

15 Material assets

15.1 Introduction

This chapter deals with the potential impact of the proposed development on fishing, land use, tourism and amenity.

Information on fishing activities was obtained from consultation with the Erris Inshore Fishermen's Association (EIFA), the Erris Lobster Conservation and Restocking Association (ELCRA), the Killybegs Fishermen's Organisation (KFO) and Bord Iascaigh Mhara, and from published reports.

Information on land use was obtained from the Corine (Coordination of Information on the Environment) land cover mapping published by the European Environment Agency, and from site visits to the area.

Information on tourism and amenity was obtained from the Central Statistics Office and from local publications.

15.2 Fishing industry

The test site is located within the Irish territorial waters (twelve nautical mile exclusion zone) and within the International Council for the Exploration of the Seas (ICES) Division VIIIb. Ireland retains exclusive access to fisheries within its twelve nautical mile exclusion zone, except in the case of certain fisheries, in restricted locations between six and twelve nautical miles, where France, the Netherlands, Germany, Belgium and the UK have fishing rights. In waters within 6 nautical miles of the coast, Irish vessels have sole access to fisheries, except that, under certain conditions, Northern Irish vessels can also fish in this zone (Marine Institute 2009).

Inshore fishing is generally defined as fishing activity carried out within twelve nautical miles of the shore; it includes demersal, pelagic, and shellfish fishing, and sea angling.

Inshore fishing activities within the project area consists mainly of brown crab and lobster fishing by members of the Erris Lobster Conservation and Restocking Association (ELCRA) and the Erris Inshore Fishermen's Association (EIFA), and trawling by members of the Killybegs Fishermen's Organisation (KFO).

The test areas are located on seabed areas that are largely sandy, adjacent to hard bedrock substrate. The seabed in the transition zone between the hard rock and the sandy seabed is a recognised crab fishing zone. Depending on time of year, strings of crab pots may be laid in this zone (Figure 15-1).

Lobster potting generally takes place on the shallower hard ground bedrock areas closer to the coast (Figure 15-2),

Trawling is carried out in the area indicated in Figure 15-3, which comprises an area of some 110 km².

15.2.1 Crab and lobster fisheries

Inshore fisheries for crab and lobster are of significant economic value to coastal communities. Some forty fishing boats are currently involved in fishing off Belmullet. The fishing area extends southwards to Achill Island and northwards to Donegal Bay. Almost all inshore fishermen in this area are members of either the EIFA or ELCRA. Fishing boats can sometimes operate up to twenty-five nautical miles west of the mainland.

The fishing effort is largely focused on brown crab (*cancer pagurus*) and lobster (*Homarus gammarus*), with some gill netting and trawling. The most significant economic activity is crab potting. A typical crab boat is 10m to 12m long, fishes up to 1,000 pots, and lands up to 100 tonnes per year at a value of around €1.20 per kg. Total annual landings in Belmullet are in the region of 3,000 tonnes. In recent times, crab catches have been rising – the average haul in 2009 was 3.3kg per pot, compared with 2.2kgs in previous years.

A typical lobster boat is 10m long or less, fishes up to 600 pots, and lands up to 1.5 tonnes per year at a value of around €10 to €14 per kg. Some boats fish both crab and lobster. Up to six crab fishing boats operate in the area adjacent to the proposed 100m water depth test area.

The inshore fishing season extends from March to November and some boats might leave gear in the water throughout the winter, depending on weather conditions. The busiest time, with the best crab catches, is summer. A typical lobster boat spends about 120 days at sea, whereas a crab boat averages 140 days. Pots are generally hauled and re-baited only about twice per week.

Initiatives that the local operators believe will enhance their sector include:

- A new national quality mark for wild fish that the fishermen feel will add value to their catches.
- A lobster V notching programme managed by BIM and enthusiastically supported by both associations – this has been running for at least fifteen years and is seen as being successful, with lobster catches apparently increasing during that period.
- Experimental fishing programmes, managed by BIM, to enhance fishery management.
- A log book initiative set up for boats over 10m, which requires owners to record and report all details of daily catches – this is seen as an important step towards proper conservation of stocks.

Erris Inshore Fishermen's Association has commissioned the Marine Institute and Bord Iascaigh Mhara to prepare a comprehensive report on the crab fishing industry in the area. This report will identify the significance of the crab industry to the local economy, provide increased understanding of the resource, leading to better stock management, and identify marketing opportunities to add value to the catch. This report is in preparation and expected to be finalised in the early 2012.

15.2.2 Trawling

Trawling is carried out by members of the Killybegs Fishermen's Organisation (KFO), and up to three of their trawlers operate in the vicinity of the proposed test area. These vessels trawl in an area of approximately 110 km² west of Belmullet (see Figure 15-3, trawl data provided by KFO). The KFO indicates that this is one of five sandy seabed areas used for trawling between Slyne Head and Donegal Bay. Trawling is carried on occasionally during the year for prime fish species. The main species trawled are monkfish, megrim, rough skate and haddock.

The trawl runs (tows) generally take about six hours each, and are repeated moving inwards into the box.

An area of the box is left fallow on a regular basis (not trawled) to allow natural restocking.

There is some overlap between the trawling and potting areas, but coordination between the representative associations ensures that potting gear is not damaged.

15.2.3 Test site location and fishing activities

Test Area A, located at the 100m water depth contour, has the potential to impact on both the crab potting area and the trawling area. The location of the test site is constrained by the project functional requirements and in particular by the mooring requirements for the WECs. It was ascertained at an early stage of the project that some mooring systems likely to be deployed by WEC developers would require deep soft substrate – that is, at least 5 metres of sand depth (see Chapter 4). The earlier geophysical surveys indicated extensive areas of soft substrate to the north and west of Test Area A and thus it was assumed that there would be significant scope for adjusting the location of the test area to fully accommodate fishermen's concerns. However, the more focused and detailed survey carried out in 2011 indicated that the southern portion of the proposed test area was the only deep sediment zone in water depths equal to or greater than 100m. This is a fundamental requirement of the project which, if not satisfied, renders all other criteria incidental.

The final location and shape of Test Area A has been decided based on a process of ongoing discussion with the fishing organisations throughout the project development phase. The original proposal for the test area was a rectangle, with its long axis (3km) orientated westwards. The 2011 seabed survey work was commissioned by SEAI following discussions with the fishing organisations, with the object of identifying alternative locations for the test area that would avoid the areas fished. These surveys were completed in 2011, but no option was identified in the general vicinity for relocating Test Area A. The only option available was reconfiguration of the test area.

Subsequent consultation with the fishing organisations resulted in the alteration in the shape of the test area, to the proposed 'boot' shape. This allows potting activity to be carried out around the test area, on the transition zone between hard rock and sandy seabed, with minimal loss of fishing ground. There will also be some unavoidable loss of the trawling area used by the KFO.

Test Area B, at the 50m water depth contour, will not impact on fishing activity to any significant extent.

15.2.4 Impact of the development

Construction phase

During the construction phase, while the test area is being established and marker buoys are being deployed and while the cables are being laid, there may be some short-term disruption to fishing activity. Cable laying is expected to take about one month overall, with each of the four cables deployed in a separate run. The cable vessel will generally be slow-moving and easily avoided, so the risk of collision with fishing vessels will be very low.

The physical presence of slow-moving vessels could interrupt normal fishing practices and exclude fishermen from the area during cable laying operations, with some potential economic loss.

Operational phase

The operational phase of the project will last 15 years, during which WECs will be deployed, tested and recovered from the test areas. This will involve movements of vessels such as barges, tugboats, support vessels and the WECs themselves, some of which may be towed into position.

The test areas will be established by a combination of marker and special buoys and will effectively become exclusion zones for all fishing activity for the project duration. This may lead to some economic loss, but this could be offset by the creation of de facto nursery areas.

Given the manoeuvring requirements of trawlers, the test area will result in restricted access to an area greater than that taken up by the test area itself. The estimated reduced access to the trawl area indicated west of Test Area A is approximately 9%. This trawl area is one of five areas used by the KFO between Slyne Head and Donegal Bay, so that the impact on the overall fishery will be low, but of medium duration.

There may be some short-term disruption to fishing activity during WEC deployment and recovery operations, but the impact of this on the fishery will be insignificant.

During inclement weather, fishermen's gear may drift and become entangled with the mooring systems of the test area marker buoys or with the WEC mooring arrangements, leading to gear damage and subsequent cost and loss of income. If this occurred, the impact would be of short duration and of medium significance, due to the immediate economic loss to the fishing community.

Similarly, in worst case scenarios, WECs under test might break loose from their moorings during severe weather and damage deployed fishing gear, resulting in cost and loss of income to the fishermen. If this occurred, the impact would be of short duration and of medium significance, due to the immediate economic loss to the fishing community.

If a sub-sea electricity cable suffers damage, repairs will be made *in situ*. A section of cable will be lifted by a repair vessel which will be on station until repair is completed (approximately two weeks). This could cause temporary disruption of fishing activity. The impact would be of short duration and of low significance.

The test areas, with their effective exclusion on fishing activity, may result in the development of nursery areas which could enhance fish and shellfish stock. Mooring systems may also create artificial reef structures which could also lead to enhanced fish and shellfish stock in the area. Such nursery areas may lead to increased catch in future, enhancing fishermen's income on a sustainable basis.

Decommissioning phase

During the decommissioning phase, there may be short-term disruption to fishing activities as the marker buoys and mooring systems are removed. If the sub-sea cables are also to be lifted, there would be some additional short-term disruption of fishing activity in the area.

15.2.5 Mitigation

Construction phase

The principal mitigation measure taken to minimise the impact on the fishing industry has been consultation with the relevant stakeholders leading to the optimum design of the test site, test areas and location. The location and shape of Test Area A were decided based on consultation with key stakeholders. Both EIFA and ELCRA have indicated that, while the project inevitably implies some loss of fishing ground, the compromise Test Area A configuration arrived at through discussions with their members and representatives is acceptable. There will also be some restriction of the KFO trawl area which cannot be avoided, resulting in a potential economic loss to the vessels operating there.

To avoid further impacts on the fishing industry in the area the following mitigation measure should be undertaken:

- Advance notice of all marine operations, including cable laying, test area delineation with marker buoys, and WEC deployment, maintenance and recovery will be notified to all marine stakeholders. To the greatest extent possible, operations will be timed to minimise disruption of fishing activity; however, good weather conditions are required

for all deployment operations associated with the test site, and these are likely to coincide with fishing activities to some extent.

- A specific communication forum will be established to facilitate consultation with and information dissemination to all stakeholders.

Operational phase

Information dissemination will continue throughout the operational phase. In addition:

- All operations at the test site will be governed by a strictly binding operational plan that sets out the rules for the test site users and for their interaction with other stakeholders. The operational plan will include an emergency response plan that will facilitate rapid response to emergency situations, such as WECs breaking their moorings and coming adrift or becoming entangled with fishing gear. The implementation of the operational plan will minimise the potential for impact on the fishing community.
- A specific project to determine the influence of the wave energy test site on crab and lobster numbers and the effectiveness of the site as a nursery area should be established. It should involve the key marine stakeholders and state organisations such as BIM. A model for this could be the project funded by the European Marine Energy Centre (EMEC) in Orkney, which involves rearing and releasing tagged lobsters in a participatory process with local fishermen and organisations. The project aims to provide data on the influence of the EMEC wave test site on the abundance and availability of lobsters to the fishing industry and the potential of the test site to act as a nursery area.

Decommissioning phase

A decommissioning plan will be prepared and agreed with the Department of the Environment, Community and Local Government, Foreshore Leasing Unit. Consultation on the plan will be held with the fishing community.

15.2.6 Conclusion

During the construction and decommissioning phases, and during WEC deployment and recovery operations, the project's impacts on the fishing industry in the area will be temporary in nature and of low significance overall. During the operational phase, the test area locations will effectively constitute fishing exclusion zones. The impact on the crab and lobster fishing industry will, however, be low because of the design of Test Area A following the consultation process. Test Area B, at the 50m water depth, will not impact significantly on fishing activity in the area.

Trawling activity will also be impacted, with a reduction in access to the trawling ground adjacent to Test Area A of some 9%. However, this impact, although negative, can be considered as low, given that the area is one of five such areas fished in the region and the overall impact will be small.

Impacts can be further reduced through careful planning of all activities associated with the test site establishment, operation, maintenance and decommissioning, and through continuing engagement with key stakeholders in timing operations.

Economic losses to the fishing community could be offset by the effect of creating nursery areas through fishing exclusion at the test areas. The long-term influence of the test site in this regard should be demonstrated through a specially funded project involving all key stakeholders.

15.3 Land use

15.3.1 Approach and methodology

In the assessment of the project's impact on land use, the focus was on land with greatest human value – that is, land that generates or has the potential for generating revenue, employment or amenity value.

The land use baseline has been developed from the Corine 2006 land use database (European Environment Agency), and from site visits to the development area.

15.3.2 Receiving environment

Belderra Strand landfall

The submarine electricity cables will land at Belderra Strand. A small car park has been provided at this location by Mayo County Council at this location to facilitate users of the amenity.

The Corine 2006 land cover map for the Annagh area is shown in Figure 15-4. The land area to the south, south east and south west is classed mainly as pasture, with some areas of non-irrigated arable land. To the north of Belderra Strand the land is classed as beaches, dune and sand, and as sport and leisure facilities (Carne Golf Links).

Construction lay-down area

The proposed construction lay-down area will be located in a triangular area of land south of the beach and car park. The cable interface joint bay will also be located in the adjacent road and car park. The triangular area originally formed part of the foreshore; it was cut off in the 1970s by the construction of the local road and was eventually filled in by wind-blown sand.

Substation location

The substation and its access road are to be located on lands in the townland of Ballymacsherron. The existing land use at this location is agricultural pasture land.

15.3.3 Impact of the development

Construction phase

There will be a temporary impact on the beach area during the installation of conduits for the submarine electricity cables. Installation will involve excavating four trenches to duct the cables to the cable interface joint bay. The area affected will extend from the low-water mark through the beach to the road area adjacent to the car park. The construction corridor will be approximately 40m wide, narrowing as it approaches the car park. The cable corridor will be located within the construction corridor and will be approximately 10m wide. Trenching for the cable duct will take up to one week. During this period, access to that portion of the beach area will be restricted for safety reasons. This will lead to temporary loss of amenity for the general public and other users of the Belderra Strand area. After installation of the cable duct, the beach is expected to return to its original state following a few tidal cycles – that is, within a few days.

The cable transition joint bay will be buried below ground and the surface area reinstated after construction.

The construction of the substation and its approach road will lead to the permanent loss of two acres of pastureland at the substation site. This is small in the context of the total land bank in the area.

Operational phase

Should a cable fault occur on one of the land-side cables then maintenance and repair work would need to be carried out. This could lead to temporary loss of land use in the area associated with the repair.

Decommissioning phase

Decommissioning of the substation will be subject to agreement between SEAI and the Mayo County Council. Decommissioning may require the demolition of the substation building. If this occurs then the site will be restored to its original land use.

15.3.4 Mitigation***Construction phase***

The construction area for the submarine cable ducting through the Belderra Strand will be confined to a narrow corridor to minimise the impact area on the beach itself

Construction of the conduits will also be undertaken in advance of the main cable lay operations and will be timed so that the impact on amenity users will be minimal.

Construction activities will be confined to the land-side cable corridor, the substation location and the lay-down area.

Operational phase

The earthen embankments will be re-vegetated using local native plants and grasses and maintained during the operational phase. No additional mitigation is foreseen.

Decommissioning phase

A decommissioning plan will be prepared for approval of Mayo County Council and implemented accordingly. This will include a requirement for land use restoration.

15.3.5 Conclusion

The project will result in medium-term loss of two acres of pasture land at the substation site. It will also lead to temporary loss of use of the beach area at Belderra for a very short period during cable conduit installation. In addition there will be some local road closures of short duration during the landside cable trenching and construction of the cable transition joint bay. The impact of these activities will not be significant. No additional impact is predicted during the operational phase and the site will be subject to a decommissioning plan.

15.4 Tourism and amenity**15.4.1 Approach and methodology**

Data and statistics on tourism nationally have been obtained from the Central Statistics Office Statistical Yearbook of Ireland 2011, Report of the Tourism Renewal Group (September 2009), Fáilte Ireland Tourism Facts 2010 and from other published sources.

15.4.2 Introduction

Tourism is vitally important to Ireland's national economy and is now regarded as one of the greatest potential wealth creators and employers at national level. Its importance is enhanced by the employment it can generate in areas that lack opportunity for other kinds of development. Tourism increased rapidly in Ireland in the past decade as indicated by the numbers of overseas visitors to Ireland – see Table 15-1. A recent decline in numbers is attributed mainly to the global economic downturn and unfavourable exchange rates.

Table 15-1: Overseas visits (thousands) to Ireland

Year	2004	2005	2006	2007	2008	2009	2010
Number	6,574	6,976	7,711	8,018	7,837	6,925	6,038

In 2010, out-of-state tourist expenditure, including spending by visitors from Northern Ireland, amounted to €3.4 billion. With a further €0.5 billion spent by overseas visitors on fares to Irish carriers, total foreign exchange earnings were €3.9 billion. Domestic tourism expenditure amounted to €1.4 billion making tourism in total a €5.3 billion industry in 2009 and probably Ireland's most important indigenous industry.

The official count by the Central Statistics Office (CSO) of direct employment in 'Accommodation and food service activities', a category which includes hotels, restaurants, bars, canteens and catering, was 123,300 in 2009 (6.4% of total employment). When part-time and seasonal/casual employment is added, total employment in the sector reaches approximately 190,000 (based on a Fáilte Ireland survey which includes an additional category of tourism services and attractions which is not covered by the CSO).

There is potential for growth in the tourism industry and it is regarded as a priority sector for development by the Government. Maximising the potential of the tourism sector and economic diversification are recognised as critical in helping to maintain the population in rural areas that have suffered from population decline.

The bulk of tourism growth has occurred in a number of the larger urban centres, which is at least partly due to the emergence of convenient, frequent and affordable air access to these centres. This in turn has resulted in a fundamental shift in consumer preferences towards short city breaks at the expense of more long-stay rural-based holidays.

Tourism is also a key industry sector in the Iorrais area. There are many fine beaches in the vicinity within a short distance from Belmullet which are frequented by local, national and international visitors. The varying coastline allows for multiple recreational activities such as fishing, walking and water sports. The Belderra Strand in Annagh Bay is used as an amenity area both by walkers and surfers. The area is rarely used for bathing purposes due to the nature of the currents in the area. A clear warning sign indicates that the area is dangerous for bathing. A small car park has been provided by Mayo County Council at Belderra Strand to facilitate users of the amenity.

In discussions with the local surfing community it was established that the waters in Annagh Bay are used regularly for

- Towed surfing, sail boarding and kite surfing (generally off Emlybeg Beach area)
- Windsurfing (generally from Emlybeg Beach down to Cross Beach)
- Local surfing off Belderra Strand

In particular the surfers were concerned at the potential impact the cable installation could have on a sand bank fronting Belderra Strand which enhances the generation of good surfing waves. This has been taken into account in the project design.

15.4.3 Impact of the development

Construction phase

The laying of submarine electricity cables on the approach to Belderra Strand and their subsequent ducting through the beach will lead to temporary loss of amenity use of the beach area and may disrupt tourism use of the area.

The cable lay also has the potential to impact on the sand bank important to the surfing community.

Traffic and other activities associated with the construction will lead to temporary impairment of the amenity value of the area but this will be of low significance as predicted traffic is well within the carrying capacity of the local roads.

The cable-laying operation may also attract visitors to the immediate area to view the event as this will be an unusual and infrequent activity in the location involving a large cable-lay vessel.

The overall impact will be temporary, of short duration and will not be significant.

Operational phase

During the operational phase the presence of the test site may result in increased visitor numbers to the area due to the uniqueness of the facility in Ireland. It could provide a first-hand opportunity to view marine renewable resources in operation.

Decommissioning phase

During decommissioning, there will be some short-term disruption to the amenity value of the area.

15.4.4 Mitigation

There are no mitigation measures available for tourism.

The sand bank that is important for surfing waves will be avoided during cable laying operations on the approach to Belderra Strand.

Construction of the conduits will also be undertaken in advance of the main cable-lay operations and will be timed so that impact on amenity users will be minimal.

The local community will be kept informed of the timing of operations to ensure minimum disruption to normal amenity use in of the area.

15.4.5 Conclusion

Although there will be some temporary loss of amenity value to the area during the construction and decommissioning stages this will be short-term and the impact will be very low.

Careful design of the submarine electricity cable corridor on the approach to Belderra Strand will ensure minimum impact on the sand bank immediately offshore to the beach area. Overall, the project may have a positive impact on tourism in the area.

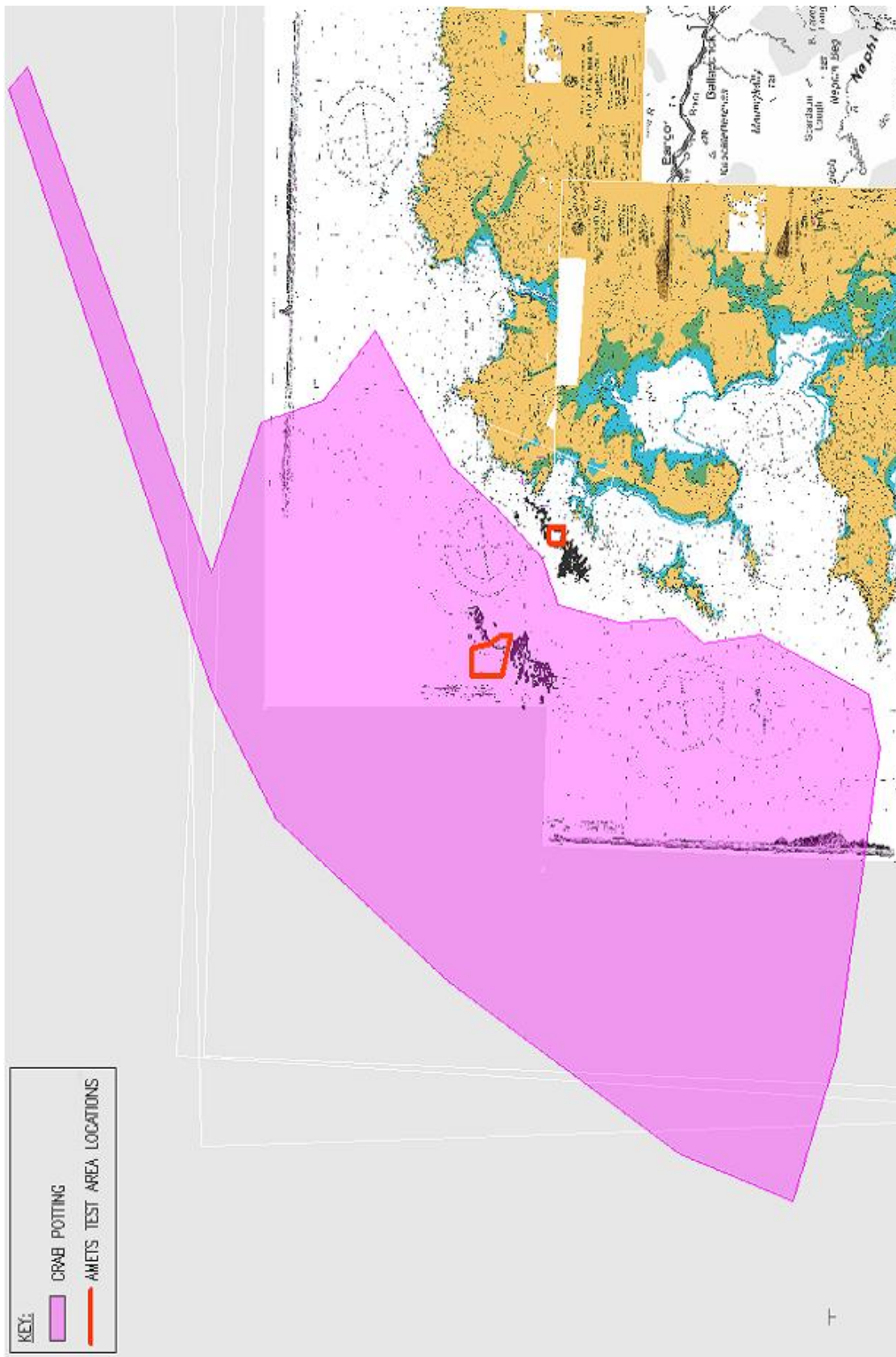


Figure 15-1: Indicative crab potting area off Belmullet

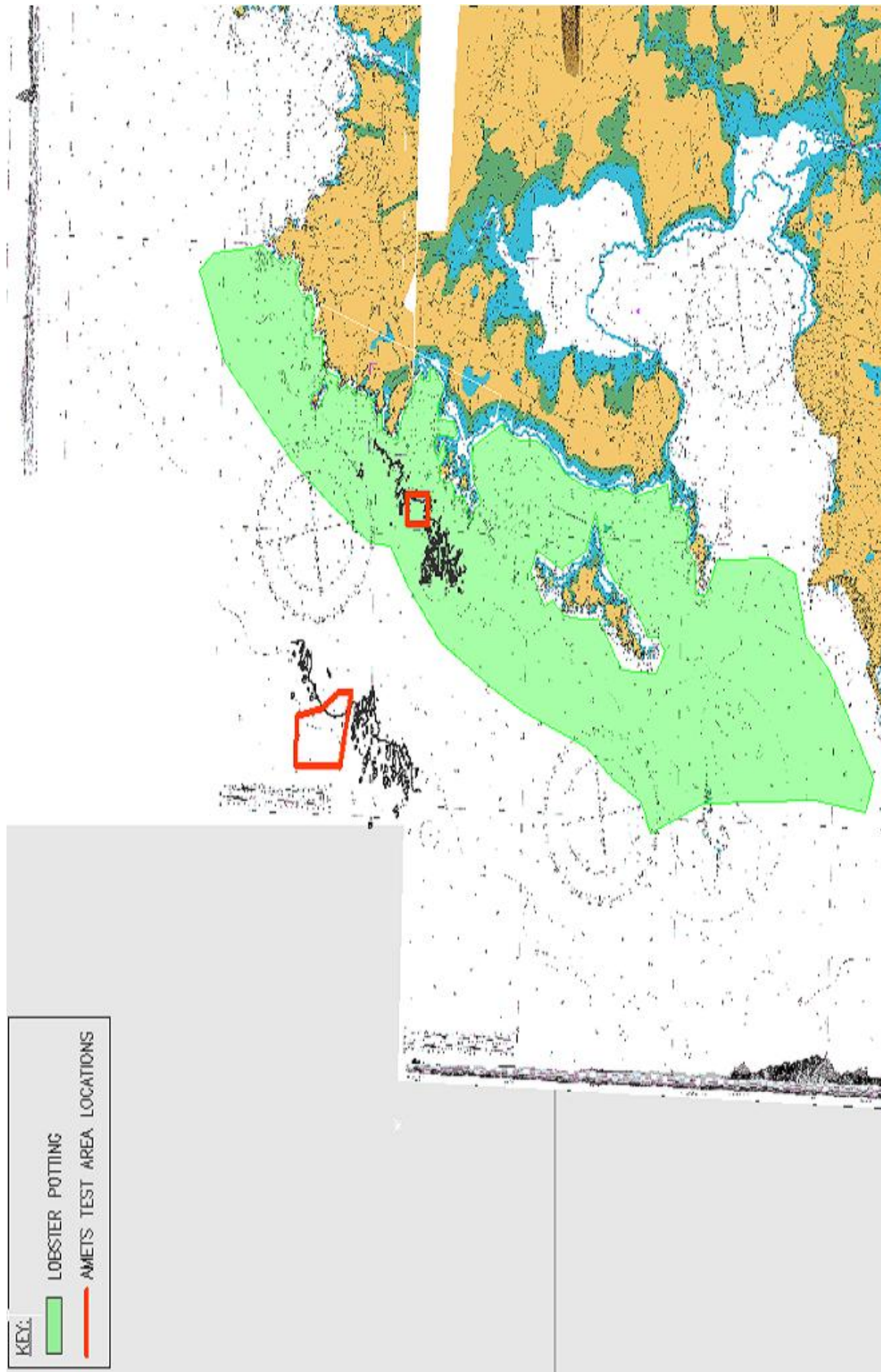


Figure 15-2: Indicative lobster potting area off Belmullet

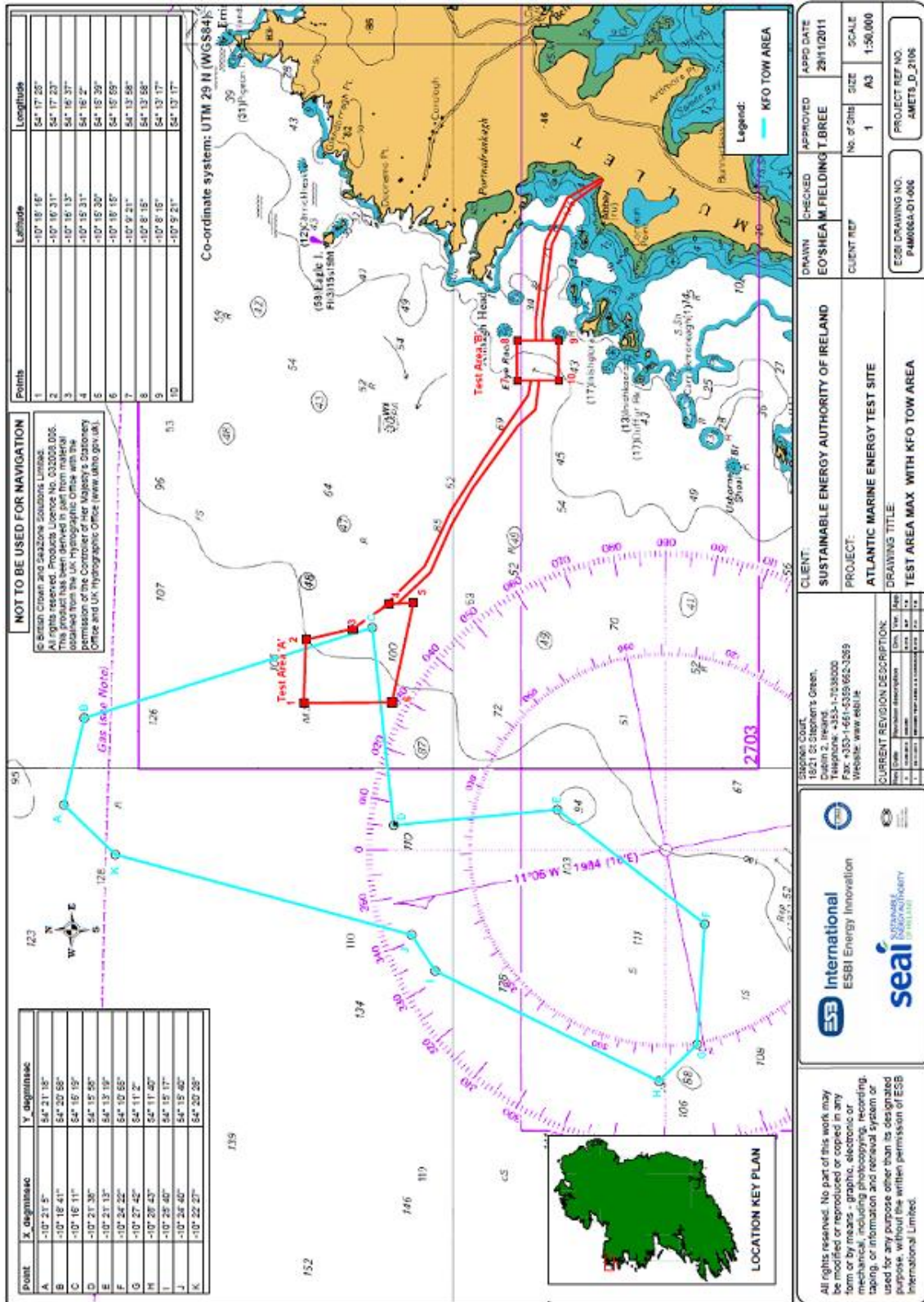


Figure 15-3: Area trawled by members of the KFO

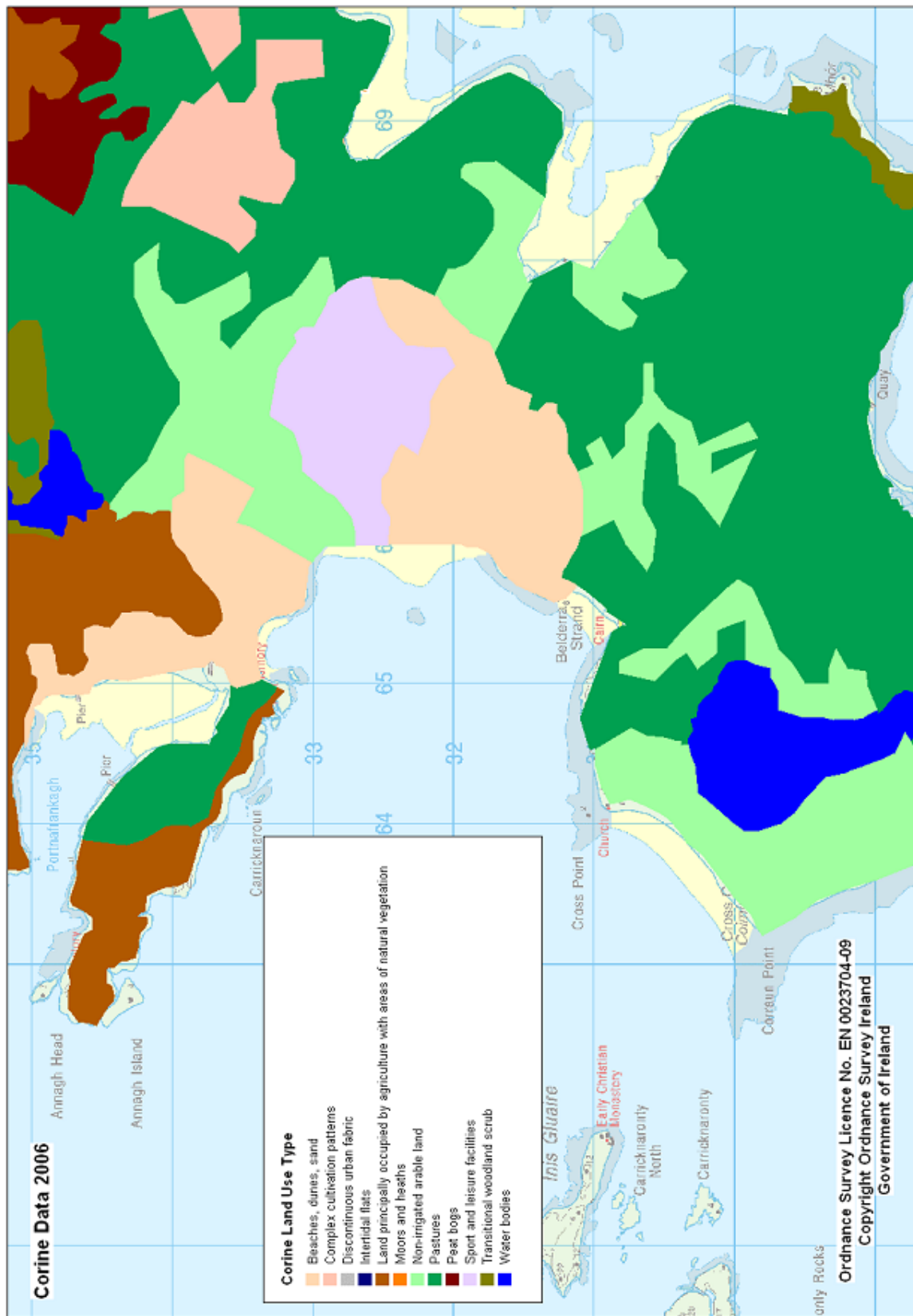


Figure 15-4: Corine 2006 land cover map for the Annagh area

Source Data: <http://www.eea.europa.eu/legal/copyright>

