

ASSESSMENT REPORT

Marine Finfish Research Farm (SSI-5118 MOD 1) Marine Finfish Commercial Farm (DA 81-04-01 MOD 3) Modification Requests

1. BACKGROUND

This report assesses two modification requests by Huon Aquaculture Group Pty Ltd (Huon) and NSW Department of Primary Industries (NSW DPI), respectively to modify two marine aquaculture farms for finfish production located offshore of Hawks Nest near Port Stephens (see **Figure 1**). The existing aquaculture farm sites are situated in the waters of Providence Bay approximately three kilometres (km) and 3.5 km off the coast from Hawks Nest on the mid-north coast of NSW and represent the only approved offshore finfish aquaculture farms in NSW.

The value of NSW aquaculture is lagging behind other states (it represents only around 6% of the Australian industry), and the NSW DPI considers a major factor contributing to this is the lack of a significant sea pen industry for the production of marine finfish.

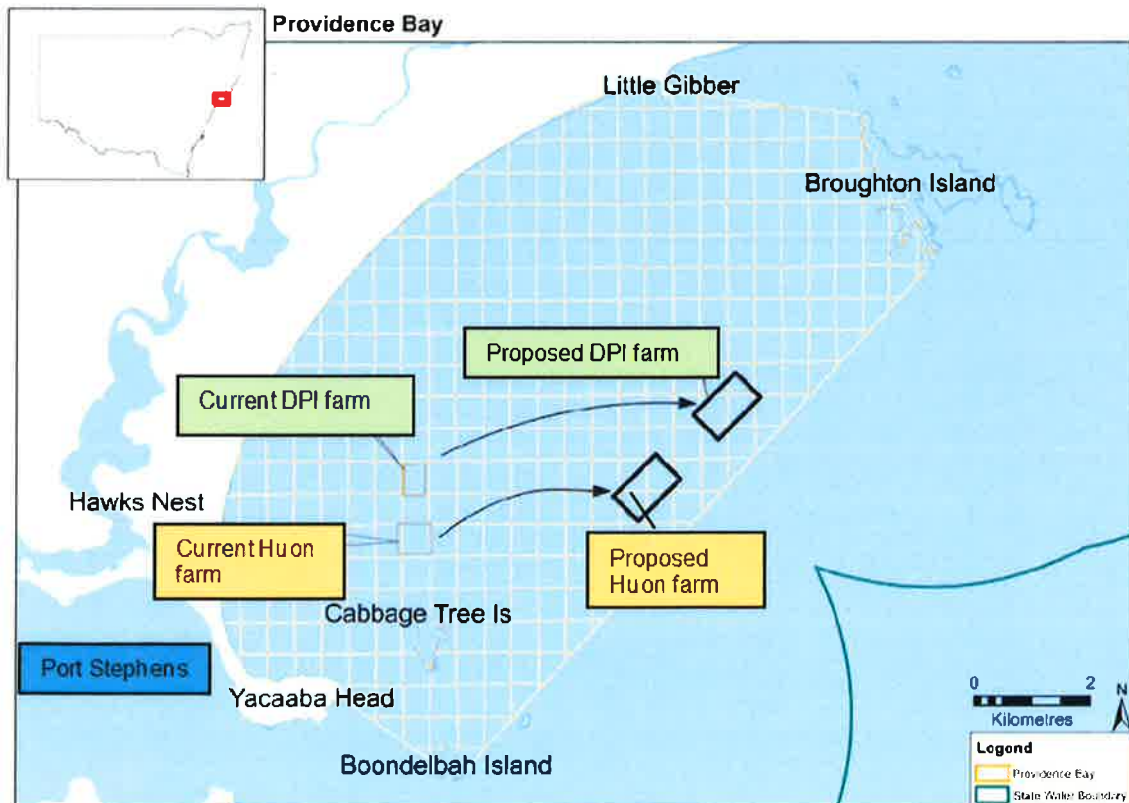


Figure 1: Approximate location of the approved and proposed farm locations, near Hawks Nest NSW

The purpose of NSW DPI's approval (SSI-5118) for a five year research farm is to provide information (acquired by research) for the planning and development of a sustainable sea pen aquaculture industry in NSW. It will provide an extension to the marine fish hatchery research currently undertaken at NSW DPI's Port Stephens Fisheries Institute and will examine the suitability of various finfish species, validate equipment and technology and monitor the potential impacts of sea pen farming on the marine environment.

The Huon consent is for the commercial production of various finfish species. Whilst the farm has operated at various times in the past, it is not currently operational and all infrastructure associated with the development was removed around seven years ago.

1.1 Aquaculture Farm Locations

The approved farm sites are located within the Port Stephens-Great Lakes Marine Park (Marine Park) in the Habitat Protection Zone. A range of activities are allowed in this zone, including aquaculture, tourism and commercial fishing.

The Marine Park contains a variety of habitats including oceanic islands, some of which are protected as critical habitat under the *Fisheries Management Act 1994* (FM Act) and the *Threatened Species Conservation Act 1995*. The Sanctuary Zone around Cabbage Tree Island is around 1.5 km from the current location of the NSW DPI farm.

These habitats support a number of threatened species including the Gould's Petrel, Little Tern, Grey Nurse Shark, Great White Shark and Green Turtle. Humpback Whales also travel along this part of the coastline during their annual migrations.

1.2 Pisces Farm

On 6 August 2001, Pisces Aquaculture Holdings Pty Ltd (Pisces) received development consent (DA 81-04-01) from the then Minister for Planning (Minister) under Section 80 of the *Environmental Planning and Assessment Act 1979* (the EP&A Act) to construct and operate a commercial offshore fish farm. The consent allowed:

- nine floating sea pens in a 30 hectare (ha) area, three km offshore of Hawks Nest (see **Figure 1** and **Figure 2**);
- the farming of 600 tonnes of Snapper or Mulloway per annum; and
- associated land-based facilities at Oyster Cove in Port Stephens.

Pisces acted on the consent and commenced operation, however in March 2004, went into voluntary receivership and that same month, was purchased by Keringal Venture Kapital Pty Ltd who operated the farm until around 2009 after which time, all equipment was removed from the site.

Modifications

The then Minister refused a modification request (MOD 1) on 26 November 2006 relating to both the farming of additional species and alternative farming methods. The request was refused as the Proponent did not adequately describe or assess the impacts of the proposal.

The then Minister approved a modification request (MOD 2) on 29 February 2009 relating to the farming of additional fish species (namely Yellowtail Kingfish and Yellowfin Bream). MOD 2 also permitted limited on-site fish processing at the farm site.

Huon purchased the Pisces farm in 2014. Huon commenced fish farming in Tasmania in 1987 and now operates across Tasmania and most Australian States employing close to 500 people. Huon produces around 20,000 tonnes of fresh and smoked Atlantic Salmon and Ocean Trout products each year.

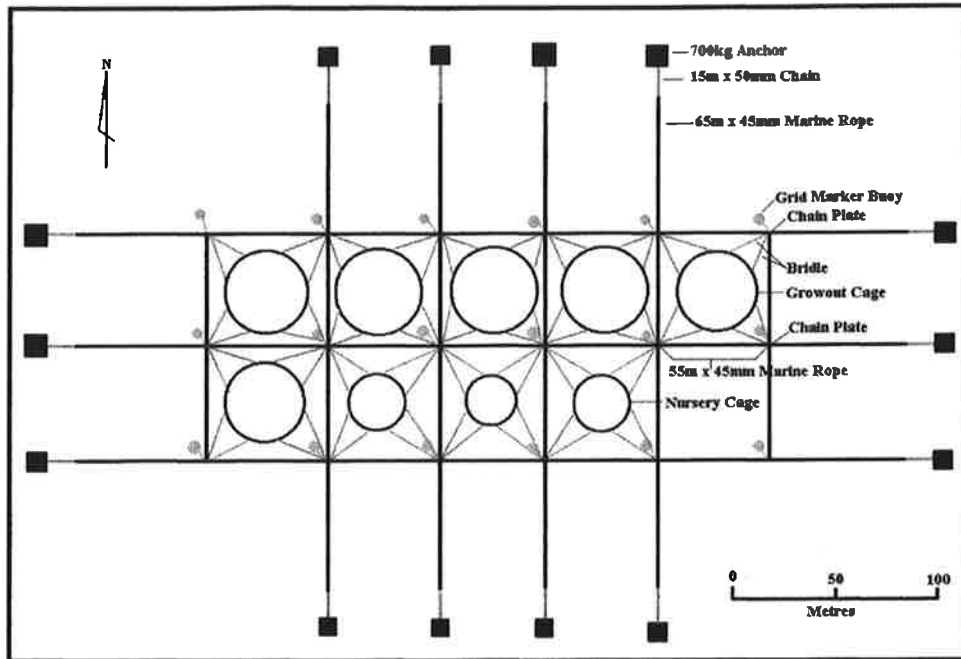


Figure 2: Approved Pisces farm layout (viewed from top)

1.3 NSW DPI Farm

In response to industry concerns regarding the difficulty in gaining approval for marine aquaculture farms in NSW, the NSW DPI (through the NSW Government's State Aquaculture Steering Committee) sought and gained approval for two marine aquaculture farms, the finfish research farm in Providence Bay (a modification to which is the subject of this report) and a shellfish farm in Jervis Bay on the State's south coast.

On 31 May 2013, NSW DPI received a State significant infrastructure (SSI) approval (SSI-5118) from the then Minister under Section 115ZB of the EP&A Act to operate a Marine Aquaculture Research Farm at Providence Bay. Under the approval, the research farm is permitted to operate for a maximum of five years.

During this period, NSW DPI intends to carry out research for the purpose of assessing growth and feed requirements as well as monitoring fish health and identifying environmental impacts.

As approved, the NSW DPI site is approximately 500 metres (m) south of the Huon farm site. **Figure 3** provides an indicative layout of the approved farm infrastructure.

The approval allows NSW DPI to:

- install up to eight floating sea pens for aquaculture research in a 20 ha (370 m x 530 m) area, approximately 3.5 km offshore of Hawks Nest; and
- have a maximum standing stock of 998 tonnes and a density of not more than 12 kg/m³ comprising Yellowtail Kingfish, Mulloway, Southern Bluefin Tuna and Snapper. Other species are also permitted if first approved by the Secretary.

NSW DPI supports sustainable aquaculture development through its hatchery and fisheries research at the Port Stephens Fisheries Institute, located at Port Stephens. The approved project allows NSW DPI to extend its hatchery and nursery research into sea pens in the marine environment.

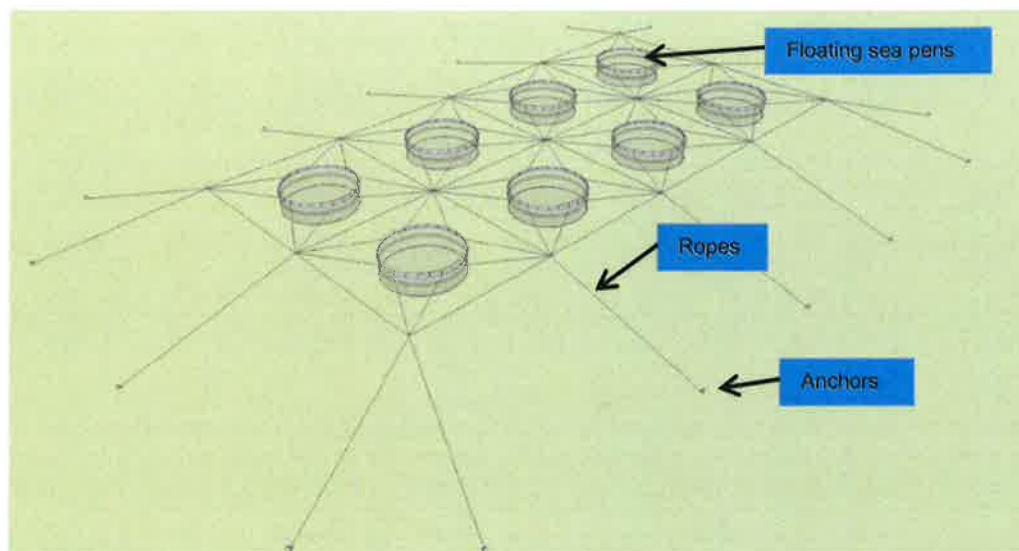


Figure 3: Approved NSW DPI farm layout

1.4 Partnership between NSW DPI and Huon

Following an Expression of Interest process undertaken by NSW DPI over 2013-2014, Huon was selected as the preferred research partner to work with NSW DPI on its research farm. Neither of the farms are currently operating.

While the NSW DPI research farm would be operated as a partnership between NSW DPI and Huon (the Proponents), NSW DPI is responsible for compliance with SSI-5118 and Huon is responsible for compliance with DA 81-04-01 (the commercial farm).

Since approval was given to each of the proposals, there have been advances in fish farm technology which the Proponents are seeking to take advantage of. In partnership, they now propose to modify aspects of the two approved aquaculture farms to accommodate this.

2. PROPOSED MODIFICATIONS

2.1 Modifications

On 8 March 2016, the Proponents each submitted a modification request to respectively amend:

- DA 81-04-01 under Section 75W of the EP&A Act (Huon); and
- SSI-5118 under Section 115ZI of the EP&A Act (NSW DPI).

The modifications are described in full in the joint Environmental Assessment prepared by the Proponents and included in **Appendix B**. The modifications involve:

- relocating the farms further offshore into deeper water from three to four km to around 7.5 km (Huon) and 9.1 km (NSW DPI) (see **Figure 1**). The farms will remain within the coastal waters of the State (that is, within three nautical miles from the coast);
- increasing the size of the development footprint from a total of 20-30 ha to 62 ha at each farm (see **Figure 4**);
- increasing the size of fish pens at each farm from 80-120 m in circumference to 168 m;
- increasing the number of fish pens at each farm from eight/ nine pens to 12 pens at each farm, including the use of Fortress Pens (see **Figure 7**) to reduce predator interactions with the pens;
- amending feeding methods to allow the initial use of in-pen floating feed hoppers, then when around six pens are installed, permanent feed barges would be used at each site (see **Figure 6**); and
- increasing the total tonnage of farmed fish at each farm from a maximum standing stock of 998 tonnes to 1,200 tonnes (subject to the results of monitoring).

In addition, Huon is seeking to modify the consent for its commercial fish farm DA 81-04-01 to include:

- the use of *in situ* net cleaning. These devices (see **Figure 5**), use a rotating high pressure water jet close to the surface of the net to remove biofouling without chemicals. These devices are already permitted on the NSW DPI research lease;
- update conditions of consent to reflect best practice and ensure consistency with the SSI-5118 approval (the research lease); and
- delete the Oyster Cove site for supporting land based activities from the consent.

The new farm locations are approximately 500 m further away from mapped reef areas than the approved farms. The new farm sites are considered to be 'high energy' sites with strong wind, wave and current action. The farm sea pens would be situated over a seafloor characterised by soft sediments dominated by sand (similar to the approved farm sites). The new farm sites will be located approximately 1 km from each other.

Project Staging

NSW DPI will work with Huon at the Port Stephens Fisheries Institute hatchery to produce all Yellowtail Kingfish fingerlings (young fish around the size of a human finger) for the farms. The Department understands the research will focus on temperature and growth, feed formulations and feeding strategies, fish health and nutrient flows.

Initially, two to three sea pens would be constructed on the NSW DPI site and in-pen feed hoppers would be used. Research activities on the NSW DPI research farm will precede activities on the Huon farm by at least one year. If the farming of Yellowtail Kingfish is found to be viable and sustainable, Huon will develop the nearby commercial farm in conjunction with the existing research activities. The Proponents hope to install permanent feed barges at each site when around 50% (that is, six out of the proposed twelve) of the sea pens are installed.

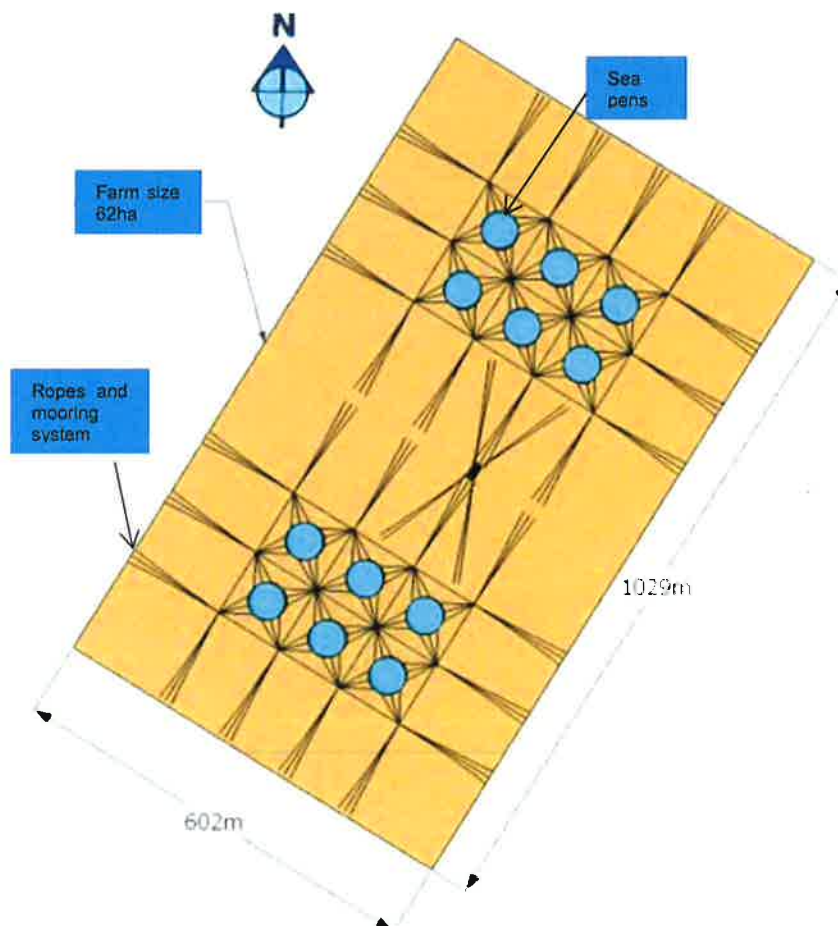


Figure 4: Proposed sea pen layout at each site (viewed from top)



Figure 5: Proposed in situ net cleaner

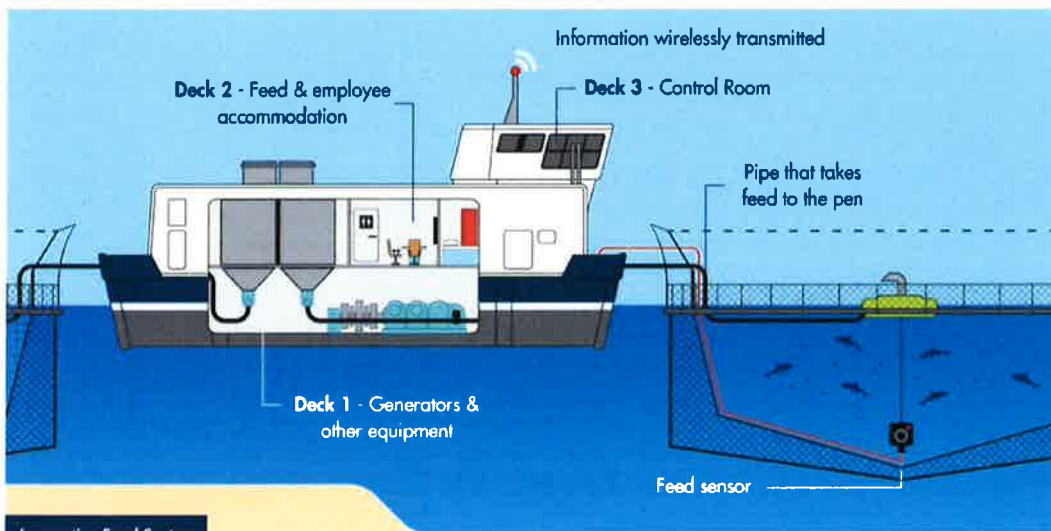


Figure 6: Proposed new feed barge for each farm



Figure 7: Proposed new Fortress Pens

2.2 Proponent's Justification

The technology used in marine fish farming has advanced since approval was given to the farms. Improvements have been made to sea cage (pen) materials and construction technology, predator exclusion and feed management.

The proposed modifications would allow the use of new pens known as Fortress Pens which the Proponents consider would result in better economic, environmental and biosecurity outcomes. They are designed to be seal and bird-proof and strong and flexible enough to withstand the stronger winds, bigger waves and stronger currents that are found offshore. The Proponents are unable to use Fortress Pens on the existing farm sites as they require a water depth of at least 35 m due to their size. The approved farm sites have a maximum water depth of only 22 m.

In moving the farms further offshore, the Proponents expect impacts on residents in Hawks Nest (that is, visual and noise) and potential conflicts with recreational boating activities to be reduced. Moving further away from Cabbage Tree Island is also likely to reduce the risk to seals and the Gould's Petrel (a Commonwealth and NSW listed endangered seabird that only breeds on this island and nearby Boondelbah Island).

Overall, the Proponents aim to obtain information through research for the planning and development of a sustainable marine aquaculture industry in NSW, reducing our dependence on wild caught or fish brought in from overseas. If successful, these developments will encourage other investors into NSW.

3. STATUTORY CONTEXT

3.1 Aquaculture in NSW

NSW DPI is responsible for administering the *Fisheries Management Act 1994* and *Fisheries Management (Aquaculture) Regulation 2012* which sets a framework for the promotion, development and regulation of the NSW aquaculture industry.

The strategic planning for this industry is delivered through Sustainable Aquaculture Strategies under *State Environmental Planning Policy No. 62 – Sustainable Aquaculture*.

Building on the existing Sustainable Aquaculture Strategies for the oyster industry and land-based aquaculture, the NSW Government is developing a NSW Marine Water Sustainable Aquaculture Strategy to provide a policy platform for this type of aquaculture and to identify suitable sites.

3.2 Huon Consent

Under Clause 8J(8)(c) of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), a development consent granted by the Minister for Planning for State significant development is to be modified under Section 75W of the EP&A Act. Despite the repeal of Part 3A of the EP&A Act, the effect of Section 75W is continued for such consents by the operation of Clause 12 of Schedule 6A of the EP&A Act.

Pursuant to Section 75W(2) of the EP&A Act, the proponent may request the Minister to modify the development consent. Any request is to be lodged with the Secretary and a copy of this modification request may be found at **Appendix B**.

The Department is satisfied the proposed modification is within the scope allowed under Section 75W of the EP&A Act and that Section 75W is the appropriate assessment pathway for the modification as the original development was classed as State significant development. The proposal does not represent a new development in its own right. The Department notes whilst the farms will be relocated further offshore and larger in size, the development is still for a commercial finfish farm. Furthermore, any potential impacts would be minor and appropriately managed through the existing or recommended modifying conditions of consent.

Under Section 75W(4) of the EP&A Act, the Minister may modify the consent (with or without conditions) or disapprove the modification.

3.3 NSW DPI Approval

NSW DPI has submitted a modification to the research farm approval (SSI-5118 MOD 1) under Section 115ZI of the EP&A Act.

Pursuant to Section 115ZI(2) of the EP&A Act, the proponent may request the Minister to modify the State significant infrastructure approval. Any request is to be lodged with the Secretary and a copy of this modification request may be found at **Appendix B**.

The Department is satisfied the proposed modification is within the scope allowed under Section 115ZI of the EP&A Act and that Section 115ZI is the appropriate approval pathway for the modification. The proposal does not represent a new development in its own right. The Department notes whilst the farms will be relocated further offshore and larger in size, the development is still for a research finfish farm. Furthermore, any potential impacts would be minor and appropriately managed through the existing or recommended modifying conditions of approval.

Under Section 115ZI(4) of the EP&A Act, the Minister may modify the approval (with or without conditions) or disapprove the modification.

3.4 Delegated Authority – Both Proposals

Under delegation from the Minister for Planning dated 16 February 2015, requests to modify a development consent under Section 75W or a State significant infrastructure approval under Section 115ZI of the EP&A Act may be determined by the Executive Director, Key Sites and Industry Assessments, where:

- the local council has not made an objection;
- a political disclosure statement has not been made; and
- less than 10 public submissions in the nature of objections have been received.

The proposed modification requests meet the terms of this delegation and the Executive Director may determine the requests.

4. CONSULTATION AND SUBMISSIONS

4.1 Consultation

To support both modification requests, the Department allowed NSW DPI and Huon to prepare one Environmental Assessment to address the relevant environmental issues which apply to both proposals.

Under Sections 75W and 115ZL(1)(g) of the EP&A Act, the Department is not required to notify or exhibit the requests, however, the Secretary is required to make them publicly available. Accordingly, the Department placed a copy of the modification requests on its website. In addition, due to the likely public interest in these requests, the Department formally exhibited the requests and accompanying Environmental Assessment by:

- making them publicly available from **11 March 2016** until **24 March 2016**:
 - at the Department's information centre; and
 - the offices of Great Lakes Council (now Mid Coast Council) and Port Stephens Council;
- notifying those community and special interest groups that made a submission on the original applications;

- notifying the Environment Protection Authority (EPA), the Office of Environment and Heritage (OEH), Roads and Maritime Service (RMS), Marine Parks Authority (now Marine Estate Management Authority), the two Councils and the local Member of Parliament; and
- advertising the public exhibition in the Port Stephens Examiner and Myall Coast News newspapers.

The NSW DPI and Huon also held two community 'drop-in' sessions during the exhibition period during which time members of the public could view the documentation and ask questions of the Proponents.

4.2 Submissions

During the exhibition period, the Department received a total of 18 submissions on the modification requests, which included:

- three submissions from public authorities providing comments; and
- 15 submissions from the general public and special interest groups (eight supporting, six objecting and one providing comments).

A summary of the issues raised in submissions is provided below. The Department has considered these issues in its assessment in **Section 5**.

Public Authority Submissions

A summary of the issues raised in public authority submissions is provided below.

The **EPA** requested further information about impacts on water quality, particularly with regards to water current strength at the new farm locations and the potential for the deposition of organic matter on the seafloor. It also requested details on the proposed water quality monitoring program.

The **OEH** raised concerns about threatened wildlife, particularly about the relocated farms being closer to the pathway of migrating female Humpback whales and their calves.

RMS requested to be consulted during the preparation of the Traffic Management Plan and with regards to marker buoys and navigation aids.

Great Lakes Council and **Port Stephens Council** did not provide comments on the modification requests.

Public Submissions and Special Interest Groups

Table 1 below summarises concerns raised in submissions objecting to the modifications. These submissions were from public and special interest groups such as the Hawks Nest Tea Gardens Progress Association, EcoNetwork, Port Stephens Greens and tourism operators.

Table 1: Public and Special Interest Group Concerns

Issue	Issue summary
Concurrent farm operation	<ul style="list-style-type: none"> • The two farms should not operate concurrently. The NSW DPI farm is for research, therefore the commercial farm (Huon) should not operate until monitoring has validated the sustainability of the operations
Marine animals	<ul style="list-style-type: none"> • Marine fauna entanglement including migratory whales • Impacts on predatory animals such as seals • Navigation light impacts on nocturnal seabirds • No reference to whether an <i>Environment Protection and Biodiversity Conservation Act 1999</i> referral was made
Water quality and benthic impacts	<ul style="list-style-type: none"> • Benthic pollution from faeces and leftover food • Water quality impacts from dissolved nutrients • Farm infrastructure may break away during storms, polluting nearby beaches and creating a hazard for wildlife
Attraction of predators	<ul style="list-style-type: none"> • Increase in predators in the area such as sharks and seals and associated impacts on marine species and tourism operations

Issue	Issue summary
	<ul style="list-style-type: none"> Impacts on tourism due to perceived risk from additional shark activity
Public access and tourism	<ul style="list-style-type: none"> Annexing of the farm waters from tourism operators and commercial and recreational fishing activities Changes to the behaviour of marine animals including sharks and dolphins Impacts on eco-tourism which relies on pristine habitats
Use of chemicals	<ul style="list-style-type: none"> Chemical use and potential impacts on marine life
Disease	<ul style="list-style-type: none"> Introduction of diseases from cultured animals to wild populations
Farm location	<ul style="list-style-type: none"> Other locations would be more suitable Lease infrastructure may break away during wild storms, polluting nearby beaches and creating a hazard for wildlife
Expansion	<ul style="list-style-type: none"> Concerns the farm areas will expand in the future, taking over more of Providence Bay

Table 2 provides a summary of the issues raised in support of the modifications.

Table 2: Public and Special Interest Group reasons for Support

Issue	Issue summary
DPI and Huon expertise	<ul style="list-style-type: none"> The Proponents are well regarded in terms of experience and skills There is confidence the Proponents will ensure threats to the natural environment will be well managed
Move further offshore	<ul style="list-style-type: none"> The move to deeper water will be further from residents and inshore recreational boating activities
Fortress Pens	<ul style="list-style-type: none"> New pen design will reduce predator interactions Stronger materials will reduce the probability of damage/breakaways during storms
Job Opportunities	<ul style="list-style-type: none"> Direct opportunities through employment at the aquaculture farms Indirect opportunities through enhancement of existing tourism experiences
Healthier fish	<ul style="list-style-type: none"> Stronger currents and deeper water improve the growing environment for fish, resulting in healthier fish
Improved water quality	<ul style="list-style-type: none"> Healthier fish will ensure less chemical / pharmaceutical use Deeper water and stronger currents will break down and dissipate organic matter quickly

5. ASSESSMENT

The Department has assessed the merits of the proposed modifications. During this assessment, the Department has considered the:

- Environmental Assessment prepared in support of the modification requests (see **Appendix B**);
- assessment reports for the original applications (and previous modifications);
- existing approval and consent conditions;
- submissions (see **Appendix C**);
- relevant environmental planning instruments, policies and guidelines; and
- requirements of the EP&A Act, including the objects of the EP&A Act.

This following section details the Department's consideration and assessment of the proposed modifications.

A number of the concerns raised in submissions are the same as those raised during the exhibition of the original NSW DPI research farm in 2013 and prior to that, during the exhibition of the 2001 Pisces (now Huon) commercial farm and subsequent modifications. The Department is satisfied that for many of these issues, the impacts will not change or will be reduced as a result of the modifications and are therefore, still acceptable. These issues include: waste management; predator attraction; tourism impacts; visual pollution; noise impacts; disease and chemical use; and use of wild fish as stock feed.

There are existing conditions in each of the approvals that address these concerns and subject to some recommended minor updates to contemporise or clarify the conditions, will continue to do so.

Where there is a condition relating to an issue in both approvals, as requested by the Proponents, the Huon consent has been updated to be consistent with the NSW DPI approval. The details of these issues and how they have been addressed is described in **Table 3**.

The Department's assessment has found the key issues associated with the modifications relate to:

- impacts on marine animals, particularly migrating Humpback whales and nocturnal seabirds; and
- water and substrate quality impacts.

These issues are considered below. The Department's assessment of the other issues is provided in **Table 3** of this report.

5.1 Marine Fauna Interactions

Marine Cetaceans and Other Fauna

A number of submissions, including the OEH, NSW Greens and special interest groups raised concern that the relocation of the farms into deeper water will bring the infrastructure associated with the fish farm into the path of migratory whales and their calves. This has the potential to increase the risk of these animals becoming entangled in farm infrastructure and/ or affected by deployment activities, particularly noise.

As the lease sites will only occupy 1.5% of Providence Bay, the Proponents contended they will not significantly impact upon the migratory patterns of marine mammals in the area.

The Proponents highlighted that marine aquaculture already occurs in areas where cetaceans (that is, whales and dolphins) are known to occur, including Twofold Bay in southern NSW, along the coastline of Western Australia (WA) and in parts of Tasmania. No entanglement incidents have been reported in Great Oyster Bay and Mercury Passage in Tasmania where long-line aquaculture has occurred for around 15 years. Where entanglement incidents have occurred in WA, 90% were attributed to the rock lobster industry that use much finer ropes (12-20 mm diameter) that are free floating compared to those proposed for these farms, where all ropes will be held taut and are between 110-120 mm in diameter.

Detailed monitoring of the Pisces farm from 1999 to 2000 as well as observations during the operation of the farm up until 2004, found no entanglements of whales, dolphins, sharks, dugongs, turtles or seals.

There are existing conditions in both approvals that require the development and implementation of a Marine Fauna Entanglement Protocol. The approvals also require the preparation of emergency and incident response protocols. The NSW DPI research farm approval goes further, requiring the establishment of an Entanglement Committee and support of a whale disentanglement team, ongoing monitoring of Great White Sharks, Grey Nurse Sharks and dolphins in and around the lease sites. The NSW DPI research farm approval also permits research into the use of Acoustic Deterrent Devices (ADDs) as a tool to deter fauna from the farm infrastructure, subject to the approval of OEH. Should the modification requests be approved, the Department recommends these conditions continue to apply to the relocated farms. This requires some minor changes to the NSW DPI Research farm approval to contemporise the conditions. To ensure consistency across both approvals, it is recommended the Huon consent be modified to include the same conditions as those within the NSW DPI research farm approval.

In its submission on the EA, the OEH requested deployment activities preferably occur outside the whale migration period (that is, undertake activities from November to March) due to entanglement risk and noise impacts. Deployment is defined in SSI-5118 as the placing of the sea pens and associated infrastructure at the farm area including placement of navigation markers and anchor blocks. The OEH also requested the Proponents collect whale abundance and route data during the 2016/17 whale season in the proposed farm locations, prior to any construction or deployment activity occurring. This would provide further certainty that farm infrastructure would be deployed outside of the migration route and period.

The Department understands the Proponents are seeking approval to place fingerlings at the NSW DPI site in order to commence research activities in August 2016 (if the modifications are approved). Huon are not proposing to deploy infrastructure and commence operation at the commercial farm site until at least March 2018, depending on the monitoring results from the operation of the research farm.

The Proponents sought further advice from OEH's cetacean expert regarding the timing of deployment activities. The expert has recommended that to minimise the risk of vessel strike or interactions, deployment activities should:

- be undertaken with an observer present at all times. During September to November, this observer should be approved by the OEH and the Proponent shall comply with any directions of the observer, provided it is safe to do so; and
- if cetaceans are present within the legislative approach distances outlined in the *National Parks and Wildlife Regulation 2009*, vessels are operated in the manner prescribed by that Regulation.

These legislative approach distances depend on the activity being undertaken, the type of vessel and whether there are calves present. In general, boats must stay at least 100 m from a cetacean and operate the vessels in a restricted manner within 300 m. The Department is satisfied these additional measures address OEH's outstanding concerns and provide guidance for the Proponents to carry out the deployment activities. Accordingly, the Department recommends the inclusion of these measures in the modifying instruments of both approvals.

The Department also recommends condition E4 'Access to Farm Area' in SSI-5118 be updated to allow limited use for OEH and university researchers to the sea pen platforms for the purpose of undertaking whale, seabird or seal surveys, as per OEH's submission.

In response to concerns with noise and its impact on marine fauna, the Proponents provided further information in the RTS confirming they do not intend to undertake seismic or loud acoustic disturbance during construction or operation of the sea pen leases.

Overall, the Department's assessment concludes the risk of entanglement is low and the interactions of marine fauna with the farms can be adequately managed through the commitments made by the Proponents and with the existing and proposed conditions. These conditions provide a mechanism to monitor the activity of marine fauna and to respond in a timely manner in the event of an incident.

Predator Interactions

Some submissions raised concerns the fish farms would attract predators such as sharks and seals to the area which could in turn, impact upon other marine species and scuba divers. These concerns were also raised during the assessment of the original applications.

The Department's assessment of the NSW DPI fish farm concluded the risk of shark attacks in the Port Stephens region was not likely to be altered by the presence of the farm. The Department considered the Proponent's proposed approach to mitigating entanglement and actively deterring sharks was a standard and highly successful approach. Conditions have been imposed on the NSW DPI approval that require the Proponent to implement a range of operational and maintenance procedures to actively deter predators such as the prompt removal of dead and injured fish, using pelletised feeds and adopting a demand feeding regime and regularly cleaning the pens.

The Department considers the proposed changes to relocate the farms further offshore as well as the use of Fortress Pens would further limit predator interactions. The Fortress Pens include design features such as an external predator net separated from the net which supports the stock, an above water fence structure connected to the predator net to prevent access by seals and taut infrastructure to make it difficult for predators to distort the nets and gain access to the stock.

A detailed monitoring program also forms part of the existing approval that will provide a mechanism to monitor predator activity in the area and potential influence of the farm on their behaviour.

The Department is satisfied the existing conditions on the NSW DPI farm address concerns relating to predator interactions. These conditions (feed requirements and additional marine fauna monitoring) have been included in the recommended modifying instrument for the Huon consent.

Overall, the Department's assessment concludes predator interactions would not significantly change with the proposed modification and may be reduced and can be adequately managed through the existing and recommended modifying conditions.

Seabirds

Cabbage Tree Island and nearby Boondelbah Island are the only known islands where the federally and State listed endangered Gould's petrel breeds. The proposed modification includes the proposed relocation of the Huon farm further from Cabbage Tree Island which will further reduce any potential impacts (see **Figure 1**).

As part of the conditions of approval for the NSW DPI farm, the Proponent is required to prepare and implement a Light Spill Management Plan to detail how the farm will be operated to minimise or eliminate light disturbance to the NSW threatened Gould's Petrel whilst ensuring a safe operational environment such as being visible to vessels at night.

Farm lighting may also affect other pelagic seabirds such as the federally listed Wedge-tailed Shearwater and Short-tailed Shearwater.

The Department recommends this condition be expanded to include the above-mentioned birds and should be included in both the NSW DPI approval and Huon consent. The Department is satisfied the risk to these key seabird species in terms of light disturbance would not significantly change with the proposed modification and can be adequately managed through the commitments made by the Proponents and the recommended modifying conditions.

5.2 Water and Substrate Quality

The proposed permanent feed barges are designed to reduce excess feed (and therefore nutrients) from entering the surrounding waters. By moving the farms further offshore where currents are stronger, the Proponents consider any potential impacts on sediment health and water quality are likely to be reduced. Submissions from the EPA, Port Stephens Greens and the community requested further information about monitoring and the dispersal of nutrients from the fish farms to support these conclusions.

The EA and RTS referred to a number of studies on marine finfish farming in sea pens demonstrating that benthic (sea floor) impacts are highly localised to the area below the sea pens. Results of earlier monitoring undertaken for the Pisces farm suggested impacts were short term, unlikely to persist once farming had ceased in the area and overall, were unlikely to be significant. The Proponents have stated that as part of operating the farms, various sea pens will be left fallow (that is, left unused) after harvesting and the sea floor below will be left to recover.

In the assessment of SSI-5118, the Department concluded '*the low level of nutrients expected to be generated and the high energy environment around the farms would ensure that any nutrient impacts from the Project are expected to be negligible*'.

NSW DPI has advised that locating the farms approximately 1 km from each other is consistent with current best practice in biosecurity and fisheries management. In addition, the Department has recommended conditions that will allow for the monitoring and operation of the first farm on a trial basis. This will assist the Proponents to determine the effectiveness of the buffer zone and stocking density in minimising any potential cumulative impacts of the farms.

As part of the existing conditions of approval for the research farm, the NSW DPI is required to:

- use pelletised food (to minimise food wastage); and

- undertake water quality monitoring to assess the impact of the farm on the waters of Providence Bay.

As part of the research at the farm, NSW DPI will continue to develop its pelletised food to optimise growth of the fish and minimise wastage. Should the modifications be approved, the Department recommends a condition be imposed on the Huon farm to require the use of pelletised food. It is also recommended that water quality monitoring be extended at the Huon site.

Under the existing conditions of approval for each farm, the Proponents are also required to carry out monitoring of benthic invertebrates which include polychaete worms, amphipods (tiny crustaceans) and the like. The Department supports the ongoing monitoring of benthic invertebrates as a measure to assess what effect the farms are having on the marine environment and to inform management practices at the farms.

To provide a broader picture of what effect the farms may have on the surrounding environment, the Department also recommends the Proponents be required to monitor the sediments under the sea pens and in the vicinity of the farms including both physical (including sediment grain size) and chemical (including Total Organic Carbon, redox potential) parameters.

Finally, the Department has also recommended a further aspect to the monitoring program to require the Proponents to describe how the locations, parameters, sampling and analyses methodology as well as how the frequency of sampling and reporting may be adapted over time in order to understand and address the effects of the development. The Department considers this an important addition for two reasons. Firstly, it provides the necessary flexibility for the Proponent to respond quickly to changes in farm conditions and secondly, it provides a link to the management practices that will be adopted at the farm in order to minimise the chance of the farms having a deleterious effect on the surrounding environment. This second reason will then provide the basis upon which the Proponents can seek the Secretary's approval to increase the standing stock of fish at the farms (see below).

Overall, the Department's assessment concludes the impacts on the marine environment are unlikely to significantly change as a result of the proposed relocation of the farms further offshore. The relocated farms are away from sensitive reefs, are over a common, sandy bottom, in a higher energy environment and the Proponents will be using pelletised feed to minimise food wastage and excess nutrients in the water column. The existing and recommended conditions will ensure the effects of the farms can be suitably monitored and where necessary, the management practices can be adapted to minimise any effects.

Standing Stock

As part of the modification, the Proponents are seeking approval to increase the standing stock of each farm from 998 tonnes to 1,200 tonnes whilst maintaining an approved stocking density of up to 12 kg/ m³. The Proponents have stated they will not increase the standing stock of the farm unless the results of monitoring of various factors, including water quality are favourable and they have approval of the Secretary.

Whilst the Department is satisfied increasing the standing stock could be accommodated at the relocated farms for the reasons described above, the Department supports this precautionary approach. The Department has recommended a condition for each approval that allows the staged expansion of the farms, subject to the results of monitoring of benthic fauna, water quality and the substrate and how the farm management practices have been adapted to respond to these results.

5.3 Standardisation of Conditions

There are a number of inconsistencies in the conditions of consent/approval in DA 81-04-01 and SSI-5118. The Proponents note the development of the Huon commercial fish farm is highly dependent on the outcome of the research activities allowed under SSI-5118.

Huon would only consider the deployment of sea pens in 2018 if research results are favourable (that is, demonstrating no significant impact on water quality, marine mammals and birds and benthic macroinvertebrates). For example, to ensure monitoring results are relevant and comparable, the modifications seek to amend a number of conditions in DA 81-04-01, so they are standardised with SSI-5118 (the more recent approval of the two). In addition, the Proponents have requested to delete a number of other conditions which are considered no longer necessary.

The Department is satisfied standardising the two approvals and updating, where necessary, to contemporise the condition, will provide a better environmental outcome and enable a streamlined approach to the operational management of the two farms. To assist in understanding the proposed modifying instruments, the Department has prepared a table at **Appendix D** that identifies each issue and what the existing and recommended conditions in each of the approvals are.

5.4 Other Issues

The Department's assessment of the other residual issues is provided in **Table 3** below.

Table 3: Residual Issues with the proposed modifications

Issue	Consideration	Department's Recommendation
Access to the farms – public	<ul style="list-style-type: none"> • As the farms are increasing from 20 and 30 ha to 62 ha, concerns were raised regarding public access and the potential impacts on tourism operators. • The Department notes the Proponents need to apply for an aquaculture lease under the <i>Fisheries Management Act 1994</i> (FM Act) in order to operate. • Although NSW DPI and Huon would own all fish within the leased area, an aquaculture lease does not confer the 'right of exclusive possession' of the leased area. • As such, the public still retain the right to fish and enter the leased area, as long as they do not interfere with or damage anything on the leased area. • The pens occupy only a proportion of the overall lease area (as shown in Figure 4). • In addition, there would be around five km of unobstructed waters to the west of the new farm sites and around three km to the north and south through which commercial and recreational waterway users can safely navigate. • The RTS states the Proponents are willing to work with tourism operators to provide an enhanced tourism experience to existing whale and dolphin watching operators. For example, in Tasmania, Huon provides tourism operators with access to live camera footage of the fish in its sea pens, as well as educational information on its operations. • There is already an existing condition (E4 in SSI-5118) that encourages NSW DPI to facilitate access to its research farm for tourism. • To facilitate the involvement of the community and tourism operators in the operation of the Huon farm the Department recommends Condition E4 in SSI-5118 is replicated in the Huon consent. • With respect to concerns regarding changes to the behaviour of animals such as dolphins upon which a number of tourism businesses are based, the Department notes these concerns were addressed as part of the Department's consideration of the original NSW DPI approval and the proposed modification is not expected to change any potential impacts. The NSW DPI is required to monitor dolphins and other animals as part of the existing approval. This requirement will be extended to the Huon consent. • The Department's assessment concludes impacts to tourism and public access to the farms will continue to be adequately managed as part of the proposed modifications. 	<ul style="list-style-type: none"> • New Condition 21 of the Huon consent is recommended and is consistent with wording in condition E4 in SSI-5118 allowing limited access to the farm for tourism. • Extend marine fauna monitoring to the Huon consent.

<p>Boat traffic and noise amenity</p>	<ul style="list-style-type: none"> The proposed permanent feed barges are designed to hold up to 320 tonnes of feed (approximately one week of feed for each farm site). The Proponents consider the installation of the feed barges will reduce feed boats trips from daily to weekly thereby reducing the amount of vessel traffic. In addition, as the sea pens will be moved further offshore, feed boat traffic noise will be further reduced at the nearest sensitive receivers. The Department agrees and concludes boat traffic and noise impacts will be reduced through the proposed modifications. SSI-5118 includes a condition in relation to noise to ensure that all 'reasonable and feasible measures' are implemented to ensure noise is kept to a minimum during the deployment and operation of the fish farm. It is recommended this condition is replicated in the Huon consent. Overall, the Department's assessment concludes noise is not an issue with the proposed modifications and any residual impacts are suitably managed by the existing and recommended conditions. 	<ul style="list-style-type: none"> Insert new Condition 49 in the Huon consent, requiring reasonable and feasible noise mitigation measures.
<p>Visual Amenity</p>	<ul style="list-style-type: none"> Concerns were raised the farms would be visible from Bennett's beach and other viewpoints and would be inconsistent with the natural beauty of the area. The Proponents consider that the residential area of Hawks Nest will be predominately screened from view by coastal sand dunes along the beach front. The proposed farm locations will increase the distances of the farms from Mount Tomaree and Hawks Nest Surf Lifesaving Club, with Cabbage Tree Island obscuring the view of the farm sites from the summit of Mount Tomaree. In addition, the sea pens would utilise dark coloured materials and a low profile design to minimise the visibility of the farms. The combination of the colour of the farms, the low profile design and the increased distance from the shore will significantly reduce any visual impacts of the farms. The Department is satisfied the visibility of the farms will be greatly reduced with the move further offshore. The Light Spill Management Plan required under the NSW DPI approval is recommended to be extended to the Huon consent and will further reduce any residual impacts. 	<ul style="list-style-type: none"> Insert new Condition 36 in the Huon consent to include a Light Spill Management Plan.
<p>Waste</p>	<p><u>Infrastructure</u></p> <ul style="list-style-type: none"> There is the potential for lease infrastructure to break away during storms, polluting nearby beaches and creating a hazard for wildlife. Both approvals have existing conditions addressing structural integrity of the farm infrastructure. A further condition is recommended in both approvals requiring the preparation and implementation of a Traffic Management Plan that will include procedures to be implemented in the event of a break-away of infrastructure. <p><u>General Waste</u></p> <ul style="list-style-type: none"> In response to OEH's request to ensure the Proponents minimise waste and marine debris, the Department notes the new sea pen design will provide additional certainty the technologies used can withstand the expected conditions at the proposed farm locations. There are also existing conditions in the NSW DPI approval that require NSW DPI to: <ul style="list-style-type: none"> regularly maintain farm infrastructure e.g. regular, post-storm, post-net cleaning inspections; regularly remove biofouling; and implement the approved Structural Integrity and Stability Monitoring Program. These conditions are recommended to be incorporated into the Huon consent. The Huon consent has a specific requirement for a Waste Management Plan to detail procedures for the minimisation, collection and disposal of waste. It is recommended this condition be extended to the NSW DPI approval. 	<ul style="list-style-type: none"> Existing conditions in each approval regarding structural integrity and the ongoing management and maintenance of the farms will be maintained and where necessary, updated to ensure consistency. A specific Traffic Management Plan is recommended to address activities during deployment. General waste management conditions are recommended to be made consist across each approval.

	<ul style="list-style-type: none"> The Department's assessment concludes the proposed modification will not significantly change the way in which waste is managed at the farms and the existing and recommended conditions can suitably manage any residual impacts. 	
Disease and use of chemicals	<ul style="list-style-type: none"> Submissions raised concern regarding the use of chemicals and potential impacts on marine life and the introduction of diseases from cultured animals to wild populations. These issues have been addressed previously in the Department's assessment of the original NSW DPI approval and will not change as part of the proposed modification. There are existing conditions on the NSW DPI approval regarding fish health, chemical use and disease management including a coordinated Health Management Plan where the two farms are operating simultaneously that will be extended to the Huon consent. The Department's assessment of the modification concludes these issues can continue to be managed with the existing and proposed conditions of consent. 	<ul style="list-style-type: none"> No change to the NSW DPI approval. Insert new conditions in the Huon consent regarding fish health and disease management.
Fish species	<ul style="list-style-type: none"> Currently, each fish farm has approval to culture several species of fish including Yellowtail Kingfish, Mulloway and Snapper. They are also allowed to culture Slimy Mackerel and Yellowtail Scad if they naturally recruit into the pens (that is, freely swim into the pens). The NSW DPI fish farm also has approval to culture Southern Bluefin Tuna whilst the Huon farm also has approval to culture Yellowfin Bream. The NSW DPI Farm approval also has a condition that allows further species to be cultured at the site, subject to the approval of the Secretary. The Department considers this condition provides for flexibility following the results of research trials and considers it appropriate to include this condition on the Huon farm. The Proponents are seeking consistency across the two farms, including approval to cultivate the same species. No submissions expressed concern with this aspect of the modification. The Department considers there would be no change to the impacts associated with either farm with the addition of the new species and has recommended each approval is amended to permit the same species of fish to be cultured. 	<ul style="list-style-type: none"> New conditions 5 and 6 recommended for the Huon consent. Update to Condition B9 in the NSW DPI approval to include the new species.
Emergency and incident response	<ul style="list-style-type: none"> Each approval has existing conditions requiring the reporting of incidents (such as oil spills or entanglement) as well as a protocol for responding to emergencies. It is recommended these conditions are updated and made consistent with each other. RMS stated in its submission that any vessel-related incidents are to be reported to it. This requirement has been included in the recommended conditions for each approval. A Traffic Management Plan is also recommended to be included in each approval to detail how the lease infrastructure will be deployed to the site. This plan would also include details on how the public will be informed of the activities and associated maritime safety issues. The Department's assessment concludes the emergency and incident response at the farms will continue to be adequate with the relocation of the farms further offshore, subject to some minor changes to make each approval consistent. 	<ul style="list-style-type: none"> Update each approval to ensure a consistent approach to emergency and incident response. A specific Traffic Management Plan is recommended to address activities during deployment.
Access to the farms – NSW DPI staff	<ul style="list-style-type: none"> As part of the modification request, Huon seek to amend condition 14 which permits NSW DPI staff to access the 'aquaculture permit area' at any time. As clarified by NSW DPI, under the FM Act, a fisheries officer may, at any time of the day, enter any area the subject of an aquaculture permit and examine the area and the aquaculture undertaken in the area. As such, the Department agrees the current wording is not required and recommends condition 14 be deleted. 	<ul style="list-style-type: none"> Delete Condition 14 in Huon consent.

<p>Concurrent operation of a commercial and research farm</p>	<ul style="list-style-type: none"> Concerns were raised in submissions the Proponents have not been clear about how the farm will operate. The Proponents clarified in the RTS that NSW DPI will initially operate two to three sea pens at its site. The Huon lease will commence operation around 18 months later if farming of yellowtail kingfish is found to be sustainable and viable. 	<ul style="list-style-type: none"> No specific condition required.
<p>Deletion of land based site</p>	<ul style="list-style-type: none"> The Huon consent includes a land-based component where works associated with the offshore farm (such as cleaning of nets) was to occur. This land-based site is not required for Huon's purposes and as such, it is seeking to delete this component from the consent. The Department is satisfied the land-based site no longer forms part of the operation and recommends the consent be modified to excise this land. 	<ul style="list-style-type: none"> Modify the Huon consent to delete the land-based component and associated conditions.

6. CONCLUSION

The Department has assessed the merits of the proposed modifications and has determined they are in accordance with the requirements of the EP&A Act.

The Department has recommended the conditions in the Huon consent are replaced and made consistent with the conditions in the NSW DPI approval, subject to some minor modifications in order to rationalise and standardise the two approvals.

The Department considers the modifications provide an opportunity to take advantage of advances in aquaculture technology and improve the environmental performance of the aquaculture farms by:

- improved predator protection;
- improved management of whale interactions during deployment;
- reduced food waste; and
- reduced visual and noise impacts.

A sustainable marine aquaculture industry in NSW will encourage investment and jobs in NSW and will contribute to a reduction in our dependence on wild caught fish, or fish brought in from overseas. The existing and proposed conditions provide a comprehensive approach to ongoing management, monitoring and reporting to ensure the farms will be operated sustainably.


The Department considers the modifications would not result in an increase in environmental impacts from what has been already approved. Consequently, the Department is satisfied the proposed modifications are minor, in the public interest and should be approved, as set out in the proposed modifying instruments at **Appendix A**.

7. RECOMMENDATION

It is RECOMMENDED the Executive Director, Key Sites and Industry Assessments:

- approve the proposed modifications (DA 81-04-01 MOD 3 and SSI-5118 MOD 1) under Sections 75W and 115ZI of the EP&A Act, respectively; and
- sign the attached instruments of modification (at APPENDIX A).

Kerry Hamann
Senior Planner, Industry Assessments

 22/7/16
Joanna Bakopanos
Team Leader
Industry Assessments

Endorsed:

 22/7/16.
Chris Ritchie
Director
Industry Assessments

 4/8/16
Anthea Sargeant
Executive Director
Key Sites & Industry Assessments

APPENDIX A. MODIFYING INSTRUMENTS

APPENDIX B. MODIFICATION REQUEST

NSW DPI Research Farm

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7537

Huon Commercial Farm

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7536

APPENDIX C. SUBMISSIONS

NSW DPI Research Farm

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7537

Huon Commercial Farm

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7536

APPENDIX D. COMPARISON OF EXISTING AND PROPOSED CONDITIONS

Table 4: Issues Considered in the assessment of the NSW DPI research farm and the relevant conditions

Issue	SSI-5118		DA 81-04-01	
	Existing	Proposed	Existing	Proposed
Development Limits – Permitted Fish species and Farm size	<ul style="list-style-type: none"> Conditions B8 to B10 	<ul style="list-style-type: none"> Update Condition B8 and B9 New Condition C2A No other changes 	<ul style="list-style-type: none"> Conditions 5, 6, 9, 18 	<ul style="list-style-type: none"> Conditions 5 to 8, 16 and 17
Navigation and Safety	<ul style="list-style-type: none"> Conditions C2 and C3 	<ul style="list-style-type: none"> No change New Condition C5A 	<ul style="list-style-type: none"> Conditions 16, 17, 26 and 27 	<ul style="list-style-type: none"> Conditions 18 and 20
Maintenance	<ul style="list-style-type: none"> Conditions C4 and C5 	<ul style="list-style-type: none"> No change New condition C5A 	<ul style="list-style-type: none"> Conditions 19 and 20 	<ul style="list-style-type: none"> Conditions 19, 20 and 22
Public Access	<ul style="list-style-type: none"> Conditions E4 to E6 	<ul style="list-style-type: none"> No change 	<ul style="list-style-type: none"> Condition 14 	<ul style="list-style-type: none"> Condition 21
Fish Management – Source, Feed and Health	<ul style="list-style-type: none"> Conditions D1 to D11 	<ul style="list-style-type: none"> No change 	<ul style="list-style-type: none"> Condition 7 (source only) 	<ul style="list-style-type: none"> Conditions 23 to 30
Marine Fauna – Interactions	<ul style="list-style-type: none"> Conditions D12 to D15 	<ul style="list-style-type: none"> Update Condition D12 and D13 New Condition D12A No other changes 	<ul style="list-style-type: none"> Condition 24 	<ul style="list-style-type: none"> Conditions 31 to 36
Marine Fauna – Monitoring	<ul style="list-style-type: none"> Conditions D16 to D18 	<ul style="list-style-type: none"> Update Conditions D16 and D18 	<ul style="list-style-type: none"> Condition 25 	<ul style="list-style-type: none"> Conditions 37 to 40
Water and Substrate and Monitoring	<ul style="list-style-type: none"> Condition D20 	<ul style="list-style-type: none"> Update Condition D20 New Conditions D20A, D20B and D20C 	<ul style="list-style-type: none"> Conditions 28 to 30. No monitoring conditions 	<ul style="list-style-type: none"> Conditions 41 to 45
Waste Management	<ul style="list-style-type: none"> Condition D22 Conditions C4 and C5 	<ul style="list-style-type: none"> New Conditions D22, D22A and D23 No change to C4 and C5 	<ul style="list-style-type: none"> Conditions 21 to 23 	<ul style="list-style-type: none"> Conditions 46 to 48
Noise	<ul style="list-style-type: none"> Condition D24 	<ul style="list-style-type: none"> Condition D24 	<ul style="list-style-type: none"> No conditions 	<ul style="list-style-type: none"> Condition 49
Emergency/ Incident Response	<ul style="list-style-type: none"> Conditions E8 and E9 	<ul style="list-style-type: none"> Update Condition E8 New Condition E8A No change to E9 	<ul style="list-style-type: none"> Conditions 32, 34 and 35 	<ul style="list-style-type: none"> Conditions 52 to 54
Operational Management Plan	<ul style="list-style-type: none"> Conditions E1 and E2 	<ul style="list-style-type: none"> Update Conditions E1 and E2 	<ul style="list-style-type: none"> Condition 37 	<ul style="list-style-type: none"> Conditions 50 and 51
Annual Reporting and Auditing	<ul style="list-style-type: none"> Condition E7 	<ul style="list-style-type: none"> Update Condition E7 Add Condition E7A 	<ul style="list-style-type: none"> Conditions 36 and 38 to 40 	<ul style="list-style-type: none"> Conditions 55 to 58