



Department of
Primary Industries

Fisheries Management (Aquaculture) Regulation 2017

Regulatory Impact Statement

Fisheries Management (Aquaculture) Regulation 2017 Regulatory Impact Statement (RIS)

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Information sources

In the preparation of this Regulatory Impact Statement, information was sourced from officers of the Department of Primary Industries

Disclaimer

The information contained in this publication is based on knowledge and understanding at the time of writing (April 2017). However, because of advances in knowledge, users are reminded of the need to ensure that information on which they rely is up-to-date and to check the currency of the information with the appropriate officer of the Department of Primary Industries or the user's independent advisor.

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Executive summary

The NSW aquaculture industry produces a diverse range of high quality seafood including oysters, prawns, marine and freshwater fish, yabbies and mussels. The industry provides more than 1,758 full-time jobs and contributes significantly to local and regional communities (Barclay et al. 2016, p12). In 2015-2016, total NSW aquaculture production was valued at almost \$65 million. The oyster industry contributed the majority of this production with a total value of \$44.3 million (NSW DPI, 2016a).

The *Fisheries Management (Aquaculture) Regulation 2012* (the 2012 Regulation) is made under the *Fisheries Management Act 1994* (the Act) and is designed to support the Act in promoting a sustainable aquaculture industry in NSW.

There are no proposed changes to the 2012 Regulation. However, in accordance with Section 5 of the *Subordinate Legislation Act 1989*, the remaking of a rule, even if it is remade without changes, generally requires a Regulatory Impact Statement (RIS) and a period of public consultation.

Three options are considered in this RIS:

- Option 1: Remake the 2012 Regulation;
- Option 2 Allow the 2012 Regulation to lapse; and
- Option 3 Replace the 2012 Regulation with pro-active industry self-regulation.

Option 1, remaking the 2012 Regulation, is recommended. The current regulatory framework takes into account contemporary community and social values, enabling a triple-bottom-line approach to social, economic and environmental sustainability. Regulation is also a framework well understood by the NSW aquaculture industry and has effectively managed this sector over many years.

Option 2 is that the 2012 Regulation would lapse and a new Regulation would not be made in its place. As a regulation is intended to give effect to the *Fisheries Management Act*, allowing the 2012 Regulation to lapse would result in the Act only being partially effective. This is not supported.

Option 3, to replace the 2012 Regulation with pro-active industry self-regulation is considered highly unlikely to be successful and is not supported. The community expects Government to take action to effectively manage the NSW aquaculture industry and address stakeholder and environmental impacts. A non-regulatory approach to promote aquaculture industry viability and environmental sustainability is not considered appropriate to meet the objectives of the Act or community expectations.

A cost-benefit analysis of the three options also demonstrates that remaking the 2012 Regulation is the most efficient option for the State, the industry and the community.

Exhibition of RIS and process for submissions

Exhibition of the proposed Regulation and Regulatory Impact Statement (RIS) provides interested stakeholders, including industry and members of the wider community, with an opportunity for direct input into the regulatory development process.

Public notice of the exhibition of the RIS and proposed Regulation will appear in the NSW Government Gazette, the Sydney Morning Herald and the Daily Telegraph. A number of stakeholder groups and government agencies will be directly advised that the Regulation and RIS are available for comment (refer to 6.1 of this RIS).

In accordance with Government guidelines, the proposed Regulation and RIS will be available for comment from 22 May 2017 to 19 June 2017.

- Further technical information on the proposed Regulation and RIS is available by telephoning 02 4916 3808.
- Additional copies of the proposed Regulation and RIS are available by telephoning 02 4916 3808, or from <http://www.dpi.nsw.gov.au/aboutus/about/legislation-acts/review>

How to make a submission

Interested parties are invited to submit written comments on the Regulation and/or the RIS to the Department of Primary Industries (DPI) in any of the following ways:

Post

Aquaculture RIS
Port Stephens Fisheries Institute
Locked Bag 1
Nelson Bay NSW 2315

Facsimile

02 4981 9074

Email: aquaculture.management@dpi.nsw.gov.au

The closing date for submissions is 19 June 2017

What happens to submissions

DPI will review all submissions received by the closing date and consider the issues raised. The Regulation may be amended in the light of comments made in submissions.

Use of submissions and confidentiality

The Minister will be advised of all submissions and actions arising from them. A copy of all submissions will be provided to the Legislation Review Committee of the NSW Parliament with the final version of the Regulation. A report on the outcomes of consultation detailing the issues raised in submissions, and the Department's response, will be placed on the DPI website.

DPI generally places submissions, or summaries of them, on its website. Please advise us if you do not want your submission published, or if you want part or all of it to be kept confidential, for example your name and/or personal contact details. DPI will respect your request, unless required by law to disclose information, for example under the provisions of the *Government Information (Public Access) Act 2009*.

1 Introduction

Under the *Subordinate Legislation Act 1989*, most Regulations must be reviewed and remade every five years, and if they are not they lapse unless a postponement is given. A RIS is to be prepared as part of the review and remake of most Regulations under the staged repeal program.

When a Regulation is proposed to be remade under the program, a RIS must be prepared in accordance with the requirements of Schedule 2 of the *Subordinate Legislation Act 1989*. Schedule 2 lists the following six matters that must be included in the RIS:

- (a) A statement of the objectives sought to be achieved and the reasons for them;
- (b) An identification of the alternative options by which those objectives can be achieved (whether wholly or substantially);
- (c) An assessment of the costs and benefits of the proposed statutory rule, including the costs and benefits relating to resource allocation, administration and compliance;
- (d) An assessment of the costs and benefits of each alternative option to the making of the statutory rule (including the option of not proceeding with any action), including the costs and benefits relating to resource allocation, administration and compliance;
- (e) An assessment as to which of the alternative options involves the greatest net benefit or the least net cost to the community; and
- (f) A statement of the consultation program to be undertaken.

The RIS should also address the NSW Better Regulation principles. Information on these principles is available from:

https://www.finance.nsw.gov.au/sites/default/files/guide_better_regulation_october_2016.pdf

2 Outline of the regulatory proposal

2.1 Title of proposed statutory rule and authority

The proposed Regulation is the *Fisheries Management (Aquaculture) Regulation 2017* (the proposed Regulation) and is made under the *Fisheries Management Act 1994* (the Act).

2.2 Name of proponent and responsible minister

The Minister for Primary Industries is the Minister responsible for making the proposed Regulation.

2.3 Background

2.3.1 The Fisheries resource

The fisheries resource in NSW can be categorised into five fishery sectors:

- Fisheries Conservation;
- Recreational Fisheries (including charter boats);
- Commercial Fisheries;
- Aboriginal Cultural Fishing; and
- Aquaculture.

All the fishery sectors excluding aquaculture are regulated via other Regulations made under the Act and therefore fall outside the scope of the proposed Regulation and this RIS. However, a broader examination of the fisheries industry in NSW gives context to the

aquaculture industry and the way it is regulated. For this reason the five fishery sectors are briefly described below.

The State's fisheries resource provides a range of benefits to industry and the community. There is an intrinsic value to the general community in preserving fish stocks and fish habitat and a preference for consuming fresh, locally produced seafood. Recreational fishers are able to use the resource for sport or leisure. Recreational fishing also has an economic value in supporting associated businesses and tourism. Commercial fishers gain a direct benefit from harvesting the resource for sale and Aboriginal communities use fishing activities and practices for educational, ceremonial or other cultural purposes.

The aquaculture industry may harvest broodstock (e.g. native freshwater finfish), collect spat (e.g. Sydney Rock Oyster industry) or operate independently of the NSW resource (e.g. barramundi from imported fingerlings). The regulatory framework aims to ensure that all users have fair access to the resource, as well as preserving it for future generations.

Fisheries Conservation

Fisheries conservation includes habitat protection and restoration, threatened species recovery, and managing the effects of water quality and fish passage.

Conservation of the resource is achieved through effective fisheries management, which is assisted by a number of legislative processes including:

- The preparation of fishery management strategies, species impact statements, environmental impact statements and habitat protection plans;
- Undertaking environmental assessments;
- The listing of threatened species, populations and ecological communities and key threatening processes;
- Notification of fishing closures; and
- The declaration of protected fish and critical habitat.

Recreational Fisheries

Recreational fishing is a popular activity throughout NSW in inland waters, estuaries and the ocean. Recreational fishing is a generalised term that incorporates numerous specific activities such as game fishing, sport fishing, spear fishing, general line fishing, trap and net fishing, rock or shore fishing, hand gathering, and fishing from vessels.

Commercial Fisheries

The NSW wild harvest commercial fishing industry is a dynamic network of business operators. Commercial fishers, wholesalers, processors and retailers, work together with the restaurant and catering industry to supply fresh seafood to communities across the State, as well as to interstate and overseas markets.

The Regulation of commercial fisheries includes the licensing of commercial fishers and fishing vessels and endorsements to undertake the various categories of commercial fishing. Lawful fishing gear is also prescribed and some of this gear must be registered. To harvest fish for sale in NSW, an individual must be licensed as must the vessel that is to be used. To gain access to a specific fishery, a fisher must hold the appropriate endorsement.

The Commercial Fisheries Business Adjustment Program introduces linkages between shares and catch or effort, allowing fishers the ability to invest in their business with more certainty. Some commercial fishers may want to purchase more shares to secure their level of business activity while others may choose to sell their shares and exit the industry.

There are two management frameworks regulating commercial fisheries in NSW – share management fisheries and restricted fisheries.

A share management fishery is a fishery in which shares have been issued to participants, and the shares are tradable under rules governing how they can be transferred to other existing operations or new entrants. Before an endorsement can be activated to allow a commercial fisher access to that fishery, a cap on fishing effort is maintained through the total number of allocated shares and the setting of minimum shareholding requirements in the various fisheries. In return for the right to access the resource, shareholders are required to pay a management charge and a community contribution, which are used to finance fisheries research, conservation and management programs.

There are seven commercial share management fisheries in NSW. They are:

- Abalone Fishery;
- Estuary General Fishery;
- Estuary Prawn Trawl Fishery;
- Lobster Fishery;
- Ocean Hauling Fishery;
- Ocean Trawl Fishery; and
- Ocean Trap and Line Fishery.

A restricted fishery is a fishery with limitations on the number of fishers able to participate, controlled by issuing licence endorsements on the basis of access criteria set by the NSW Minister for Primary Industries. There are three restricted fisheries in NSW:

- Inland Restricted Fishery – a small commercial fishery that operates primarily in the waters of the Murray-Darling basin, targeting carp and yabby only;
- Sea Urchin and Turban Shell Restricted Fishery – a small commercial fishery with endorsements authorising the taking of sea urchins and turban shells for sale; and
- Southern Fish Trawl Restricted Fishery – this fishery, which operates in ocean waters south of Barrenjoey Headland out to three nautical miles from the natural coast line, is also relatively small. A southern fish trawl endorsement authorises the holder to use an otter trawl net or a danish seine trawl net to take fish (other than prawns) from the relevant waters. The main species of catch include trevally and flathead.

Aboriginal Cultural Fishing

Aboriginal people have a strong cultural association with the fisheries resource. It is important that they are able to continue this association and maintain and pass on their knowledge to future generations. The fisheries resource gives Indigenous Australians opportunities to embrace their culture through working with natural resources on their Country and brings benefit to health, employment, education and overall wellbeing (Barclay et al. 2016).

The Act recognises the spiritual, social and customary significance to Aboriginal persons of the fisheries resource and protects and promotes the continuation of Aboriginal cultural fishing.

The Aboriginal Fishing Advisory Council is established under the Act, which enables Aboriginal people to provide advice to the Minister on access to the fisheries resource for cultural fishing and any other matter relevant to the Aboriginal fishing sector. The Act allows Aboriginal people to undertake certain cultural fishing without having to obtain a section 37

permit. These permits will, however, still be required for other cultural fishing such as large cultural events or ceremonies.

Aquaculture

Aquaculture is the cultivation or keeping of fish or marine vegetation for commercial purposes. This includes the cultivation of fish or marine vegetation for food, operating hatcheries for fish stocking and supplying the aquaculture and ornamental industries, and keeping fish in a pond for fish-out. The definition of aquaculture for the purposes of the Act is stated in section 142.

As at 30 June 2016, there were 2,270 current oyster leases in NSW (2,830 hectares), 297 oyster aquaculture permit holders, 135 land-based farms (1,498 hectares) and 206 land-based permit holders (note that one farm may hold multiple permits; for example, a hatchery permit and a grow-out permit). In 2015-2016, 34 new oyster leases, 29 new oyster aquaculture permits, and five new permits for land-based aquaculture were approved (NSW DPI, 2016b).

A significant emphasis is being placed on aquaculture to support sustainable seafood production and the future food security needs of NSW. Aquaculture is a rapidly developing industry in NSW and is a major contributor to high quality seafood production. Aquaculture accounts for over 40% of the State's fisheries production (NSW DPI, 2015). The industry provides more than 1,758 full-time jobs and contributes significantly to local and regional communities (Barclay et al, 2016). In 2015-2016, total NSW aquaculture production was valued at almost \$65M. The oyster industry contributes the majority of this production with a total value of \$44.3M (NSW DPI, 2016a).

A recent study of NSW coastal aquaculture and community values identified that aquaculture and the flow-on effect to seafood processing and retail businesses had a likely output of \$226M, plus \$134M in added value and \$69.3M in household income, in 2013-2014 (Barclay et al. 2016, p77).

Non-oyster aquaculture production includes marine, estuarine and land-based farms. Species may be grown in cages, ponds, raceways, tanks, or a combination of these. In 2015-2016, prawn production was worth \$6M, Murray Cod and Silver Perch \$3M each, followed by Rainbow Trout \$2.3M and Barramundi just under \$1M (NSW DPI, 2016a).

Aquaculture is managed by a permit system established under the Act to promote industry developing in an environmentally and economically sustainable manner. The Act also provides for the lease of public water land for aquaculture of oysters, marine fish and pearls.

2.3.2 Legislative background

Section 3 of the Act sets out the objects of the Act, which are to conserve, develop and share the fishery resource of the State for the benefit of present and future generations. In particular, the objects of the Act include:

- a) to conserve fish stocks and key fish habitats;
- b) to conserve threatened species, populations and ecological communities of fish and marine vegetation;
- c) to promote ecologically sustainable development, including the conservation of biological diversity;

and, consistent with those objects:

- d) to promote viable commercial fishing and aquaculture industries;

- e) to promote quality recreational fishing opportunities;
- f) to appropriately share fisheries resources between the users of those resources;
- g) to provide social and economic benefits for the wider community of New South Wales; and
- h) to recognise the spiritual, social and customary significance to Aboriginal persons of fisheries resources and to protect, and promote the continuation of Aboriginal cultural fishing.

Section 289 of the Act provides general Regulation making powers for the purposes of the Act, and Part 6 of the Act, including section 191, contains numerous other Regulation making powers specifically related to aquaculture.

The *Fisheries Management (Aquaculture) Regulation 2012* (the 2012 Regulation) includes provisions aimed at ensuring that the objects of Part 6 of the Act are met. Details of the 2012 Regulation are set out in 2.6 of this RIS below.

2.4 Need for Government action

The fisheries resource of NSW is diverse, and fish species are highly regarded by recreational fishers for sport and food, the commercial sector for their monetary value, and consumers for fresh seafood. The importance of sustainability of the fisheries resource is reflected in the primary objects of the Act, which include conserving the resource. The NSW fisheries resource must be effectively managed to ensure that stocks are harvested at sustainable levels.

DPI, on behalf of the NSW Government, is responsible for conserving aquatic biodiversity; fish stock sustainability; managing the State's commercial fishing; recreational fishing and aquaculture industries; ensuring compliance with fisheries legislation; and Aboriginal cultural fishing.

Without the Government managing the fisheries resource on behalf of industry and the community, there would be significant negative impacts on fish stocks, fish habitats and the broader ecosystem. There would also be consequential negative economic and social impacts. Notably, aquaculture is integral to regional economies and contributes to the economic and social fabric of NSW (Barclay et al. p 28, 2016).

2.5 Objective of Government action

The objective of Government action is to effectively and sustainably manage the fisheries resource in NSW for today and into the future. To achieve this, the Government has designed comprehensive laws to ensure that fishing activities remain sustainable and that biological diversity is protected.

2.6 The 2012 Regulation

The 2012 Regulation deals with the management of aquaculture. The 2012 Regulation has five parts as follows:

- Part 1 Preliminary;
- Part 2 Aquaculture permits;
- Part 3 Security arrangements for aquaculture permit holders;
- Part 4 Aquaculture leases; and
- Part 5 Miscellaneous.

Part 1 deals with preliminary matters such as the name of the Regulation, the commencement date and definitions.

Part 2 prescribes matters under Part 6 Division 2 of the Act, including classes of aquaculture permits and activities that do not require a permit; application fees for an aquaculture permit and permit variation; additional grounds for refusing an aquaculture permit; conditions relating to the movement of oysters; notification and record keeping of oysters, catching material or cultivation material that are moved from oyster producing estuaries; annual contributions payable by permit holders for the cost of administration and research; and the establishment of a research trust account and committee to manage these annual contributions.

Part 3 prescribes security arrangements (and an associated trust account) for class A and class B aquaculture permit holders to give effect to section 152 of the Act.

Part 4 prescribes matters under Part 6 Division 3 of the Act including classes of aquaculture leases; the application process for an aquaculture lease; the procedure to be followed by the Government when offering an aquaculture lease by auction, public tender or ballot; the amount of rent payable for an aquaculture lease; the process to renew, sublet, transfer, transmit, surrender, consolidate and subdivide a lease; the rent payable for aquaculture leases; provisions to refuse a lease transfer if the transferor or transferee has outstanding debt or a poor record of managing a leased area; grounds for refusal of sublet and surrender of an aquaculture lease; the procedure for lodging lease plans and documentation, including lost, destroyed or stolen documents; and the requirements for marking leased areas, boat channels and access ways.

Part 5 makes provision for various miscellaneous matters under Part 6 and section 37 of the Act including information to be specified on containers of shellfish for sale; obligations of authorised deposit-taking institutions in relation to trust accounts; the application process for a permit to gather marine vegetation for commercial purposes; fees for permits under section 37 of the Act; and savings provisions.

2.7 The proposed Regulation

The proposed Regulation will remake the 2012 Regulation with only changes of a machinery nature.

2.8 Machinery Clauses

The proposed Regulation will remake a number of provisions that are of a machinery nature. Machinery Clauses are those that could be described as relating to process rather than substantive policy matters.

Machinery Clauses in the remake of the 2012 Regulation include:

- Clause 1 – The name of the Regulation;
- Clause 2 – The commencement date of the Regulation;
- Clause 3 – Definitions of certain terms used throughout the Regulation; and
- Clause 58 – Saving.

Matters of a machinery nature do not require a RIS. This RIS therefore does not consider these provisions in detail, but comment on these provisions may nevertheless be included in submissions and will be considered.

3 Options

3.1 Options to achieve the objectives of the Regulation

Three options have been considered in this RIS as means of achieving the objects of the Act and Regulation. Options are:

- Option 1: Remake the 2012 Regulation;
- Option 2: Allow the 2012 Regulation to lapse; and
- Option 3: Replace the 2012 Regulation with pro-active industry self-regulation.

3.2 Option 1: Remake the 2012 Regulation

This RIS considers a “base case” of remaking the 2012 Regulation, or in other words maintaining the *status quo*. This would repeal and remake the 2012 Regulation.

The current Regulation of the aquaculture industry is achieved by a legislative and policy framework that meets the following key objectives of the NSW Strategic Plan 2015-2016:

- Supporting economic growth through innovation that improves resilience and boosts productivity;
- Ensuring sustainable use of and access to natural resources;
- Risks to community and industry confidence are mitigated and managed;
- Productive partnerships with business, industry, research institutions and the community to accelerate opportunities and maximise benefits; and
- Individuals are capable, engaged and empowered to collaborate.

The current regulatory framework takes into account contemporary community and social values, enabling a triple-bottom-line approach to social, economic and environmental sustainability, through:

- A lease and permit system to reduce negative impacts on the environment;
- Administrative sanctions and an active compliance program involving triennial lease and farm inspections and audits;
- Reducing business risk for new entrants;
- Enhancing opportunities for development;
- Reducing abandoned aquaculture; and
- Managing the risks of disease and pest outbreaks.

3.3 Option 2: Allow the 2012 Regulation to lapse

The second option is that the 2012 Regulation would lapse and a new Regulation would not be made in its place. As the Regulation is intended to give effect to the Act by prescribing matters relevant to the management of aquaculture, allowing it to lapse without replacement would result in the Act being only partially effective. In particular:

Lease transactions

The lack of a clear process and fees for lease transactions could lead to a situation where every new application or lease transaction request would need to be assessed to establish the appropriate fees and forms. This would be time consuming, expensive to administer and lead to reduced transparency. As well, it could also potentially limit the Government’s capacity to promote ecologically sustainable development and viable aquaculture industries in NSW because of lack of information (usually collected at the application stage) about each type of lease activity, its size and location.

Administrative processes for leasing land for aquaculture

The Act provides that the Minister may lease land for aquaculture by auction, public tender or ballot, and the Regulations prescribe the relevant administrative processes. If the Regulation were allowed to lapse, the process could become administratively inefficient and reduce the transparency of the current competitive selection process.

Marking lease areas

A leaseholder's obligation to mark a lease area would not be in place. Lease marking is a serious navigational safety issue and in the absence of the Regulation alternate directions under the *Marine Safety Act 1998* would need to be issued.

Administration and research contributions

There would be no requirement for permit holders to pay annual administration and research contributions, which could impact the sustainable development of the industry.

The administration contribution provides funding to the Government for administration and account and data management, including the production of statistics and information about the types, extent and location of aquaculture in NSW. This information is critical for emergency response to a food safety or disease event involving the aquaculture industry.

The research contribution is important for the development of the industry and conservation of the environment. Examples of research work include technologies and systems for finfish breeding and farming, and hatchery and breeding technologies for oysters. The latter includes the development of disease resistant oysters, which also reach market size much faster than wild stock; and hatchery technology for mass production of this new stock.

Prescribed conditions for bonds, guarantees and other financial arrangements

Section 152(1) together with section 152(2)(d) of the Act provide that the Regulations may prescribe conditions that require a permit holder to enter into a bond, guarantee or other financial arrangement for the due performance of the permit holder's obligations under the Act. If the Regulation is allowed to lapse, there would be no prescribed conditions for the lodgement or payment of the financial arrangement or for the amount to be paid. This could lead to administrative inefficiency; an increase in costs incurred by Government; and reduced transparency because Government may be required to assess each lease area individually to determine the appropriate security amount.

As well, without the Regulation court action would be the only means of recovering the costs of remediation as it is the Regulation rather than the Act that provides for forfeiture of lease security. This could result in significant costs and delays for Government, and could leave lease areas in a derelict state indefinitely.

Miscellaneous

There would be no requirement to label a container of shellfish that is for sale; there would be no restrictions on the consignment of different species of unopened shellfish in the same container; certain aspects of obligations and imputed knowledge of authorised deposit-taking institutions regarding trust accounts would not be clarified; there would be no provision to permit the commercial gathering of marine vegetation; and no prescribed fee for a permit issued under section 37 of the Act for aquaculture purposes.

Without these provisions the Government's capacity to effectively trace the origin of a disease through the labelling of shellfish products, and to rapidly contain it, would be restricted. Obligations and imputed knowledge of authorised deposit-taking institutions would be unclear. Furthermore, individuals would not be able to gather marine vegetation for

commercial purposes as this activity is prohibited under sections 204 and 205 of the Act, and individuals would not have to pay a permit fee to collect or possess marine vegetation or fish for aquaculture purposes.

Summary

Allowing the 2012 Regulation to lapse would result in administrative cost savings for Government and less red-tape for industry. However, the benefits to Government and industry would be significantly outweighed by the costs and harm that might result from an unregulated environment. As well, the aquaculture industry would not develop in a sustainable manner and there would be increased business uncertainty due to the lack of management provisions for aquatic pests and disease. Potential investors to the industry would not have access to expert advice and regulatory support to ensure success in developing a sustainable aquaculture business. The intent of Parliament would not be realised and the State's national and international obligations to manage aquatic diseases would not be met.

3.4 Option 3: Replace the 2012 Regulation with pro-active industry self-regulation

The third option is the absence of any Regulation and reliance on businesses and the community being well educated on threats to aquaculture and the environment, and being prepared to regulate themselves via a voluntary code of practice (a Code).

Education of key stakeholders, such as the aquaculture industry and the broader community, would be essential in a self-regulated environment. The education strategy would need to be ongoing and focus on the importance of the real risks posed in the management of aquaculture leases and aquatic pests and diseases.

However, an education campaign on its own would not ensure effective levels of protection against threats to aquaculture and the environment, so a Code may also be required. Such a Code could contain specific principles of best practice for the management of the aquaculture industry, aquatic pests, diseases and the environment. Adoption of a Code would be voluntary and there would be no penalties for non-compliance. A Code could be developed based on Chapters 6 and 7 of the NSW Oyster Industry Sustainable Aquaculture Strategy 2016.

Both a voluntary Code and an education strategy would rely on individuals acting for the common good, rather than out of self-interest, which could not be guaranteed. As well, some people are not aware of the consequences if their fish escape to the environment. It is also unlikely that all such owners would voluntarily meet the costs and demands of implementing effective management of aquatic pests and diseases, and environmental and biodiversity conservation.

Self-Regulation would most likely threaten Australia's aquaculture industry and environment, prevent NSW from meeting its national obligations, and damage the reputation of NSW and Australia.

The community expects Government to take action to effectively manage the NSW aquaculture industry and the NSW aquatic environment. Universal adherence to a voluntary Code is considered highly unlikely. A non-regulatory means of ensuring the viability of the environment and aquaculture industry is therefore not considered appropriate to meet the objectives of the Act or community expectations.

4 Cost-benefit analysis

4.1 Methodology

The methodology used for analysing the options and the impact of the proposed Regulation is based on the procedure set out in Schedules 1 and 2 of the *Subordinate Legislation Act 1989* as well as the following guidelines:

- New South Wales Treasury, *NSW Government Guide to Cost-Benefit Analysis* (March 2017);
- Better Regulation Office, *NSW Guide to Better Regulation* (October 2016); and
- Better Regulation Office, *Measuring the Cost of Regulation* (June 2008).

This RIS assesses the impacts of the proposed Regulation by considering the costs and benefits of Options 2 and 3 compared to Option 1 (the base case).

Costs and benefits can be direct or indirect, tangible or intangible. Details and analysis of costs and benefits are included in the identification of costs and benefits below. Where the impacts of an option cannot be accurately assessed in monetary terms, qualitative values are provided. The analysis is undertaken over a five-year period.

As the value of a dollar today is worth more than a dollar tomorrow, benefits and costs occurring over different time periods need to be discounted using a discount rate. Applying a discount rate to future effects allows them to be valued in today's dollars. These "present values" (PV) provide a basis for comparing the merits of alternative proposals. Consistent with the NSW Government Guide to Cost-Benefit Analysis, a discount rate of 7% is used in this analysis.

In considering costs and benefits, a number of qualitative terms are used in place of dollar values where it is not possible to quantify the precise value of certain costs and benefits. These terms are considered to approximate to the PV of the following monetary ranges:

Table 1: Dollar value ranges of qualitative terms

Qualitative term used	Dollar range
Very small	\$100-4,999
Small	\$5,000-49,999
Large	\$50,000-999,999
Very large	\$1,000,000-10,000,000

4.2 Identification of costs and benefits of each option

4.2.1 Costs and benefits of Option 1: Remake the 2012 Regulation

The base case is a continuation of the 2012 Regulation, i.e. maintaining the *status quo*. The costs and benefits of the alternative options are compared to this base case.

To allow a relative comparison with the other options, all the costs and benefits attributable to the base case have been given a zero value. This is not to say that the base case does not provide a net benefit to Government, business, consumers, the community, and the environment, but rather that these values are taken as a given to provide a benchmark against which the other two options can be compared.

If the Net Present Value (NPV, given by the PV of benefits minus the PV of costs) of either of the other options is greater than zero, this represents an improvement on the current arrangements. Conversely, if the NPV of either of the other options is lower than zero, this indicates a less desirable outcome than under the current arrangements.

It should be noted that the costs and benefits attributable to the base case are the inverse of those described below for Option 2, which is allowing the 2012 Regulation to lapse.

4.2.2 Costs and benefits of Option 2: Allow the 2012 Regulation to lapse

The costs and benefits estimated for Option 2 are presented below and summarised in Table 1.

Option 2: Costs

Costs for businesses

Loss of benefits from aquaculture research

Industry receives quantitative and qualitative benefits from the research contributions that fund the development of technology, which assists the industry to produce improved product more cheaply and with less environmental impact. The billed value of research contributions alone for 2016-2017 is \$152,479 (and for 2015-2016 was marginally less at \$151,224), which was leveraged by Australian Government contributions up to four times this value. The PV of research lost over the five-year analysis period would be \$2.5M. The additional lost benefit of applying the research results commercially has not been quantified but is estimated to be very large.

Reduction in business certainty

Allowing the 2012 Regulation to lapse would to a large extent dismantle the current administrative system for aquaculture in NSW. The resulting uncertain regulatory climate would lead to reduced business confidence, more conservative business decisions, potentially higher finance costs and higher insurance premiums. These costs have not been quantified but are expected to be large.

Loss of administrative and management services to industry

If the 2012 Regulation were to lapse, the annual permit contribution would no longer be collected. This would result in the industry losing a qualitative benefit from the provision of certain essential administrative services and a long-term financial benefit from the Government's management of the NSW Aquaculture industry.

Relevant administrative services provided by DPI include the collection and distribution of the research levy, and the collection and publication of production data. These costs have not been quantified but are estimated to be small. However, the most common formal method by which environmental knowledge is shared is through involvement with research projects and environmental committees and this is where relationships are strengthened within the industry (Barclay et al. p111, 2016).

Increased public liability for aquaculture lease holders

The 2012 Regulation sets standard requirements for marking leases to assist safe navigation. The loss of these provisions would increase the likelihood of a boating accident, resulting in damage to lease infrastructure and potential liability to the leaseholder. This would translate into higher public liability insurance costs for industry. These costs have not been quantified but are estimated to be large.

Loss of ability to issue miscellaneous section 37 permits and gather marine vegetation for commercial purposes

The 2012 Regulation makes provision for issuing section 37 permits for broodstock and aquarium fish collection, scientific collection, Pacific oyster processing, and the commercial gathering of marine vegetation. In the absence of the Regulation, section 37 permits would have no fee structure and marine vegetation gathering would be prohibited. This would significantly impact hatcheries that rely upon broodstock for their contribution to recreational fish-stocking programs in NSW, and research by agencies, universities and consultants. These costs have not been quantified but are considered to be large.

Costs for Government

Increased cost of managing abandoned derelict lease areas

If the 2012 Regulation lapsed then there would no longer be a requirement for aquaculture lease security arrangements. Therefore, if a lease were abandoned in a derelict condition there would be no security for the Government to draw on to remediate the lease area. On average it costs in the vicinity of \$10,000 per hectare to remediate an oyster aquaculture lease, but this cost can be as high as \$100,000 per hectare for highly developed leases.

With the contributions from lease security arrangements, grants from funding bodies, combined with legal and administrative action by NSW DPI, more than 400 hectares of derelict leases have been remediated since 2009. As a result, the number of leases becoming derelict has dramatically reduced. The potential cost to Government of removing the lease security system would be difficult to quantify, but with 2,785 hectares of lease currently occupied it is considered that it would be very large.

Loss of revenue from fees through the licensing and permit scheme

The 2012 Regulation prescribes a number of fees payable by licence and permit holders. In the absence of the Regulation, there would be no Government revenue from the prescribed fees and charges payable by licence and permit holders. The billed value of this revenue is \$682,465 for 2016-2017 (and for 2015-2016 was marginally less at \$672,037), or a PV for the five-year analysis period of \$2.8M.

Increased difficulty in managing aquaculture and aquatic diseases

Without the Regulation, there would be no classes of aquaculture lease or permit; no prescription of fees, rents and charges; and no prescription of the administrative process for aquaculture permit and aquaculture lease transactions. Government would still be required to meet the objects of the Act and its commitments to managing aquaculture and aquatic biosecurity. As such, it would have to develop some alternative mechanism to try to manage these commitments. These costs cannot be quantified but are anticipated to be large.

Failure to meet national commitments

The NSW Government agreed to develop legislation consistent with all States and Territories in Australia to regulate the management of aquaculture, and allow Australia to meet its international commitments. Without the Regulation, this would effectively be impossible. This outcome cannot be costed, but the reputation of NSW as well as Australia as a whole would be adversely affected.

Costs for consumers

Loss of certainty of supply of NSW aquaculture product

In 2014-15 the value of fisheries and aquaculture production in NSW was \$147M and aquaculture products accounted for 41.4% of this value (Savage, 2016, p25). The NSW aquaculture industry produces a diverse range of high quality seafood, including oysters,

prawns, marine and freshwater fish, yabbies and mussels, worth \$65M in 2015-16. Without the Regulation it is likely that the supply of these products would be destabilised through the loss of research, administration and disease management for the industry. The potential costs have not been specifically quantified, however they are considered to be small given the possibility of importation, but the loss of quality aspects could remain a concern.

Costs for community and the environment

Significant potential cost from aquatic diseases and environmental damage

Without the 2012 Regulation, the removal of product labelling provisions would hinder trace-back and disease incident investigation. As well, the inability to refuse an aquaculture permit on the grounds that the environment would be damaged by the activity may result in such damage occurring. These potential costs have not been quantified but can be considered to be very large.

Loss of non-use values and reduced amenity

The concept of non-use value refers to the value that people derive from natural resources (such as aesthetics and appreciation of native fauna and flora) independent of any use, present or future that people might make of that resource (NSW Department of Environment and Climate Change, 2004). Without the 2012 Regulation, these non-use values are likely to drop as increasing numbers of derelict leases are abandoned without lease security arrangements in place to facilitate clean-up. It is not possible to quantify these non-use values but they are considered to be large.

Increased navigation safety hazard

The loss of standard requirements for lease marking may lead to increased navigation and human safety hazards. These risks have not been quantified, but are expected to be small as the *Marine Safety Act 1998* is the primary mechanism for regulating marine safety in NSW.

Loss of benefit from research

The community receives an indirect benefit from aquaculture research because of the economic growth generated by enhanced productivity and reduced environmental impact resulting from improved aquaculture technologies. This benefit would be lost if the 2012 Regulation lapsed. These potential costs cannot be specifically quantified.

Option 2: Benefits

Benefits for businesses

No fees and charges payable

In the absence of the Regulation, lease and permit holders would no longer be required to pay lease transaction fees, annual permit and research contributions, and lease security arrangements. As mentioned above, these have been valued at a PV of \$2.8M for the five-year analysis period.

Administration savings

The 2012 Regulation prescribes processes and forms for aquaculture permit applications and lease transactions. It also sets out the information that must be furnished on a container of aquaculture product for sale. The time taken to complete these forms and apply the required label would be saved by each permit holder in the absence of the Regulation. These values have not been specifically calculated, but are considered to be very small for the permit holders involved.

Benefits for Government

Saving of administration costs

Without the 2012 Regulation, Government would not have to fund the administration of the Regulation. The total budget spent on management and administration of aquaculture for 2015-2016 was \$1.4M, comprising \$0.8M in funding from consolidated revenue (CR) and \$0.6 M in non-CR funding derived from annual permit and transaction fees. The program provided five CR-funded employees (4.5 full time equivalent (FTE)) and seven non-CR-funded employees (6 FTE). This represents a PV of \$5.7M over the five-year analysis period. The majority of this cost stems from requirements in the Act rather than the 2012 Regulation. However, as the processes that enable the requirements of the Act to be met are set out in the 2012 Regulation, the costs have been attributed to the 2012 Regulation.

Saving of compliance costs

With respect to compliance, there would be no prescribed offences under the 2012 Regulation if it were allowed to lapse. The provision of compliance officers and compliance services for aquaculture cost the Government \$0.56M in CR funds for 2015-2016. This cost includes providing compliance for offences prescribed in the Act and Regulation. A substantial component of this cost relates to implementing the triennial aquaculture lease inspection program under Clause 21(3) of the Regulation. The compliance contribution also includes a Supervising Fisheries Officer working with the coordination of the aquaculture program as a special project. This equates to about 20% of the Officer's time or around \$28,000 per annum on a pro-rata basis. It is conservatively estimated that two thirds of the total cost of aquaculture compliance can be attributed to the Regulation and one third to the Act. The two-thirds component that is attributable to the Regulation has a PV of \$1.5M over the five-year analysis period.

Costs associated with remaking the Regulation

There would be a benefit to Government in not having to remake the 2012 Regulation. However, as the making of regulations is considered to be core business of Government, the cost savings from not having to remake the 2012 Regulation have not been considered in the analysis.

Benefits for consumers

Generally, there will be very few or no expected benefits derived by consumers from allowing the 2012 Regulation to lapse, with the exception of potentially cheaper product if the reduced cost of Government fees and charges to aquaculture businesses are passed on to consumers. However, these fees and charges comprise a small component of an aquaculture business's input costs and their non-payment due to a lapse of the 2012 Regulation will most likely result in an increase in business costs.

Benefits for community and the environment

Generally, there will be no expected benefits derived from allowing the 2012 Regulation to lapse.

Table 2: Summary of costs and benefits (PV, \$) of Option 2: Allow the 2012 Regulation to lapse

COSTS OF OPTION 2	
Costs for businesses	
Loss of benefits from aquaculture research	\$2.5M Plus very large unquantified costs
Reduction in business certainty	Large
Loss of administrative and management services to industry	Small
Increased public liability for aquaculture lease holders	Large
Loss of ability to issue miscellaneous section 37 permits and gather marine vegetation for commercial purposes	Large
Costs for Government	
Increased cost of managing abandoned derelict lease areas	Very large
Loss of revenue from fees through the licensing and permit scheme	\$2.8M
Increased difficulty in managing aquaculture and aquatic diseases	Large
Failure to meet national commitments	Cannot be costed
Costs for consumers	
Loss of a certainty of supply of NSW aquaculture product	Small
Costs for community and the environment	
Significant potential cost from aquatic diseases and environmental damage	Very large
Loss of non-use values and reduced amenity	Large
Increased navigation safety hazard	Small
Loss of benefit from research	Cannot be costed
TOTAL COSTS OF OPTION 2	\$5.3M Plus very large unquantified costs estimated to range from \$3M to \$35M, with a median of \$19M
BENEFITS OF OPTION 2	
Benefits for businesses	
No fees and charges payable	\$2.8M
Administration savings	Very small
Benefits for Government	
Saving of administration costs	\$5.7M
Saving of compliance costs	\$1.5M
Benefits for customers	None identified
Benefits for community and the environment	None identified
TOTAL BENEFITS OF OPTION 2	\$10.0M Plus very small unquantified benefits estimated to range from \$100 to \$4,999, with a median of

	\$2,550
QUANTIFIABLE NET BENEFIT	\$4.7M
NET COST OF OPTION 2 (NPV)	NPV less than 0 based on very large unquantified costs in the multiple millions of dollars incurred (estimated to range from \$3M to \$35M*, with a median of \$19M), which are likely to overwhelm the quantifiable net benefit (\$4.7M)

*The \$3M to \$35M range is calculated by summing the lower and upper amounts for each qualitative term listed (see Table 1: Dollar value ranges of qualitative terms).

4.2.3 Costs and benefits of Option 3: Replace the 2012 Regulation with pro-active industry self-regulation

The costs and benefits estimated for Option 3 are presented below and summarised in Table 2.

Option 3: Costs

Costs for businesses

Same as under Option 2 above.

Costs for Government

Same as under Option 2 above except for increased difficulty in managing aquatic diseases.

Government would have a limited role in a self-regulated environment. To encourage the establishment of and compliance with a voluntary Code, it is likely that Government would have to provide financial assistance to cover the development, publishing and circulation of the Code as well as personnel to assist in the education and dissemination process. In the absence of a reliable figure it has been assumed that the Government's contribution to this program would equal 10% of the Government's administration costs for aquaculture under the 2012 Regulation, or a PV of \$0.6M over the five-year analysis period.

Costs for consumers

Same as under Option 2 above.

Costs for community and the environment

Same as under Option 2 above.

Option 3: Benefits

Benefits for businesses

Same as under Option 2 above.

Benefits for Government

Same as under Option 2 above.

Benefits for consumers

Same as under Option 2 above.

Benefits for community and the environment

Same as under Option 2 above.

Table 3: Summary of costs and benefits (PV, \$) of Option 3: Replace the 2012 Regulation with pro-active industry self-regulation

COSTS OF OPTION 3	
Costs for businesses	
Loss of benefits from aquaculture research	\$2.5M Plus very large unquantified costs
Reduction in business certainty	Large
Loss of administrative and management services to industry	Small
Increased public liability for aquaculture lease holders	Large
Loss of ability to issue miscellaneous section 37 permits and gather marine vegetation for commercial purposes	Large
Costs for Government	
Increased cost of managing abandoned derelict lease areas	Very large
Loss of revenue from fees through the licensing and permit scheme	\$2.8M
Increased difficulty in managing aquaculture and aquatic diseases	\$0.6M
Failure to meet national commitments	Cannot be costed
Costs for consumers	
Loss of a certainty of supply of NSW aquaculture product	Small
Costs for community and the environment	
Significant potential cost from aquatic diseases and environmental damage	Very large
Loss of non-use values and reduced amenity	Large
Increased navigation safety hazard	Small
Loss of benefit from research	Cannot be costed
TOTAL COSTS OF OPTION 3	\$5.9M Plus very large unquantified costs estimated to range from \$3M to \$34M, with a median of \$19M
BENEFITS OF OPTION 3	
Benefits for businesses	
No fees and charges payable	\$2.8M
Administration savings	Very small
Benefits for Government	

Saving of administration costs	\$5.7M
Saving of compliance costs	\$1.5M
Benefits for consumers	None identified
Benefits for community and the environment	None identified
TOTAL BENEFITS OF OPTION 3	\$10.0M Plus very small unquantified benefits estimated to range from \$100 to \$4,999, with a median of \$2,550
QUANTIFIABLE NET BENEFIT	\$4.1M
NET COST OF OPTION 3 (NPV)	NPV less than 0 based on very large unquantified costs in the multiple millions of dollars incurred (estimated to range from \$3M to \$34M*, with a median of \$19M), which are likely to overwhelm the quantifiable net benefit (\$4.1M)

*The \$3M to \$34M range is calculated by summing the lower and upper amounts for each qualitative term listed (see Table 1: Dollar value ranges of qualitative terms).

5 The preferred option

The results of the cost-benefit analysis are summarised in Table 3.

Compared to Option 1 (the base case), Options 2 and 3 both generate benefits (i.e. cost savings) for Government and businesses; however, these benefits are likely to be overwhelmed by the additional costs incurred as a result of not remaking the 2012 Regulation. Both options are likely to have an overall very large potential net cost (i.e. an NPV less than zero) and to provide less desirable outcomes than the current regulatory framework. Hence, Option 1 is the preferred option.

For Option 2, the PV of quantifiable benefits (\$10.0M) exceeds the PV of quantifiable costs (\$5.3M) by approximately \$4.7M (the quantifiable net benefit in Table 1). However, this net benefit is likely to be overwhelmed by the very large unquantified costs estimated for Option 2, which range from \$3M to \$35M with a median of \$19M. Hence, the NPV of Option 2 is estimated to be less than zero.

The results for Option 3 are virtually the same as for Option 2, except that the increased difficulty in managing aquaculture diseases, leases, permits and lease marking in a self-regulated environment has been tentatively quantified (i.e., for Option 3 these costs are estimated to have a PV of \$0.6M, whereas for Option 2 they cannot be quantified but are anticipated to be large). For Option 3, the PV of quantifiable benefits (again \$10.0M) exceeds the PV of quantifiable costs (\$5.9M, being \$5.3M plus \$0.6M) by approximately \$4.1M (the quantifiable net benefit in Table 2). However, this net benefit is also likely to be overwhelmed by the very large unquantified costs estimated for Option 3, which range from \$3M to \$34M with a median of \$19M. Hence, the NPV of Option 3 is also estimated to be less than zero.

Notably, there are additional costs associated with not remaking the 2012 Regulation that are not captured in this discussion and which cannot be costed for Options 2 and 3. These are the potential costs to Government of failing to meet national commitments, and to the community and the environment from losing indirect benefits from aquaculture research such as enhanced productivity and reduced environmental impact. These additional costs are discussed in Section 4.2.2 and further substantiate why the NPV of Options 2 and 3 are estimated to be less than zero.

Table 4: Summary of the cost-benefit analysis

	NPV
Option 1: Remake the 2012 Regulation	0
Option 2: Allow the 2012 Regulation to lapse	Less than 0 (Very large potential net cost in the multiple millions of dollars)
Option 3: Not having a Regulation and allowing pro-active industry self-regulation to meet the Act objectives	Less than 0 (Very large potential net cost in the multiple millions of dollars)

It is considered that remaking the 2012 Regulation (Option 1) is the most appropriate regulatory framework for management of aquaculture in NSW. It is the most effective means of achieving the objectives of the Act. This option allows the benefits of the existing 2012 Regulation to be retained at no additional cost to businesses, Government, consumers, the community, and the environment. There would not be any increase in regulatory burden for businesses.

6 Consultation of the Regulation and RIS

A range of stakeholders will be directly advised of the consultation process, and of where they can obtain copies of the proposed Regulation and RIS. See 6.1 for the list of these stakeholders.

In addition, the community is invited to make submissions and provide comment on the proposed Regulation and RIS.

6.1 Stakeholders to be advised of the proposed Regulation

- State Aquaculture Steering Committee
- NSW Aquaculture Research Advisory Committee
- NSW Shellfish Committee
- Land Based Aquaculture Consultative Group
- Pet Industry Association of Australia (NSW Branch)
- NSW Farmers Association (Oysters Section)
- Freshwater Native Fish Association
- NSW Aquaculture Association
- NSW aquaculture permit and lease holders via SMS and Committee meeting summaries.

7 Evaluation and review

The proposed Regulation, once made, will be the subject of periodic review under the requirements of the *Subordinate Legislation Act 1989*.

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