



Technical Advisors Report

AP7 (1,2,3) / 2018

**Bannow Bay Oyster Aquaculture and Foreshore Licence
Application Appeal**

Report prepared by MERC Consultants on behalf of

Aquaculture Licences Appeals Board

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Appeal Ref No. AP7/1-3/2018

Aquaculture Licences Appeals Board

Technical Advisor's Report

Description:

Assessment of the appeal against the Minister's decision to refuse aquaculture and foreshore licences for the cultivation of pacific oysters at site references T3/86-A, T3/86-B, T3/86-C, T3/87-A, T3/88-A, T3/88-B and T3/88-C within Bannow Bay, Co. Wexford.

Licence Application

Department Ref No: AP7/1-3/2018

Applicant: Hook Head Shellfish Ltd., Fitzpatrick Oysters Ltd. and S.B.S Ltd

Minister's Decision: Licence Applications Refused to Grant

Appeal

Type of Appeal:

Appeal against the decision of the Minister for Agriculture, Food and the Marine to refuse to grant an Aquaculture and Foreshore Licence to Hook Head Shellfish Ltd., for the cultivation of Oysters using bags and trestles at Bannow Bay, Co. Wexford on Site T03/87A.

Appeal against the decision of the Minister for Agriculture, Food and the Marine to refuse to grant an Aquaculture and Foreshore Licence to Fitzpatrick Oysters Ltd., for the cultivation of Oysters using bags and trestles at Bannow Bay, Co. Wexford on Site T03/88A, B & C.

Appeal against the decision of the Minister for Agriculture, Food and the Marine to refuse to grant an Aquaculture and Foreshore Licence to S.B.S Ltd, for the



cultivation of Oysters using bags and trestles at Bannow Bay, Co. Wexford on Site T03/86A, B and C.

Appellant(s): Hook Head Shellfish Ltd, Fitzpatrick Oysters Ltd. and Tomás Ffrench S.B.S Ltd.

Observers: Fitzpatrick Oysters Ltd., Tomás Ffrench.

Technical Advisor MERC Consultants Ltd.

Date of site

Inspection 03/04/2019



Table of Contents

1.0 General Matters / Appeal Details.....	5
1.1 Appeal Details & Observer Comments / Submissions.....	5
1.2 Name of Appellant (s).....	5
1.3 Name of Observer (s).....	5
1.4 Grounds for Appeal.....	6
1.5 Minister’s submission.....	9
1.6 Applicant response.....	9
2.0 Consideration of Non-Substantive Issues.....	10
3.0 Oral Hearing Assessment.....	12
4.0 Minister’s file.....	12
5.0 Context of the Area.....	14
5.1 Physical descriptions.....	14
5.2 Resource Users.....	16
5.3 Environmental Data.....	20
5.4 Statutory Status.....	24
5.5 Man-made heritage.....	30
6.0 Section 61 Assessment.....	33
6.1 Site Suitability.....	34
6.2 Other uses.....	36
6.3 Statutory Status.....	37
6.4 Economic effects.....	38
6.5 Ecological Effects.....	38
6.6 General Environmental Effects.....	42
6.7 Effect on man-made heritage.....	42
6.8 Section 61 Assessment Conclusions.....	42
6.9 Confirmation re Section 50 Notices.....	46
7.0 Screening for Environmental Impact Assessment.....	46
8.0 Screening for Appropriate Assessment.....	47
9.0 Technical Advisor’s Evaluation of the Substantive Issues in Respect of Appeal and Submissions/Observations Received.....	49
10.0 Recommendation of Technical Advisor with Reasons and Considerations.....	59
11.0 Draft Determination Refusal /or Grant.....	60
References.....	61



1.0 General Matters / Appeal Details

1.1 Appeal Details & Observer Comments / Submissions

Date Appeal Received:

Appeal	Site Ref	Appellant	Date of Appeal
Appeal 7/1/2018	T03/87A	Hook Head Shellfish Ltd	3 rd August, 2018
Appeal 7/2/2018	T3/88 A, B &C	Eugene Fitzpatrick, Fitzpatrick Oysters Ltd	9 th August, 2018
Appeal 7/3/2018	T3/86 A, B, C	Tomas French, SBS Ltd	9 th August, 2018

Location of Site Appealed: Bannow Bay, Co. Wexford.

1.2 Name of Appellant (s)

Appeal	Appellant
Appeal 7/1/2018	Hook Head Shellfish Ltd Ramstown Fethard on Sea New Ross Co. Wexford
Appeal 7/2/2018	Eugene Fitzpatrick, Fitzpatrick Oysters Ltd Saltmills New Ross Co. Wexford
Appeal 7/3/2018	Tomas French, SBS Ltd Danecastle Carrig-on-Bannow Co. Wexford

1.3 Name of Observer (s)

Fitzpatrick Oysters Ltd. Eugene Fitzpatrick, Taulaght, Saltmills, New Ross, Co. Wexford.
Appeal received on 24th September, 2018.

Tomás Ffrench, received on 19th September, 2018.



1.4 Grounds for Appeal

SUBSTANTIVE ISSUES

Appeal Ref	Application Site	Appellant
Appeal 7/1/2018	T03/87A	Hook Head Shellfish Ltd

1. The AA process findings are not relevant to the applications site, thus its conclusion of adverse effects is not supported.

The Appropriate Assessment findings cited in the rationale for refusal are not applicable to the area which are the subject of the current license application (T03/87A). Species of shorebird which have been shown to be potentially negatively affected by aquaculture, namely Grey Plover, Dunlin and Knot do not occur in the area under application. The risk of deterioration therefore does not exist and thus therefore neither does the potential for adverse effects on European Site integrity. The Appellant refers to adjoining documentation “Winter Bird Survey 2017/18” by Inis Environmental.

2. Mitigation measures available and being investigated for Dungarvan Harbour could be applied to the application site.

Mitigation measures being investigated at Dungarvan Harbour could be applied to the application area at a minimum until such time as their efficacy is proven or disproved in terms of avoiding adverse effects on site integrity.

3. The “Trestle Study” referred to in the AA was not designed to produce reliable data for individual sites.

The “Trestle Study” in the AA was designed to determine overall patterns of association across multiple European sites and was not designed to produce reliable data for individual sites. Aquaculture activities should continue to be licensed until such time as this is available.

4. There is no examination or analysis in the AA determination used by the Department to refuse the license application.

The Department is requested to show the examination and analysis of data used in the AA and how it is linked to the potential negative impacts on the SCI’s of the SPA. Any findings must be complete, precise and definitive before the Competent Authority can issue a determination.

SUBSTANTIVE ISSUES

Appeal Ref	Application Site	Appellant
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Appeal 7/2/2018	T3/88 A, B & C	Eugene Fitzpatrick, Fitzpatrick Oysters Ltd
Appeal 7/3/2018	T3/86 A, B, C	Tomas French, SBS Ltd

Fitzpatrick Oysters and SBS Ltd have concerns regarding the validity of the Appropriate Assessment process and its conclusions regarding disturbance effects which cannot be mitigated. The following summarises the concerns they have both detailed:

1. The bird data used in the Appropriate Assessment has limitations which affect confidence in the assessment conclusions

The AA does not have the required amount of field data and the updated AA refers to only two of the three datasets submitted to the DAFM. Three years of winter bird data was submitted to DAFM for years 2014/2015, 2015/2016 and 2016/2017 but only two years are used in the AA.

There is limited amount of site specific bird data for Bannow Bay with a heavy reliance on the “Trestle Study” (Effects of intertidal oyster culture on the spatial distribution of waterbirds). This study involved one observer spending four days studying the bay and where the study area did not extend to the whole bay of the entirety of the aquaculture production area.

IWeBs data for Bannow Bay between 1994/95 and 2013/14 provided only 35-37% of a potential 140 winter counts for that period and collection effort changed from two counters to one. The limited amount of site specific data and variation in collection effort is of concern.

The AA states that Light-bellied Brent Geese were only recorded on two out of four trestle study counts and that they showed strong negative patterns of association with trestles on both counts. The reduced monitoring effort (tide and counters)/lack of data and the presence of other feeding sources/habitat preference might explain use of the site by Brent Geese rather than it being a trestle effect.

2. The Appropriate Assessment is based on assumptions which are flawed

The assumption that the 2009/2010 low tide counts provide an accurate representation of the species low tide distribution. The limitations of four low tide counts being carried out may affect confidence in assessment conclusions. The inclusion of data on weather conditions which affect bird behaviour may increase confidence in the assessment conclusions.

The assumption that bird use of area 00413 will be uniform in terms of feeding and roosting. This sector is not uniform in habitat with notable variation in bathymetry and substratum.



The assumption that the absence of a bird species from the areas occupied by trestles is regarded as exclusion. This highly precautionary approach fails to assess the quality of habitat in the absence of trestles and does not take account of better feeding areas outside of the oyster production areas.

3. Bird life zoning plans which were agreed by NPWS, BIM and DAFM to protect bird life and guide aquaculture development have been dismissed as part of the Appropriate Assessment.

Bird life zoning plans are dismissed from the AA on the basis of lack of information about the scientific rationale behind their designation. These zones were established following extensive consultation between DAFM, BIM and NPWS. They were based on bird studies and expert advice and guided all aquaculture development from 1993 onward. The zones with agreement from NPWS have guided the industry into less sensitive areas. The wildlife zoning maps were produced as a result of EU Life funding.

Further SBS Ltd states that an application made by SBS Ltd was refused by DAFM in 1993 on the basis that it was in a bird zone and advice was given to apply for a license in the yellow shaded area as mapped which was the middle of bay which was not deemed important for birds.

4. The Trestle Study is limited

As locals bird distribution has been observed and show species attracted to the trestles and which feed in and around the trestles. The trestle study does not appear to have considered the variations in background disturbance on licensed sites; some sites are remote others are close to land and to disturbance/predation.

5. Sedimentation and Eutrophication

The appellants suggest that the Appropriate Assessment concerns regarding potential impacts from sedimentation and eutrophication effects of intertidal bivalve culture on benthic invertebrates and consequently for waterbird species, should be balanced against ecosystem services provided by a standing stock of cultured bivalves in Bannow Bay.

NON-SUBSTANTIVE ISSUES

1. There are no objections to the license application from the local community or from the County Council.
2. Oyster farming has potential for tourism development leading to economic growth in the region.



3. The positive impacts of shellfish culture in Bannow Bay should have been considered in the AA.

4. The application sites remain within SUMS marking scheme

1.5 Minister's submission

Section 44(2) of the Fisheries (Amendment) Act 1997 states that

“The Board shall, as soon as practicable after receiving a notice of appeal, give a copy to each other party to the appeal.”

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 *Notice of Appeal* was forwarded to the Department of Agriculture, Food and Marine on 3.9.2018. While the Department responded within the required timeframe and in so doing provided copies of relevant documentation relating to the application and internal process, no Ministerial submission in relation to the appeal was received by the Board within the specified timeframe. It is therefore determined that no Ministerial submission was made in response to the appeal which the Board is required to consider.

1.6 Applicant response

The applicants (as the appellants) may submit responses to appeal submissions under the provision set out in Section 44 (2) of the Fisheries (Amendment Act) 1997.

The Board may also request a submission from any party to the appeal under Section 46 of the Act. No appeal submissions were requested from the applicants by the Board and the applicants have not made any appeal submissions.

Section 45 provides that any person who is not a party to the appeal may make submissions or observations in writing to the Board in relation to an appeal. Two (2) submissions were received in relation to Appeal AP 7(1). The submissions were received from local interests and entities that are party to AP7 (2) and AP7 (3). Submissions are identical and raised the following issues in relation to AP7 (1) Notice of Appeal:

1. Winter bird surveys were co-funded jointly by producers in Bannow Bay in conjunction with the Marine Institute and not just by the appellant in conjunction with the Marine Institute.
2. Where the mitigation proposed by the appellant may mirror that being investigated at present with respect to Dungarvan Harbour SPA, the submission makes clear that



it is felt that this mitigation is entirely inappropriate for Bannow Bay SPA for reasons related to the different orientation and tideline of the latter site and associated density and complexities of oyster trestle layout in Bannow Bay. A further issue is raised in the context of the availability of feeding areas for birds. The submission alleges that Bannow Bay has much more by way of available feeding area and as such the AA for Dungarvan Harbour that indicates need for mitigation is not appropriate to the situation in Bannow Bay, where the submission claims that birds are not being excluded in Bannow Bay but are merely availing of better feeding areas.

3. That the AA was heavily reliant on the findings of the trestle study which was based on limited survey effort in Bannow Bay.
4. No comment can be made in relation to point 4. Of the Notice of Appeal as it refers to a legal issue

No applicant responses are recorded in relation to these submissions.

2.0 Consideration of Non-Substantive Issues

The appellants raised a number of issues that have been considered as non-substantive matters in the context of the appeal evaluation, reasons for each are as set out below.

1. *There are no objections to the license application from the local community or from the County Council.*

Public consultation is a requirement as part of the application process and the application was advertised as required and made available for inspection by the public, in accordance with requirements. The Department's Recommendation in relation to Applications T03/86/87 and 88 records that an objection was received in relation to birds from a local entity based in Kilmore Co Wexford. It was not possible to disaggregate the comments into aquaculture and foreshore elements but the objection was to the effect that no new licence applications should be granted for Bannow Bay so as not to prejudice the long term conservation of the biodiversity of the bay. It has been confirmed that this objection was received from a local interest. Accordingly the statement by the appellant in relation to objections by local is considered inaccurate. The issue is regarded as non-substantive and will not be considered further in the appeal evaluation.

2. *Oyster farming has potential for tourism development leading to economic growth in the region.*

The area has a significant and well established tourism sector that supports existing tourism infrastructure and facilities. Further tourism development in Co Wexford is acknowledged in the context of the Tourism Statement of Strategy and Work programme for Wexford Local Authorities 2017-2022. Objective 3.1 aims to promote tourism as a major sector. In this regard the strategy aims to support niche market tourism areas including cruise,



conference and leisure activities and areas. While there may be scope for development of niche tourism opportunities and innovation in terms of tourism products, including for example tourism related to oyster production, facilitating such developments are issues that are central in the context of the granting of aquaculture licences. Indeed, there are existing licensed oyster farms that could be used as the basis for developing oyster tourism. While oyster related tourism may have potential to contribute to economic development, the matter is regarded as non-substantive in the context of the appeal and will not be considered further in the appeal evaluation.

3. The positive impacts of shellfish culture in Bannow Bay should have been considered in the AA.

It is a factually correct to state that aquaculture can under certain circumstances have beneficial impacts on the aquatic environment and that positive ecological effects may result from e.g. improvements in water quality through reductions in nutrient levels or reduced impacts through turbidity reduction effects. Nevertheless, in the present case the licence applications have been refused grant on the basis of uncertainty concerning the levels of ecological risk associated with the project in the context of waterbird species that utilise the site. Consideration of potential ecological benefits associated with increased aquaculture output licensing in Bannow Bay would require further research and evaluation of detailed environmental data collected over an appropriate timeframe. Results would need to clearly demonstrate that licensing of further sites would have a net residual positive impact on all conservation objects for the designated SPA site. An appropriate analysis has not been carried out in this context. Significant gaps in existing knowledge and understanding of the site means that the proposed granting of further licences based on the suggested positive benefits of aquaculture would be premature given uncertain levels of ecological risk. The matter is regarded as non-substantive in the context of the appeal and will not be considered further in the appeal evaluation.

4. The application sites remain within SUMS marking scheme

The applications are all for sites that are located within the Special Unified Marking Scheme (SUMS) area. The Bannow Bay SUMS area was developed by Bord Iascaigh Mhara in conjunction with oyster producers as a service to the industry designed to enhance efficiency. The objective of the SUMS is to improve navigation and safety for all users of Bannow Bay. The location of applicant sites within the SUMS marking scheme was acknowledged in submissions received from stakeholders during the initial application. However, the decision to refuse to grant was not in any way based upon the matters that are related to the positioning of licence applications. Accordingly, the matter of sites being located within the SUMS area is incidental and is not a matter that has played a significant role in the Ministers decision to refuse to grant. The matter is regarded as non-substantive in the context of the appeal and will not be considered further in the appeal evaluation.



3.0 Oral Hearing Assessment

The appellants did not submit a request for an oral hearing with their Notices of Appeal. Having reviewed the Ministers File, additional correspondence from the appellant/applicant/ Department of Agriculture, Food and the Marine and carried out a site visit, there is sufficient documentation available to make a clear decision in relation to the appeal.

4.0 Minister's file

No.	Date	Item
1.	11/02/2011	Application to the Aquaculture and Foreshore Management Division (DAFM) for an aquaculture and foreshore license for a single specific site by Hook Head Shellfish Ltd
2.	11/02/2011	Application to the Aquaculture and Foreshore Management Division (DAFM) for an aquaculture and foreshore license for a single specific site by Fitzpatrick Oysters Ltd.
3.	8/2/2011	Application to the Aquaculture and Foreshore Management Division (DAFM) for an aquaculture and foreshore license for a single specific site by S.B.S. Ltd.
4.	February 2017	Annex II Marine Institute Bird Studies. Bannow Bay Special Protection Area: Appropriate Assessment for Aquaculture. Report produced by Atkins Ecology for the Marine Institute
5.	February, 2017	Appropriate Assessment Summary Report of Aquaculture in the Bannow Bay SAC (Site code: 000697) and Bannow Bay SPA (Site code 004033). Marine Institute
6.	July, 2017	Annex II Bannow Bay SPA. Updated Assessment of Potential Displacement Impacts. Report produced by Atkins Ecology for the Marine Institute
7.	November 2017	Annex I Appropriate Assessment Report for Bannow Bay SAC (Site Code:000697)
8.	March 2018	Annex II Bannow Bay SPA. Updated Assessment of Potential Displacement Impacts. Report produced by Atkins Ecology for the Marine Institute
9.	March, 2018	Appropriate Assessment Summary Report of Aquaculture in the Bannow Bay SAC (Site code: 000697) and Bannow Bay SPA (Site code 004033). Marine Institute
10.	March 2018	Annex I Appropriate Assessment Report for Bannow Bay SAC (Site Code:000697)
11.	01/05/2018	Letter to Aquaculture and Foreshore Licensing Section from Marine Institute regarding TO3/086A,B & C application by SBS Ltd.



12.	01/05/2018	Letter to Aquaculture and Foreshore Licensing Section from Marine Institute regarding TO3/087A application by Hook Head Shellfish Ltd.
13.	01/05/2018	Letter to Aquaculture and Foreshore Licensing Section from Marine Institute regarding TO3/088A,B & C application by Fitzpatrick Oysters Ltd.
14.	08/05/2018	Submission in relation to Aquaculture license applications T03/86A, B&C, T03/87A, TO3/88A, B & C, TO3/96A and TO3/97A and TO3/98 from SWC Promotions
15.	14/05/2018	Email to Aquaculture Licensing Section regarding license applications T03/86A, B & C, T03/87A, TO3/88A, B & C, TO3/96A and TO3/97A and TO3/98 from Sea Fisheries Protection Unit.
16.	24/05/2018	Submission to the Aquaculture Licensing Section regarding license applications T03/86A, B & C, T03/87A, TO3/88A, B & C, TO3/96A and TO3/97A and TO3/98 from An Taisce
17.	24/05/2018	Submission to the Aquaculture Licensing Section regarding license applications T03/86A, B & C, T03/87A, TO3/88A, B & C, TO3/96A and TO3/97A and TO3/98 from Wexford County Council
18.	25/05/2018	Email to Aquaculture Licensing Section regarding license applications T03/86A, B & C, T03/87A, TO3/88A, B & C, TO3/96A and TO3/97A and TO3/98 from BIM
19.	25/05/2018	Email to Aquaculture Licensing Section regarding license applications T03/86A, B & C, T03/87A, TO3/88A, B & C, TO3/96A and TO3/97A and TO3/98 from Development Applications Unit of Department of Culture, Heritage and the Gaeltacht.
20.	14/06/2018	Report on Aquaculture License Application by Fitzpatrick Oysters Ltd from Marine Engineering Division of DAFM.
21.	14/06/2018	Report on Aquaculture License Application by S.B.S. Ltd from Marine Engineering Division of DAFM.
22.	14/06/2018	Report on Aquaculture License Application by Hook Head Shellfish Ltd. from Marine Engineering Division of DAFM.
23.	24/09/2018	Submission to ALAB from Fitzpatrick Oysters Ltd. (reference AP7/2/2018) and making observations on AP7/1/2018
24.	19/09/2018	Submission to ALAB from Tomas Ffrench and making observations on AP7/1/2018
25.	5/7/2018	Determination of Aquaculture/ Foreshore Licensing application – T03/87 by the Minister for Agriculture, Food and the Marine.
26.	5/7/2018	Determination of Aquaculture/ Foreshore Licensing application – T03/88 by the Minister for Agriculture, Food and the Marine.
27.	5/7/2018	Determination of Aquaculture/ Foreshore Licensing application – T03/86 by the Minister for Agriculture, Food and the Marine.



28.	Undated	00350-18: Recommendation to refuse to grant an Aquaculture/Foreshore License for Application T03/87 to the Minister from Ann McCarthy, Coastal Zone Management Division.
29.	Undated	00352-18: Recommendation to refuse to grant an Aquaculture/Foreshore License for Application T03/88 to the Minister from Ann McCarthy, Coastal Zone Management Division.
30.	8/08/2018	Appeal to ALAB: AP7/3/2018, S.B.S.Ltd, Danescastle, Carrig-on-Bannow, Co Wexford.
31.	8/08/2018	Appeal to ALAB: AP7/2/2018, Fitzpatrick Oysters Ltd. Tallaught, Saltmills, co Wexford.
32.	1/08/2018	Appeal to ALAB: AP7/1/2018, Hook Head Shellfish Ltd, Ramstown, Fethard on Sea, Co Wexford.

5.0 Context of the Area

5.1 Physical descriptions

Bannow Bay, situated on the south coast of Co. Wexford, is a relatively large predominantly estuarine bay. It is approximately 7 km long from Big Burrow spit at the mouth of the bay to Wellington Bridge at the head. At its widest point, between Tintern Bridge and New Quay, it measures 2.7km (Figure 5.1).

The surrounding land use is predominantly mixed agriculture dominated by dairy and beef farming with some tillage. The area is generally quite isolated with Wellington Bridge at the head of the bay and Saltmills on the western shore being the only significant areas of settlement.

The majority of the bay is comprised of intertidal mudflats and sandflats dissected by a narrow subtidal channel formed from the influence of the Owenduff and Corock Rivers which drain into the bay near its head. Navigation via this channel is possible with small vessels utilising local knowledge due to the dynamic nature of the sandbanks.

The margins of the bay are characterised by areas of sheltered intertidal reef, pockets of saltmarsh and tracks constructed to provide access to aquaculture installations. Areas of erosion are evident along sections of the eastern shore and building rubble has been used to create a defence along sections of this shore along the perimeter of the adjacent farmland.

The licence applications under appeal (AP7/1-3/2018) are located in the midsection of the between Saint Kierans and New Quay (Figure 5.1).





Figure 5.1. Bannow Bay, Co. Wexford. Showing locations of sites under appeals AP7/1-3/2018



5.2 Resource Users

Aquaculture Activity

Oyster cultivation is the principal form of aquaculture within the bay and consists of intensive culture of Pacific oyster seed (*Magallana gigas* Syn *Crassostrea gigas*) using a bag and trestle method within the intertidal zone. The areas of oyster culture within the bay overlaps with areas of intertidal mudflats and sandflats in the mid-section of the bay.

The oyster seed used is currently sourced from oyster nurseries in France or the UK. There are three main pacific oyster production areas within Bannow Bay; the North and South of the bay, with one producer farming in the West of the bay (figure 5.2) In general, oyster farms are positioned between mean Low Water Spring and mean Low Water Neap, allowing on average between 2 and 5 hours exposure depending on location, tidal and weather conditions). Farms are typically accessed during spring tides (at low tide) using vans or tractors along tracks created for this purpose and also over the adjacent intertidal area.

Preparatory work is conducted in the service areas in the intervening periods, including grading and packing, preparation of bags and trestles and general maintenance work which includes shaking and turning of bags, and hand removal of fouling and seaweed to ensure maintenance of water flow through the bags when submerged.

Angling Activity

Within Bannow Bay, shore angling takes place from either side of the channel mouth at Blackhall to the east and Newtown to the west on the first two hours of the flood tide and around high water for bass and flounder. Gilthead bream, smoothound and seatrout have also been taken in the area. As the tide rises the area at Newtown on the eastern side of the bay where the channel runs parallel to the shore can also be fished. Bait (lugworm) is sourced from the channel banks and crab from the reef areas around St Kieran's Quay.

Tourism

The south east coast of Ireland is a popular tourist destination. However, tourism is limited in the immediate area surrounding Bannow Bay which is rather isolated. With the exception of Wellington Bridge at the head of the bay and Saltmills on the west side of the bay, there are no significant towns, villages or holiday accommodation within the immediate vicinity of Bannow Bay and tourism is limited to occasional walkers and specialised interest groups (e.g. bird watchers).

Agricultural Activity

The area around Bannow Bay is devoted to mixed farming which is typical of the region. Grassland is the largest land use category with dairying and drystock production accounting for the majority of the area while there are also significant numbers of farms with a sheep enterprise or horses. A smaller but substantial proportion of the agricultural land is used for tillage crops with spring barley being the predominant crop but with an increasing area



being devoted to winter wheat and barley. There are smaller areas of other tillage crops such as, oats, maize, fodder beet, oil seed rape, beans and potatoes. Other land uses such as horticulture and forestry represent a very small proportion of the land use in the area. The soils in the area are mainly freely drained (Clonroche and Bannow Associations) but with some areas of poorly or imperfectly drained soils (Rathangan and Fethard Associations). Overall the soils are suited to a wide range of uses and this is reflected in the mix of farming enterprises (Source: Teagasc regional office for Wicklow/Carlow/Wexford area).

The EPA's diffuse model risk assessment, which investigates the relationship between catchment attributes (percentages of diffuse land cover including agriculture), water chemistry and ecological status, highlights many diffuse risk areas in the catchment. The predominantly dry soil types and generally low lying topography means that the risk of agricultural runoff is low.

Forestry

Commercial forestry in the catchment is low with the percentage forest cover (20.23km²) significantly lower than the national average. The nearest commercial forestry to shellfish areas is in the vicinity of Castleworkhouse, approximately 2 km west of the shellfish areas. The Tintern Abbey stream drains through this area of forestry but enters Bannow Bay south of the shellfish area. Due to the low level of forest cover in the catchment and its distance and connectivity to the shellfish area, forestry is unlikely to be affecting shellfish water quality in this shellfish area.

Inshore Fishing activity

Figure 5.3 shows the location of shellfish dredging areas for vessels <15 metres in length using hydraulic and towed dredging gear in Bannow Bay. There are no significant static gear fisheries for shellfish or finfish species in Bannow Bay, licensed or otherwise. Periwinkles are harvested commercially by hand in intertidal parts of the bay that have suitable substrate.





Figure 5.2. Existing aquaculture licence areas within Bannow Bay.





Figure 5.3. Location of designated shellfish dredging areas within Bannow Bay.



Leisure Users of the water body & surrounding area

The majority of coastal and marine leisure activities are concentrated around Bannow beach and Big Burrow dunes to the south of the site. In this area beach walking and horse riding take place.

Within Bannow Bay, north of Big Burrow spit, the following leisure activities occur:

- **Walking:** A way marked trail is located in the vicinity of Saltmills on the west side of Bannow Bay. This walk runs along the estuary to the old estate village of Saltmills and minor roads follow the edge of Bannow Bay. Additional *Ad hoc* walkers also utilise the margins of the estuary.
- **Bird watching:** Bannow Bay supports an excellent diversity of wintering waterfowl and is one of the most important sites in the south-east, as such it is a popular location for bird watching by enthusiasts.

Other Users

Hand-gathering of Periwinkles (*Littorina littorea*) occurs within the intertidal area on the west side of Bannow Bay in the area between St Kiernan's Quay to Saltmills to Big Burrow. Bait-digging also occurs in this area and also on the east side of the bay between Bannow Island and New Quay (NPWS, 2012).

5.3 Environmental Data

Water Quality

Bannow Bay is surrounded by the Ballyteigue-Bannow catchment. This catchment includes the area drained by all streams entering tidal water between Greenore Point and Railway Bridge, Great Island, Co. Wexford, draining a total area of 654km². There are no large urban centres in the catchment.

The northern section of Bannow Bay, Between Wellington Bridge and Barrystown, known as the Corock Estuary, is defined as a transitional water body. The remainder of the site, to the mouth of the bay, is classified as a coastal water body.

Water quality monitoring and assessments carried out on Irish coastal waters and transitional water bodies for the Reporting period 2010-2012 by the EPA have classified the water quality of the Corock Estuary as "intermediate" and the coastal water body of Bannow Bay as "potentially eutrophic" (Source [https://gis.epa.ie/EPAMaps/Water quality](https://gis.epa.ie/EPAMaps/Water%20quality)).

Water Framework Directive

The water quality status of transitional and coastal waterbodies assessed under the EU Water Framework Directive (2000/60/EC) is provided under section 5.4



Under the Water Framework Directive an approved risk is also assigned to each feature by catchment scientists. The approved risk for the Corock Estuary is currently assigned as “under review”. The approved risk for Bannow Bay coastal water body is also under review. (Source <https://gis.epa.ie/EPAMaps/Water Framework Directive>).

Waste Water

A total of nineteen (19) urban waste water treatment plants are located within the Ballyteigue-Bannow catchment. These are waste water treatment plants in agglomerations (towns/cities) with a population equivalent of over 500 during 2006, 2007 and 2008, and were reported on and assessed for compliance under The Urban Waste Water Treatment Regulations, 2001 (S.I. No. 254 of 2001) and 2004 (S.I. 440 of 2004).

Classified Bivalve Mollusc Production Areas

Bannow Bay (figure 5.4) is a classified bivalve mollusc production area (Class B) for the production of oysters and mussels.

The Classified Bivalve Mollusc Production Areas in Ireland designates the production areas from which live bivalve molluscs may be taken. Gatherers may only harvest live bivalve molluscs from these production areas which have fixed locations and boundaries and which are classified as being of class A, B or C in accordance with Regulation (EC) No 854/2004. Annex II of Regulation (EC) 854/2004 sets out the requirements for the classification of production and relaying areas, the monitoring of classified relaying and production areas and the recording and exchange of information.

Shellfish Flesh Monitoring Programme

Shellfish flesh classifications (carried out under the European Communities (Live Bivalve Molluscs) (Health Conditions for Production and Placing on the Market) Regulations, 1996 (S.I. No. 147 of 1996) indicate faecal contamination in shellfish flesh. Sampling is carried out by the Sea Fisheries Protection Authority (SFPA) on at least a monthly basis.

Bird data

Bird data for Bannow Bay is available as follows:

Bird Usage Counts (low tide) were completed by NPWS in 1998 and 1999 with five winter counts between January 1998 and January 1999.

Irish Wetland Bird Survey (I-WeBs) counts (high tide) (Source: <https://birdwatchireland.ie>) are available from 1994/1995 to 2015/2016. Atkins provides a summary of coverage between the years 1994/95 and 2013/14 (Atkins, 2017). During this period counts were completed during 14 winters with between 1 and 6 counts each winter. There is no counts data for five winters during this period and the data quality is considered to be poor for one winter.



NPWS completed four counts low tide and one high tide count as part of the Waterbird Survey Programme in 2009/10. Counts were completed between October and January. This data is used to inform the conservation objectives for Bannow Bay (NPWS, 2012) and is available in Cummins and Crowe (2010).

In 2011 four winter low tide counts were completed as part of Marine Institute Study (the “trestle study”) to investigate the effects of intertidal oyster culture on the spatial distribution of waterbirds (Gittings and O’Donoghue, 2012 and 2016).

Bird Survey Ireland counts (BSI, 2015, 2016, 2018) were completed during the winter 2014/15, 2015/16 and 2017/2018. During each winter four low tide and one high tide count was completed. These surveys were produced by Inis Environmental Ltd on behalf of the Marine Institute and the oyster producers in Bannow Bay.





Figure 5.4. Location of SUMS area, shellfish waters and Bivalve mollusc production areas.



5.4 Statutory Status

Nature Conservation Designations:

Natura 2000 sites Special Areas of Conservation (SAC's) established under the EU Habitats Directive (92/43/EEC) and Special Protection Areas (SPA's) established under the EU Birds Directive (79/409/EEC).

The proposed aquaculture sites are located within Bannow Bay SAC (Site code: 000697) and Bannow Bay SPA (Site code: 004030) See figure 5.4. The site is designated as an SAC owing to the excellent range of intertidal and coastal habitats present. Bannow Bay SPA supports an excellent diversity of wintering waterfowl and is one of the most important sites in the south-east. Of particular note are the internationally important populations of Light-bellied Brent Goose and Black-tailed Godwit. The site also supports nationally important numbers of a further eleven species. The intertidal mudflats and sandflats support a rich macroinvertebrate fauna which provide a feeding resource for wintering water birds while the adjacent saltmarsh and associated shoreline habitats provide suitable roosts.

A number of additional Natura 2000 sites lie within a 15km radius of the proposed aquaculture sites (See table 5.1 for details). The features of interest for all sites within a 15km radius of the proposed aquaculture sites are given in table 5.2. SPA's beyond the 15km radius of Bannow Bay may also support bird populations which use Bannow Bay. These other SPAs were assessed by Atkins (2017) and have also been considered in this assessment.

Ramsar Sites: designated under the Convention on Wetlands of International Importance especially as Waterfowl Habitat Ramsar, Iran 2.2.1971.

Bannow Bay Ramsar Site ID 860 was designated on the 11.6.1996. The site which comprises a total of 958 ha is described as “a sea bay with extensive mud and sand flats, saltmarsh, and sand dunes. The site supports an important range of wintering waterbird species, including *Anas acuta*, *Calidris canutus*, *Pluvialis squatarola*. It is a habitat for internationally important numbers (938) of Brent geese *Branta bernicla hrota*”.

Wildfowl Sanctuaries

Part of Bannow Bay is designated as a Wildfowl Sanctuary (Wildfowl Sanctuary Code: WFS-65). Wildfowl sanctuaries are areas that have been excluded from the 'Open Season Order' so that game birds can rest and feed undisturbed. Shooting of game birds is not allowed in these sanctuaries.





Figure 5.4. Location of Bannow Bay SAC and Bannow Bay SPA.



Table 5.1 Additional Natura 2000 sites within a 15km radius of the proposed aquaculture sites.

Site Code	Site Name	Distance from Proposed aquaculture sites (km)
000764	Hook Head SAC	2.9
002162	River Barrow And River Nore SAC	7.5
000696	Ballyteige Burrow SAC	4.5
000707	Saltee Islands SAC	9.5
002137	Lower River Suir SAC	14.6
004020	Ballyteige Burrow SPA	5.0
004118	Keeragh Islands SPA	4.3

Table 5.2 Features of interest for all sites within a 15 km radius of the proposed aquaculture sites. Data down as provided by NPWS protected sites data 14/4/2019.

Bannow Bay SAC (Site code: 000697)
<ul style="list-style-type: none"> • Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • Annual vegetation of drift lines [1210] • Perennial vegetation of stony banks [1220] • Salicornia and other annuals colonising mud and sand [1310] • Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] • Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] • Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosis</i>) [1420] • Embryonic shifting dunes [2110] • Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]
Hook Head SAC (Site code: 000764)
<ul style="list-style-type: none"> • Large shallow inlets and bays [1160] • Reefs [1170] • Vegetated sea cliffs of the Atlantic and Baltic coasts [1230]
River Barrow And River Nore SAC (Site code: 002162)



<ul style="list-style-type: none"> • Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • Reefs [1170] • Salicornia and other annuals colonising mud and sand [1310] • Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] • Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] • Water courses of plain to montane levels with the <i>Ranunculus fluitans</i> and <i>Callitriche-Batrachion</i> vegetation [3260] • European dry heaths [4030] • Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430] • Petrifying springs with tufa formation (<i>Cratoneurion</i>) [7220] • Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] • Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0] • <i>Vertigo moulinsiana</i> (Desmoulin's Whorl Snail) [1016] • <i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029] • <i>Austropotamobius pallipes</i> (White-clawed Crayfish) [1092] • <i>Petromyzon marinus</i> (Sea Lamprey) [1095] • <i>Lampetra planeri</i> (Brook Lamprey) [1096] • <i>Lampetra fluviatilis</i> (River Lamprey) [1099] • <i>Alosa fallax fallax</i> (Twaite Shad) [1103] • <i>Salmo salar</i> (Salmon) [1106] • <i>Lutra lutra</i> (Otter) [1355] • <i>Trichomanes speciosum</i> (Killarney Fern) [1421] • <i>Margaritifera durrovensis</i> (Nore Pearl Mussel) [1990]
<p>Ballyteige Burrow SAC (Site code: 000696)</p>
<ul style="list-style-type: none"> • Estuaries [1130] • Mudflats and sandflats not covered by seawater at low tide [1140] • Coastal lagoons [1150] • Annual vegetation of drift lines [1210] • Perennial vegetation of stony banks [1220] • Salicornia and other annuals colonising mud and sand [1310] • Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] • Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] • Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>) [1420] • Embryonic shifting dunes [2110] • Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] • Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] • Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>) [2150]
<p>Saltee Islands SAC (Site code: 000707)</p>
<ul style="list-style-type: none"> • Mudflats and sandflats not covered by seawater at low tide [1140] • Large shallow inlets and bays [1160] • Reefs [1170] • Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] • Submerged or partially submerged sea caves [8330] • <i>Halichoerus grypus</i> (Grey Seal) [1364]



Lower River Suir SAC (Site code: 002137)
<ul style="list-style-type: none"> • Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) [1330] • Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] • Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation [3260] • Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430] • Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] • Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) [91E0] • <i>Taxus baccata</i> woods of the British Isles [91J0] • <i>Margaritifera margaritifera</i> (Freshwater Pearl Mussel) [1029] • <i>Austropotamobius pallipes</i> (White-clawed Crayfish) [1092] • <i>Petromyzon marinus</i> (Sea Lamprey) [1095] • <i>Lampetra planeri</i> (Brook Lamprey) [1096] • <i>Lampetra fluviatilis</i> (River Lamprey) [1099] • <i>Alosa fallax fallax</i> (Twaite Shad) [1103] • <i>Salmo salar</i> (Salmon) [1106] • <i>Lutra lutra</i> (Otter) [1355]
Bannow Bay SPA (Site code: 004033)
<ul style="list-style-type: none"> • Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] • Shelduck (<i>Tadorna tadorna</i>) [A048] • Pintail (<i>Anas acuta</i>) [A054] • Oystercatcher (<i>Haematopus ostralegus</i>) [A130] • Golden Plover (<i>Pluvialis apricaria</i>) [A140] • Grey Plover (<i>Pluvialis squatarola</i>) [A141] • Lapwing (<i>Vanellus vanellus</i>) [A142] • Knot (<i>Calidris canutus</i>) [A143] • Dunlin (<i>Calidris alpina</i>) [A149] • Black-tailed Godwit (<i>Limosa limosa</i>) [A156] • Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] • Curlew (<i>Numenius arquata</i>) [A160] • Redshank (<i>Tringa totanus</i>) [A162] • Wetland and Waterbirds [A999]
Ballyteige Burrow SPA (Site code: 004020)
<ul style="list-style-type: none"> • Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046] • Shelduck (<i>Tadorna tadorna</i>) [A048] • Golden Plover (<i>Pluvialis apricaria</i>) [A140] • Grey Plover (<i>Pluvialis squatarola</i>) [A141] • Lapwing (<i>Vanellus vanellus</i>) [A142] • Black-tailed Godwit (<i>Limosa limosa</i>) [A156] • Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157] • Wetland and Waterbirds [A999]
Keeragh Islands SPA (Site code: 004118)
<ul style="list-style-type: none"> • Cormorant (<i>Phalacrocorax carbo</i>) [A017]



Protected Species

Birds

The site is of international importance for wintering/non breeding birds. The bird species which are listed as features of interest for Bannow Bay SPA are given in table 5.2.

Plants

Halophilous scrub occurs in four of the larger saltmarsh areas with Bannow Bay SAC. It is characterised by the presence of the legally protected (Flora (Protection) Order, 1999) and Red Data Book-listed plant Perennial Glasswort (*Arthrocnemum perenne*), which occurs in only a few sites in the country.

Mammals

Otter (*Lutra lutra*) and Common Seal (*Phoca vitulina*) occur within Bannow Bay SAC but the site is not designated for these species.

Statutory Plans

Wexford County Development Plan 2013-2019

The Wexford County Development Plan 2013-2019 sets out Wexford County Council's intentions for the future development of land, including measures for the improvement of the natural and physical environment and the provision of infrastructure. The Plan builds on the strategies, policies and objectives of the previous County Development Plan 2007-2013.

The following objectives stated in the Wexford County Development Plan 2013-2019 are considered relevant to the appeal AP7/1-3/2018.

- Objective CZM36: To support the contribution of fishing and aquaculture to the rural economy by encouraging and facilitating the use and development of existing port/pier/ harbour facilities for commercial fishing, whilst taking account of the need to conserve and enhance the natural and cultural heritage of the coast and subject to compliance with normal planning and environmental criteria and the development management standards contained in Chapter 18.
- Objective CZM37: To work with local communities, relevant stakeholders and the Department of Agriculture, Fisheries and the Marine to ensure the proper and successful implementation of the Shellfish Waters Directive along the County Wexford coastline.
- Objective CZM39: To support and protect identified shellfish areas in the county.
- Objective ED21: To support the development of the fisheries and aquaculture industry and support its diversification at appropriate locations, having regard to



the requirements of the EU Water Framework Directive, the relevant River Basin Management Plans and the Habitats Directive.

- Objective NH01: To conserve and protect the integrity of sites designated for their habitat/wildlife or geological/geomorphological importance and prohibit development which would damage or threaten the integrity of these sites, including SACs, cSACs, SPAs, NHAs, pNHAs, Nature Reserves, and Refuges for Fauna.
- Objective NH03: To ensure that any plan or project and any associated works, individually or in combination with other plans or projects, are subject to Appropriate Assessment Screening to ensure there are no likely significant effects on the integrity (defined by the structure and function) of any Natura 2000 site(s) and that the requirements of Article 6(3) and 6(4) of the EU Habitats Directive are fully satisfied. Where the plan/project is likely to have a significant effect on a Natura 2000 site it shall be subject to Appropriate Assessment. The plan/project will proceed only after it has been ascertained that it will not adversely affect the integrity of the site or where in the absence of alternative solutions, the plan/project is deemed imperative for reasons of overriding public interest, all in accordance with the provisions of article 6(3) and 6(4) of the EU Habitats Directive.
- Objective NH04: To ensure the protection and conservation of areas, sites and species and ecological networks/corridors of local biodiversity value outside the designated sites throughout the county.

Water Quality Status

Water Framework Directive

Coastal and Transitional Waterbody Status results are recorded in accordance with European Communities (Water Policy) Regulations 2003 (SI No. 722/2003). The regulation objectives include the attainment of good status in waterbodies that are of lesser status at present and retaining good status or better where such status exists at present by 22nd December 2015.

The water quality status of both the Corock Estuary transitional waterbody (IE_SE_090_0100) and Bannow Bay coastal waterbody (IE_SE_090_0000) is unassigned for the 2010-2015 reporting period.

5.5 Man-made heritage

The Department of Culture, Heritage and the Gaeltacht submitted concerns regarding the likely presence of unknown or undocumented underwater cultural heritage during the application processes for which appeals are now being considered. A range of features are considered likely to be present including “*fishtraps, landing areas, shipwrecks and associated material, artefacts etc*”. In the submission, the Department stipulates that an *Underwater Archaeological Impact Assessment* must be carried out by qualified, competent and licensed archaeologist prior to the placement of any additional trestles on



the foreshore. It is unclear to the reviewer whether or not such an assessment including relevant surveys have been carried out and what, if anything, was found.

According to the Archaeological Survey of Ireland, there are numerous sites of archaeological interest located in and around Bannow Bay. Sites and features of importance include bullaun stones, graveslabs, bridges, fortified houses, churches, graveyards, castles, gatehouses, bastioned forts, ringforts, standing stones, mines and a sarcophagus. Online query of the Historic Environment Viewer of the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs allows access to the Site and Monuments Record database. Data for townlands in close proximity to the licence application sites is presented in Table 5.3 below. None of the listed features are considered to be close to any licence applications and are not considered to be vulnerable to effects of the existing or proposed additional aquaculture activity.

In addition, details of features surrounding Bannow Bay recorded under the National Inventory of Architectural Heritage are available via the Historic Environment Viewer of the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs. The closest features to the proposed new license sites are a series of limekilns located adjacent to the foreshore at Taullaght. These are not considered to be at direct risk of aquaculture activity, however being situated immediately adjacent to the foreshore, they are likely to be at risk from coastal erosion and are vulnerable to effects of any activities that may affect the rate at which erosion occurs in the immediate vicinity.

SMR No.	Class	Townland	Easting	Northing
WX040-047----	Church	BALLYLANNAN	684596	613804
WX040-076----	Redundant record	BALLYLANNAN	684769	613643
WX045-009----	Ringfort - unclassified	SAINTLEONARDS	680756	612136
WX045-010001-	Church	SAINTLEONARDS	681456	612512
WX045-010002-	Graveyard	SAINTLEONARDS	681456	612512
WX045-011----	Well	BALLYHACKBEG	681649	612249
WX045-012----	Historic town	CLONMINES	684310	612930
WX045-012001-	Castle - tower house	CLONMINES	684360	613028
WX045-012002-	Bawn	CLONMINES	684405	612925
WX045-012003-	Religious house - Augustinian friars	CLONMINES	684402	612891
WX045-012004-	House - 16th/17th century	CLONMINES	684340	612920
WX045-012005-	Castle - tower house	CLONMINES	684317	612819
WX045-012006-	Church	CLONMINES	684228	612885
WX045-012007-	Church	CLONMINES	684205	612875
WX045-012008-	Ritual site - holy well	CLONMINES	684399	612927
WX045-012009-	Town defences	CLONMINES	684167	612965
WX045-012010-	Graveyard	CLONMINES	684200	612860
WX045-012011-	Gatehouse	CLONMINES	684385	612888



WX045-013001-	Church	BALLYLANNAN	684618	613494
WX045-013002-	Graveyard	BALLYLANNAN	684608	613495
WX045-013003-	Bullaun stone	BALLYLANNAN	684613	613507
WX045-014----	Redundant record	MAUDLINTOWN	685047	613113
WX045-015001-	Bullaun stone (present location)	MAUDLINTOWN	685574	613186
WX045-015002-	Bullaun stone	MAUDLINTOWN	685517	613203
WX045-020001-	Castle - tower house	BARRYSTOWN	685341	611914
WX045-020002-	House - 18th/19th century	BARRYSTOWN	685365	611875
WX045-020003-	Structure	BARRYSTOWN	685390	611938
WX045-022----	Redundant record	KILTRA	684602	610903
WX045-027001-	Religious house - Cistercian monks	TINTERN	679375	610107
WX045-027002-	House - 16th century	TINTERN	679385	610107
WX045-027003-	Gatehouse	TINTERN	679340	610073
WX045-027004-	Graveslab	TINTERN	679375	610107
WX045-027005-	Graveslab	TINTERN	679375	610107
WX045-027006-	Graveslab	TINTERN	679375	610107
WX045-027007-	Bridge	TINTERN	679323	610058
WX045-027008-	Field system	TINTERN	679360	610310
WX045-028001-	Ritual site - holy well	TINTERN	679527	609908
WX045-028002-	Bridge	TINTERN	679485	609920
WX045-029001-	Church	TINTERN	679630	609925
WX045-029002-	Graveyard	TINTERN	679625	609915
WX045-029003-	Wall monument	TINTERN	679630	609925
WX045-029004-	Graveslab	TINTERN	679630	609925
WX045-029005-	Graveslab	TINTERN	679630	609925
WX045-029006-	Graveslab	TINTERN	679630	609925
WX045-029007-	Graveslab	TINTERN	679630	609925
WX045-029008-	Architectural feature	TINTERN	679577	609935
WX045-030001-	Church	SAINTKIERANS	680842	609461
WX045-030002-	Bullaun stone	SAINTKIERANS	680842	609461
WX045-030003-	Road - road/trackway	SAINTKIERANS	680835	609440
WX045-032----	Enclosure	NEWTOWN	683751	610163
WX045-033----	Ringfort - rath	NEWTOWN	683865	609820
WX045-034----	Castle - unclassified	NEWTOWN	684173	609433
WX045-035----	Burial ground	GRANGE	685045	609605
WX045-042----	Castle - motte	BANNOW ISLAND	681772	607461
WX045-043----	Church	BANNOW ISLAND	681890	607375
WX045-044----	Midden	BANNOW ISLAND	682237	607598
WX045-045----	Historic town	BANNOW	682410	607355
WX045-045---*	Historic town	BANNOW	682410	607355
WX045-045001-	Church	BANNOW	682413	607231



WX045-045002-	Castle - unclassified	BANNOW	682485	607186
WX045-045003-	Graveyard	BANNOW	682415	607220
WX045-045004-	Bullaun stone	BANNOW	682413	607231
WX045-045005-	Graveslab	BANNOW	682413	607232
WX045-045006-	Graveslab	BANNOW	682413	607231
WX045-045007-	Graveslab	BANNOW	682425	607238
WX045-045008-	Sarcophagus	BANNOW	682413	607231
WX045-045009-	Font	BANNOW	682413	607232
WX045-046----	Ritual site - holy well	BANNOW	682608	607185
WX045-047----	Church	BRANDANE	682815	607606
WX045-055----	Mine	BARRYSTOWN	685042	612293
WX045-064----	Tide mill - unclassified	BRANDANE	682772	607712
WX045-070001-	Church	TAULAGHT	681942	611682
WX045-070002-	Burial	TAULAGHT	681942	611682
WX045-073----	Windmill	CLONMINES	683708	611781
WX045-075----	Burial ground	DUNGULPH	677913	607500
WX045-076----	Ringfort - rath	GORTEENS	678843	608714
WX045-079----	Ringfort - rath	CLONMINES	682670	612080
WX045-083001-	Ringfort - unclassified	HAGGARD	684509	608254
WX045-083002-	Enclosure	HAGGARD	684490	608218
WX045-085----	Charcoal-making site	MAUDLINTOWN	685025	613213
WX045-089----	Road - road/trackway	CLONMINES	684242	612690
WX045-090----	Field boundary	CLONMINES	683975	612503
WX045-091----	Road - road/trackway	TINTERN	679712	610480
WX045-096----	Enclosure - large enclosure	SALTMILLS	679244	609543

6.0 Section 61 Assessment

Section 61 of the Fisheries (Amendment) Act 1997 states that:

“The licensing authority, in considering an application for an aquaculture licence or an appeal against a decision on an application for a licence or a revocation or amendment of a licence, shall take account, as may be appropriate in the circumstances of the particular case, of:

- (a) the suitability of the place or waters at or in which the aquaculture is or is proposed to be carried on for the activity in question,*
- (b) other beneficial uses, existing or potential, of the place or waters concerned,*



(c) the particular statutory status, if any, (including the provisions of any development plan, within the meaning of the Local Government (Planning and Development) Act, 1963 as amended) of the place or waters,

(d) the likely effects of the proposed aquaculture, revocation or amendment on the economy of the area in which the aquaculture is or is proposed to be carried on,

(e) the likely ecological effects of the aquaculture or proposed aquaculture on wild fisheries, natural habitats and flora and fauna, and

(f) the effect or likely effect on the environment generally in the vicinity of the place or water on or in which that aquaculture is or is proposed to be carried on—

(i) on the foreshore, or

(ii) at any other place, if there is or would be no discharge of trade or sewage effluent within the meaning of, and requiring a licence under section 4 of the Local Government (Water Pollution) Act, 1977, and

(g) the effect or likely effect on the man-made environment of heritage value in the vicinity of the place or waters.”

6.1 Site Suitability

The sites for which aquaculture site licence applications that are being considered under the present grouped appeal **are suitable** for the intertidal trestle culture of oysters for the following reasons:

- The site is within Bannow Bay. Bannow Bay has a well-established and successful Pacific oyster (*Magallana gigas* Syn *Crassostrea gigas*) trestle culture industry, mainly located and in the immediate vicinity of the applicant sites.
- The applicant sites are all located within waters that are largely sheltered from ocean swell and strong wind generated waves. The gradient of the foreshore and the hydrodynamic regime of the sites is suitable for this type of aquaculture. The sedimentary nature of the seabed in the central part of the bay where the licence applications relate to is suitably firm for installing trestles and for access for husbandry purposes.
- There is suitable access to the foreshore from several locations that will allow tractor access as well as boat access for servicing proposed sites and for husbandry purposes. Details of access routes were provided in the application process and no applications will require additional infrastructure developments (e.g. new roads,



landing facilities).

- It has been demonstrated that oyster culture is an economically viable activity in Bannow Bay considering factors of site access, tidal regimes, shelter, food availability and growth rates, biotoxin levels, water quality.
- The Wexford County Development Plan describes the area around Bannow Bay as a Coastal Landscape of greater sensitivity. Much of the existing oyster culture activity is at some distance from the shore and as such is obscured from many of the scenic routes around the bay. The proposed developments are part of an industry that has become embedded in the landscape.
- The proposed farm layout and the type of structures adheres to best practice outlines in the Guidelines for Landscape and Visual Impact Assessment for marine Aquaculture (2010). Trestle layout and structures can be considered as minor reversible development, as all equipment and trestles can be removed from the foreshore.
- Terrestrial land use will not be affected and there is no spatial overlap with existing and/or other users of the intertidal foreshore.
- The proposed sites are located within the SUMS area and as such will not present new or additional risks to navigation outside of the area that is delineated in the context of aquaculture development

The sites for which aquaculture site licence applications are being considered under the present grouped appeal **are not suitable** for the intertidal trestle culture of oysters for the following reasons:

- The application sites are located within Bannow Bay Special Protection Area and Bannow Bay Special Area of Conservation. Bannow Bay SPA is of international importance for non-breeding/wintering birds and is designated for a range of bird species. Oyster cultivation has the potential to impact on wintering birds owing to disturbance and habitat change causing displacement. Where oyster cultivation occurs within intertidal habitats and at sites used by wintering birds there is a likelihood of significant adverse effects on bird species.

A 2017 Appropriate Assessment, of oyster trestle aquaculture in Bannow Bay, which was updated in 2018, predicted displacement effects of between 13 and 16% were for Grey Plover, Black-tailed Godwit, Bar-tailed Godwit, Knot and Dunlin with the granting of all licenses. The level of effect was reduced to between 6 and 7% and with the granted of existing and trial licenses only. Displacement effects were predicted to be <3% with the granting of existing licenses only. Significant displacement effects were therefore predicted for Grey Plover, Black-tailed



Godwit, Bar-tailed Godwit, Knot and Dunlin with the granting of new aquaculture licenses. Accordingly, on the basis of the Appropriate Assessment and where there are no clear mitigation measures available to prevent the risk of the deterioration of the conservation status of specific shorebirds, the site is not considered suitable for licensing of further production units.

- AP7 (1,2,3) relates to applications for aquaculture and foreshore licences to produce a combined additional 410T of oysters annually. There may be potential for issues to arise relating to the carrying capacity of the site in terms of oyster production volumes were the sites under AP7 (1,2 and 3) to be licensed individually or in conjunction with other applicant sites presently also under appeal for *Refusal to grant*. The total *additional proposed production* volume from sites that are currently under appeal in Bannow Bay amounts to 860T. Current production volume (2018) of gigas oysters for Co Wexford is estimated at 581t (BIM, 2018). Licensing of all sites currently under appeal (including sites under concurrent appeals) would likely represent at a minimum a proposed doubling of current production levels.

6.2 Other uses

A range of other beneficial users and stakeholders have interests in Bannow Bay. As a scenic and amenity area, the site is important to both local people and visitors. The site is popular with outdoor enthusiasts including walkers, nature watchers (incl. bird watchers), canoeists and sea kayakers, recreational anglers (fishing and bait digging) and leisure boaters. Some of these activities form the basis of local enterprises, e.g. guided angling for seabass. The site is of limited interest to bathers due to the strong tidal currents experienced at the site, although bathers utilise beaches immediately outside of the bay itself and swimming is possible in a number of locations at periods of slack water around high tide. Some sailing and windsurfing/kitesurfing activity occasionally takes place at periods of high tide, although mostly outside of Bannow Bay at Cullenstown Strand.

There are limited commercial users of the bay outside of the aquaculture sector and no other activity is known to occur at a level that is significant in a local or regional context. While Bannow Bay was important locally for shipping and was part of regional commerce route, Bannow Bay is no longer used for movement of goods.

Commercial fisheries of the south east are detailed in general terms by the South East Regional Inshore Fisheries Forums (RIFF). Reference to Bannow Bay is only made in the context of oyster cultivation and no capture fisheries are eluded to. However, a range of capture fisheries using both mobile and static fishing gears are known to take place outside of Bannow Bay, including lobster and crab potting, static netting of demersal species as well as dredging of a range of bivalve molluscs including clams, razor clams, scallops and



mussels. Anecdotal information indicated that hand gathering of periwinkles occurs within Bannow Bay on suitable habitats and that this is carried out by commercial harvesters.

Local agriculture interests may from time to time utilise the foreshore for access to lands that are immediately adjacent to the foreshore or that are otherwise difficult to access.

Licensing of the application sites has potential to impact negatively on use of Bannow Bay by nature conservation and bird watching interests.

6.3 Statutory Status

The proposed aquaculture sites are located within **Bannow Bay SAC** (Site code: 000697) and **Bannow Bay SPA** (Site code: 004030). Special Areas of Conservation (SAC's) are established under the EU Habitats Directive (92/43/EEC). Special Protection Areas (SPA's) established under the EU Birds Directive (79/409/EEC). Both the Habitats Directive and the Birds Directive are transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011).

Bannow Bay is also a **Ramsar site** (Site ID 860; designated on the 11.11.1996). Bannow Bay Ramsar site has an area of 958 hectares. Ramsar sites have no legal protection as such under Irish legislation, their actual protection derives from other designations of the site such as SPAs or Nature Reserves.

Bannow Bay is a **Wildfowl Sanctuary** (Wildlife Sanctuary Code: WFS-65). Wildfowl Sanctuaries are designated on state or private land by statutory instrument under Section 24 of the 1976 Wildlife Act and the 2000 Wildlife (Amendment) Act. Wildfowl sanctuaries are used to protect certain ducks, geese and wader species from hunting. The objective of the designation is to control hunting of wildfowl, especially in wetland areas. Species that are protected from hunting within a wildfowl sanctuary include:

Brent Geese (*Branta bernicla brota*), Blacktailed Godwit (*Limosa limosa*), Teal (*Anas crecca*), Dunlin (*Calidris alpina*), Shelduck (*Tadorna tadorna*) Knot (*Calidris canutus*), Wigeon (*Anas penelope*) Grey Plover (*Pluvialis squatarola*), Lapwing (*Vanellus vanellus*) Golden Plover (*Pluvialis apricaria*), Curlew (*Numenius arquata*) Ringed Plover (*Charadrius biaticula*), Redshank (*Tringa totanus*) Oystercatcher (*Haematopus ostralegus*)

Bannow Bay is a **Classified Live Bivalve Mollusc Production Area** under the EU Shellfish Waters Directive (2006/113/EC). The classification is B. Under classification B, live bivalve shellfish can be supplied for human consumption after one of three processes. The options are:

- purification in an approved establishment



- relaying for at least one month in a classified Class A relaying area
- an EC approved heat treatment process

The Directive aims to protect and improve shellfish waters in order to support shellfish life and growth and is designed to protect the aquatic habitat of bivalve and gastropod molluscs, which includes mussels, scallops, clams, oysters and cockles. The Directive requires Member States to designate waters that need protection in order to support shellfish life and growth, and then establish pollution reduction programmes for the designated waters. The European Communities (Quality of Shellfish Waters) Regulations 2006 (as amended) (S.I. No 268 of 2006) gives effect to the Directive in Ireland.

Under the Wexford County Development Plan 2013-2019, Bannow Bay is listed as a Landscape of Greater Sensitivity.

Licensing of the aquaculture application sites has potential to impact on features that underpin the Wildfowl Sanctuary, SAC and SPA designations for Bannow Bay.

6.4 Economic effects

The granting of the aquaculture licence applications has potential to benefit the local community. It is expected by the applicants that the development of additional licensed areas will create up to 7 fulltime and 3 part time positions for workers, with one further existing part time position becoming fulltime.

Licensing of the application sites would have a positive impact on the economy of the local area.

6.5 Ecological Effects

Licensing of the additional application sites within Bannow Bay will have a number of potentially significant ecological impacts.

Fish

Bannow Bay is likely to act as a nursery for early life stages for a range of marine fishes. Further licensing of aquaculture sites may provide enhanced refuge for fish species that are attracted to the habitat that trestles create and may in consequence improve foraging opportunities for predatory species such as seabass. There are no wild capture fisheries (recreational or commercial) located within Bannow Bay that would likely be further displaced or effected by the licensing of application sites, in the context of the ecology of the area.

Mammals



Oyster trestles may provide refuge for fish species during periods of immersion and may provide foraging opportunities for both otter and seals. Otters are known to use Bannow Bay and the nearby Saltee Islands are designated for the presence of grey seal. Given that the proposed sites are located centrally in the bay, it is unlikely that licensing of additional sites would displace otters. Seals are occasional visitors to the site but are not believed to be regular users of the site for haul out or breeding.

Habitats

An AA was completed in relation to impacts on Bannow Bay SAC. A number of Natura 2000 features of interest were screened out of full assessment. A full assessment was then carried out on the likely interactions between aquaculture operations and features of interest for the Annex 1 habitat Mudflats and sandflats not covered by seawater at low tide (1140). The likely effects of existing and proposed aquaculture activities were considered in light of the sensitivity of the constituent communities of the Annex 1 habitat 1140 which overlap with current and proposed intertidal oyster cultivation areas namely; Fine sands with *Pygospio elegans* and *Corophium volutator* community complex and, Intertidal sand dominated by polychaetes community complex.

It is noted in the AA that, based on a review of oyster cultivation by trestles (Ford *et al* 2015 and Carroll *et al*, 2016) there is evidence to suggest that activities occurring at trestle culture sites are considered to be non-disturbing to intertidal soft sediment communities. While access routes used in intertidal areas, presumably by virtue of persistent compaction of the sedimentary habitats, are considered disturbing. The AA states that as the spatial overlap of the access routes is 0.85% for Fine sand with *Pygospio elegans* and *Corophium volutator* community complex (less than the stipulated 15% threshold) significant adverse impacts of activities on these community types can be discounted. However, the AA further notes that some sites appear to have considerable amounts of vehicular traffic contrary to the access routes outlined in the aquaculture profile and that this is particularly relevant in the sites on the eastern portion of the bay which appear to be used for transit to other sites or as storage of unused trestles. The AA notes that this activity is considered disturbing and contrary to the information provided on site use in the profiling for the AA. However, the AA concludes that notwithstanding this fact, significant adverse impacts of activities on the Qualifying Feature of 1140 (Mudflats and sandflats not covered by seawater at low tide) and its constituent communities can be discounted.

It is the Technical Advisors opinion that the cultivation of oysters, including within the proposed new licence areas may have the potential to impact on the *Pygospio elegans* and *Corophium volutator* community complex within the vicinity of the existing and proposed new licence area. This opinion is based on our view that there is scientific **uncertainty** in



relation to the impacts of oyster trestle cultivation under a range of tidal dynamics. Further we feel that there is insufficient accurate information on vehicular access to the existing and proposed new licence areas. Therefore the exact area of impact (compaction) as a result of vehicular traffic over this marine community type is unknown.

Birds

The Application sites are located within Bannow Bay SPA. Bannow Bay SPA is of international importance for non-breeding/wintering birds and is designated for the following birds of *Special Conservation Interest*:

- Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]
- Shelduck (*Tadorna tadorna*) [A048]
- Pintail (*Anas acuta*) [A054]
- Oystercatcher (*Haematopus ostralegus*) [A130]
- Golden Plover (*Pluvialis apricaria*) [A140]
- Grey Plover (*Pluvialis squatarola*) [A141]
- Lapwing (*Vanellus vanellus*) [A142]
- Knot (*Calidris canutus*) [A143]
- Dunlin (*Calidris alpina*) [A149]
- Black-tailed Godwit (*Limosa limosa*) [A156]
- Bar-tailed Godwit (*Limosa lapponica*) [A157]
- Curlew (*Numenius arquata*) [A160]
- Redshank (*Tringa totanus*) [A162]

Bannow Bay is also designated for:

- Wetland and Waterbirds [A999]

Oyster cultivation has the potential to impact on wintering birds owing to disturbance and habitat change causing displacement. Thus, where oyster cultivation occurs within intertidal habitats and at sites used by wintering birds there is a likelihood of significant adverse effects and an Appropriate Assessment is required. An Appropriate Assessment was prepared for Bannow Bay and considered areas already licensed for aquaculture in Bannow Bay (existing oyster trestles) and those areas for which a license was being sought. New license applications were being sought for trial sites (trial areas with existing oyster trestles) and new applications (sites with no existing trestles).

The conservation objective for Bannow Bay is to maintain the favourable conservation condition of the SCI species, as defined by the attributes: **population trend** and **distribution**. The AA considered if the aquaculture in Bannow Bay would cause significant displacement effects on the SCI species (as listed above). Significant displacement effects relate to the attribute distribution where the target is that there should be no significant decrease in range, timing or intensity of areas used by the bird species listed, other than occurring from natural patterns of variation. The AA considered that



where aquaculture was assessed as causing less than a 5% decrease in the population of an SCI species, this was not considered to be significant.

The AA was initially completed in 2017 (Atkins, 2017). Displacement analysis in the AA predicted that full occupation of all aquaculture sites would cause high levels of displacement (9-15%) to the Bannow Bay Grey Plover, Dunlin and Bar-tailed Godwit populations. Up to significant or near significant displacement levels were predicted for other species. Owing to limitations in the available data the AA described that there was a high level of uncertainty to the predictions; actual displacement levels could therefore be significantly less or significantly greater than predictions. A precautionary approach was taken (as required by the AA legislation) with the conclusion that most species of SCI at Bannow Bay may be subject to adverse significant impacts from full occupation of aquaculture sites.

The AA was updated in 2018 with the addition of further survey data from BSI (2015, 2016) and an amended configuration of the aquaculture sites and the addition of some new sites (Atkins, 2018). The updated AA provides an updated assessment of displacement effects with the inclusion of additional data from 2014/15 and 2015/16. Displacement effects were predicted for three scenarios; renewal of existing licenses, renewal of existing and granting of trial licenses (in effect the licensing of trestles currently in place) and renewal of existing and granting of trial and new licenses (new licenses relate to areas currently unoccupied by trestles). Any limitations in the data and the analysis were presented and discussed. Predictions were considered to be indicative rather than firm. With the granting of all licenses displacement effects of between 13 and 16% were predicted for Grey Plover, Black-tailed Godwit, Bar-tailed Godwit, Knot and Dunlin. The level of effect was reduced to between 6 and 7% and with the granted of existing and trial licenses only. Displacement effects were predicted to be <3% with the granting of existing licenses only. Significant or near significant displacement effects were therefore predicted for Grey Plover, Black-tailed Godwit, Bar-tailed Godwit, Knot and Dunlin under all scenarios except for the renewal of existing licenses i.e. no trial sites and no new licenses. The AA describes that with further analysis the predicted displacement effects could be refined. In particular count sector 00413 could be subdivided to account for different habitat types present. This sector supports both muddy sediments in the north of the sector and sandflats in the south. The muddier sediments support higher densities of birds than the sandflats thus lower displacement effects are likely from the sandflats. Targeted surveys would be required to confirm low occupancy of the sandflats.

Licensing of the application sites has potential to have significant impacts on the ecology of Bannow Bay, including intertidal and subtidal habitats as well as species, including wintering birds, that utilise the site regularly.



6.6 General Environmental Effects

- Littering by plastic (lost trestle bags) presents a significant potential impact.
- There is potential for erosion of the adjacent shoreline by vehicular traffic accessing the site.
- There is potential for compaction over soft sediments as a result of vehicular traffic accessing the trestles.
- As outlined in the Appropriate Assessment for Bannow Bay SAC, the culture of large volumes of Pacific oysters may increase the risk of successful reproduction in Bannow Bay SAC. The use of triploid (non-reproducing) stock is the main method employed to manage this risk. Furthermore, the introduction of non-native species as ‘hitchhikers’ on and among culture stock is also considered a risk, the extent of which is dependent upon the duration the stock has spent ‘in the wild’ outside of Bannow Bay SAC

Licensing of the application sites could cause significant impacts on the ecology of Bannow Bay including species that utilise the site regularly.

6.7 Effect on man-made heritage

The proposed licensing of the additional sites being considered in the appeals will not significantly impact the known man-made heritage of the area, including coastal features, intertidal and subtidal features.

Licensing of the application sites is unlikely to give rise to significant impacts on the man-made heritage of the area.

6.8 Section 61 Assessment Conclusions

Site Suitability

The sites under appeal are **suitable** for intertidal trestle culture of Pacific oysters for the following reasons:

1. *The species is already successfully cultured within the site*
2. *Physical characteristics of the site make it suitable for intertidal culture*
3. *There is suitable access to the foreshore without need for additional infrastructure*
4. *Oyster culture is economically viable in Bannow Bay as demonstrated by successful enterprises in operation for an extended period of time*



5. *Developments are of a scale appropriate to the geographical layout and physical features of the site*
6. *The oyster industry is embedded in the landscape and is not visually intrusive*
7. *Proposed farm site layout adheres to published best practice guidelines*
8. *There is no significant spatial overlap with the proposed licensed sites and other users of Bannow Bay*
10. *The aquaculture licence application sites all lie within the SUMS area*

The sites under appeal are **not suitable** for intertidal trestle culture of Pacific oysters for the following reasons:

1. *The application sites are located within Bannow Bay Special Protection Area and Bannow Bay Special Area of Conservation. Bannow Bay SPA is of international importance for non-breeding/wintering birds and is designated for a range of bird species.*
2. *Licensing of further sites for the intertidal culture of oysters is likely to cause significant displacement levels for a range of protected bird species that regularly use Bannow Bay.. Where there are no clear mitigation measures available to prevent the risk of the deterioration of the conservation status of specific shorebirds, the site is not considered suitable for licensing of further production units.*
3. *There may be potential for issues to arise relating to the carrying capacity of the site in terms of oyster production volumes were the sites under AP7 (1, 2 and 3) to be licensed individually or in conjunction with other applicant sites presently also under appeal for Refusal to grant at time of writing this review.*

Other Uses

The proposed developments would have a **significant adverse** impact on some beneficial users of Bannow Bay for the following reasons:

1. *Displacement of shorebirds could impact populations of wintering birds and reduce the ecological value of the area and hence affect tourism and nature conservation interests.*



The proposed developments would have a **non-significant adverse** impact on some beneficial users of Bannow Bay for the following reasons:

1. *Commercial fisheries are minimal and spatial overlap between fisheries and the proposed aquaculture developments is insignificant*
2. *The proposed developments will not affect recreational and amenity value of the site for a wide range of other users including watersports, anglers, leisure boaters and general navigation interests as they are located with the area designated for aquaculture and marked as same*

Statutory Status

The proposed development would have a **significant adverse** impact on the statutory status of the area for the following reasons:

1. *The licensing of new aquaculture sites (in addition to existing and trial sites) in Bannow Bay is predicted to have a significant displacement effect on bird species for which Bannow Bay SPA is designated. Significant displacement effects (ie loss of habitat leading to a predicted decline in population) are predicted for five species for which Bannow Bay is designated a Special Protection Area for birds (Grey Plover, Black-tailed Godwit, Bar-tailed Godwit, Knot and Dunlin).*
2. *Adverse impacts on bird species and/or populations could affect the designation of the site as a Wildfowl Sanctuary.*

The proposed development would have a **non-significant adverse** impact on the statutory status of the area for the following reasons:

1. *Bannow Bay is designated as an SAC for a range of Annex I habitats. Two designated Annex I habitats occurring within Bannow Bay 'Large shallow inlet and bay' and 'Mudflats and sandflats not covered by seawater at low tide' are likely to be impacted by the development. Intertidal culture of oysters is known to cause changes in sediment regimes with consequential impacts for seabed communities. However published information suggests that the scale of impacts from intertidal oyster culture is likely to be non-significant in this context.*

Economic effects

The proposed development would have a **significant beneficial** impact on the economy of the area for the following reasons:



1. In granting the additional licences, the projected employment targets would likely be achieved as planned by the applicants with consequential significant benefit for the local economy.

Ecological Effects

Birds

The proposed development would have a **significant adverse** impact on the ecology of the area for the following reasons:

1. It is likely that significant adverse effects on the avi-fauna of the area would arise as a consequence of the proposed licensing of additional aquaculture sites due to significant displacement effects (i.e. disturbance and loss of habitat leading to a decline in population) that are predicted for five species for which Bannow Bay is designated a Special Protection Area for birds (Grey Plover, Black-tailed Godwit, Bar-tailed Godwit, Knot and Dunlin).

2. The licensing of aquaculture for existing, trial and new sites in Bannow Bay would lead to displacement effects of between 13 and 16% for the species listed. The AA predicted that the level of displacement was less than significant only with the renewal of existing aquaculture licenses. The aquaculture sites which are the subject of this appeal are new sites. Displacement effects are predicted to be greatest with the licensing of existing, trial and new sites. The existing and trial sites relate to existing in situ trestles. New application sites relate to the placement of new trestles on intertidal habitat.

Fish

The proposed development would have a **non-significant beneficial** impact on wild fisheries for the following reasons:

- 1. Placement of additional trestles on the foreshore could lead to the creation of further juvenile fish refuge habitat. Further wetted surfaces may support algal growth and colonisation and therefore foraging opportunities for juvenile fish.*
- 2. Oyster trestles may provide additional foraging opportunities for predatory species such as seabass which may run between and beneath trestles with tidal water movement.*

General Environmental Effects

The development would lead to **significant adverse** general environmental effects as a result of the proposed development for the following reasons:



1. *Erosion of the adjacent shoreline by vehicular traffic accessing the site.*
2. *Compaction over soft sediments as a result of vehicular traffic accessing the trestles.*
3. *As outlined in the Appropriate Assessment for Bannow Bay SAC, the culture of large volumes of Pacific oysters may increase the risk of successful reproduction in Bannow Bay SAC. The use of triploid (non-reproducing) stock is the main method employed to manage this risk. Furthermore, the introduction of non-native species as 'hitchhikers' on and among culture stock is also considered a risk, the extent of which is dependent upon the duration the stock has spent 'in the wild' outside of Bannow Bay SAC*

Man-made Heritage

There would be **no impact** on the man-made heritage of value in the area as a result of the proposed additional licensing of sites for the following reasons:

1. *The absence of any protected structures or recorded monuments in the area of the proposed aquaculture licence applications as indicated by the Record of Monuments and Places.*

6.9 Confirmation re Section 50 Notices

There are no pertinent matters arising outside of the Section 61 assessment which the Board ought to take into account which have not been raised in the appeal documents. It is therefore not necessary to give notice in writing to any parties in accordance with Section 50(2) of the 1997 Act.

7.0 Screening for Environmental Impact Assessment.

Under S.I. No. 468/2012 - Aquaculture Appeals (Environmental Impact Assessment) Regulations 2012 an Environmental Impact Statement is required for aquaculture the Board determines would be likely to have significant effects on the environment. The Ministers file does not indicate that a pre-screening for EIA has taken place.

Environmental impact assessment means an assessment, to include an examination, analysis and evaluation to identify, describe and assess the effects of certain public and private projects on the environment including the direct and indirect effects of a proposed development on the following:



- (a) Human beings, flora and fauna
- (b) Soil, water, air, climate and the landscape,
- (c) Material assets and the cultural heritage, and
- (d) The interaction between the factors mentioned in paragraphs (a), (b) and (c) above

Having reviewed the proposed aquaculture project in relation to its potential impacts on the elements listed above (a to d) it is the opinion of the Technical Advisor that the proposed aquaculture site and its operation is unlikely to have significant effects on the environment by virtue of *inter alia*, its nature, size or location. We are of the view that in-combination effects are also unlikely. Therefore an environmental impact assessment in accordance with S.I. 468 of 2012 is not required.

8.0 Screening for Appropriate Assessment.

The Marine Institute on behalf of Department of Agriculture, Food and the Marine assessed the impact of aquaculture activities on Natura 2000 features for the Bannow Bay SAC (Site code: 000697) and SPA (site code 004033).

An AA was completed in relation to impacts on Bannow Bay SAC. A number of Natura 2000 features of interest were screened out of full assessment. A full assessment was then carried out on the likely interactions between aquaculture operations and features of interest for the Annex 1 habitat Mudflats and sandflats not covered by seawater at low tide (1140). The likely effects of existing and proposed aquaculture activities were considered in light of the sensitivity of the constituent communities of the Annex 1 habitat 1140 which overlap with current and proposed intertidal oyster cultivation areas namely; Fine sands with *Pygospio elegans* and *Corophium volutator* community complex and, Intertidal sand dominated by polychaetes community complex.

It is noted in the AA that, based on a review of oyster cultivation by trestles (Forde *et al* 2015 and Carroll *et al*, 2016) there is evidence to suggest that activities occurring at trestle culture sites are considered to be non-disturbing to intertidal soft sediment communities. While access routes used in intertidal areas, presumably by virtue of persistent compaction of the sedimentary habitats, are considered disturbing. The AA states that as the spatial overlap of the access routes is 0.85% for Fine sand with *Pygospio elegans* and *Corophium volutator* community complex (less than the stipulated 15% threshold) significant adverse impacts of activities on these community types can be discounted. However, the AA further notes that some sites appear to have considerable amounts of vehicular traffic contrary to the access routes outlined in the aquaculture profile and that this is particularly relevant in the sites on the eastern portion of the bay which appear to be used for transit to other sites or as storage of unused trestles. The AA notes that this activity is considered disturbing and contrary to the information provided on site use in the profiling for the AA. However, the AA concludes that notwithstanding this fact, significant adverse impacts of activities on



the Qualifying Feature of 1140 (Mudflats and sandflats not covered by seawater at low tide) and its constituent communities can be discounted.

It is the Technical Advisors opinion that the cultivation of oysters, including within the proposed new licence areas may have the potential to impact on the *Pygospio elegans* and *Corophium volutator* community complex within the vicinity of the existing and proposed new licence area. This opinion is based on our view that there is scientific **uncertainty** in relation to the impacts of oyster trestle cultivation under a range of tidal dynamics. Further we feel that there is insufficient accurate information on vehicular access to the existing and proposed new licence areas. Therefore the exact area of impact (compaction) as a result of vehicular traffic over this marine community type is unknown.

An AA was completed in relation to impacts on Bannow Bay SPA. A number of other SPAs also screened in for AA. Species of Special Conservation Interest and likely to be impacted by aquaculture activities were assessed. The assessment falls in two reports, one by Atkins (2017) and a further updated assessment with additional data and analysis by Atkins (2018). The assessment of adverse effects on SCI species is based displacement effects ie loss of habitat owing to trestle presence and disturbance associated husbandry activity

The AA Conclusion Statement by the Licensing Authority describes that displacement analysis in the original Appropriate Assessment Report predicted that full occupancy of all existing and applied for sites could cause:

- high levels of displacement (9 - 15%) of the Bannow Bay Bar-tailed Godwit, Grey Plover and Dunlin populations;
- significant, or near significant, displacement levels of around 5% to the Bannow Bay Light-bellied Brent Goose, Curlew and Redshank populations;
- measurable but non-significant displacement levels of 1.3-3.5% to the Bannow Bay Lapwing, Knot and Black-tailed Godwit populations; and
- negligible displacement levels of 0.1-0.2% to the Bannow Bay Shelduck and Golden Plover populations.

The re-analysis carried out following provision of additional data found that:

- Renewal of existing licences would appear to have acceptable disturbance impact levels on bird conservation features (see Table 4.4 of the Atkins report)
- Licensing of renewals and those previously considered trial licences, would potentially exceed the threshold of 5% displacement for a number of bird species including Grey Plover, Bar-tailed Godwit, Black-tailed Godwit, Dunlin and Knot (see table 4.4 of Atkins Report). The maximum likely disturbance calculated, under this scenario, was 7.9% for Knot



- The licensing of all sites in the bay, both existing activity and new areas, would potentially result in significantly high levels of disturbance, exceeding the 10% threshold for 5 shorebird species (see table 4.4 of Atkins Report).

With regards to cumulative Impacts the AA Conclusion Statement by the Licensing Authority describes that potential additional disturbing activities include beach recreation, bait digging, hand collection of shellfish and shore angling and states that the available information indicates that non-aquaculture related disturbance generating activities are unlikely to be causing significant impacts to the species covered in the assessment. The Licensing Authority also stated that consideration was given to potential effects on food resources by bait digging, shellfish collection and changing patterns of effluent discharge (i.e. nutrient inputs) and that there was no evidence that any such activities / proposed changes will cause a significant reduction in food supply for any of the SCI species.

The AA conclusion statement by the Licensing Authority reflects the AA reports prepared by Atkins (2017 & 2018). The reports by Atkins are considered to provide a rigorous assessment of the potential impacts of aquaculture on Bannow Bay SPA. The displacement analysis predicts displacement levels of greater than 10% where existing, trial and new licenses are granted. These levels drop to between 6 and 7% where existing licenses are renewed and trial licenses granted. Following a thorough review of the AA by Atkins (2017 and 2018) together with supporting documents (Gittings and O’Donohue, 2012 and 2106) the AA is considered to be adequate. Based on the AA, we agree that the granting of new licenses in Bannow Bay is likely to result in significant adverse effects on the SCI species of this SPA.

9.0 Technical Advisor’s Evaluation of the Substantive Issues in Respect of Appeal and Submissions/Observations Received

The substantive issues of the Appeal are considered below. The observations raised by Tomas French and Fitzpatrick Oysters Ltd relate to bird survey data, mitigation measures and the trestle study. These issues are considered below and no new elements were identified in the observations submitted. There is therefore no further specific consideration of the observations submitted.

Appeal Ref	Application Site	Appellant
Appeal 7/1/2018	T03/87A	Hook Head Shellfish Ltd

1. The AA process findings are not relevant to the application site, thus its conclusion of adverse effects is not supported.

1.1 The Appropriate Assessment findings cited in the rationale for refusal are not applicable to the area which are the subject of the current license application (T03/87A). Species of shorebird which have been shown to be potentially negatively affected by



aquaculture, namely Grey Plover, Dunlin and Knot do not occur in the area under application. The risk of deterioration therefore does not exist and thus therefore neither does the potential for adverse effects on European Site integrity. The Appellant refers to adjoining documentation “Winter Bird Survey 2017/18” by Inis Environmental.

The standard approach to counting wintering birds is to divide a site into sectors. Vantage points (VPs) are chosen and the sector is counted. The same VP covering the same sector boundaries is counted each year. This provides consistency in count data. The count sectors used for Bannow Bay were originally used for I-WeBs high tide counts and for consistency were also used for the NPWS Waterbird Survey Programme (2009/2010). They were also used by Inis/BSI for the 2014/15, 2016/17 and 2017/18 counts. The repeated use of the same count sectors means that the count units and count data are standardised between years and this gives validity to the data. The data can be used to compare site use at a sector level and to assess trends between years at a site level.

A review of the relevant documents (Atkins, 2017, Atkins, 2018) shows that the Application sites are located within bird count sector 00413 and extend into 00416. Atkins 2017 and 2018 list the data sources which have been used to complete to the assessment of bird distribution and displacement effects and describe the consistency and any lack of consistency between the data sets available. The bird data presented by Atkins 2017 and 2018 shows that count sectors 00413 and 00416 are used by Grey Plover, Dunlin and Knot. The most recent data as provided by the appellant for 2017/18 (Inis Environmental, 2018) also shows these sectors are used by Grey Plover, Dunlin and Knot.

It may or may not be the case that the application sites are not used by these species. However, further targeted surveys would be required to determine site use at this scale. In their conclusion Atkins 2018 describe the need for targeted monitoring using customised count sectors designed to reflect the boundaries of the aquaculture sites and variation in substrate type. As described in the AA the subsite divisions used for the WSP (NPWS) and BSI (Inis Environmental) counts were defined for the purposes of monitoring broad patterns of waterbird distribution (4.39, Atkins, 2018) and not for analysing species distributions in relation to aquaculture.

Atkins (section 4.39, 2018) describes that sub site 00413 is divided by the main channel with contrasting habitat conditions either side of the channel; the southern side holds sandbanks that rapidly dry out as the tide recedes and appear to support very low numbers of birds, while the northern side (where the aquaculture areas are) hold muddier sediments. The discussion section within Atkins (2018; section 4) shows that there may be areas within the mid shore and count sector 00413 that hold less birds than others, reflecting the habitat types present either side of the main channel. However, the assessment suggests the lower bird numbers are likely in the sandier sediments south of the channel and not where the application site is.



To gain a more accurate picture of bird use within sector 00413 would require further review and analysis of existing data, and additional targeted surveys. From the data available there is sufficient evidence to show that Grey Plover, Dunlin and Knot use the mid shore where the application site is located. Any gaps in data supports the case for refusing any new application sites as there is insufficient data to show that significant adverse effects will not occur.

2. Mitigation measures available and being investigated for Dungarvan Harbour could be applied to the application site.

The mitigation measures proposed for Dungarvan were developed, following bird studies at this site and in response to the trestle layout at this site. It is not possible to apply mitigation measures designed for one site to another site.

The conclusions of the AA for Bannow Bay predicted high levels of displacement to Grey Plover, Black-tailed Godwit, Bar-tailed Godwit, Knot and Dunlin should the existing, the trial and the new application sites be consented. The licensing of the existing aquaculture plus the trial sites was found to exceed the 5% threshold which reflects significant displacement effects for Grey Plover, Bar-tailed Godwit, Black-tailed Godwit, Dunlin and Knot. The licensing authority makes the case that where displacement effects are around 5% development is not precluded, but mitigation and /or appropriate management actions are required.

Permission has been granted in Bannow Bay for the existing and trial application sites. This has been done despite the 5% threshold of displacement effects being exceeded and on condition that an Adaptive Management Plan be prepared and implemented, together with a targeted monitoring programme for shorebirds. The results of targeted monitoring may inform mitigation measures appropriate for Bannow bay, however those used at other sites cannot be adapted to this site in the interim.

The following is also noted: Gittings and O'Donohue, 2016 "As it is likely to be the presence of the trestles that causes the major impact, and regular husbandry activity is an integral part of the cultivation process, there is probably little that can be done to significantly mitigate the impacts of existing intertidal oyster cultivation, short of reducing the area affected. Any future expansion of the industry will need to be carefully planned to avoid negative impacts to water bird populations".

3. The "Trestle Study" referred to in the AA was not designed to produce reliable data for individual sites.

3.1 The "Trestle Study" in the AA was designed to determine overall patterns of association across multiple European sites and was not designed to produce reliable data



for individual sites. Aquaculture activities should continue to be licensed until such time as this is available.

The trestle study provides research into understanding the effects of oyster cultivation on birds. The aim of the trestle study was establish consistent patterns in behaviour by using 6 study sites. By doing so the study was able to analyse the data at three spatial scales. This gives increased power to the data analysis i.e. increased confidence in its predictions. The results of the study are presented in a peer reviewed scientific journal Wader Study (Gittings and O'Donoghue, 2016). The trestle study aimed specifically to determine the response by birds (positive, neutral, negative) to the presence of oyster trestles. The report on this study and the paper published in Wader Study describes the survey methods used, the statistical analysis followed and any limitations in the data. Only conclusions supported by sufficient data are presented together with levels of confidence in predictions. The results are also discussed in terms of species ecology, to explain why negative and positive associations by some bird species are likely. The authors acknowledge that the study is based on a small number of counts per site and state that further research would be valuable to test the patterns identified.

The data from the trestle study was used to describe distribution patterns in Bannow Bay for 2011. Broad distribution patterns are also described using data from 1998-99 (NPWS), 2009/10 (WSP/NPWS) 2014/15 and 2015/16 (BSI/Inis). While the trestle study represents 4 counts from one winter it is presented and analysed along with other data (ie NPWS and Inis) and from this patterns of distribution are described.

It is also noted that while the trestle study data is based on a low number of counts it did show patterns consistent with habitat type. Low numbers of birds were recorded in sectors C1 and C2 which are of more sandy substrate and likely to offer a less productive feeding area and counts in sectors OY2, C4 and C6 recorded higher numbers of birds reflective of more productive feeding areas. Counts in sector OY1 may have been reduced by high trestle occupancy. These results while not definitive show the importance of gathering more targeted data on bird use in Bannow Bay.

Gittings and O'Donoghue (2016) acknowledge that the trestle study is based on a small number of counts per site, mainly carried out within a two month period in one winter. They point out that further research would be valuable to test the patterns of association derived from their study. They also point out that site specific assessments on the impact of intertidal oyster cultivation on water bird population are necessary. This will inform site specific differences in interactions between birds and trestles.

While limited, the trestle study does provide reliable data for Bannow Bay. This data was assessed together with other data collected over three other winters. Notwithstanding that the data from the trestle study is valid and should be seen together with the other datasets



it is also noted that the absence of data cannot be used to consent plans of projects where significant adverse effects are likely.

4. There is no examination or analysis in the AA determination used by the Department to refuse the license application.

The AA determination used by the Department to refuse the license application was based on Atkins (2018 and 2017). Both of these reports present several years of bird data for Bannow Bay together with the presentation and analysis of bird data, statistical analysis of displacement effects and an evaluation and discussion of these effects informed by published research into bird ecology. The data sources are described, the methods for survey and for data analysis are described. Limitations in approach are presented. The determination by the Department is informed by these reports. When the AA determination is considered together with the Reports of Atkins 2017 and Atkins 2018 (both of which are referred to in the determination) a detailed examination and analysis of data to support the conclusion of the Department is evident.

SUBSTANTIVE ISSUES

Appeal Ref	Application Site	Appellant
Appeal 7/2/2018	T3/88 A, B &C	Eugene Fitzpatrick, Fitzpatrick Oysters Ltd
Appeal 7/3/2018	T3/86 A, B, C	Tomas French, SBS Ltd

5. The bird data used in the Appropriate Assessment has limitations which affect confidence in the assessment conclusions

It is important to note that any concerns regarding the lack of data upon which to inform the AA would require that no aquaculture or foreshore licenses are granted in Bannow Bay. Following requirements of the Habitats Directive, where there is insufficient data for assessment there follows a lack of certainty with regards to adverse effects. Where this is the case consent cannot be granted. This said the issues raised regarding the limitations of the AA are discussed below:

5.1 The AA does not have the required amount of field data and the updated AA refers to only two of the three datasets submitted to the DAFM. Three years of winter bird data was submitted to DAFM for years 2014/2015, 2015/2016 and 2016/2017 but only two years are used in the AA.

Low tide data was used to assess bird distribution and to predict displacement effects. Low tide data was available for 5 survey years. For four survey years the low tide data related to comparable count sectors (WSP, trestle study and Inis/BSI). For the fifth survey year (bird usage counts) broadly equivalent zones are compared and the differences in the



survey sectors between years are described and discussed. Results from the WSP, trestle study and Inis/BSI surveys are published in reports (Cummins and Crowe, 2010, Gittings and O’Donoghue, 2012 & 2016). The data was collected using standard methods by professional bird surveyors. This data is considered to be valid and reliable. Five years of count data is considered sufficient for impact assessment purposes (with monthly winter counts); three years of data is generally considered to be the minimum required for baseline surveys to account for annual variation in numbers and patterns of distribution. Limitations in the data used for the AA are described and discussed by Atkins (2017 and 2018). Atkins (2017, 2018) discusses that the data used in the AA is derived from methods designed for monitoring broad patterns of water bird distribution. Any further data analysis or surveys should be targeted specifically to determine the effects of aquaculture (ie taking account of substrate type, using count sectors that reflect aquaculture development) and bi-monthly counts are proposed within the context of aquaculture impact monitoring.

The data presented in the AA is considered to be sufficient. The inclusion of further data will increase the reliability of the assessment and may lead to predictions of both greater and/or lesser displacement levels. The use of targeted surveys designed specifically to assess the impact of aquaculture developments will increase the reliability of predictions further.

Survey Name	Count type	Body	Years	Months
Bird usage counts	Low tide	NPWS	1998 and 1999	1 winter (5 counts between January 1998 and January 1999)
Waterbird Survey Programme	4 low tide; 1 high tide	NPWS	2009/2010	1 winter (four LT counts October to Feb; HT in January)
Trestle Study	Low tide	Atkins Consultants	2011	1 winter (four counts between January and February)
Inis/BSI	4 low tide, 1 high tide	Inis/BSI	2014/2015 2015/2016 2017/2018	3 winters (four LT counts; 1 winter count per year)

Regarding the data for 2016/2107 which was submitted to the DAFM but not used in the AA, it is noted (see Conclusion Statement by Licensing Authority in support of the AA) that the Marine Institute was requested by the Minister to update the Appropriate Assessment (Atkins, 2018) further to submission of two monitoring reports for 2014/2015 and 2015/2016. Data from these reports is included in the updated AA (Atkins, 2018). A third report for the years 2016/2017 is not referred to by the Minister. While further data will increase the reliability of analysis and assessment, the data presented in the AA is considered sufficient (as above).

5.2 There is a limited amount of site specific bird data for Bannow Bay with a heavy reliance on the “Trestle Study” (Effects of intertidal oyster culture on the spatial distribution of waterbirds, Gittings and O’Donoghue, 2016). This study involved one



observer spending four days studying the bay and where the study area did not extend to the whole bay or the entirety of the aquaculture production area.

Data from the trestle study was used together with low tide data from the Waterbird Survey Programme (NPWS) and low tide data from the BSI (Inis Environmental) surveys. This represents four years of low tide data collected to a standard method and using consistent and comparable count sectors. The trestle study count sectors show that they cover all of the aquaculture production area (Figure 4.8 of Gittings & O'Donohue, 2012). See also 3.1 of this Evaluation section.

5.3. I-WeBs data for Bannow Bay between 1994/95 and 2013/14 provided only 35-37% of a potential 140 winter counts for that period and collection effort changed from two counters to one. The limited amount of site specific data and variation in collection effort is of concern.

The I-WeBs data provides 12 years of winter counts using standard methods. The greater the number of counts the greater the reliability of the data. Where a data set is available over a 12 year period errors owing to missing survey years and counter variation are reduced. I-WeBs counts are completed at high tide to assess population numbers at a site and to assess trends over time. The AA used the I-WeBs data to assess population trends of SCI species in Bannow Bay. This is relevant in terms of impact assessment, where a greater impact is likely for a species in decline or with a highly unfavourable conservation condition. The AA describes the I-WeBs data as being patchy, acknowledging limitations owing to varying survey effort over the years. For this reason it is advised in the AA that only those species showing large declines over the 5 and 12 year period of analysis, are likely to have shown a real decline. Concerns regarding the limitations of the I-WeBs data are therefore considered in the AA.

The I-WeBs data is a high tide count and at high tide the area occupied by trestles is underwater. The low tide counts (WSP, Trestle Study, Ini/BSI) reflect bird use of intertidal habitats and were used to inform distribution patterns at a count sector level and to predict displacement effects. The low tide counts provide a reliable data set for at least four of the five survey years and it is this data which is relevant in terms of predicting displacement effects.

5.4 The AA states that Light-bellied Brent Geese were only recorded on two out of four trestle study counts and that they showed strong negative patterns of association with trestles on both counts. The reduced monitoring effort (tide and counters)/lack of data and the presence of other feeding sources/habitat preference might explain use of the site by Brent Geese rather than it being a trestle effect.

The AA (Atkins, 2018) describes that Light bellied Brent Geese showed a variable response pattern to oyster trestles in the trestle study with neutral/positive patterns of association at



some sites and negative patterns at other sites. Based on data for Bannow Bay from the trestle study together with further data from watches in 2016 and BSI data from 2015/16, Atkins conclude that only full occupation of all sites (existing, trial and new) presents a risk of significant displacement impacts to Light-Bellied Brent Geese, but that even this risk has a high level of uncertainty. Table 4.4 of the AA (Atkins, 2018) describes the probability of a negative response to trestles by Light-bellied Brent geese as being low. A strong negative pattern of association by Light-Bellied Brent Geese is not described by Atkins, 2018. Targeted monitoring at Bannow Bay should provide further insights into habitat use by Light-bellied Brent Geese in Bannow Bay.

6. The Appropriate Assessment is based on assumptions which are flawed

6.1. The assumption that the 2009/2010 low tide counts provide an accurate representation of the species low tide distribution. The limitations of four low tide counts being carried out may affect confidence in assessment conclusions. The inclusion of data on weather conditions which affect bird behaviour may increase confidence in the assessment conclusions.

The 2009/2010 data was collected as part of the NPWS Waterbird Survey Programme. While weather conditions for 2009/10 are not included in the AA, the source of the 2009/2010 data is provided. While the original report of the 2009/2010 survey is not available on line it is likely to be available via an information request to NPWS or from BirdWatch Ireland. The results from the 2009/2010 surveys were used to inform the conservation objectives for Bannow Bay SPA (NPWS, 2012). These objectives together with supporting information are available from the NPWS website. The conservation objectives documents states that weather conditions recorded during the winter of 2009/10 were notable. “December 2009 was the coldest for 28 years and the cold spell persisted into the first half of January; January being the coldest on record for 25 years (Met Éireann (2010)). Such weather events are likely to affect waterbird distribution patterns across Ireland and Europe, and results of the Waterbird Survey Programme should be interpreted with this regard”.

The low tide data for 2009/2010 was assessed in the AA together with low tide data for 1998-99 (NPWS/Bird usage data) 2011 (trestle study), 2014/2015 and 2016/2017 (BSI/Inis). The greater number of years of data means that any variations in distribution owing to extreme weather events are reduced.

Five years of count data is considered sufficient for impact assessment purposes (with monthly winter counts); three years of data is generally considered to be the minimum required for baseline surveys to account for annual variation in numbers and patterns of distribution. Limitations in the data used for the AA are described and discussed by Atkins (2017 and 2018). Atkins (2017, 2018) discusses that the data used in the AA is derived from methods designed for monitoring broad patterns of water bird distribution. Any



further data analysis or surveys should be targeted specifically to determine the effects of aquaculture (ie taking account of substrate type, using count sectors that reflect aquaculture development) and bi-monthly counts are proposed within the context of aquaculture impact monitoring.

6.2 The assumption that bird use of area 00413 will be uniform in terms of feeding and roosting. This sector is not uniform in habitat with notable variation in bathymetry and substratum.

Atkins (section 4.39, 2018) describes that sub site 00413 is divided by the main channel with contrasting habitat conditions either side of the channel; the southern side holds sandbanks that rapidly dry out as the tide recedes and appear to support very low numbers of birds, while the northern side (where the aquaculture areas is) hold muddier sediments. The discussion section within Atkins (2018; section 4) shows that there may be areas within the mid shore and count sector 00413 that hold less birds than others, reflecting the habitat types present either side of the main channel. To gain a more accurate picture of bird use within sector 00413 would require further review and analysis of existing data, and additional targeted surveys.

The AA acknowledges the limitations of the assessment with regard to habitat variation in sector 00413. The AA proposes that further monitoring should take account of substrate type. Where the data presented in an AA is considered to have gaps, precaution is necessary. Gaps in data cannot be used to allow consent.

6.3 The assumption that the absence of a bird species from the areas occupied by trestles is regarded as exclusion. This highly precautionary approach fails to assess the quality of habitat in the absence of trestles and does not take account of better feeding areas outside of the oyster production areas.

The results of the displacement predictions are discussed in 4.47 of Atkins 2017. For two species (Grey Plover and Knot) the assumption of complete exclusion from the trestle areas is considered to be accurate, based on the results of the trestle study and on further monitoring at Dungarvan Bay. For other species complete exclusion is known not to occur and correction factors to predicted displacement are used to allow for incomplete exclusion. The displacement predictions and other limitations are discussed (Section 4.47 to 4.52 Atkins, 2018) e.g. effects of data accuracy, potential bias affecting confidence intervals, inclusion of areas which are likely to be less favoured by birds and the effect of this on predictions. The lack of data on habitat quality is also discussed and it is stated that without data on habitat quality it is not possible to factor this into the assessment. Acknowledging the limitations in the displacement impact predictions the AA (Atkins, 2018) concludes that the estimates presented should be viewed as indicative, rather than as firm predictions.



The methods used to analyse the displacement effects are presented and the limitations in the data are fully discussed. This provides clarity in approach and rigour in assessment. As further data becomes available on wintering bird and trestle interactions and on habitat quality, predictions will become more accurate and may show both greater and/or lesser displacement effects.

7. Bird life zoning plans which were agreed by NPWS, BIM and DAFM to protect bird life and guide aquaculture development have been dismissed as part of the Appropriate Assessment.

The area licensed for aquaculture and within which the applications under appeal lie, are largely within the area zoned for aquaculture as defined by the wildlife/bird zoning plans. The wildlife zoning plans alone are no longer sufficient as a means of guiding aquaculture licensing in any SPA. Since 1993 when these plans were prepared several years of local (Bannow Bay) national and international bird data have been gathered showing populations trends. Data on the distribution of species in Bannow Bay has been collected and used to inform the Conservation Objectives for the Species of Conservation Interest at this site (NPWS, 2012). Research into the wintering bird and oyster trestle interactions has been undertaken and has provided evidence of negative, neutral, positive and variable interactions between wintering birds and trestles. This additional data and research is now available and must be assessed within the context of the Habitats Directive. The AA process has become much more developed since 1993 and the use the wildlife zoning plans are no longer adequate within this context.

8. The Trestle Study is limited

The trestle study is discussed above in point 3.

5. Sedimentation and Eutrophication

The licence applications have been refused grant on the basis of uncertainty concerning the levels of ecological risk associated with the project in the context of displacement effects on protected waterbird species that utilise the site. The AA for the SAC indicates potential effects of eutrophication and sedimentation. Consideration of potential ecological benefits (such as the provision of ecological services by an increased standing stock of oysters under culture) associated with increased aquaculture output licensing in Bannow Bay would require further research and evaluation of detailed environmental data collected over an appropriate timeframe. Results would need to clearly demonstrate that licensing of further sites would have no significant adverse impact on any conservation objective/s for the designated SAC (and SPA) sites. An appropriate analysis has not been carried out in this context. Significant gaps in existing knowledge and understanding of the site means that the proposed granting of further licences based on the suggested positive benefits of



aquaculture would be premature given uncertainty in relation to eutrophication impacts, impacts on food availability and foraging areas and predicted displacement impacts.

10.0 Recommendation of Technical Advisor with Reasons and Considerations.

AP7 (1), AP7 (2) & AP7 (3)

The three appeals have been considered as one for the purposes of the technical evaluation report. Individual as well as common grounds for appeal (substantive issues) have been considered, evaluated and responded to in previous sections of the evaluation report. The reasoning and considerations of the Technical Advisor with respect to the three Appeals are provided below and a final recommendation to the Board follows.

The conclusions of the AA for Bannow Bay predicted high levels of displacement to Grey Plover, Black-tailed Godwit, Bar-tailed Godwit, Knot and Dunlin should the existing, the trial and the new application sites be consented. The licensing of the existing aquaculture plus the trial sites was found to exceed the 5% threshold which reflects significant displacement effects for Grey Plover, Bar-tailed Godwit, Black-tailed Godwit, Dunlin and Knot. The licensing authority makes the case that where displacement effects are around 5% development is not precluded, but mitigation and /or appropriate management actions are required.

Permission has been granted in Bannow Bay for the existing and trial application sites. This has been done despite the 5% threshold of displacement effects being exceeded and on condition that an Adaptive Management Plan be prepared and implemented, together with a targeted monitoring programme for shorebirds.

The AA is considered to be a rigorous assessment. Standard methods are used, the analysis is based on several years of data, the statistical approach is clearly presented and the limitations in data and analysis are also presented. This assessment has found significant displacement effects are likely for species of Special Conservation Interest in Bannow Bay. Displacement effects of between 13 and 16% are predicted if the existing, trial and new application sites are all consented. The Application sites which are the subject of this appeal are new aquaculture sites; the licensing of these sites (together with existing and trial sites) would result in significant adverse effects on the Bannow Bay SPA.

The Technical Reviewer has also considered recent rulings of the European Court of Justice with respect to interpretation of Article 6 (3)* of the Habitats Directive in so far as this considers the significance of effects of a project or plan (alone or in combination with other projects) in view of a designated sites' conservation objectives. European case law has firmly and repeatedly established how competent authorities should respond to applications for consent for projects or plans that may affect designated sites.



In (*Case C-258/11 Peter Sweetman and Others v An Bord Pleanála*), the Court ruled *inter alia* that: “Authorisation for a plan or project, as referred to in Article 6(3) of the Habitats Directive, may therefore be given only on condition that the competent authorities – once all aspects of the plan or project have been identified which can, by themselves or in combination with other plans or projects, affect the conservation objectives of the site concerned, and in the light of the best scientific knowledge in the field – are certain that the plan or project will not have lasting adverse effects on the integrity of that site. That is so where no **reasonable scientific doubt remains** as to the absence of such effects (see, to this effect, Case C-404/09 Commission v Spain, paragraph 99, and Solvay and Others, paragraph 67).”

Accordingly, considering the best available analysis at time of review which indicates that granting further aquaculture and foreshore licences as per the appeals will cause predicted displacement effects for a number of protected bird species of between 13 and 16% if the existing, trial and new application sites are all consented., it is recommended that the aquaculture licence applications that are the subject of this appeal are **not granted** on this occasion.

*In this context, articles 6(2), 6(3) and 6(4) of the Habitats Directive also apply to SPAs protected under the Birds Directive (ref. Article 7 of Habitats Directive).

11.0 Draft Determination Refusal /or Grant

It is recommended that the Minister’s decision to refuse grant of aquaculture and foreshore licences in respect of the applications for sites T3/86-A, T3/86-B, T3/86-C, T3/87-A, T3/88-A, T3/88-B and T3/88-C considered in AP7 1/2/3 be upheld.

Technical Advisor: MERC Consultants

Date: 27.4.2019



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