Appropriate Assessment Screening for Aquaculture activities in Crookhaven and Toormore Bay, Co.Cork	
Brief description of the project or plan	The production of scallops (*Pecten maximus*) is currently licenced at Sites T05/432A, B, and C in Crookhaven Bay and at Site T05/432D in Toormore Bay, Co. Cork. An application for the renewal of the licences for the production of scallops at the above sites has been submitted to DAFM. This application also seeks a review of the licences to include the production of native red, brown and green seaweeds including *Alaria esculenta, Laminaria digitata, Saccharina latissima, Ulva lactuca, Asparagopsis aramata and Porphyra spp within* the existing boundaries of the same sites. The area of foreshore of each of the proposed sites is as follows: • Site T05/432A – 1.91Ha • Site T05/432B – 6.06Ha • Site T05/432C – 14.5Ha • Site T05/432D – 17.5Ha It is intended that Scallops are cultured in cage structures placed on the seabed in the subtidal area. Each of the cages has a footprint of 2.5m x 1.0m and is 1.5m in height. It is intended that 2 cages will be deployed at Site T05/432A, 7 cages at Site T05/432B, 15 cages at Site T05/432C and 16 cages at Site T05/432D. It is anticipated that the maximum total annual production of scallops across the 4 proposed sites would be circa 420Kg. It is intended that the seaweeds are cultured using seeded strings on longlines supported by floating structures. Seeded strings would be deployed on the longlines in December with harvesting taking place the following May/ June. It is anticipated that the maximum total annual production of seaweeds across the 4 proposed sites would be circa 240 tonnes. The locations of the aquaculture sites are shown in Figure 1

Brief description of the Natura 2000 sites	The proposed aquaculture sites are not located within a Natura 2000 site but are adjacent to the following Natura 2000 sites: (see Figure 1) **Sheeps Head to Toe Head SPA (Site Code: 004156)** This is a large site situated on the south-west coast of Co. Cork. It encompasses the high coast and sea cliffs from Sheep's Head to Mizen Head, Brow Head and Crookhaven in the west and from Baltimore to Tragumna Bay, Gokane Point and the Toe Head peninsula in the east. The high

	water mark forms the seaward boundary. The site includes sea cliffs, the land adjacent to the cliff edge and also areas of sand dunes at Barley Cove and Crookhaven. The site supports an important population of breeding Chough and an important population of Peregrine. The Conservation Objectives of this site are:[1] To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA: • Peregrine *Falco peregrinus* • Chough *Pyrrhocorax pyrrhocorax* **Barley Cove to Ballyrisode Point SAC (Site Code: 001040)** This site is situated on the Mizen Head peninsula in the extreme south-west of Co. Cork. It straddles a 10 km stretch of coastline from the Barley Cove inlet to Ballyrisode Point at Toormore Bay. While rocky heath is the dominant habitat, the site is most important for the sand dunes and related habitats which occur at Barley Cove. A fine gradation of habitat is shown, from the outer sandy beach, through dunes and saltmarshes, and then brackish lagoon. Of particular importance is the fixed dune habitat, and this is one of the few examples of this habitat type in Co. Cork and south Co. Kerry. The Conservation Objectives of this site are:[2] • To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in Barley Cove to Ballyrisode Point SAC, • To maintain the favourable conservation condition of Perennial vegetation of stony banks in Barley Cove to Ballyrisode Point SAC, • To maintain the favourable conservation condition of Salicornia and other annuals colonizing mud and sand in Barley Cove to Ballyrisode Point SAC, • To restore the favourable conservation condition of Atlantic salt meadows (Glauco-Puccinellietalia maritimae) in Barley Cove to Ballyrisode Point SAC, • To restore the favourable conservation condition

[1] NPWS (2018) Conservation objectives for Sheep's Head to Toe Head SPA [004156]. Generic Version 6.0. Department of Culture, Heritage and the Gaeltacht

[2] NPWS (2014) Conservation Objectives: Barley Cove to Ballyrisode Point SAC 001040. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

	of Mediterranean salt meadows (Juncetalia maritimi) in Barley Cove to Ballyrisode Point SAC • To restore the favourable conservation condition of Shifting dunes along the shoreline with Ammophila arenaria ('white dunes') in Barley Cove to Ballyrisode Point SAC, • To restore the favourable conservation condition of Fixed coastal dunes with herbaceous vegetation ('grey dunes') in Barley Cove to Ballyrisode Point SAC, • To maintain the favourable conservation condition of European dry heaths in Barley Cove to Ballyrisode Point SAC **Roaringwater Bay and Islands SAC (Site Code: 000101)** Roaringwater Bay is a wide, shallow bay located on the south-west coast of Ireland. The SAC includes the immediate coastline on the mainland from Long Island to Baltimore, together with the whole bay and most of the islands. Some of the larger islands included are Sherkin Island, Cape Clear Island, Heir Island, Horse Island, Castle Island and Long Island. Generally the coast is low-lying but the southern edge rises, in line with the hills behind Baltimore, to culminate in a summit of 160 m on Cape Clear. The bay itself has a wide variety of reef and sediment habitats, subject to a range of wave exposures and tidal currents. Within the habitat 'large shallow inlets and bays' are found the following communities: muddy sand with bivalves and polychaetes complex, mixed sediment community complex, and shallow sand-mud community complex. Also found are marine caves and reefs. The shores of the bay range from the exposed, rocky shores of South Sherkin Island, to the sheltered rock, sand and mud communities of the Inner Bay and estuarine communities where the rivers enter the bay. The terrestrial habitats at this site are also of conservation interest and include good examples of two habitats listed under the E.U. Habitats Directive, i.e. dry heath and sea cliffs. Otter, Grey Seal and Harbour Porpoise, all mammal species listed on Annex II of the E.U. Habitats Directive, occur within the site. The Conservation Objectives for this site are:[3] • To maintain the favourable conservation condition of Large shallow inlets and bays in Roaringwater Bay and Islands SAC • To maintain the favourable conservation condition

[3] NPWS (2011) Conservation Objectives: Roaringwater Bay and Islands SAC 000101. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

	of Reefs in Roaringwater Bay and Islands SAC, • To maintain the favourable conservation condition of Vegetated sea cliffs of the Atlantic and Baltic coasts in Roaringwater Bay and Islands SAC, • To maintain the favourable conservation condition of Harbour Porpoise in Roaringwater Bay and Islands SAC, • To restore the favourable conservation condition of Otter in Roaringwater Bay and Islands SAC • To maintain the favourable conservation condition of Grey Seal in Roaringwater Bay and Islands SAC • To maintain the favourable conservation condition of European dry heaths in Roaringwater Bay and Islands SAC, • To maintain the favourable conservation condition of Submerged or partly submerged sea caves in Roaringwater Bay and Islands SAC,

Assessment criteria	
Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 site.	The scallops are contained in cage structures placed on the seabed at all times. Scallops are filter feeders and they feed on suspended particulate matter. They selectively ingest phytoplankton and other organic material (e.g. small zooplankton and bacteria) and dispose of inorganic and larger organic matter in pseudofeces, which is excreted into the water column. Typically the fecal and pseudofecal pellets will fall to the sea floor and may cause localised organic enrichment. The level of enrichment is a function of, *inter alia*, density of culture, water depth, current speed, the quantity of suspended particulate matter in the water column, or a combination of these. Considering the low level of scallop production proposed the build-up of excess organic matter beyond the footprint of the sites is not considered likely. The scallop production activities do not use any resources required by the qualifying features within the Natura 2000 sites. Seaweed is cultured using longlines supported by floating structures. The culture of seaweed is reliant upon ambient nutrient levels in the water column and solar Illumination. The production of seaweed does not use any resources required by the qualifying features of adjacent Natura sites.

Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura 2000 site by virtue of:	

size and scale;	There are no direct or indirect impacts from the culture operations on the adjacent SACs or SPA
Distance from the Natura 2000 site or key features of the site:	There is no spatial overlap between any of the aquaculture sites and the Natura 2000 sties.
Resource requirements (water abstraction etc.):	Scallops are filter feeders and they feed on suspended particulate matter. They selectively ingest phytoplankton and other organic material (e.g. small zooplankton and bacteria) and dispose of inorganic and larger organic matter in pseudofeces, which is excreted into the water column. Typically the fecal and pseudofecal pellets will fall to the sea floor and may cause localised organic enrichment. The level of enrichment is a function of, *inter alia*, density of culture, water depth, current speed, the quantity of suspended particulate matter in the water column, or a combination of these. The build-up of excess organic matter beyond the footprint of the sites is not considered likely. The scallop production activities do not use any resources required by the qualifying features within the Natura 2000 sites. The culture of seaweed is reliant upon ambient nutrient levels in the water column and solar Illumination. The production of seaweed does not use any resources required by the qualifying features of adjacent Natura sites.
Emissions (disposal to land, water or air):	The aquaculture sites in Crookhaven and Toormore Bay are accessed by boats. As a consequence, noise and pollution e.g. as a result of a fuel spill, may present a risk to features of adjoining Natura sites with a specific marine element. The risks are, however, not considered significant at current or proposed levels of aquaculture activity. It is considered that impacts would be localised and minor. The risk of the introduction of non-native species is considered to be low given that the species intended to be produced i.e. scallops . (*Pecten maximus*) and seaweeds (*Alaria esculenta, Laminaria digitata, Saccharina latissima, Ulva lactuca, Asparagopsis aramata and Porphyra spp*) are all native species and seed is sourced within Ireland. Adoption of industry best practice and implementation of measures set out in relevant guidelines as they relate to the risk of introduction of non-target species (e.g. Invasive Species Ireland guideline available at http://invasivespeciesireland.com/biosecurity/aquaculture/) would also significantly reduce the risk.
Excavation requirements:	There are no excavation or similar activities associated with the aquaculture activity
Transportation requirements:	Access routes to the aquaculture sites do not spatially overlap with any of the adjacent Natura 2000 sites. The produced aquaculture products are transported offsite by lorry using the existing national road network with no impact on the adjoining Natura 2000 sites.
Duration of construction, operation, decommissioning:	None

Other:	None

Describe any likely changes to the site arising as a result of:	
Reduction of habitat area:	There is no reduction in habitat area within any of the Natura 2000 sites considered arising from the aquaculture production activities.
Disturbance to key species:	Given the separation distance of the production sites from the adjacent Natura 2000 sites and the absence of any clear "source – pathway – receptor" there will be no disturbance to key species within any Natura 2000 sites. There is no evidence in the scientific literature to suggest that aquaculture activities impact on the bird species listed as Special Conservation interests in the Sheeps Head to Toe Head SPAs, i.e., Chough, and Peregrine..
Habitat or species fragmentation:	There is no habitat or species fragmentation within the Natura 2000 sites arising from the aquaculture production activities.
Reduction in species density:	There is no reduction in species density within the Natura 2000 sites arising from the aquaculture production activities.
Changes in key indicators of conservation value (water quality):	There are no changes in key indicators of conservation value within the Natura 2000 sites arising from the aquaculture production activities.
Climate change:	Given the nature and scale of the aquaculture production activities the contribution to climate change is considered insignificant.

Describe any likely impacts on the Natura 2000 site as a whole in term of;	
Interference with the key relationships that define the structure of the site:	None of the activities associated with the shellfish and seaweed production in Crookhaven and Toormore Bay will interfere with the key relationships that define the structure of the adjacent Natura 2000 sites.
Interference with the key relationships that define the function of the site	None of the activities associated with the shellfish and seaweed production in Crookhaven and Toormore Bay will interfere with the key relationships that define the function of the adjacent Natura 2000 sites.
Provide indicators of significance as a result of the identification of effects set out above in terms of:	
Loss	None identified
Fragmentation:	None identified
Disruption:	None identified
Disturbance:	None identified
Change to key elements of the site (e.g. water quality etc..):	None identified

Describe from the above those elements of the project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.	None identified

Finding of no significance effect report:	
Name of project or plan:	Aquaculture activities in Crookhaven and Toormore Bay Co. Cork.
Name and location of Natura 2000 site It would be helpful for a map or plan to be provided:	Sheeps Head to Toe Head SPA (Site Code: 004156), Barley Cove to Ballyrisode Point SAC (Site Code: 001040) and Roaringwater Bay and Islands SAC (Site Code: 000101) – See Figure 1
Description of the project or plan	Shellfish and seaweed culture activity in Crookhaven and Toormore Bay, Co. Cork.
Is the project or plan directly connected with or necessary to the management of the site (provide details)?	No.
Are there other projects or plans that together with the project or plan being assessed could affect the site (provide details)?	No.
Describe how the project or plan (alone or in combination) is likely to affect the Natura 2000 site.	The cultivation of shellfish and seaweeds in Crookhaven and Toormore Bay is not likely to affect the features of adjoining Natura 2000 sites.
Explain why these effects are not considered significant.	There is no spatial overlap of the aquaculture activities with Natura sites. In addition, there would be no interference with key relationships that define the function of the sites. The culture activities will not result in habitat loss, there will not be significant disturbance to key species and there will be no habitat or species fragmentation. There will be no direct discharge of pollutants into the environment and water quality will not be affected. Consequently, it is concluded that the culture of shellfish and seaweed, as it is currently constituted and proposed, in Crookhaven and Toormore Bay does not pose significant risk to the conservation features of the adjacent Natura 2000 sites and as such does not require a full appropriate assessment. On the basis of the above it is considered that there will be **no significant effects** on the qualifying feature / interests' of the adjacent Natura 2000 sites.
Who carried out the assessment?	Marine Institute, July 2019

Figure 1**.** Location of aquaculture sites (shown in red) in Crookhaven and Toormore Bay and adjacent Natura 2000 sites