors were lacking, which saw a scheme implemented after the fishery had already been closed for six years. The delayed timing of the scheme, combined with poor communication around the Committee's valuation approach, is likely to have contributed to industry frustration with the process and influenced final compensation outcomes.

The second timing issue relates to the length of the process, with many processes running for two or more years. In the case of the Ngari Capes scheme, it has taken 8 years to design and implement, with planning and implementation issues at the outset being major contributors to process delays. More generally, limited initial consultation and collaboration on the compensation scheme, a lack of clarity for licence holders about the compensation determination approach, and a significant divergence in compensation expectations between industry and government are all factors that contributed to lengthy processes. Protracted processes have created increased uncertainty (which impacts trade and the market value of rights) and significant emotional burden for licence holders.

Data challenges

Limited trade in fishing rights made it difficult to use market-based approaches to estimate licence value in all cases. Even where trades had occurred, they were not in sufficient quantity for the administrator to be able to confidently attribute a market value to a fishing right. Furthermore, information on the value at which a fishing right is traded is not collected by DPIRD, so it was generally difficult to access.

Where more complex valuation approaches were used (i.e., in the case of the Abalone Area 7 Managed Fishery), the application of the approach was made more difficult by a lack of economic data. This compares to other jurisdictions like South Australia and the Commonwealth, where economic surveys are routinely undertaken, making required data readily available. Even where such data exist, challenges around the appropriate setting of discount rates and capital costs still occur, particularly given a lack of relevant comparable sectors and/or businesses.

A reliance on GVP to determine compensation has also been associated with challenges. In some cases, industry indicated that there were inaccuracies in the beach prices used to estimate GVP. This is partly due to industry under reporting prices to minimise its resource access charges.¹²⁸

Accurate beach price estimation is also difficult in fisheries characterised by vertical integration (whereby fishers engage in post-harvest value-adding activities). Furthermore, most licence holders that engaged in value-adding viewed beach prices as irrelevant, given that their value-added prices reflected the benefit they derived from their licence and thus were more relevant to the determination of fair compensation.

Planning issues

Some of the schemes implemented in WA considered here would likely have benefited from improved research, planning and budgeting prior to the scheme's announcement and implementation. In some cases, this was reflected in the scheme's purpose not being clearly set, with the purpose being left open to the Committee's interpretation, which was then not clearly communicated to licence holders.

There also appears to be a lack of clarity around when a process is voluntary versus compulsory. For example, for the Area 7 Abalone Scheme, the Ocean Reef Marina development was going to go ahead irrespective of the compensation outcome. Despite this, the process was run as a voluntary process. This potentially warrants improved guidance around when a process should be deemed compulsory.

More generally, we anticipate that, in many cases, improved planning could have led to more attractive compensation offers that were closer to industry expectations from the outset and processes that were of a shorter duration. In many cases, this would have alleviated frustration and emotional burden for licence holders.

Lack of relevant expertise and knowledge

It was noted by several stakeholders that compensation is not the core business of DPIRD, which arguably limits their capacity for assessing licence values, determining fair compensation, and advising the Committee. While the function of the Committee is arguably to provide this expertise, the lack of documented guidance (except for the recently released FRICMA Principles) means that DPIRD officers appear to become heavily involved in the compensation negotiation process. For example, in the case of the Abalone process, negotiations moved on from the Committee to a DPIRD officer who was acting on behalf of the Minister.

The potential lack of expertise combined with the divergence in estimated market values for fishing rights between industry and the Committee often sees either party turning to external valuers. This is arguably inefficient and a waste of resources, having both parties separately seek expert advice to make their own case for a fair compensation amount.

In the case of the Abalone process, stakeholders also questioned the degree to which the independent expert engaged by DPIRD had previous experience valuing fisheries and were also of the view that the valuer has not made any effort to properly understand the fishery (which was deemed to be particularly problematic given the unique operating characteristics of abalone fisheries).

Mistrust

There appears to typically have been a level of mistrust of DPIRD on the part of licence holders going into compensation processes. This was in relation to DPIRD's capacity to understand and support the Committee to determine fair compensation, but also in terms of DPIRD's independence from the minister. DPIRD's role as the regulator of the fishery also potentially compromises their ability to administer the compensation process, particularly where there is a pre-existing level of mistrust linked to licence holder experiences with previous management decisions.

¹²⁸ Which is set at 5.75% of 3 year annual GVP.

The intended role and operation of the Committee as an independent body, while intended to ameliorate these issues, appears to accentuate the problem given the lack of transparency around its process and its general inaccessibility.

This general sense of mistrust is amplified by offers that fall short of industry expectations and poor communication about compensation methods and assumptions.

Reliance on industry leadership

Both the Abalone Area 7 and West Coast Estuarine processes had some degree of success in meeting objectives and delivering compensation outcomes, which was likely linked to the strong industry leadership and advocacy efforts that prevailed in each fishery. This industry leadership was important in both making the case for compensation and then co-ordinating industry and leading the compensation negotiations. While a positive outcome, this observation raises questions about whether WA compensation policy and arrangements in and of themselves can be relied upon to both trigger a VFAS process when it is required and ensure delivery of fair compensation outcomes.

Where industry leadership has been lacking, there has arguably been a need for WAFIC to take a more prominent role in the compensation process. Industry's views on WAFIC's involvement in the process were mixed. Generally, WAFIC engaged with the process and informed industry in the early stages but did not have much involvement thereafter. WAFIC is the one industry entity that has exposure to all WA fishery compensation processes. This presents an opportunity for it to build up expertise in the space, contribute to compensation negotiations and assist industry to understand the process. Feedback from WAFIC representatives indicates that a lack of a transparent and robust compensation framework inhibits the organisation's ability to take on such a role.

The focus on market value impacts under FRICMA

FRICMA requires that a negative impact on the market value of a fishing right be demonstrated in order for a licence holder to be eligible for compensation due to the impacts of a MPA. Once eligibility has been determined, the compensation quantum is linked to that market value impact.

The shortcomings of FRICMA's focus on linking compensation determination to changes in the market value of rights were not adequately demonstrated in our case studies. However, concerns were raised in conversations with scheme administrators. The approach is problematic given issues related to thin markets for fishing rights, a lack of data on market values, difficulties separating impacts from a MPA on market value from other influential variables and further the fact that the disutility caused for an individual licence holder may be significantly larger than that indicated by a change in the market value of a licence across the entire fishery.

Improving fisheries compensation

This section builds on the evidence previously presented by providing a synthesis of best practice principles to guide both fisheries compensation process and fisheries compensation valuation methods, before advancing a number of initiatives that, if implemented, could improve fisheries compensation in WA.

Best practice fisheries compensation

Best practice fisheries compensation is defined here as any approach relating to the compensation process and/or valuation method that allows a compensation scheme to most effectively meet its objectives and delivers fair compensation. The principles identified here provide guidance on how compensation should be delivered to achieve best practice. They also underpin the evaluation of WA's fisheries compensation framework and to support identification of potential improvements. Best practice

principles for compensation process are first considered before best practice principles for compensation valuation methods are presented.

Compensation process

Table 8 outlines principles to guide the implementation of fisheries compensation process. These principles should ensure a scheme delivers procedural fairness and meets the expectations of stakeholders. These principles were identified based on the research presented here, as well as workshop discussions with the Project Steering Committee. Some of the identified principles mirror principles identified by MRAG Asia Pacific¹²⁹ in their review of compensation approaches for marine parks.

Compensation valuation method

Table 9 outlines suggested principles to guide the compensation valuation methods used in a fisheries compensation process. These principles should ensure that the most appropriate method is used to estimate an appropriate compensation amount. These principles have been identified based on our previously presented research and workshop discussions with the Project Steering Committee.

Table 8 Better practice fisheries compensation – process principles

Process principle	Description
1) Equitable	A compensation process should treat all right holders on equal terms according to their relative entitlement for compensation.
2) Inclusive	Compensation is to be made available to all right holders that suffer a loss.
3) Appropriately timed	A compensation process is triggered once a relevant pre-specified event is anticipated and/or has occurred. The process must then meet its objectives efficiently and in a timely fashion to minimise uncertainty and distress for industry.
4) Suitably planned and resourced	Schemes are accurately researched, planned, budgeted and resourced to ensure that an appropriate approach is used (e.g., is a compulsory or voluntary scheme required) and that the objectives are clearly defined and are achievable.
5) Consultative and collaborative	A compensation scheme is designed and delivered in a consultative fashion and informed and supported by industry.
6) Delivers value for money	A compensation process should achieve value for money while meeting scheme objectives and compensation principles.
7) Process transparency	Compensation methods, assumptions, and decisions are always clearly communicated.

Source: Synergies Economic Consulting

¹²⁹ MRAG Pacific (2010) *Adjustment Assistance for Public Good Marine Conservation: A review of past Australian practice and implications for future measures to offset impacts on the seafood industry.*

Table 9 Better practice fisheries compensation – valuation method principles

Method principle	Description
1) Leave affected parties as well off	The compensation valuation method should aim to calculate a compensation amount to leave affected parties as well off as they were prior to the relevant change or event.
2) Cost effective	The level of investment in data, analysis and expertise to determine compensation value should be aligned with the relative value of the fishery and/or the impacts on it that are being compensated for.
3) Determine market value for acquisition schemes	The market value of rights and other relevant assets should be used as the starting point for determining compensation value under an acquisition scheme.
4) Determine the value of foregone benefits for impact schemes	Impact schemes should focus on quantifying any impacts associated with the relevant change or event (including any associated uncertainty) and then attempt to value the foregone income and/or benefits associated with those impacts, in order to determine a relevant compensation starting point amount.
5) Adjustments for relative performance	Adjustments to the compensation amount may be required to account for the relative profitability of right holders, to appropriately increase compensation for high performing right holders that outperform the market.
6) Include a solatium payment	Solatium payments should be required under compulsory schemes to recognise several factors including the unwillingness of sellers, endowment effects and the general inconvenience caused by the need to compensate.
7) Method inaccuracy requires greater generosity	The less accurate or certain a calculation method is (e.g., when a standardised method is used), the greater the generosity that is required to better ensure that all compensated parties will be as well off as they were before the change.
8) Informed by independent expertise	Complex valuations should be delivered by independent certified valuation experts who have pre-existing knowledge of the fishing industry and, ideally, the specific fisheries being compensated. The valuer should be selected in collaboration with industry, and the valuation should be informed by consultation with industry.
9) Informed by relevant data	Efforts are made to collect, maintain, and use quality catch, effort, and financial and economic data to support compensation calculation methods and decisions.

Source: Synergies Economic Consulting

Recommended improvements

This section makes a number of recommendations for improving fisheries compensation approaches in WA, several of which are particularly targeted at small-scale fisheries. These improvements were identified based on the summary of recent experiences with WA's current approach to fisheries compensation presented previously and against the compensation principles outlined in the preceding section, all of which have been informed by our consultations and review of the broader literature.

Adopt criteria for triggering a compensation process

Our review of recent compensation approaches in WA revealed that most compensation schemes are triggered by the political process rather than a more objective basis for considering whether compensation is warranted. In some cases, the initiation of compensation schemes often relied on well-connected industry leaders making the case for a process. In at least one case (the CSCF), there was potentially an argument for a compensation process to have been run much earlier when the fishery was first closed.

Consistent with Process Principle 3, there is potentially a need to develop guidelines or decision criteria around when to trigger a fishery compensation process. Such guidance would also benefit from being clear about when compensation is not warranted (e.g., for a standard adjustment to a fishery's catch or effort settings). This would provide industry with greater certainty around when compensation is payable

and prevent wasted resources being invested in the negotiation and lobbying process to set up a process. Formally adopting such criteria as government policy could also prevent processes being treated as a 'political announcable' that are operationalised after the announcement but instead allow processes to be purposefully planned and designed to effectively deliver positive outcomes for all.

Potential process trigger criteria would reflect the circumstance that have been considered in the current report, including:

- The need to achieve a significant restructuring of the fishery due to a prevailing underperformance in the fisheries biological and/or economic status.
- There is a need to explicitly allocate a resource away from the commercial sector to some other use or sector (e.g., the recreational sector).
- A marine reserve or MPA is established or is being proposed that covers the historical operating area of the commercial fishery.
- A human-induced change (such as a residential or industrial development or activity) that benefits other entities (private or public, including the community) but is to the detriment of the fishery and its licence holders.
- A period has elapsed for which a fishery has been closed, and it is not anticipated to be opened, and the reason for the closure was not overfishing.

Further refinement and identification of additional factors for determining when a compensation process is required. This would best be informed through a collaboration between DPIRD and WAFIC (potentially with further research input) to determine an agreed approach that aligns with government legislation and policy, and that meets industry and other relevant stakeholder expectations.

Develop and adopt guidance on compensation process implementation.

Our review of recently implemented processes identified several shortcomings in the planning and implementation phases that resulted in processes that were not fit for purpose, did not meet objectives, wasted time and resources, and took excessive time to resolve. Feedback from DPIRD indicated that there is limited documented guidance for implementing compensation scheme processes and for guiding the Committee of Management's deliberations under a compensation scheme.

To facilitate consistency, transparency and support for the process, consideration should be given to formalising the structure for the Committee of Management, including an independent chair and appropriate members with relevant fisheries expertise.

Having documented guidance for implementing compensation schemes would better support meeting of all process principles identified in Table 8 and mean that the effectiveness and quality of compensation processes implemented become less dependent on the knowledge and experience of those involved in administering the process. Compensation process guidelines could be written to explicitly address the individual process principles outlined in Table 8, but should, as a minimum, provide:

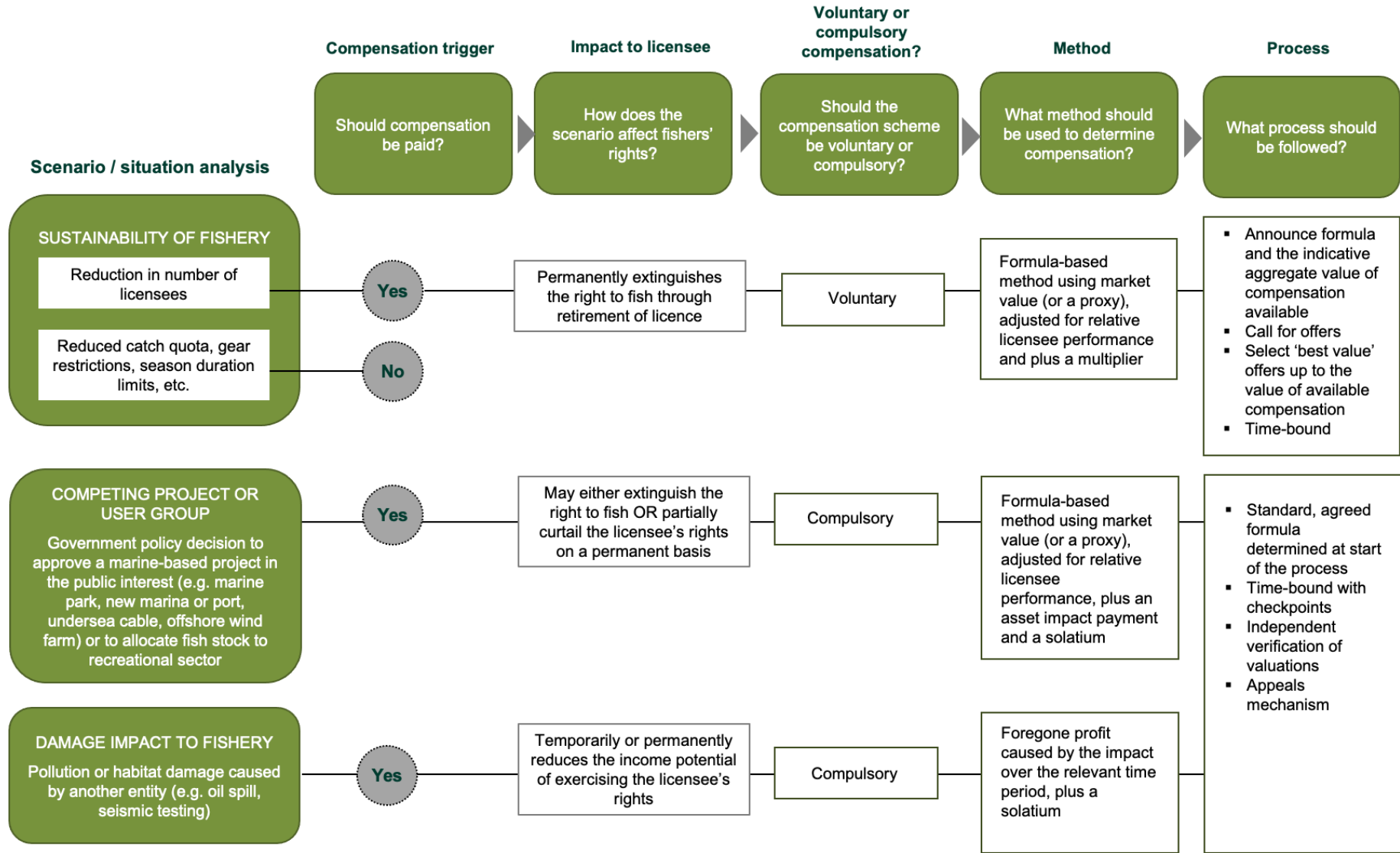
- Specific instruction on steps to be taken in advance of a process being announced to determine the type of process, budget requirements, and communication requirements. Regarding the process type, Figure 8 demonstrates a potential decision logic that could be used to guide what type of process to administer.
- Guidance on consultation requirements, including identification of key stakeholders to consult at the start of the process, which may include industry groups (WAFIC, Western Rock Lobster Industry Council), other government departments (e.g., DBCA in the case of state marine parks), and any other external bodies involved with the process's implementation (e.g., independent valuers).

- The time required for each step of the process and process '*checkpoints*' that must be met for the process to proceed onto its next step.
- Guidance for the Committee of Management on its role and how it should go about making its decisions.
- Guidance on when external expertise and/or service providers should be engaged as part of a compensation process. This would primarily relate to the provision of valuation services but, like the approach taken in Victoria, may also involve the engagement of third parties to administer the process (in place of DPIRD). For valuers, this guidance could be complemented by a live register or panel of potential service providers with fisheries industry knowledge and experience.

Development of compensation process guidance would primarily be the responsibility of DPIRD but would likely benefit from collaboration with WAFIC.

Figure 8 illustrates a potential process consistent with the compensation principles discussed in the report. Guidance documents developed should relate directly to the process.

Figure 8 Decision logic for determining a compensation approach for different situations



Data source: Synergies Economic Consulting

The key recommendations consistent with this process are:

- For most of the foreseeable cases, compulsory schemes should be favoured.
- Each schemes needs to begin with a clear criteria to guide the triggering of the compensation process.
- Schemes should have comprehensive guidance available to participants on the compensation process planning and implementation, including time frame for completion.
- Schemes should have guidance on how compensation amounts should be determined, including specified compensation formulas for licence acquisition processes, requirements to use external valuers to determine the market value component, and decision criteria to guide the choice of methods to determine a right's market value.
- Develop a process whereby critical elements (time frame, formula, valuers, etc.) can be agreed upon early in the process by representatives of the Government and the fishers.
- Include provision for individuals to appeal the outcome based on their individual circumstances.

These recommendations are discussed further below.

Better guidance on compensation determination

There are a number of ways that guidance could be improved:

Guidance on compensating for acquisition

Compensation formula approach

There is significant merit in using a compensation formula-based approach for the purpose of acquisition schemes. It provides for a more transparent compensation calculation process and can support a more focused and efficient negotiation, where the discussions focus in on each element of the calculation formula (and the assumptions that are inputted into it) rather than the formula itself.

To be successful, this requires that an appropriate formula be specified. Based on research (and particularly the approach applied in Victoria), the specific formula that should be used for the purpose of determining compensation value for the purchase of a fishing right should incorporate the following factors:

- **Market value of the licence (MVL)** – determined by a separate entity such as the Valuer-General (which in WA is Landgate), the Department of Treasury (as the WA government's main economic adviser) or the Department of Finance (as a major administrator of grant and subsidy schemes).
- **Profit adjustment payment (PAP)** – determined using the historical annual GVP (as an indicator of profit) earned against a licence for a pre-defined period (to be determined in consultation with industry) and taking the average annual GVP of a set number of the highest revenue years for a given licence in that pre-defined period and multiplying by a factor (to be determined in consultation with industry).
- **Asset impacts payment (AIP)** – to reflect the financial loss suffered through a decline in the value of other assets, which may be set at a fixed amount or determined by the external valuer used for the determination of right market value.
- **Solatum payment (SP)** – primarily for the purpose of compulsory schemes, a solatum should be provided in recognition of the unwillingness of right holders to forfeit their right at market value. While a solatum could be separately specified, an appropriately set profit adjustment can implicitly capture a solatum.

The formula would then be calculated as:

$$\text{Compensation} = \text{MVL} + \text{PAP} + \text{AIP} + \text{SP}$$

The proposed settings for the formula components should be communicated to stakeholders and consulted on prior to the process being implemented.

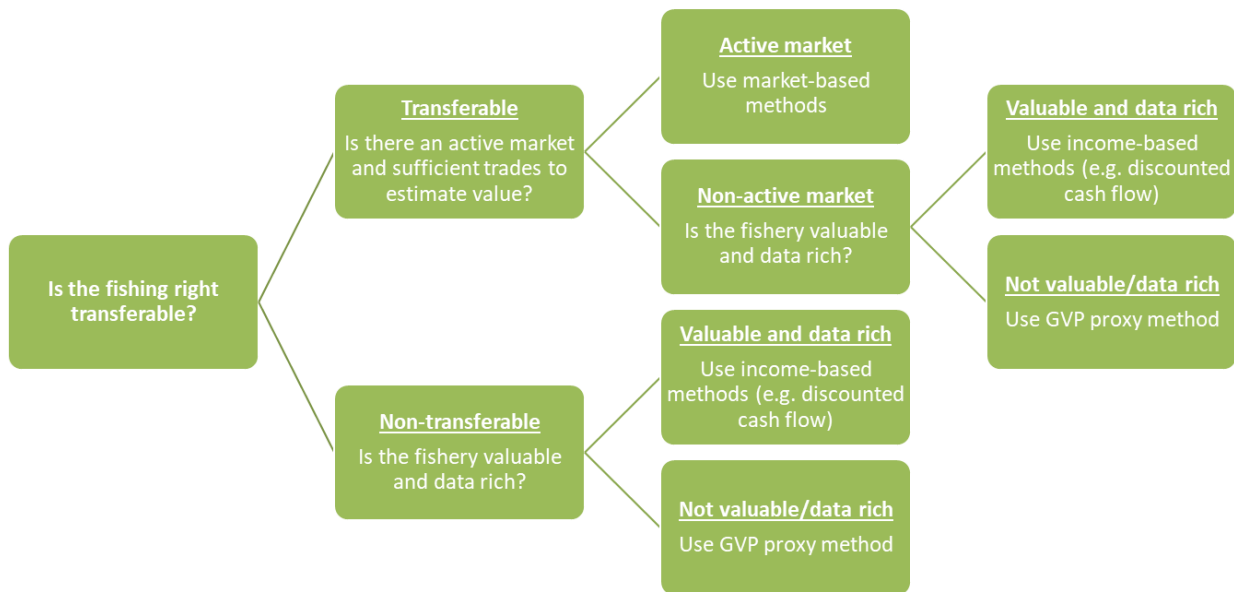
Determining licence market value

Determination of the market value of licences has been shown to be a key challenge. The use of market-based methods that use information about recent trades should be prioritised over all other methods, given their relative accuracy and low cost. For this reason, there is a need to change current reporting requirements and/or data capturing processes associated with trades in fisheries rights to make this option more readily available for compensation processes in WA.

While income-based methods such as discounted cash flow have the potential to provide a more accurate estimate of a right’s market value (although accuracy has been shown to vary by valuer and the assumptions they make), the cost and complexity of such methods should make their use the exception rather than the rule.

A potential decision logic is shown in Figure 9.

Figure 9 Decision logic for licence valuation method



Data source: Synergies Economic Consulting

This decision tree could be used to guide the selection of valuation methods to determine the market value of fishery licences. The presented logic would require further consideration and refinement to better specify decision rules (e.g., what defines a valuable fishery?, what defines a data rich fishery? etc.) and ensure that the decision logic meets the needs of DPIRD and meets the expectations of WAFIC and industry more broadly.

As is implied by Figure 9, there is likely an important role for proxy indicators of fishing right market value, especially for small-scale fisheries. However, without detailed discussions and evidence, the application of GVP multipliers appears arbitrary. Thus, there would be benefits to building up an evidence base to assist in identifying appropriate GVP multiplier factors for specific fishery types.

One approach to building this evidence base would be to consider the relationship between the licence values estimated for relatively data rich fisheries where such estimates exist and other indicators of fishery performance and characteristics, including GVP. This could involve utilising economic survey data held by BDO for Queensland, New South Wales, and South Australian fisheries, as well as fishery economic survey data from other jurisdictions and ABARES. The analysis would be undertaken to ascertain the approximate relationship and GVP for certain fishery types (e.g., defined by method and target species) and allowing for changes in key macro variables (such as fuel prices, exchange rates and/or output prices).

While an attempt was made to undertake such an exercise, the market value of licences are typically not reported in enough detail to readily allow such an analysis (instead being aggregated into one measure of “Value of entitlements” or similar, which can apply to a combination of entitlements from within the same fishery or from across other fisheries). Instead, the worthiness of such an analysis would best be explored and undertaken with access to the actual data contained in BDO and ABARES databases.

Guidance on compensating for impact or damages

Consistent with Valuation Method Principle 4, when a scheme is being run to compensate right holders for impact or damages, the primary focus is to quantify the impact of the event and then value it, typically in terms of an estimate of foregone income. For WA, this implies a need for legislative change to move away from the focus on impacts on the market value of fishing rights currently required under FRICMA.

Determination of compensation for impact is typically associated with a higher degree of uncertainty, as the quantification of impact on individual licence holders introduces additional uncertainty and varies across fishery types and licence holders. This adds to the uncertainty around the valuation of those impacts. Furthermore, compensation for impact schemes can vary significantly in terms of the types of impacts and the context within which those impacts are occurring. Therefore, it is more difficult to adopt a standardised methodology for determining compensation for impact.

The Parks Australia compensation for impact formula provides a good example of a practical approach to determining compensation to assist a large number of fishery right holders to adjust to the new arrangements instigated by the implementation of a large network of marine parks. However, for smaller scale fisheries with fewer operators, and/or a smaller scale initiative (such as an individual MPA or an industrial development), a more detailed quantification and valuation of the impacts may potentially be warranted. This would best be informed by granular spatial data on historical catches of licence holders.

At a high level, a compensation for impact scheme should incorporate the following elements:

- **Compensation for foregone profit** – determined based on assumptions about how future catches will be impacted by the proposed change and assumptions about future prices and profitability, all of which often utilises information on historical catches, beach prices and profits to predict future performance. Key factors to consider include:
 - How will catches be impacted? (taking into account the mobility of targeted stocks).
 - Will there be greater competition between vessels in a more restricted fishing area?
 - How will the productivity of the stock be impacted, and thus catch rates?
 - How will operating conditions and costs be affected? (e.g., will vessels now have to travel further?).

- **Solatum payment (SP)** – a solatum should be provided in recognition of the forced suffering of negative impacts by right holders. While a solatum could be separately specified, an appropriate compensation for foregone profit could implicitly be captured by a solatum.

Determination of the compensation for foregone profit is complicated and will be subject to the situation being considered. The approach proposed in the current FRICMA Principles document for the purpose of marine reserves appears to be sound, although requires complementary efforts be made to improve the granularity of catch and effort data collected to support its application (particularly for small-scale fisheries) as well as some greater transparency around the mobility multipliers that are used. That compensation formula was as follows:

‘Total fishery compensation’ = ‘proportion of block closed’ x ‘a multiplier for permanent closure’ x ‘Average kg from block’ x ‘Average GVP of catch’ x ‘Mobility multiplier’

Given the difficulties and uncertainties associated with determining compensation for impact, a greater focus on ensuring procedural fairness (by following the process principles outlined in Table 8) is required, with particular emphasis on using a collaborative or consultative approach.

The ongoing expansion in the use of the marine domain by the energy industry, which sees the application of seismic surveys and carbon sequestration and the development of wind farms, combined with the further development of the oil and gas industry in WA (and broadly across Australia) will raise significant new compensation issues for fisheries managers. This development will continue to introduce changes in resource access and impacts on resource status for both small and large fisheries. The extent of the impacts is not readily understood.

Whilst outside the scope of this project, it is understood the scale of development has the potential to alter the way fisheries are managed and create new data requirements and stock assessment approaches. The requirement to improve compensation mechanisms given this advent of significant marine and coastal development needs to be prioritized urgently in order to facilitate this development but also limit any undue negative impacts on fisheries and coastal communities.

This may benefit from a national approach (as has been done in the USA and UK, facilitated and supported by the relevant Ministerial Council to ensure the investment is made to better place governments, managers, researchers and industries in the fisheries sector to meet these increasing challenges. How this is to be achieved locally is specifically a challenge for DPIRD and the Minister for Fisheries.

Establishing options for dealing with value adding and vertical integration

A common issue raised in consultation with industry and scheme administrators related to challenges determining compensation when a fishing right is utilised within a vertically integrated business structure or involves value adding by the relevant fishery operator.¹³⁰ This implies beach prices will not give a true indication of the benefit being realised by a right holder, as the right holder is generating additional earnings on their landings over and above the typical beach price being achieved across the fishery.

Consistent with compensation Valuation Method Principle 1, there is a case for considering the benefits from any value adding that occurs by right holders so as to leave them as well off as they previously were. But the challenge is that unlike for fishery operations where some data is accessible on the performance of individual licence holders and/or operators (i.e., catch, effort, estimated GVP), information about the financial performance of operations beyond the point of landing are less accessible and are often confidential. Any negotiation around compensation would thus require negotiation to be in ‘good-faith’

¹³⁰ While both value adding and vertical integration aim to improve a fishing business’s profitability, value adding focuses on enhancing the landed product itself, while vertical integration involves expanding the business’s operations along the supply chain to acquire different stages of production or distribution post landing.

which can be problematic from the perspective of the administrator and taxpayers (when a scheme is publicly funded).

Some potential strategies for compensating vertically integrated right holders include:

- Designing initiatives (such as marine parks) to avoid and or minimise impact on vertically integrated businesses.
- Utilising a negotiation approach and requiring licence holders to provide evidence of the financial returns they are achieving through their value adding activities and/or vertically integrated operations (e.g., accountant prepared financial statements prepared for taxation purposes that demonstrate the additional benefits earned from only the relevant fishery in question).
- Utilising independent valuation expertise to undertake market and value-chain analysis to determine the likely additional benefits being realised over and above beach prices. This could be done a case-by-case basis (i.e., for each vertically integrated business) where there are few such businesses or an assessment could be made across the fishery and the compensation formula be set to allow a fixed adjustment to be made where a licence holder can demonstrate they value add or are vertically integrated.
- Implementing complementary grant-based schemes that allow vertically integrated businesses that plan to continue beyond an initiative (e.g., a buyback or MPA) to apply for funding to assist with the transition of the onshore component of their business to the new arrangement.

Ensuring that the process is adequately researched and planned can allow the prevalence of vertical integration and value adding across the fishery to be understood ahead of the scheme's implementation and planned for. The administrator should then provide a clear indication to licence holders its proposed strategy for addressing vertical integration and/or value adding where it exists and seek feedback from licence holders.

Identify opportunities to improve data

Many of the challenges with determining fisheries compensation, particularly for small-scale fisheries, reflect issues around a lack of data or only having access to poor quality data. Method Principle 8 identifies a need to develop data sources that can assist with compensation determination. Some potential opportunities include:

- Improving the spatial granularity of catch and effort data required to be reported by fishery vessel operators and that is maintained by DPIRD to better allow quantification of impacts for the purpose of compensation determination.
- Further exploring opportunities to establish data capture arrangements for the value of fishing rights when traded. In the case of WA's fisheries, this could involve having further discussions with the Office of State Revenue (OSR) to determine whether there are options to set up new processes or systems to allow the separate identification of fishery licence values that are reported as traded (noting that DPIRD indicated that fishery licence values are currently collated within an "other" asset category by OSR). Alternatively, this could involve looking at options to support reporting of traded right values by right holders to DPIRD.
- Introducing regular financial and economic survey data collection (similar to the programs implemented by BDO for South Australia's fisheries and ABARES for Commonwealth fisheries) for WA's larger, more valuable fisheries, noting that such data collection programs are also useful for supporting broader fishery policy and management decisions and not just for questions of compensation.

The use of inaccurate beach prices to inform compensation valuation determination was frequently raised as an issue with compensation determination processes by industry. While this may be true, this is primarily attributed to the incentive for industry to under-report beach prices for the purpose of being charged lower resource access fees. DPIRD already undertakes actions to validate beach prices, and there is likely limited scope or benefit to making efforts to improve their accuracy further. The onus is thus on the fishing industry to ensure that they are reporting beach prices accurately.

Extension and adoption

A number of extension activities were undertaken over the course of the project. The main results and draft recommendations emerging from the study were presented via a seminar to officers from WAFIC and DPIRD. The research team also met with each of these organisations individually to discuss the report's findings.

The primary target audience for this research will be commercial fishers (through WAFIC) and policymakers (DPIRD), who will be critical in the adoption of the report in WA.

Extension of the results to the WA fishing industry will rely on WAFIC communicating the outcomes of the research to fishers and potentially sharing the Final Research Report with them. It is anticipated that WAFIC, perhaps in consultation with FRDC, will organise at least one seminar for fishers and other interested parties (e.g., fisheries managers and valuers) to present and discuss the results.

DPIRD is central to any implementation of the general approach recommended or any of the specific recommendations. It is proposed that a seminar be offered to DPIRD officers on the report and its findings.

The issues relating to compensation are of increasing relevance to a wider set of potential beneficiaries. These include the fishing industry as well as fishery management agencies across Australian jurisdictions. They also include others with a direct interest in accessing the marine resources, including, for example, windfarm developers and marine park proponents. For the broader Australian industry and fishery management agencies, publication and promotion of the research on the FRDC website will support its further extension.

More directly, it is expected that WAFIC and FRDC will coordinate a webinar that focuses on compensation issues and the report's findings.

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