Technical Advisor Report

Pat Costello Appeal AP4/1/2013 Review

DOCUMENT CONTROL SHEET

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EXECUTIVE SUMMARY

Description:	Application for a 10-year Aquaculture Licences and accompanying Foreshore Licenses for the cultivation of Pacific Oyster (*Crassostera gigas*) using bags and trestles in Castlemaine Harbour, Co. Kerry.
Appeal Reference	AP4/1/2013
Licence Application	Site T06/259B
Department Reference Number	T06/259B
Applicant	Mr. Pat Costello
Minister Decision	Granted a 10-year Aquaculture Licence and accompanying Foreshore Licence 03rd May 2013
Appeal	
Type of Appeal	Grant of New Licence
Appellant(s)	Coastwatch
Observers	None
Technical Advisor	RPS
Site Inspection	N/A

1 APPEAL DETAILS AND OBSERVER COMMENT/SUBMISSIONS

Date Appeal Received: 06th June 2013

Location of Site Appealed: Castlemaine Harbour, Co. Kerry

1.1 APPEAL TIMEFRAME

Publication notice to amend the aquaculture licence featured in 'The Kerryman' on Wednesday, 8th May 2013. The appeal was submitted within the statutory timeframe of one month from the date of the publication notice.

1.2 NAME OF APPELLANTS

Table 1.1: Details of the appellant

Organisation	Name	Address
Coastwatch	Karin Dubsky	Civil & Environmental Engineering Trinity College Dublin College Green Dublin 2

1.3 NAME OF OBSERVERS

No observations received.

1.4 GROUNDS FOR APPEAL

- The appellant has stated that there is insufficient information on which to base a licence decision and exclude environmental impact. The appellant believes that the licence application of 2008 contained virtually no information to assess whether it will have a significant impact on the SAC mudflat habitat or waders that use the area. The appellant is also concerned that there is no information on the proposed density of trestles or tonnage produced nor is there any information on access routes to the site from land. The appellant is of the opinion that a licence with clear, strict conditions might have overcome this weakness but because the appellant has not been given access to the licence or conditions, they believe that the conditions might not exist.

- The appellant expressed concern that the cumulative impact of approximately 50 aquaculture sites producing 3 different species of filter feeder has not been determined.

- The appellant queried whether aquaculture is already practised on this site by the applicant or any person on behalf of the applicant without a licence and if so, it precludes the Minister from issuing a licence in accordance with Part II (11) of the Fisheries (Amendment) Act, 1997.

- The appellant also noted that the culture of Pacific oyster, a non-indigenous species, in a Natura 2000 site may result in the spread of these oysters as has happened in many countries including Ireland. The appellant is concerned that there is a lack of mitigation and eradication plan or systematic monitoring to ensure early detection should Pacific oyster spat settle successfully.

1.5 MINISTERS SUBMISSION

Section 44 (2) of the Fisheries (Amendment) Act 1997 states that *'The Minister and each other party except the appellant may make submissions or observations in writing to the Board in relation to the appeal within a period of one month beginning on the day on which a copy of the notice of appeal is sent to that party by the Board and any submissions or observations received by the Board after the expiration of that period shall not be considered by it'*.

The Department of Agriculture, Food and the Marine (DAFM) made a submission to the ALAB on the 19th June 2013 in response to the appeal against the Ministers determination on Mr. P. Costello's application for an aquaculture licence Ref. Site T06/259B

- In relation to the appellants concern over insufficient information to assess the impact of the proposed aquaculture activity on the Castlemaine Harbour SAC mudflat, (Site Code 000343) DAFM maintain that the Appropriate Assessment carried out for Castlemaine Harbour addresses this issue and the general conclusion of that Appropriate Assessment was that the activity of culturing oysters in bags on trestles in the intertidal area of Castlemaine Harbour SAC is not a disturbance on the intertidal mudflat. Furthermore, in relation to the Castlemaine Harbour SPA (Site Code 004029) the Appropriate Assessment found, *inter alia*, that

  - Existing levels of activity are not considered impacting on bird species

  - New applications in the Douglas Strand area may affect the Bar-tailed Godwit (this applies to this application)

  - The Recommendation of the Appropriate Assessment is that new proposed aquaculture activity in the Douglas Strand area could proceed incrementally with parallel monitoring of effects on Bar-tailed Godwit

  - This recommendation has been operationalised in the licence conditions by inserting a provision that oyster trestle cover should not exceed 10% average occupancy of licensed area with possible incremental increases subject to monitoring results.

- Regarding a further issue raised by the appellant alleging that cumulative impacts were not addressed, DAFM state that all of the Castlemaine Aquaculture Licence applications were the subject of individual EIA screenings by the DAFM/MI/BIM Screening Group. The Group used the Screening Assessment Form (and process) based on the Commission Guidance on EIA Screening. As part of the screening process each application considered the potential cumulative impacts with:

  - Existing aquaculture projects or with other licensed aquaculture projects that have not commenced; and

  - Existing foreshore projects or with other licensed foreshore projects that have not commenced.

DAFM state that in the case of the foreshore projects the view of the Group was that there was no potential cumulative impact. In the case of the aquaculture projects it was considered that there was potential for cumulative impacts. However, such cumulative impacts were considered unlikely to result in a significant effect on the receptors (e.g. air, water, cultural heritage, visual amenity) given the overall proposed footprint of the activities and the scale of aquaculture in the bay.

Consequently, DAFM consider that the EIA screening carried out for each application for Castlemaine was sound and that the cumulative impact of each application was considered – and did not require further action.

- In relation to the appellant's concern over invasive species, DAFM deems the proposed aquaculture licence as fully compliant with the requirements relating to invasive species. Council Regulations (EC) No. 708/2007, establishes a framework governing aquaculture practices in relation to alien and locally absent species to assess and minimise the possible impact on aquatic habitats. Under these Regulations aquaculture operators must apply for a permit if they intend introducing alien species. However, the requirement does not apply to certain species, including Pacific Oysters, Manilla Clams and Rainbow Trout, that have been used in aquaculture for a long time.

1.6 APPLICANT RESPONSE

Section 44 (2) of the Fisheries' Amendment Act 1997 states '*The Minister and each other party except the appellant may make submissions or observations in writing to the Board in relation to the appeal within a period of one month beginning on the day on which a copy of the notice of appeal is sent to that party by the Board and any submissions or observations received by the Board after the expiration of that period shall not be considered by it*', below is a summary of the response from the licence applicant regarding points raised by the appellant.

The submission was received by the Secretary of the Aquaculture Licence Appeals Board (ALAB) on 1st July 2013.

- Regarding concerns over insufficient information to assess the impact of the proposed aquaculture activity on the SAC mudflat, the applicant maintains that the environmental impacts on the proposed aquaculture site were assessed by DAFM who are of the opinion that no adverse impacts will occur.

- In relation to concerns over the density of trestles, the applicant will ensure that trestles will be placed on the harder areas of the site, leaving large areas unused. In doing this, the applicant maintains that he will be in compliance with DAFMs guidelines regarding density.

- The applicant stresses that information relating to site access is clearly demonstrated in the licence application which shows access by a single road traversing the site. The applicant notes that the site is also accessible by boat and is prepared to use boat only access if DAFM would prefer.

- Regarding the appellant's point on not being given access to the licence or conditions, the applicant is satisfied that all relevant information sought by the DAFM was supplied in the application and on the basis of that information was granted the licence. The licence contained a number of conditions and guidelines relating to best practice in oyster farming with due regard to animal, bird and plant life, and pollution, noise etc. The applicant stressed that it is in the best interest of all licence holders to farm in an environmentally friendly manner, and the applicant is happy to comply with the conditions and guidelines stipulated by DAFM.

- In relation to the appellant's point on the cumulative impact of approximately 50 aquaculture sites producing 3 different species of filter feeders, the applicant argues that a single applicant cannot be expected to deal with this and has no information to assist the appellant in this regard.

- In response to the appellant's query on whether aquaculture had already been practiced on this plot in anticipation of the licence, the applicant has stated that a trial licence was previously granted for this particular site and trials were carried out using a small number of trestles. Once the trial licence expired, the applicant vacated the site immediately and proceeded to apply for a full aquaculture licence. The applicant maintains that no farming activity has been conducted on the site since the trial licence expired.

- Regarding the potential spread of the non-native Pacific oysters, the applicant argues that this issue should not form any part of a specific appeal against a single applicant. The applicant does not have the technical information to comment of the issue of non-indigenous species spread with any

authority. However, in the personal opinion of the applicant the water temperature in the Bay is too low for Pacific oyster to reproduce.

2 CONSIDERATION OF NON-SUBSTANTIVE ISSUES

Each issue raised by the appellant is considered substantive and have been reviewed.

3 ORAL HEARING ASSESSMENT

In accordance with Section 49 of the Fisheries Amendment Act 1997 an oral hearing may be conducted by the ALAB regarding the licence appeals.

At this time an oral hearing has not been requested by the appellant or the applicant.

4 MINISTER'S FILE

In accordance with particulars of Section 43 of the Fisheries Amendment Act 1997 the following documented items were sent to the Aquaculture Licence Appeals Board (ALAB) from the Minister:

- Copy of Application Forms;
- Copy of Aquaculture Licence with maps, charts, co-ordinates and drawings;
- Copy of Foreshore Licence;
- Copy of EIA Screening Assessment;
- Copy of Submission made to the Minister;
- Copy of Notification to the Applicant of the Minster's Decision;
- Copy of Advertisement of the Minister's Decision;
- Overview map of sites in Castlemaine Harbour;
- Copy of Appropriate Assessment and Conclusion Statement

5 CONTEXT OF THE AREA

5.1 PHYSICAL DESCRIPTION

Site T06/259B (**Figure 5.1**), an area of 4.70 hectares is located in the intertidal area on the southern shore of the Castlemaine Harbour and lies within Castlemaine Harbour SAC (Site Code 000343) and SPA (Site Code 004029). Information on exact characteristics of the site has not been provided with the application and a site survey would be required to obtain such information.

Castlemaine Harbour is a large shallow tidal estuary located in the innermost part of Dingle Bay, Co. Kerry, it is approximately 11 km long and 5 km wide, covering an area of over 5,300 ha. Castlemaine Harbour has extensive areas of intertidal sand and mud flats together with expanses of shallow marine water (NPWS, 2011a). Castlemaine Harbour is sheltered from the open sea by three sand spits which protrude into the estuary; Rossbehy and Cromane both extend northwards from the Iveragh Peninsula while Inch extends southwards from the Dingle Peninsula. Two large rivers, the Maine and the Laune, flow into the Harbour as well as a number of other rivers including the Caragh, the Emlagh and the Behy and several small streams. The principal town adjacent to the Harbour is Killorglin with the smaller communities of Castlemaine, Milltown, Cromane, Glenbeigh and Inch (**Figure 5.2**).

The climate of Co. Kerry is influenced by its maritime location which produces considerable rainfall. The annual rainfall average recorded by Met Éireann at the Valentia Observatory off the western coast of the Iveragh Peninsula as 1557.4 mm[1] for the period 1981 to 2010. Highest mean rainfall during this period was in October with a mean 177.1 mm, while May had the lowest mean rainfall at 93.5 mm.

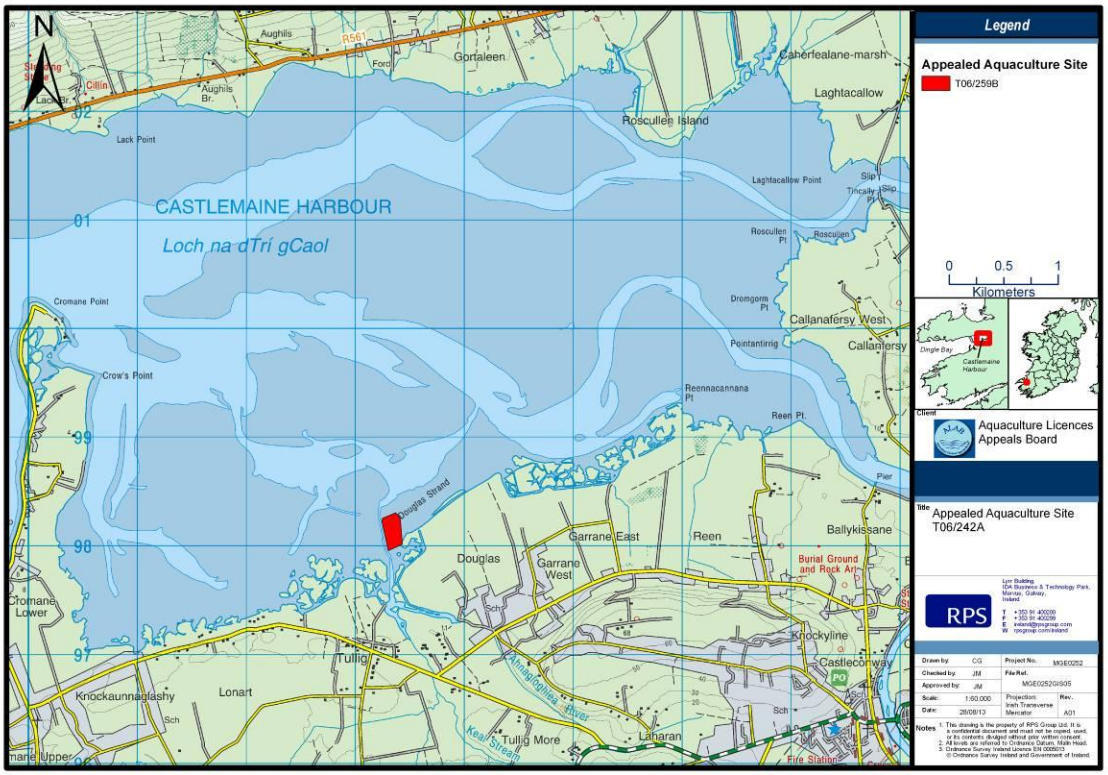

Figure 5.1: Location of site T06/259B in Castlemaine Harbour

[1] http://www.met.ie/climate/monthly-data.asp?Num=2275

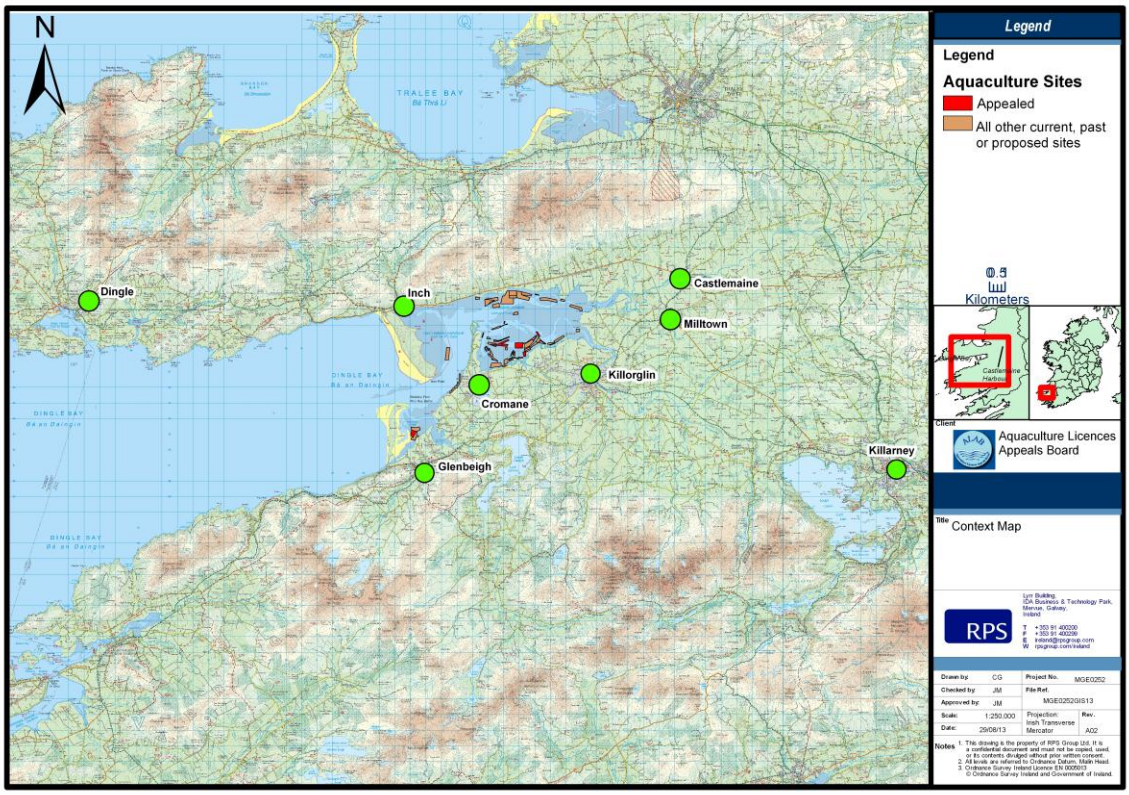

Figure 5.2: Overview of Castlemaine Harbour Area and significant population centres

5.2 PROPOSED AQUACULTURE ACTIVITY

The application is for an Aquaculture Licence and accompanying Foreshore License for the cultivation of Pacific oysters using bags and trestles. Oyster cultivation is concentrated along the southern side of Castlemaine Harbour, between Cromane Point and Douglas Strand. Pacific oysters are typically grown in plastic mesh bags secured to metal trestles in the intertidal zone. The bags are suspended above the seabed to allow for the free movement of water above and below the oysters. Average annual production of Pacific oysters in the Castlemaine Harbour area was 145 tonnes and 97 tonnes in 2008 and 2009 respectively (Marine Institute, 2011).

5.3 RESOURCE USERS

Aquaculture

Containing one of the largest natural mussel bed in Ireland, shellfish cultivation has a long history in Castlemaine Harbour. Mussels have been exploited in the area since the 1800s and are the predominant, well established farmed species in Castlemaine Harbour (**Figure 5.3).** More recently pacific oyster and clam cultivation has commenced in the area (Anon, 2009). The Castlemaine Harbour Cooperative Society serves as a coordinating and representative body for aquaculture activities in Castlemaine harbour The society holds the Mussel Fishery Order granted in 1979 to them for the area; allowing them control of allocation of grounds for aquaculture over the 250 acre body of water[2].

[2] http://www.cromane.net/fishing.htm

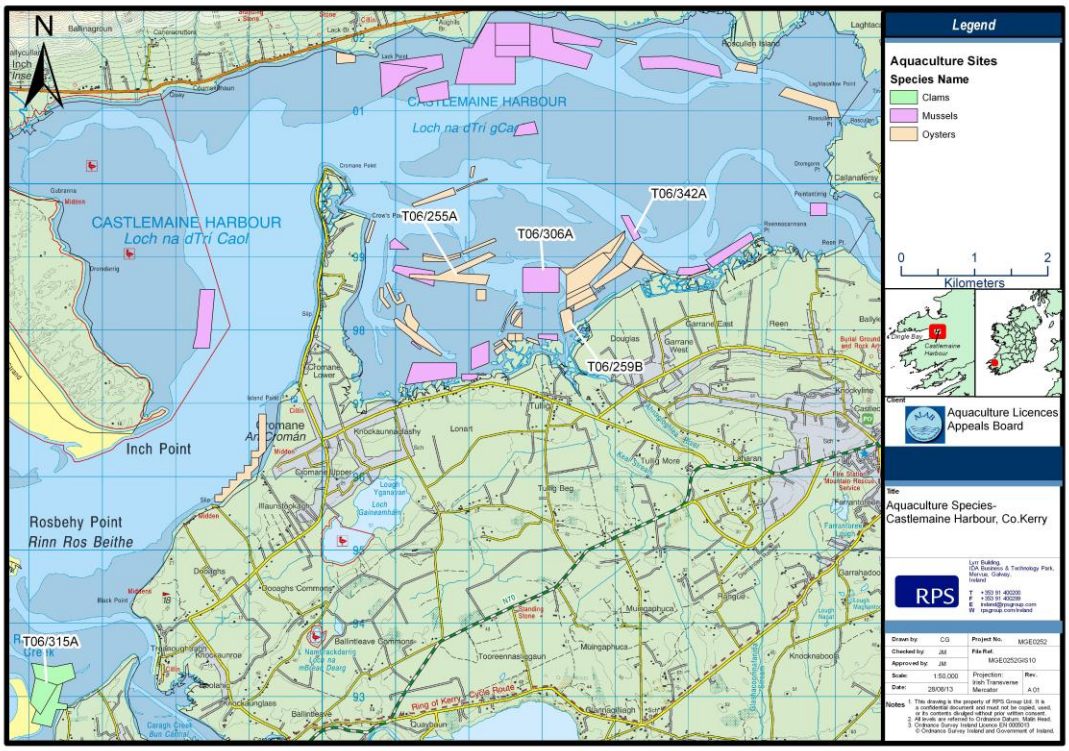

Figure 5.3: Aquaculture Species

At present, there are 50/51 sites in Castlemaine Harbour that have either existing aquaculture licences which are due for renewal, are at the application stage, have been recently licenced, or are currently under review for appeal (see **Figure 5.4**). The majority of these sites are found on the inner part of Castlemaine Harbour. Individual licenced sites range in size from 0.44 ha to 45 ha. The total area covered by the licenced activities is 372.08 ha (Marine Institute, 2011).

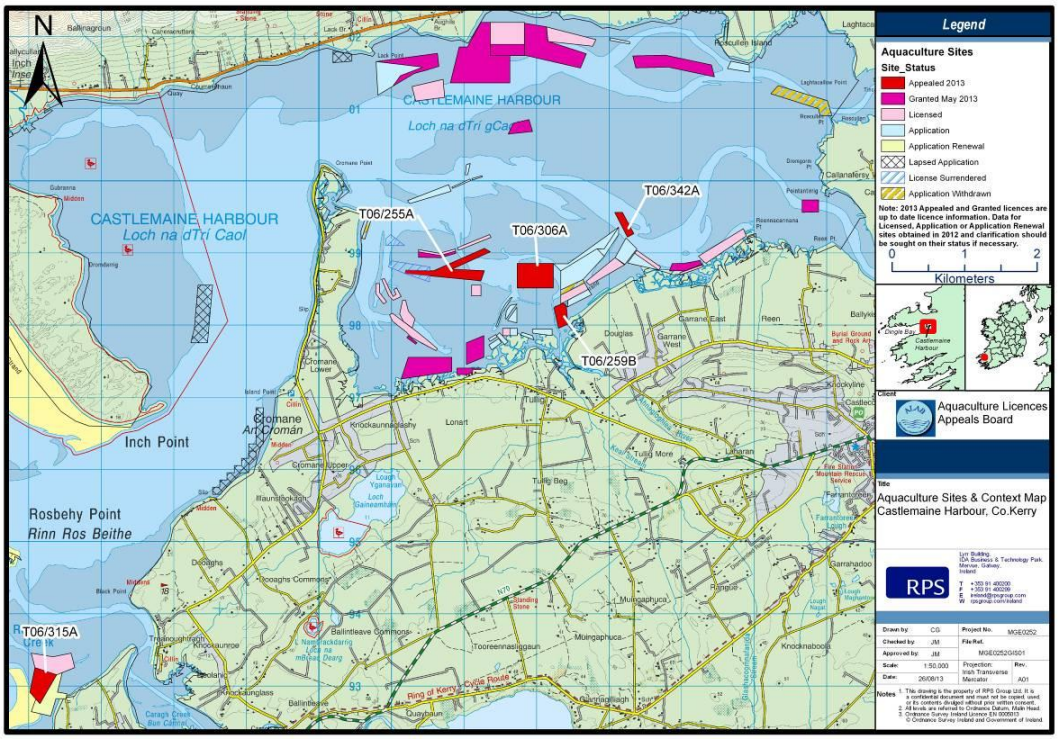

Figure 5.4: Licencing of sites for aquaculture activities

In 1994, a large proportion of the Castlemaine Harbour area was designated as a shellfish area under the European Communities (Quality of Shellfish Waters Regulations) 2004 (**Figure 5.5**). Referred to as the Cromane Shellfish Area, the designated area is 37.6 km^2 (**Figure 5.5**).

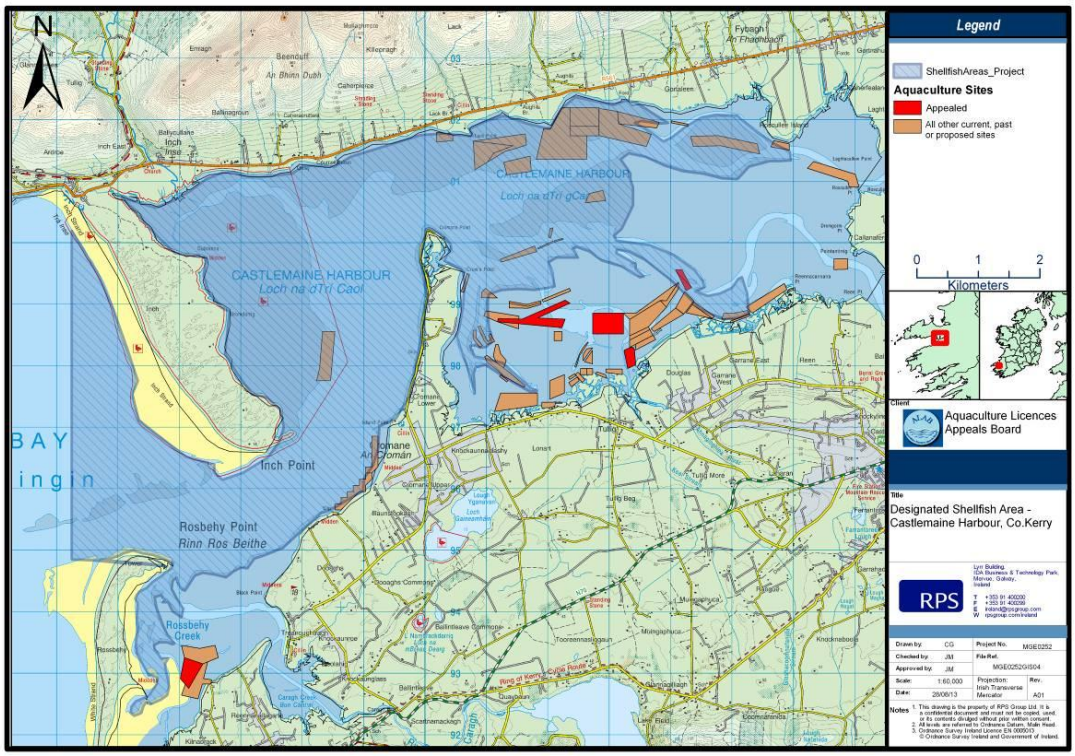

Figure 5.5: Cromane Shellfish Area

Angling

The Dingle Peninsula is a hotspot for shore angling. Angling is largely concentrated in outer Dingle Bay, however, fishing for flounder, bass and plaice occurs within the Castlemaine Harbour[3].

Tourism and Recreation

Kerry is a well known international and domestic tourism centre with a varied tourism profile. The tourism industry draws on the county's natural advantages as a highly scenic county to support its continued growth (Kerry County Council, 2009) and is an important contributor to the economic activity of many towns and villages throughout the county.

Glenbeigh is a small village located to the south of Castlemaine Harbour. It is situated in a very scenic area at an intersection of the Kerry Way walking route with the Ring of Kerry route and consequently is a busy tourist destination. It is considered a haven for bird watching due to its varied country-side of marshes, wetlands, estuary, rivers, coastline, mudflats and uplands. Tourism is recognised as one of the more important employment sectors in the village.

Rossbeigh, a small coastal development located approximately 2km from Glenbeigh, is primarily a tourist location. Its fine beach with Blue Flag status, scenic location and availability of outdoor pursuits which include hand-gliding, horse trekking and angling among others, ensures it is a popular destination for tourists. It also supports tourism in Glenbeigh as the proximity of the two settlements allows for a natural pooling of tourist attractions.

Similarly, Killorglin's proximity to Castlemaine Harbour with its Blue Flag beach at Rossbeigh is a key asset in terms of tourism. The town is not reliant on tourism for its economic development, nonetheless, it is considered important that the town and the surrounding area should develop and enhance its tourist potential.

Located over 20km from the nearest aquaculture site, the nearest significant tourism hub is the town of Dingle (**Figure 5.2**) and wider peninsula. The town of Killarney is also an extremely important tourist hub for County Kerry located in land from the aquaculture activity (**Figure 5.2**)**.**

5.4 ENVIRONMENTAL DATA

5.4.1 Water Quality

Water quality in Castlemaine Harbour is monitored as part of the Water Framework Directive Monitoring Programme. For the purpose of WFD monitoring Castlemaine Harbour is divided into two transitional water bodies, Castlemaine Harbour and Cromane (**Figure 5.6**). The Castlemaine Harbour water body is located just north of Killorglin. It consists of the mouths of both the River Maine and River Laune as they enter the sea and extends 1km into Cromane Estuary. The Cromane Estuary water body is an extension of Castlemaine Harbour, extending westwards until it reaches the open sea at Dingle Bay. The proposed aquaculture site is located within the Cromane Estuary water body and therefore results for the Castlemaine Harbour water body are not considered in this report.

[3] http://www.fishinginireland.info/sea/southwest/dingle.htm

WFD status classifications are generally based on several samples/surveys targeting a variety of parameters including biological, physico-chemical, chemical and hydromorphological elements. Monitoring is carried out by the EPA, Marine Institute and Inland Fisheries Ireland.

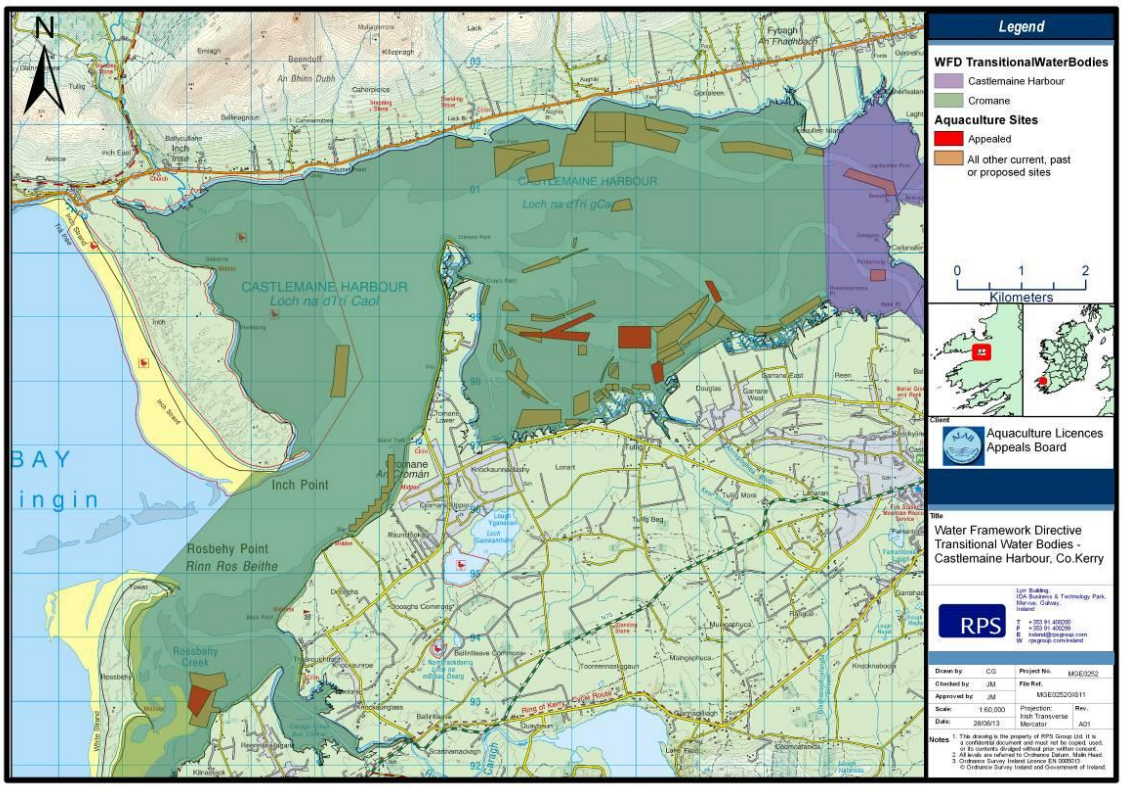

Figure 5.6: WFD Castlemaine Harbour and Cromane water bodies

The latest WFD monitoring programme covers the period 2007-2009. Monitoring results indicate that there are water quality issues within the area and the overall status of the Cromane water body is considered only 'moderate'. The water quality issues are largely related to unsatisfactory dissolved oxygen (DO) concentrations and phytoplankton biomass (EPA, 2010). A status update report for Irish surface and groundwaters based on monitoring results for the period 2007-2009 reported similar DO issues for the Cromane water body (EPA, 2011).

Similar water quality issues were reported in the Cromane Shellfish Area Pollution Reduction Programme. Monitoring results for the period 2005 – 2008 indicated that elevated levels of DO and BOD were the major contributors to the water body achieving only 'moderate' status.

Bathing Water Quality

Bathing water quality is not monitored in Castlemaine Harbour. The nearest locations at which bathing water quality is monitored is at Rossbeigh (White Strand) and Inch Strand, located immediately outside the Harbour, where 2012 water quality results were found to comply with both EU guide and mandatory values indicating that water is of 'good' quality status at this location. These results were achieved despite a remarkably wet summer which saw the south and southwest have record breaking rainfall figures which was the cause of the reduction in the number of waters achieving "Good" status. The prolonged rain resulted in saturated soils increasing the pollution run-off from agricultural land, particularly where livestock were being grazed or animal manures being spread, and also urban runoff from roads / pavements etc (EPA, 2013).

5.4.2 Biotoxicology

The monitoring of biotoxins in shellfish and the analysis of seawater for the presence of toxin producing phytoplankton is carried out all year round by the Marine Institute. Shellfish samples are taken from three strategically placed sampling points in the Cromane shellfish production area (**Figure 5.7**). Water samples are taken from a single sampling point (KY-CH-BF).

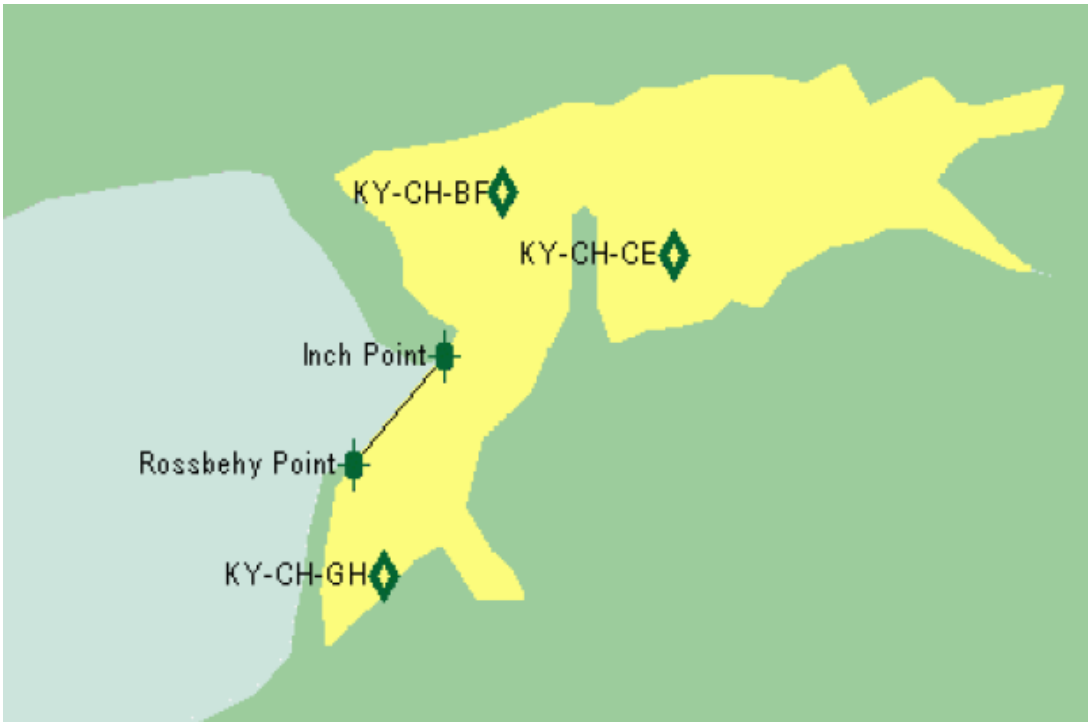

Figure 5.7: Shellfish and water sampling points in the Castlemaine Harbour Shellfish Production Area (Marine Institute, 2012)

Shellfish sampling results for the period 1/6/2013 to 12/8/2013 indicated that levels of biotoxins detected in blue mussel (*Mytilus edulis*) and Pacific oyster samples were consistently below regulatory limits.

In August 2013, the diatom Pseudo-nitzschia sp, a producer of the Amnesic Shellfish Poisoning toxin domoic acid, was detected in Castlemaine Harbour. However, its presence had no impact on aquaculture operations and the area remained open for harvesting.

5.4.3 Benthic Habitats

Castlemaine Harbour has extensive areas of intertidal sand and mud flats together with expanses of shallow marine water. Much of the intertidal sediment is comprised of muds or muddy sands. Benthic communities consist of high densities of polychaete worms such as Ragworm (*Hediste diversicolor*) and Lugworm (*Arenicola marina*), along with a variety of bivalves and molluscs (NPWS, 2010a).

Aquaculture activities in Castlemaine Harbour overlap with habitats of conservational interest (Estuaries and Mud and sand flats not covered by seawater at high tide, as designated under the Habitats Directive).

The distribution of intertidal communities within the Harbour is closely related to exposure levels and sediment types. The rivers Laune, Maine and Caragh have a strong influence on the distribution of estuarine communities within the Harbour. **Table 5.1** and **Table 5.2** outlines the species and habitats of

conservational interest and the communities associated with mudflat and sandflat that are not covered by seawater at low tide and estuaries in Castlemaine Harbour.

The mud and sandflats provide important habitat for marine birds as well as habitats of particular conservational interest such as seagrass beds, mussel beds and cockle beds.

5.5 STATUTORY STATUS

Castlemaine Harbour is of major ecological importance. It is a designated Special Area of Conservation (SAC) under the EU Habitats Directive (**Figure 5.8**). It contains a range of coastal habitats of excellent quality many of which are listed on Annex I of the Habitats Directive. It also includes long stretches of river and stream which are ideal habitats for Salmon, Lamprey and Otter. It supports dune systems which are recognised as among the finest in the country. The Harbour supports internationally important waterfowl populations, rare plants, the rare Natterjack Toad and populations of several animal species that are listed on Annex II of the Habitats Directive (NPWS, 2006).

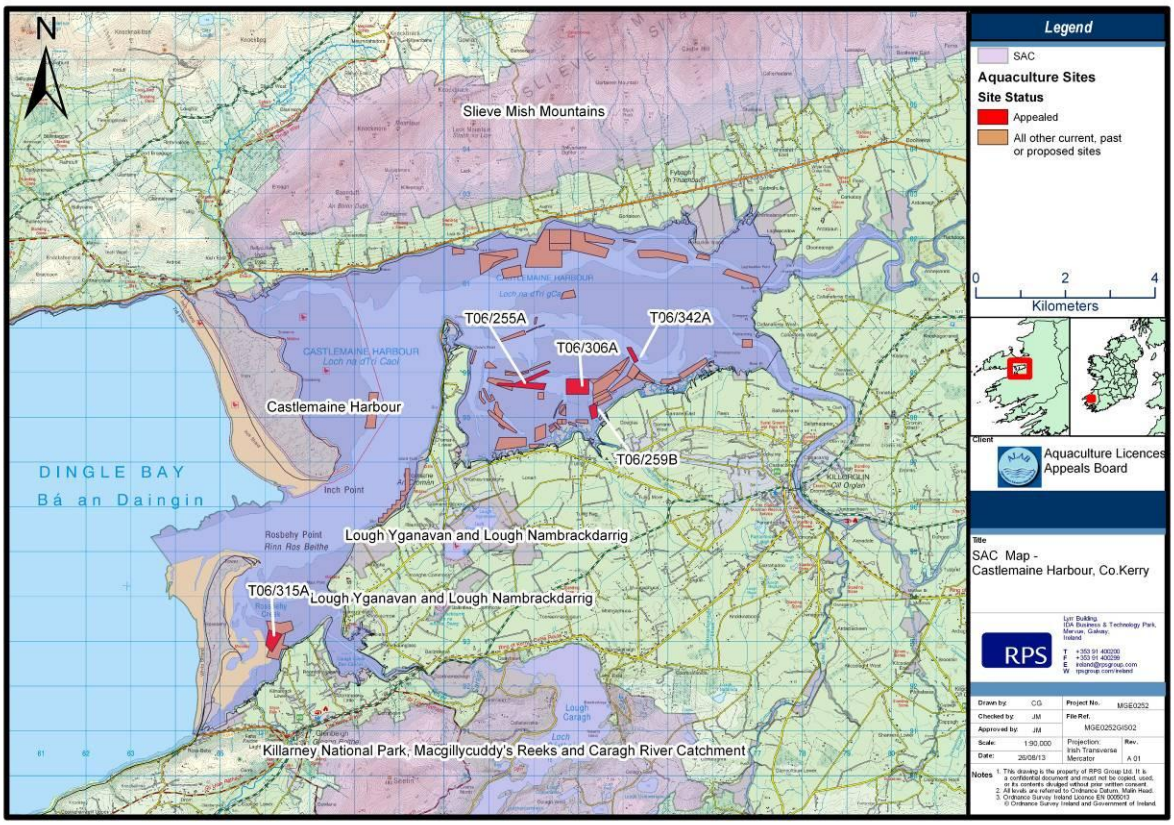

Figure 5.8: Castlemaine Harbour SAC

Part of the site is also designated a Special Protection Area (SPA) under the EU Birds Directive (**Figure 5.9)** and is listed as a site under the Ramsar Convention. It is of special conservation interest for the species listed in **Table 5.1** below. It is one of the most important sites for wintering waterfowl in the south-west. It provides habitats for a wide diversity of waterbirds, including divers and seaduck (NPWS, 2006).

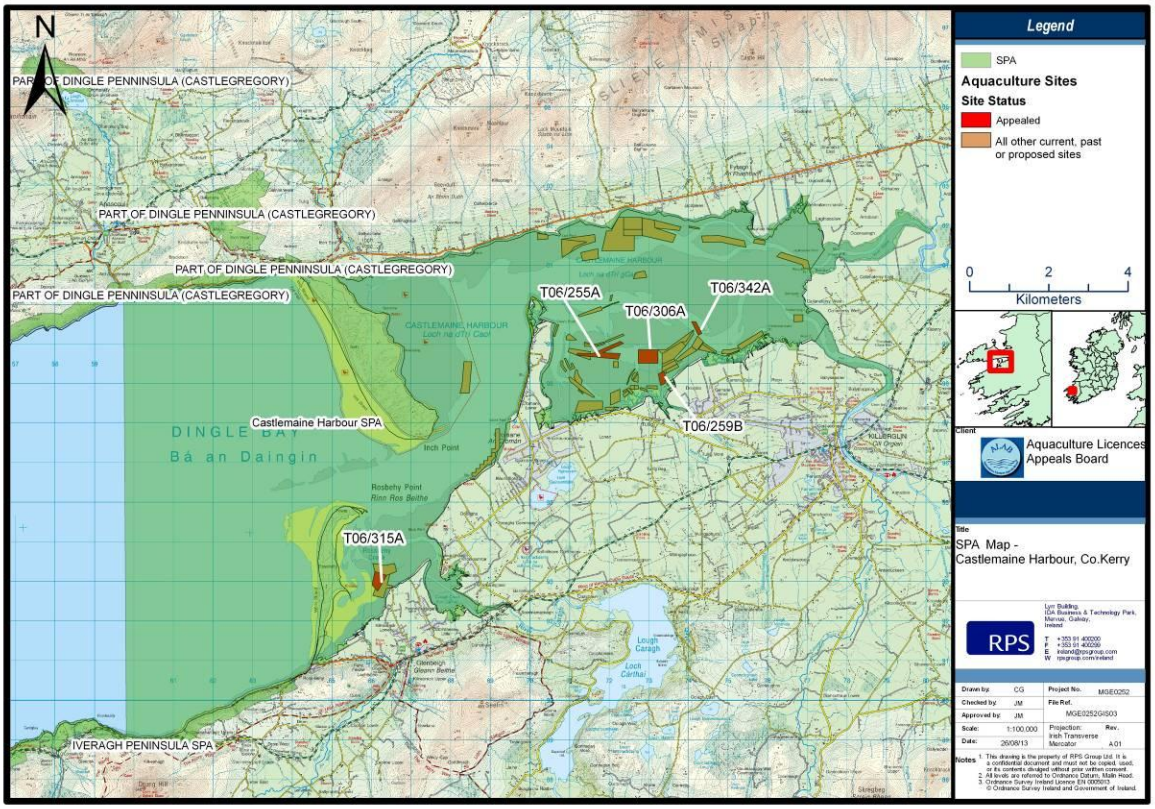

Figure 5.9: Castlemaine Harbour SPA

The features of interest for which the sites are designated are detailed in **Table 5.1** below.

Table 5.1: SAC and SPA sites within which the proposed aquaculture site is located and features for which they are designated

Designated Sites	Qualifying features (EU Importance)
Castlemaine Harbour SAC (Site Code: 000343)	Sea lamprey (*Petromyzon marinus*) River lamprey (*Lampetra fluviatilis*) Salmon (*Salmo salar*) Estuaries Mudflats and sandflats not covered by seawater at low tide Annual vegetation of drift lines Perennial vegetation of stony banks Salicornia and other annuals colonizing mud and sand Spartina swards (*Spartinion maritimae*) Atlantic salt meadows (*Glauco-Puccinellietalia maritimae)* Otter (*Lutra lutra*) Petalwort (*Petalophyllum ralfsii*) Mediterranean salt meadows (*Juncetalia maritimi*) Embryonic shifting dunes Shifting dunes along the shoreline with Ammophila arenaria (white dunes) Fixed coastal dunes with herbaceous vegetation (grey dunes) Dunes with Salix repens ssp.argentea (*Salix arenariae*) Humid dune slacks Alluvial forests with Alnus glutinosa and Fraxinus excelsior (*Alno-Padion, Alnion incanae, Salicion albae*)
Castlemaine Harbour SPA (Site Code: 004029)	Red-throated Diver (*Gavia stellata*) Cormorant (*Phalacrocorax carbo*)

	Light-bellied Brent Goose (*Branta bernicla hrota*) Wigeon (*Anas penelope*) Mallard (*Anas platyrhynchos*) Pintail (*Anas acuta*) Scaup (*Aythya marila*) Common Scoter (*Melanitta nigra*) Oystercatcher (*Haematopus ostralegus*) Ringed Plover (*Charadrius hiaticula*) Sanderling (*Calidris alba*) Bar-tailed Godwit (*Limosa lapponica*) Redshank (*Tringa totanus*) Greenshank (*Tringa nebularia*) Turnstone (*Arenaria interpres*) Chough (*Pyrrhocorax pyrrhocorax*) Wetlands & Waterbirds

Conservation Objectives for the SAC

NPWS (2010b) describe the conservation objectives for all qualifying interests of the SAC. The proposed aquaculture activity overlaps habitat 1130 (Estuaries) and 1140 (Mud and sand flats not covered by seawater at high tide) in particular.

Estuaries and Mud and sand flats not covered by seawater at high tide:

In the case of these habitats the important attributes that must be conserved are Habitat area and Habitat structure and function.

Habitat area: The likely area occupied by the constituent communities of Habitats 1130 and 1140 should be stable or increasing with overall target areas of 5696ha and 4287ha respectively.

Habitat structure and function: The communities of habitats 1130 and 1140 should be stable in distribution and composition.

Table 5.2: Communities within Mudflat and Sandflat not covered by seawater at low tide, and Estuaries in Castlemaine Harbour (NPWS, 2011)

	Community	Characterising species
Mudflat and sandflat are not covered by seawater at low tide	Intertidal muddy fine sand community complex	*Tharyx sp A* *Polydora cornuta* *Gammarus locusta* *Macoma balthica* *Hediste diversicolor* *Corophium volutator* *Heterochaeta costata* *Pygospio elegans* *Crangon crangon*
Mudflat and sandflat are not covered by seawater at low tide / Estuaries	Fine to muddy fine sand with polychaetes community complex	*Pygospio elegans* *Eteone longa* *Scoloplos armiger* *Spio martinensis* *Macoma balthica* *Capitella capitata* *Angulus tenuis*
Mudflat and sandflat are not covered by seawater at low	Intertidal sand with *Nephtys cirrosa*	*Nephtys cirrosa* *Bathypoeia pilosa*

tide / Estuaries		*Scolelepis squamata*
Mudflat and sandflat are not covered by seawater at low tide / Estuaries	*Zostera* dominated community	*Zostera sp.*
Estuaries	Mixed sediment community complex	*Mytilus edulis* *Corophium acherusicum* *Caprella acanthifera* *Pholoe synophthalmica* *Nemertea indet* *Pomatoceros lamarckii* *Microprotopus maculates* *Abludomelita obtusata* *Amphipholis squamata* *Jassa pusilla* *Eumida sanguine* *Nephtys cirrosa* *Ammothella longipes* *Angulis tenuis* *Gastrosaccus spinifer*
	Fine sand with *Donax vittatus* and polychaetes community	*Donnax vittatus* *Spiophanes bombyx* *Magelona mirabilis etc.* (source: Marine Institute, 2011)

Conservation Objectives for the SPA

NPWS (2010b) also describes the conservation objectives and targets for species of waterbirds and the wetlands which support them.

1. Population trends and Distribution, as measured by the % change in population size and the numbers of birds and range of areas used, should be stable or increasing.

2. The area of subtidal, intertidal and supratidal habitats should be stable or increasing and not less than the areas of 7471, 3983 & 312 hectares for subtidal, intertidal and supratidal habitats, respectively other than that occurring from natural patterns of variation.

5.6 CASTLEMAINE HARBOUR SPECIES RECORDS

5.6.1 Cetaceans

Cetaceans have been commonly recorded around Dingle Bay, however, no recent sightings have been recorded within Castlemaine Harbour (IDWG, 2012).

5.6.2 Birds

Table 5.3 presents waterbird population data for Castlemaine Harbour SPA. The five-year average for the baseline period (1995/96 – 1999/00) is reported alongside the most recent five-year average (2005/06 – 2009/10). To allow calculation of the recent five-year average, the dataset comprises Irish Wetland Bird Survey (I-WeBS) data for the period 2005/06 – 2008/09 and count data from the high tide count undertaken as part of the 2009/10 waterbird survey programme. Averages are based on annual peak counts from I-WeBS, a survey undertaken on the high tide (NPWS, 2011a).

Table 5.3: Site population data for waterbird Special Conservation Interest Species of Castlemaine Harbour SPA (NPWS, 2011a)

Species	Baseline populations	Recent site average (2005/06-2009/10)
Light-bellied Brent Goose	694 (i)	535 (i)
Wigeon	6,819 (n)	341
Pintail	145 (n)	133 (n)
Common Scoter	3,637 (n)	n/c
Red-throated Diver	56 (n)	n/c
Ringed Plover	206 (n)	101
Sanderling	335 (n)	468 (n)
Bar-tailed Godwit	397 (n)	163 (n)
Mallard	487 (n)	149
Scaup	74 (n)	6
Cormorant	135	48
Oystercatcher	1035 (n)	629
Greenshank	46 (n)	18
Redshank	341 (n)	380 (n)
Turnstone	144 (n)	64

(i) denotes numbers of International importance; (n) denotes numbers of all-Ireland importance; n/c = not calculated.

5.6.3 Harbour Seals

In Ireland, harbour seals (*Phoca vitulina*) are protected under the Wildlife Acts (1976 and 2000) and are listed under Annex II of the EU Habitats Directive as species of Community Interest, whose conservation requires the designation of Special Areas of Conservation (SACs). Castlemaine Harbour is known to support a small colony of harbour seals. The last harbour seal survey in Castlemaine Harbour was in 1978 when a total of 3 harbour seals were recorded. Although there are no recent surveys for the Harbour, a sighting of a seal 24 km inland from the coast in the lakes of Killarney in March 2013 is thought to have migrated *via* the River Laune from Castlemaine Harbour (Lucey, 2013). This suggests that harbour seals continue to occur in the area.

5.6.4 Otter

The Otter (*Lutra lutra*) is protected under the Irish Wildlife Acts (1976 and 2000) and is also listed in Annexes II and IV of the EU Habitats Directive. It is listed as one of the qualifying features of interest in the Castlemaine SAC. National surveys of otter in Ireland in 2006 found that approximately 75% of sites surveyed in the south-west of Ireland showed signs of otter occupancy. There is no specific data on otter population size in Castlemaine Harbour although they are known to be present throughout the area (Bailey and Rochford, 2006).

5.6.5 Salmon

Salmon populations run into the Rivers Laune and Maine. Numbers of adult salmon returning to the River Laune increased between 2004 and 2007. Scientific advice from the Stating Scientific Committee on Wild Salmon Stocks 2010 indicated a surplus over and above the conservation limit required to enable optimum levels of spawning. In the Maine there was no estimated surplus (Marine Institute, 2011).

5.6.6 Sea Lamprey and River Lamprey

In Ireland, the sea lamprey (*Petromyzon marinus*) and river lamprey (*Lampetra fluviatilis*) are listed under Annex II of the European Union Habitats Directive (92/43/EEC). Both species are listed as

qualifying interest in Castlemaine Harbour however there is no specific data on populations of Sea Lamprey or River Lamprey in Castlemaine (Marine Institute, 2011).

5.6.7 Natterjack Toad

This species is listed in the Irish Red Data Book and under Annex IV of the EU Habitats Directive. The vicinity of Castlemaine Harbour is one of the few areas in Ireland where the Natterjack Toad (*Epidalea calamita*) occurs naturally. The natterjack toad was once more widespread in Kerry, however, its range decreased substantially between the period 1800 to 1970. The most significant loss in range occurred around Castlemaine Harbour where historic records indicate that the species was previously found right around its coastal strip. Although the toad's range has not changed much since the 1970's, some toad populations are now isolated which may, subsequently, lead to reduced genetic diversity, local inbreeding and, eventually, population extinction. Schemes aimed at restoring suitable breeding and foraging habitats for the natterjack around Castlemaine Harbour have been introduced (NPWS, 2007).

5.7 STATUTORY PLANS

There are no specific statutory or development plans for Castlemaine Harbour. Aquaculture is, however, considered under the Kerry County Development and the development plans for the neighbouring land area of Castlemaine.

5.7.1 Kerry County Development Plan

Kerry's County Development Plan 2009 to 2015 sets out an overall strategy for the proper planning and sustainable development of the County.

With regard to aquaculture, the Plan recognises the economic importance of the aquaculture industry in the county. It acknowledges the potential for the aquaculture sector to expand and sets out to support the further development of aquaculture in Kerry. The overall objective with regard to aquaculture is to:

"Support and promote the sustainable development of the aquaculture sector in order to maximize its contribution to employment and growth in coastal communities and the economic well-being of the County."

The Plan, however, also acknowledges that the coastline of the County is a key attribute in its tourism offering with the scenic quality of the area a keystone to the County's tourism industry. It appreciates that the quality of the natural environment must be protected from improper development and protecting the environment is core to the CDP with objectives for the protection and enhancement of natural areas.

Aware that equipment associated with aquaculture operations such as cages, colourful buoys and markers tend to make developments visually obtrusive, as these developments are located in areas of high amenity value, Kerry County Council propose to put in place a framework that accommodates the various and diverse interests who use the coastal areas including aquacultural interests. This framework will form part of the Kerry County Council's integrated coastal management strategy.

5.7.2 Local Area Plan – Castlemaine

The Castlemaine Town Local Area Plan[4] makes little reference to the aquaculture industry of the area except that oyster/mussel beds form an important part of the local economy.

The Plan recognises the importance that development proposals must "*not adversely impact on Natura 2000 sites, either by way of water pollution, wildlife disturbance or otherwise*".

5.8 MAN-MADE HERITAGE

According to the 'Archaeological Survey of Ireland'[5], there are a number of land-based features of archaeological and architectural interest in the wider surrounding area of Castlemaine Harbour. Several heritage remains are located in the close proximity to Castlemaine Harbour. These include:

Souterrain – Lack

Situated on a gentle south facing slope about 150 m from the north shore of Castlemaine Harbour. The site contains the remains of a clochaun and souterrain.

Midden – Inch

Inch Spit is comprised of a vast expanse of sandhills, c. 5 km long, up to 1.5 km wide and over 100 feet (30.5 m) high in places. On its east side, bordering Castlemaine Harbour, is a very large shell midden composed of several layers of cockle shells, which extends for a distance of c. 168m and which is c. 3.5m deep.

Burial Ground – Cromane Lower

This site is located directly above the shoreline near the landward end of Cromane Spit. The site is described locally as an unenclosed burial area, of roughly circular plan, which contains rows of uninscribed, upright grave markers.

Other features in close proximity to Castlemaine Harbour include Rath ringfort, Laghtacallow enclosure, and Lonart pier/jetty. No description of these features or information on their proximity to the Harbour is available.

4 http://www.kerrycoco.ie/en/allservices/planning/localareaplans/localareaplans/drafttraleekillarneyhubfunctionalarealap/thefile,8177,en.pdf

5 http://webgis.archaeology.ie/NationalMonuments/FlexViewer/

6 SECTION 61 ASSESSMENTS

Section 61 of the 'Fisheries Amendment Act 1997'specifies the following matters to which the licencing authority shall have regard to when an appeal regarding an aquaculture licence is being considered.

6.1 SITE SUITABILITY

*The site under appeal **is** suitable for the intended purpose for the following reasons:*

- Castlemaine Harbour has previously been selected for aquaculture operations. The Harbour's relatively high tidal range coupled with strong tidal streams reduces the risk of accumulations of waste beneath trestles.

- The site can be accessed by land vehicles *via* a road running through site or by boat. No additional infrastructure is required.

- The site is located in close proximity to purification facilities.

- The site is located in an area of already high aquaculture activity and any visual impact incurred by this individual site is therefore considered negligible.

6.2 RESOURCE USERS

- Much of the recreational activity around Castlemaine Harbour is shore-based and is concentrated in the outer Harbour area at Rossbeigh Beach and Glenbeigh. Therefore, the proposed aquaculture activity is unlikely to impact other recreational users.

- While fishing is known to occur in Castlemaine Harbour its extent is unknown. Given the scale of the proposed activity, however, it unlikely to impact fishing activity in the Harbour.

- With regard to the aesthetic quality of the land and seascape around the Harbour, the site of the proposed aquaculture activity is located in an area of already high aquaculture activity and any visual impact incurred by an individual site of this scale is considered negligible.

*The proposed aquaculture activity will have **no** significant impacts on the possible other users of the area*

6.3 STATUTORY STATUS

There are no specific statutory or development plans for Castlemaine Harbour. Aquaculture is, however, considered under the Kerry County Development Plan and the development plans for the neighbouring land-based area of Castlemaine.

- A core objective of the KCDP is the protection of natural areas while the Castlemaine Local Area Plan stresses that developments must not adversely impact on Natura 2000 sites, either by way of water pollution, wildlife disturbance or otherwise. With site T06/259B located within an SAC and SPA, the culture of oysters has the potential to impact the ecological integrity of the designated sites. However, the outcome of an Appropriate Assessment of the impacts on the Conservation Objectives of the SAC and SPA indicate that impacts will not be significant.

- The proposed aquaculture activity is a positive step towards satisfying the KCDP objective to support the further development of aquaculture in Kerry.

- Equipment (i.e. cages, colourful buoys and markers) associated with the proposed aquaculture activity has the potential to impact the scenic quality of the area. However, as the site is located in an area with relatively high aquaculture activity, any potential aesthetic impacts of the development are negligible.

*The proposed aquaculture activity will have **no** significant impact on the statutory status of the area*

6.4 ECONOMIC EFFECTS

Aquaculture as a local economic activity provides small-scale full-time and part-time employment – usually in the low single digits. As the demand for cultured products increases there are domestic and overseas opportunities for these local enterprises. The aquaculture industry in Ireland is one of the marine sectors targeted for expansion under the Marine Plan for Ireland (Inter-Departmental Marine Coordination Group, 2012) and Food Harvest 2020 (DAFF, 2010).

In 2012, 7, 313 tonnes of Pacific oyster were cultivated in Ireland. Of this, 372 tonnes were produced in Co. Kerry (BIM, 2012).

If permitted, this proposed aquaculture activity would:

- Allow local producers to provide employment opportunities to local people

- Expand already established export markets e.g. France

- Continue to provide local restaurants and shops with locally grown produce

If this proposal ***is not permitted***:

- The area is already designated a shellfish growing area and employment will be lost

- Infrastructure already in place will not be used

- There will be a failure to supply already established export markets

*The proposed aquaculture activity **is** likely to have a positive effect on the economy of the area.*

6.5 ECOLOGICAL EFFECTS

6.5.1 Benthic Communities

The intertidal cultivation of oysters on trestles at this site may lead to changes in sediment and benthic communities in the area in which they occur.

High densities of filter-feeding shellfish can lead to an increase in organic and silt load to the benthic habitats through the egestion of faeces and pseudofaeces. The accumulation of organic matter can affect the seabed below aquaculture operations. Such effects can be significant in large (hectares)

cultivated areas (Nugues *et al*. 2008), however, given the proposed scale of cultivation at T06/259B, the effects are likely to be minor and limited to the area directly beneath the oyster trestles. This conclusion is further supported by the fact that predominant substrate type in the culture area is sand (suggesting some degree of flushing) and the communities are tolerant of organic loading (e.g. *Pygospio elegans* and *Eteone longa*). In addition the tidal range in Castlemaine is relatively high (3.9m on Spring tides and 1.8m on Neap tides). This combined with the strong tidal streams experienced in the Harbour indicate that water movement is high in the Harbour will serve to reduce the risk of accumulations of organic matter beneath the trestles (Marine Institute, 2011).

Access to site T06/259B will be by boat or by road. Oyster culture sites are generally visited once every fortnight during the culture period in order to thin and grade oysters and rotate bags. The level of foot traffic would therefore be considered very light. Tyler-Walters and Arnold (2008) conclude that in communities found in the intertidal sediments (muddy-sand), similar to those found in Castlemaine, would have low sensitivity to the light foot traffic experienced at the oyster culture sites.

The general conclusion is that the culturing of oysters in bags on trestles in the intertidal areas in Castlemaine Harbour SAC is not a disturbance on intertidal mudflat and sand flat habitats as well as estuarine habitats.

*The proposed aquaculture activity is unlikely to have a **significant** impact on benthic communities*

6.5.2 Designated Sites

An Appropriate Assessment of Castlemaine Harbour SAC and SPA assessed the potential ecological impacts of (wild) fishing and aquaculture activities on the conservation features of the designated sites. The main conclusions of the Appropriate Assessment in relation to effects of intertidal oyster cultivation on SAC qualifying features are outlined in **Table 6.1**.

Table 6.1: Potential effects of oyster cultivation on the Castlemaine Harbour SAC qualifying interests

Qualifying features	Potential Impact
Sea lamprey River lamprey	Shellfish production activity will not have any effect on the following Sea Lamprey and River Lamprey attributes: Extent of anadromy (% of river accessible) • Access to spawning (freshwater) • Availability of juvenile habitat (freshwater 3rd order channels) • Spawning beds (freshwater) • Juvenile density (freshwater) • Population structure of juveniles (freshwater) • Extent of spawning bed habitat (freshwater) ***No** impact anticipated*
Salmon	Shellfish production activities do not pose any risk to the following salmon attributes • Distribution (in freshwater) • Fry abundance (freshwater) • Population size of spawners (fish will not be impeded or captured by the proposed aquaculture activity) • Smolt abundance (out migrating smolts will not be impeded or captured by the proposed aquaculture activity) • Water quality (freshwater) ***No** impact anticipated*
Otter	Shellfish production activities are unlikely to pose any risk to otter populations through entrapment or physical injury. Disturbance associated with vessel and foot traffic has the potential

	to affect the distribution of otters at the site. However, the level of disturbance is likely to be very low. ***Non-significant** impact anticipated*
Estuaries Mudflats and sandflats not covered by seawater at low tide	Refer **Section 6.5.1 Benthic Communities**
Petalwort Annual vegetation of drift lines Perennial vegetation of stony banks Salicornia and other annuals colonizing mud and sand Spartina swards Atlantic salt meadows Mediterranean salt meadows Embryonic shifting dunes Shifting dunes along the shoreline with *Ammophila arenaria* (white dunes) Fixed coastal dunes with herbaceous vegetation (grey dunes) Dunes with Salix repens ssp.argentea Humid dune slacks Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*	There is no spatial overlap between the qualifying interest and proposed aquaculture activity and therefore no impact is deemed possible. ***No** impact anticipated*

The use of trestles on the foreshore may lead to the increased sedimentation and organic loading under trestles affecting the habitat quality for waterbirds. The physical presence of structures (bags and trestles) and/or associated human disturbance can lead to displacement of birds from oyster culture areas (Marine Institute, 2011). The main conclusions of the Appropriate Assessment in relation to the potential effect of oyster cultivation on SPA qualifying features are outlined in **Table 6.2**.

Table 6.2: Potential effects of oyster cultivation on the Castlemaine Harbour SPA qualifying interests

Qualifying Interests	Potential Impact
Light-bellied Brent Goose, Wigeon, Mallard	Percentage of intertidal habitat currently occupied by trestles is too small to detect the avoidance of trestles by the birds. If any avoidance of trestles is occurring, it is highly unlikely that it is having a significant impact on the overall population levels of any waterbird species within Castlemaine Harbour. Under full occupation of licences and licence applications, extreme worst-case displacement scenario would cause low level of displacement (<2%) of the total Castlemaine Harbour population of Light-bellied Brent Goose, Wigeon and Mallard that is unlikely to be detectable. Oyster cultivation can involve a high level of activity in the intertidal zone. There is potential for activities within cultivation areas to

	cause disturbance to waterbirds feeding on intertidal habitat outside cultivation areas. However, disturbance to waterbirds outside cultivation areas would have a lower impact than habitat changes casing complete exclusion within the cultivation areas and, apart from Bar-ailed Godwits, the worst-case displacement scenarios do not predict significant impacts. Therefore, it is unlikely that disturbance is having, or would have, a significant impact on intertidal waterbird populations. There are a number of high tide roosts, used by various duck species including Wigeon and Mallard, along the Douglas-Cromane shoreline. Work on intertidal oyster cultivation areas takes place at low tide and will not affect high tide roost. ***No** significant impact anticipated*
Pintail and Common Scoter	Does not occur in the Douglas Strand-Cromane area i.e. the area in which T06/259B is located ***No** impact deemed possible*
Scaup and Red-throated Diver	Do not feed in intertidal habitat Scaup and Red-throated Diver use the subtidal habitats in the Douglas-Cromane area. Any disturbance to birds in subtidal habitat from boats accessing oysters trestles will be infrequent and each incidence will be of very short duration ***No** significant impact anticipated*
Cormorant	Does not feed in intertidal habitat. Cormorants mainly roost on outer sandbanks away from oyster trestles. These sandbanks are large and the area used is well away from the main areas of trestles. Therefore, the trestles do not restrict the availability of habitat for roosting Cormorants. The Cormorants mainly roost on intertidal habitat away from the tideline. Therefore, they are unlikely to be affected by disturbance from boats accessing oyster trestles. Cormorant use the subtidal habitats in the Douglas-Cromane area. Any disturbance to birds in subtidal habitat from boats accessing oysters trestles will be infrequent and each incidence will be of very short duration ***No** significant impact anticipated*
Oystercatcher, Redshank, Greenshank and Turnstone	Positive response to the presence of oyster trestles Oyster cultivation can involve a high level of activity in the intertidal zone. There is potential for activities within cultivation areas to

	cause disturbance to waterbirds feeding on intertidal habitat outside cultivation areas. However, disturbance to waterbirds outside cultivation areas would have a lower impact than habitat changes casing complete exclusion within the cultivation areas and, apart from Bar-ailed Godwits, the worst-case displacement scenarios do not predict significant impacts. Therefore, it is unlikely that disturbance is having, or would have, a significant impact on intertidal waterbird populations. There are a number of high tide roosts, used by various wader species including Oystercatcher, Redshank, Greenshank and Turnstone, along the Douglas-Cromane shoreline. Work on intertidal oyster cultivation areas takes place at low tide and will not affect high tide roost. ***No** significant impact anticipated*
Ringed Plover and Sanderling	Do not occur in the main areas affected or potentially affected by oyster licenses and license applications Limited data on distribution within the Douglas Strand-Cromane area ***No** significant impact anticipated*
Bar-tailed Godwit	Percentage of intertidal habitat currently occupied by trestles is too small to detect the avoidance of trestles by the birds. If any avoidance of trestles is occurring, it is highly unlikely that it is having a significant impact on the overall population levels of any waterbird species within Castlemaine Harbour. Godwit populations are infrequent visitors occurring some years but not in others. Localised displacement and anthropogenic presence may have highly localised avoidance of trestle sites. Applicant has indicated trestles will be placed on hard substrate as far as reasonably possible which will reduce potential feeding ground exclusion footprint. Under full occupation of licenses and license applications, extreme worst-case scenario (probably unrealistic) would cause displacement of up to 7% of the total Castlemaine Harbour population of Bar-tailed Godwits. However, the individual licence application considered in this report is unlikely to have significant impacts on Castlemaine Harbour population of Bar-tailed Godwits. ***No** significant impact anticipated*
Chough (*Pyrrhocorax pyrrhocorax*)	There is no spatial overlap between the qualifying interest and proposed aquaculture activity and therefore no impact is deemed possible. ***No** impact anticipated*

6.5.3 Natterjack Toad

In Castlemaine Harbour, natterjack toads are found in coastal dunes and marshes, bog systems and in wet fields near the sea. As none of these habitats overlap, spatially, with the proposed aquaculture activity no impact of the proposed aquaculture activity on natterjack toads is deemed possible.

*The proposed aquaculture activity will **not** impact on Natterjack Toad populations*

6.6 GENERAL ENVIRONMENTAL EFFECTS

6.6.1 Non-native Species

Spawning of non-native oyster (i.e. Pacific oyster) poses a potential risk to the ecology of Castlemaine Harbour. Benthic surveys carried in 2008 and 2009, indicate that no significant spawning has been observed and there are no accumulations of naturally spawned Pacific oyster in the area. In addition, the extensive use of triploid oyster in the area will reduce the risk of spawning in this area (Marine Institute, 2011).

6.6.2 Use of Natural Resources

The cultivation of oysters will use naturally occurring marine phytoplankton present in the seawater. High levels of plankton occur naturally at the location and shellfish cultivation at this scale will not result in limiting plankton growth or abundance.

6.6.3 Pollution and Nuisance

Air emissions will arise from the burning of fuel in boat engines and other machinery used in husbandry and harvesting operations. However, there will be no emissions to air of other hazardous, toxic or noxious pollutants.

6.6.4 Noise

Noise will be generated during husbandry and harvesting operations (e.g. use of boats and other machinery). However, noise levels will not be significant. The impact of noise has been assessed for Castlemaine Harbour SPA and was determined as non-significant in relation to the Conservation Objectives of the Castlemaine Harbour SPA.

*Taking all of the above into account it is considered that the environmental effects of the proposed aquaculture activity are **not** likely to be significant.*

6.7 EFFECT ON MAN-MADE HERITAGE

There are no significant heritage features present in the vicinity of site T06/259B.

*There are **no effects** anticipated on the man-made heritage of value in the area as a result of the proposed aquaculture activity.*

7 RECOMMENDATIONS

In accordance with Section 59 of the Fisheries (Amendment) Act 1997 the Technical Advisor recommends that the licence be granted for the site reference number T06/259B for the following reasons and considerations:

- The technical advisor has found that the tests applied during the Appropriate Assessment process to habitats, benthic species and birds were satisfactory. Although there is an overlap with qualifying habitats and species with oyster cultivation techniques, the interaction levels are believed to be sufficiently low and not thought to have a significant impact on the conservation objectives for the Castlemaine Harbour SAC and SPA;

- The technical advisor agrees that proposed stocking densities are sufficient however, should Patrick Costello's operations expand in the future it is recommended that a full environmental assessment take place alongside a cumulative assessment of all aquaculture operations in Castlemaine Harbour SAC and SPA;

- Due to the increasing number of licenced aquaculture operations in the Castlemaine Harbour SAC and SPA an aquaculture management plan (finfish and shellfish) is recommended;

- The technical advisor recommends that Patrick Costello operates according to European best practice.

8 CONCLUSIONS

The site under appeal is suitable for the intended purpose.

- The proposed aquaculture activity will *no significant impact* on other possible users of the area;
- The proposed aquaculture activity will *have no significant impact* on the statutory status of the area;
- The proposed aquaculture activity will have a *positive effect* on the economy of the area.
- The proposed aquaculture activity will have *no significant effects* on wild fisheries, natural habitat and fauna provided effective controls and monitoring protocol are adhered to;
- There are *no significant environmental effects* expected as a result of the proposed aquaculture activity;
- The licensees should operate in line with best European industry practice;
- There are *no effects* anticipated on the man-made heritage value in the area as a result of the proposed aquaculture activity.

The proposed aquaculture activity will have a positive effect on the Castlemaine economy by securing jobs and maintaining established export markets.

Taking all other available information into account it would appear the facility would pose an insignificant impact on the environment, statutory status and man-made heritage value of the area.

The Technical Advisor recommends the decision to grant a licence.

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