

Section 11

Conclusions and recommendations

11 Conclusions and recommendations

The DCENR is conducting a review of the hydrocarbon potential of the Atlantic Ireland Basins. This review started in 2006 with IOSEA1 and the acreage covering the Slyne, Erris and Donegal Basins, through IOSEA2 covering the Porcupine Basin, and has moved on to IOSEA3, covering the Rockall Basin, the area covered by this Draft Plan. This acreage is included in a Frontier Exploration Licensing Round that will close in the second quarter of 2009.

The scenarios being considered for the range in activity levels following licensing awards comprise the undertaking of 2D and 3D seismic data gathering from 2010 (it is unlikely that any seismic acquisition could be organized to commence in the remaining four months of 2009) to 2016 and the drilling of up to 25 wells in the period 2011 to 2016. Since all previously held licences in the area have been relinquished some time ago, there are no activities arising out of previous licensing rounds which need to be considered alongside those in this Draft Plan.

The conclusions from the assessment of the potential effects of implementing the Draft Plan are summarised below.

11.1 Conclusions

11.1.1 Noise generation

Seismic

Despite increasing concern over the effects on marine mammals of man-made sound in the oceans, we still have little direct information about what sound frequency-intensity combinations damage marine mammal ears, and at present there are insufficient data to accurately determine acoustic exposure guidelines for any marine mammal (Ketten, 2004).

Although there are many documented, clearly discernible responses of marine mammals to anthropogenic sound, such responses are typically subtle, consisting of shorter surfacings, shorter dives, fewer blows per surfacing, longer intervals between blows, ceasing or increasing vocalisations, shortening or lengthening of vocalisations, and changing frequency or intensity of vocalisations. Some of those changes become statistically significant for a given exposure (on individual animals). However, it remains unknown when and how these changes translate into biologically significant effects, ie effects that have repercussions for the animal beyond the time of disturbance, effects on the animal's ability to engage in essential activities, and effects that have potential consequences at the population level (NRC, 2005).

Modelling indicates that baleen whales and fish may show some form of avoidance reaction from anywhere between a few km to tens of km from the seismic operations. However, field research has indicated that these zones of avoidance behaviour could be reduced or extended depending on local conditions. Individual animals might leave or avoid this area, but may be expected to return soon after operations have ceased. There is very little information on the effects of seismic noise on seals but, on a conservative estimation, the avoidance behaviour might be considered similar to that of baleen whales. Of the odontocetes, it appears that the smaller species in particular, ie the dolphins and porpoises, show a degree of avoidance behaviour up to a distance of a few km, and which is generally short lived (Weir, 2008; Stone & Tasker, 2006; Goold, 1996).

The degree of avoidance behaviour shown by the larger odontocetes species that might be present in the IOSEA3 area (such as beaked, killer, pilot and sperm whales) varies considerably amongst the observational studies from around the world, and therefore should be considered to be inconclusive at this stage. However, it has been implied that a few (high level) seismic operations have been responsible for beaked whale stranding events and, therefore, a precautionary approach is required.

In order to minimise any possible impacts on marine mammals, the use of the NPWS guidelines, (NPWS, 2007) should be mandatory, including the use of risk assessment in survey planning and the employment of MMOs to undertake visual monitoring during the survey and ensure that the survey is conducted in line with the NPWS guidelines. The use of slow, soft starts of the air guns would also alert marine mammals to the impending full seismic activity and give them time to vacate the immediate area. PAM devices could be used to monitor the area for cetaceans during the survey,



particularly in areas or times of peak sensitivity (such as the canyons on the east side of the Rockall Basin; Section 5.2.6), and seismic operations delayed if marine mammals are detected.

The behavioural response shown by fish is to move away from the seismic survey sound sources temporarily. Research indicates that such movements are short lived and that the fish stocks will most likely return to the area after completion of the survey. Surveys should be planned to avoid known fish spawning areas and spawning times.

In conclusion, if the mitigation measures proposed here are adopted, the direct, short-term environmental impact of noise, from individual seismic surveys within in the IOSEA3 area, will be minimal. It should be noted however that the effects of multiple surveys taking place at the same time are not well understood and, where possible, the timing of each survey should be considered carefully in order to avoid surveys taking place simultaneously. For this reason it is recommended that simultaneous surveys should be separated by a distance of at least 100 km, so that marine mammals and fish have the chance to avoid these areas and migration routes are not impeded.

Drilling

Low frequency noises from drilling wells, and all associated vessels, will add to the ambient noise in the area covered by this licensing round. Semi-submersible drilling rigs and drill ships generally produce sound levels at frequencies roughly similar as those generated by a large merchant vessel (Table 7.2), and as such, their impact is considered to be comparable.

The impact of such noise is difficult to assess due to uncertainties in how noise affects specific marine mammals, and how far the noise will be transmitted in the sea. However, it is estimated that the underwater noise produced could elicit response from individual cetaceans if they pass within 350 m to 3.5 km of a semi-submersible drilling rig or a drill ship respectively. Harbour porpoises might show a slightly increased avoidance distance, as they have shown to be quite sensitive to a wide range of human sounds at relatively low exposures. The limited data available for seals indicate avoidance behaviour to be limited to distances within a few hundred metres of the source at most.

The assessment of available information, taking into account the limited number of wells forecast as a result of the Draft Plan, together with the short duration of each drilling scenario (50 days), does not indicate any significant impacts from underwater noise generated during drilling operations. However it is felt that the effect of drilling noise on marine animals is still poorly understood and warrants further investigation in the context of this and other noise-producing exploratory activities. As further information is gathered on the effects of drilling noise, and the distribution of marine mammals in the IOSEA3 area, the potential interactions should be considered carefully in the context of reviews and new applications for drilling activities.

11.1.2 Discharge of cuttings and disturbance to sea bed

Using the significance criteria defined in Section 6, the discharges of cuttings and muds near the sea surface are expected to have a minor impact on both the water column and the seabed. The substantial water depths (>200 m) and the oceanographic conditions in the area enable good dispersion and dilution.

The discharges of drill cuttings, muds and cement from the top sections of the wells, which are deposited close to the seabed at the wellheads, are expected to have a moderate impact at each well site. However, the area affected will be very small, and any adverse effects on the benthic communities are expected to be limited to the immediate vicinity of the wellheads (generally within 50 m). The cuttings piles are expected to be dispersed completely over a timescale of one to ten years, and the overall impact is not likely to be significant.

The greatest potential for significant impact at the seabed arises from direct damage by placement and scouring of anchors and chains. If wells and anchors are sited using adequate site-specific data on benthic habitats and communities, these impacts can be minimised.

The potential impacts arising from drilling discharges and disturbance to the seabed from anchoring, whilst generally minor or moderate, assume a higher significance in the context of the offshore SACs within the IOSEA3 area. The risks of adversely affecting the integrity of the benthic ecological features for which these two SACs have been proposed remain potentially significant regardless of mitigation.

11.1.3 Atmospheric emissions

Atmospheric emissions will arise from exploratory and appraisal drilling activity following the current licensing round. The level of activity proposed from the new licensing round will be similar to or slightly higher than that seen on average since 1978. The resultant emissions will not have any significant localised impacts to health or the environment due to the dispersive nature of the offshore environment. They will contribute to issues such as global warming, acid rain and air pollution, but given their relative scale in relation to past and current exploration activity levels nationally, and to emissions nationally and at a UK and European level, impacts are unlikely to be significant.

Whilst the emissions levels likely to arise from implementing the Draft Plan are relatively small, their acceptability overall needs to be considered in the context of the national policies on energy and greenhouse gas management as well as commitments to the EU and Kyoto Protocol.

As already discussed in Section 7, Ireland is committed to limiting its greenhouse gas emissions to 13% above 1990 levels for the period 2008 to 2012 under the Kyoto Protocol (DoEHLG, 2007b). Taking into account currently implemented and adopted policies and measures, the most recent projections of emissions for this period suggest total emissions may exceed this target by 11.7%. Approximately 40% of the difference to target will be borne by energy and industry sector participants of the EUETS, however the Irish Government may have to explore a number of additional options above and beyond those already established to meet its obligations, including purchase of carbon credits through Kyoto Protocol Flexible Mechanism (DoEHLG, 2007c).

11.1.4 Physical presence

The total area potentially excluded to other sea users, predominantly commercial fishing, will be just over 3 km² for 50 days per year which is approximately 0.003% of the total area available for fishing activities within the licensing boundary. Redirection of fishing effort from one area to another nearby is unlikely to significantly affect fishing revenues in general. Profitability of fishing operations is more strongly influenced by factors such as fish prices, stock levels, quotas and fuel costs. Any effects to the fisheries are considered to be minor. The number of wells that may be drilled as a result of this Frontier licensing round are few, the duration of drilling is short and therefore the impact of the physical presence of the drilling rig and possible suspended wells is not considered to be significant.

11.1.5 Accidental events

Outputs from ENVID exercise in Section 6 rate the significance of potential environmental impact from worst case accidental spillages of hydrocarbons as High with potential Major or Severe effects. A review of the vulnerability of the ecology and economic interests summarised in Section 5 against the possible impacts of a major hydrocarbon spill suggests overall Moderate or Major effects in both offshore and coastal areas.

On the basis of accidental events statistics compiled for offshore exploration activity, the risk of a major crude oil spill or gas blowout during exploration, appraisal and development drilling is considered to be very low. Historical data suggest that small diesel spills from rigs and vessels of less than one tonne represent the most likely oil spill scenario. Impacts from diesel spills of this magnitude and frequency (one spill in every 4,404.8 MODU days) would be negligible.

11.1.6 Cumulative impacts

The exploratory oil and gas activity proposed in the Draft Plan for the IOSEA3 area is modest in scale, but represents a potentially large increase in activity compared to previous levels since the 1970s. None of the activities assessed has the potential to significantly add to, augment or overlap with impacts that may have occurred in the past in the Rockall Basin. All the individual impacts assessed were found to be short term and localised so that the potential for significant cumulative impacts is limited, with the exception perhaps of seismic survey noise. Uncertainties exist in the assessment of seismic noise impacts on marine mammals, due both to a lack of data on the occurrence of various species using the IOSEA3 area and to a lack of understanding as to the impacts (and cumulative impacts through increased activity or prolonged activity over time) of underwater noise on these animals. There have been some isolated incidents elsewhere in the world of beaked whale and giant squid fatalities that have been associated with seismic survey noise. Nevertheless, information currently available suggests that marine mammal populations have so far not been noticeably affected by noise from oil and gas operations worldwide.



11.1.7 Transboundary impacts

The northern edge of the IOSEA3 area is confluent with the Irish-UK boundary line. In spite of this proximity, both the nature of exploration drilling activities and their anticipated small scale mean that the potential for significant transboundary impacts (as summarised in Section 9) is limited to underwater noise arising from seismic survey activity near the border, atmospheric emissions from seismic survey and drilling activities, and to accidental events.

Any transboundary impacts with regard to noise during seismic surveys and drilling activity will be limited in scale and of very short duration. With appropriate notification and cross-border co-operation between departments and agencies, and knowledge of the environmental sensitivities in an area, the potential for transboundary impacts should be minor or negligible.

For atmospheric emissions, the quantities estimated to be produced by activities under the Draft Plan are negligible in comparison to those already being produced either on a sectoral basis (the offshore oil and gas industry, and potentially also other sectors such as fishing and shipping) or at a national level. On this basis the impacts of atmospheric emissions from the Draft Plan are also likely to be negligible, whether considered at a local level or in a regional or global context.

With regard to accidental events, any loss of well control likely to result in transboundary impacts will be reported to the UK authorities. The Irish Coast Guard has a close working relationship with the UK Maritime and Coast Guard Agency (MCA) and a draft Service Level Agreement for co-operation on search and rescue and oil spill response is in place. The Irish Coast Guard and the UK MCA also regularly conduct joint search and rescue and oil spill response exercises.

11.2 Data gaps

Owing to the nature of the offshore marine environment and the complexity and scale of the tasks involved in offshore marine data collection, it is recognised our overall knowledge is either poor or lacking in many important respects. Thus it is a consistent feature of marine environmental assessments, and particularly offshore assessments that they are as likely to highlight information gaps as to fill them. This situation is common to most other areas of marine oil and gas exploration and, in this aspect, the current SEA process faces the same challenges as similar undertakings elsewhere.

Through a comprehensive review process, this IOSEA has highlighted and documented the now considerable body of data and information that has been generated from survey work carried out in the offshore regions west of Ireland within and around the IOSEA3 area. The quality, consistency and coherence of survey coverage has increased dramatically over time, and this trend is particularly noticeable in the last seven years. Many of these surveys have been conducted under the auspices of PIP, and latterly the INSS being co-ordinated by GSI and the Marine Institute and various other programmes such as the European-funded MESH project to map seabed habitats and previous projects like GEOMOUND, ECOMOUND and ACES mapping deepwater coral communities (EU Fifth Framework Programme). At present, interpretation of the data gathered and publication of findings is incomplete and ongoing at the GSI, the Marine Institute, universities and other institutions in both Ireland and abroad.

As outputs become available from this work, they will be of use in informing project-specific environmental assessments for some proposed exploration activities. However, the DCENR recognises that the work is not exhaustive, nor has it produced coherent coverage of sufficient resolution to allow detailed concrete statements to be generated regarding environmental features. While the IOSEA3 has recognised the existence of significant data gaps (see details below), the approach of the regulatory authorities, consistent with the precautionary approach, is that all reasonable steps be taken both at national level and at site specific level to acquire the additional knowledge necessary to inform how offshore operations can best proceed in a sustainable manner. Regulatory processes should be sufficiently flexible to allow the review of operational practices by industry and regulators on a regular basis, eg to facilitate the integration into decision-making of new scientific findings as they come on stream.

There are several specific scientific themes for which data coverage is currently either sparse or non-existent in both spatial and temporal domains as outlined below.

11.2.1 Specific data gaps

Mapping of the sea bed in terms of habitat and community types has been initiated in nearshore sublittoral areas, but no wide-area maps are yet available for regions further offshore. This shortfall will be addressed in part by the PIP, INSS and MESH programmes already underway. Until more is known of these aspects of the marine environment on a regional or national scale, and until the scarcity or otherwise of certain habitats and species is better understood, meaningful environmental assessments on the basis of current knowledge will be difficult and priorities on management or protection measures difficult to apply. The dangers of extrapolation between one location and another in the IOSEA3 area are evident, and a precautionary approach needs to be considered in the meantime. The following is a summary of the data gaps identified throughout this report.

- In the context of oil and gas related exploration activity, environmental data (physical, chemical and biological) collected as part of the impact assessment process for oil and gas industry activities, could be collated in a readily accessible database.
- Irish waters support a diverse fish and shellfish fauna, including many commercially important species, but relatively little synthesised information on the species present and their distribution has been made available. This applies in particular to deep water fish species for which the available information is dated and limited. With the further development of deep water fishing, and increasing numbers of deep water surveys, knowledge of the fish and shellfish species is starting to grow.
- Reliable overviews of commercial fish distributions and the fisheries that exploit them were not available to this SEA process. Though a number of surveys have been carried out, including acoustic and groundfish surveys, there is currently insufficient coverage, or correlation between annual results to build up regional and temporal overviews of the area. Knowledge of the location and dynamics of the deep water fish and shellfish resource west of Ireland would not only improve impact assessment in relation to fish and fisheries *per se*, but would also facilitate understanding of the importance of the area to key predators such as marine mammals.
- In the context of climate change and with changes in sea temperature, the fish and shellfish spawning and nursery ground information in Coull *et al* (1998) is limited to traditional target species and is becoming dated. Fish larval surveys are taking place in Irish waters (Dransfeld *et al*, 2004) and the findings have been used where possible to update the information on fish spawning and nursery grounds in this report. Impact assessment of such fisheries sensitivities will not be possible without updated information on locally occurring species.
- Comparatively little is known about the numbers and distribution of marine mammals in the offshore environment, their use of the area and its resources, and their vulnerability to anthropogenic impacts of various types at different times of the year. Visual survey effort is currently limited offshore of the continental shelf break in autumn and winter due to poor weather conditions and reduced daylight hours. There is therefore a need for a strategic co-ordinated survey and monitoring programme based on good science. Irish scientists recently carried out a programme of acoustic monitoring to complement their broadscale visual surveys, and it would be useful if such work be continued over a wider area and throughout the year.
- The IWDG has highlighted the fact that a number of canyons on the southeast margin of the Rockall Trough are the only locations thus far surveyed in Irish waters which consistently show the presence of beaked whales year on year. The IWDG therefore recommends that a 12 month Passive Acoustic Monitoring (PAM) survey be undertaken, using an appropriate static device moored at a depth of at least 500m in the water column (as evidence suggests that some beaked whale species do not begin vocalising until they have reached such depths). This would assist in assessing the potential impacts of proposed seismic surveys on deep-diving species within these canyon systems. This recommendation relates to block numbers 16/27, 16/29, 17/22, 17/23, 17/24, 17/27, 17/28, 17/29 and 25/2.
- Existing MMO reports from seismic surveys have not been collated into the main body of knowledge on cetaceans. With suitable co-ordination and methods development, existing cetacean data gathering could be augmented by the MMO reports from seismic surveys. Approaches to acoustic disturbance mitigation measures in general (such as the benefits or otherwise of 'soft starts' and the utility of passive acoustic monitoring or other monitoring techniques) will benefit from ongoing research to evaluate the effectiveness of these measures.



- Very little is known about the existing levels of anthropogenic noise in the offshore area west of Ireland, and the significance of additional anthropogenic sound inputs on either fish or marine mammals.
- Further information on the timing and location of cetacean calving and migrations is needed. At present, SOSUS data have indicated the possibility of a winter migration to the south along the Rockall Basin for humpback whales in late winter or early spring, although there is no indication yet of any returning northward migration, and animals of the same species also appear to be present in the offshore area throughout the year. In addition, further information is needed on the possible location, prevalence and timing of beaked whale feeding grounds in deep-water canyon systems within the IOSEA3 area.
- Few data currently exist to identify foraging areas for seal species along the Irish Shelf, including the eastern edge of the IOSEA3 area. The first attempts to determine the offshore distribution of both common and grey seals in Irish waters, using tagging and satellite telemetry methods, began in 2006. A nationwide survey to assess the abundance and distribution of grey seals around Ireland's coasts has been carried out by NPW and CMRC although the results are not yet available.
- Whilst much general information about the sea bed and benthos (including depth, topography and sea bed type) west of Ireland has been gathered in recent years, much analysis is still underway and is currently unavailable for environmental assessment.
- Comparatively little is known about the numbers and seasonal distribution of seabirds in the offshore environment, and their vulnerability to surface pollution at different times of the year. During the autumn and winter months, visual survey effort is limited to the continental shelf, but rarely extends into the deeper parts of the IOSEA3 area, due to poor weather conditions and reduced daylight hours.
- Block-specific data indicating seabird vulnerability to surface pollution is only currently available from JNCC Seabirds At Sea Team surveys from the 1990s, which only partially cover Irish waters. It is recommended that more recent CMRC seabird surveys looking at the offshore area west of Ireland should be used to update this information.

11.3 Overall recommendations

Based on the environmental baseline description given in Section 5 and the Annex to this report, and on the impact assessments in Sections 7, 8 and 9, the following recommendations are made with respect to the SEA process itself and how it was conducted, the licensing and regulation system for exploration and appraisal, and for mitigating the impacts of the proposed Draft Plan. These recommendations have been endorsed, either unanimously or by a majority view, by the members of the IOSEA3 Steering Group.

11.3.1 Data gaps and data management

As for the two offshore SEAs preceding IOSEA3, a number of key thematic, temporal and spatial data gaps have been identified in this report. These may be considered at the strategic or site-specific level. In situations where an absence of data may materially affect the capacity to knowledgeably mitigate the potential impacts of exploration activities, the precautionary approach based on current best practice has been recommended without exception.

- 1) **The oil and gas regulators, including DCENR, should encourage the review of operational practices by industry and regulators alike on a regular basis, to facilitate the integration into decision-making of new scientific findings and technological advances that improve environmental performance and best practice as they come on stream.**
- 2) **The monitoring programmes and reporting resulting from implementation of this licensing programme should be consistent with OSPAR Agreement 2004-11 and designed to generate information and datasets that can support both strategic and site-specific approaches to environmental assessment. These datasets and information should be collated and held in an identified location, and be available to all interested parties.**

11.3.2 Licensing and regulation

The Rules and Procedures Manual (PAD, 2007a) require that an environmental area assessment (EAA) is completed and submitted with any application for a drilling permit.

- 3) **The Minister should, in certain circumstances, consider requesting the submission of a more detailed assessment up to and including an EIS. Criteria which might indicate or support this greater level of assessment could include:**
 - distance from offshore European sites, coastline and international boundaries;
 - proximity to vulnerable concentrations of marine mammals or seabirds;
 - the presence of spawning, nursery and fishing grounds for commercially valuable fish and shellfish species;
 - proximity to features of ecological interest identified within Annexes to the Habitats Directive and OSPAR;
 - where proposed operations may significantly interfere with other sea users.
- 4) **The communication and enforcement measures for exclusion zones around the sea bed infrastructure of the oil and gas industry (such as suspended wells and sub-sea field developments) should be reviewed and strengthened. The aim here is to improve mapping, information exchange, integration with fisheries monitoring procedures and interfaces with other marine users.**
- 5) **The existing regulatory framework and decision making process, as outlined in the Rules and Procedures documents of the DCENR should be updated with a view to greater clarity and transparency for the benefit of all stakeholders.**

11.3.3 Seismic survey

Under Section 2.1 of the Rules and Procedures Manual (PAD, 2007a) applicants are required to submit an Application for Approval to DCENR to conduct any geophysical or other exploration survey, site survey or route survey prior to the planned commencement of the survey. The rules and procedures already oblige operators to have due regard to the NPWS (2007) guidelines on minimising acoustic disturbance to marine mammals, and that consultation takes place with appropriate bodies including the DCENR and DoEHLG.

- 6) **The Steering Group recommends that seismic survey activities should not be permitted within the South West Porcupine Bank and the North West Porcupine Bank SACs. This is on the grounds that it cannot be precluded, on the basis of currently available scientific information, that such activities will not impinge on the integrity of these two sites.**
- 7) **Comparatively little is known about the numbers and distribution of marine mammals in the offshore environment, and their vulnerability to anthropogenic impacts. Visual survey effort is currently limited offshore of the continental shelf break in autumn and winter. There is therefore a need for a strategic co-ordinated survey and monitoring programme to expand current information and to develop seasonal maps of occurrence and sensitivity/vulnerability. It is recommended that proposals for a 12 month passive acoustic monitoring survey be considered, using moored static equipment to investigate the potential use made of the canyon systems on the eastern side of the Rockall Trough by beaked whales (relating to block numbers 16/27, 16/29, 17/22, 17/23, 17/24, 17/27, 17/28, 17/29 and 25/2).**
- 8) **The application for approval to conduct a seismic survey should include an assessment of the available information on all relevant ecological sensitivities, including for example fish, seabirds, mammals and other sea users including fisheries and shipping in the vicinity of the proposed survey. If necessary or appropriate, specific additional mitigation measures should be proposed.**
- 9) **Multiple surveys in the same area and at the same time should be combined into consecutive surveys through co-ordinated planning. The DCENR should work with operators to ensure that surveys are co-ordinated in this respect according to currently available best practice guidance from appropriate specialists.**



- 10) If surveys must be carried out simultaneously, a separation distance of 100 km should be observed between survey vessels, so that marine mammals and fish have the chance to avoid these areas and migration routes are not impeded. This should be incorporated into the DCENR Rules and Procedures Manual for Offshore Petroleum Exploration and Appraisal Operations.
- 11) Notification of seismic survey activity planned within 100 km of each other or within 100 km of the Ireland/UK boundary should be exchanged between the appropriate licensing authorities. In considering applications for seismic surveys, the DCENR should also take account of similar activities being undertaken by the marine scientific research community.

11.3.4 Exploration drilling

Certain seabed features occurring in the Rockall Trough area, mainly carbonate mounds of the Porcupine Bank Canyon, Pelagia and Logachev Mound Provinces, qualify as Annex 1 habitat features under the Habitats Directive (Figure 5.4 and Section 5.1.2). Two areas of seabed within these Mound Provinces have been designated as offshore SACs on the basis of their seabed features and associated coral reef communities (Figure 5.15).

- 12) The Steering Group recommends that drilling activities should not be permitted within the South West Porcupine Bank and the North West Porcupine Bank SACs. This is on the grounds that it cannot be precluded, on the basis of currently available scientific information, that such activities will not impinge on the integrity of these two sites.
- 13) Other carbonate mounds and habitats or species listed in Habitats Directive Annex I, II and IV and OSPAR Annex V in the Rockall Trough should be included for licensing at this stage, but treated as sensitive areas. Subject to recommendation 3) above being adopted, exploration drilling in these specific areas should be subject to EIS and regulated to avoid direct damage to such features and their biological communities. This will require appropriate site-specific survey.
- 14) In the event of a well being suspended, the competent authority will consider the need for the operator to install over-trawlable protection on a case by case basis. The nature and intensity of demersal fishing activities in the area, for example, should be taken into account in these considerations. The guidelines published by ICES (2005a) could be appropriate if such protection is being considered.
- 15) With regard to well testing, methods avoiding the need for flaring, such as closed chamber well testing systems, should be considered where possible.

11.3.5 Monitoring and reporting

The DCENR has now developed an existing 6-monthly report to both Houses of the Oireachtas (Parliament) as the basis for monitoring the activity levels arising from the Draft Plan for comparison with the activity levels predicted for both seismic survey and drilling programmes.

- 16) The licensing authority should ensure that, where necessary, an appropriate monitoring programme be devised for evaluating the environmental impacts and efficacy of mitigation measures relating to the environmental issues that were identified as potentially significant in Section 6, Table 6.4 of this report. This should be carried out in consultation with appropriate statutory bodies and specialists.
- 17) The DCENR should continue to consult with relevant bodies in order to update the environmental monitoring framework and any gaps therein in light of this and other offshore SEAs.

11.3.6 Future oil and gas activity in the IOSEA3 area

It was proposed in Section 1.4 that subsequent phases of the current licensing round be the subject of further SEA at a future date.

- 18) In the event of Phases 1 and 2 of the current round being successful (ie that commercially viable hydrocarbon reserves are located) or by 2016, the competent authority should decide on the arrangements for follow-up SEA in the IOSEA3 area.

This decision should be informed by up-to-date information (eg the DCENR activity level reports) and should potentially consider the full life-cycle of development from exploration to decommissioning, with the aim of providing an integrated SEA framework for the individual EIAs that will be taking place.

11.4 Overall conclusions

The Draft Plan is to offer offshore blocks for hydrocarbon exploration in the current Frontier Exploration Licensing Round in the Rockall Trough. A strategic assessment has been carried out on the potential for environmental impacts, based on scenarios for the likely scale of activity, a literature search, a data gathering exercise, and inputs from public consultation feedback combined with the expert judgement of the Steering Group, ERT and Aqua-Fact consultants and the Environmental Authorities. On the basis of the assessment conducted, certain constraints have been proposed (see Section 11.3). If these constraints, together with the mitigation, monitoring measures and recommendations are put into place (see Sections 10 and 11), the Steering Group is of the opinion that the Draft Plan can be adopted and implemented without causing significant environmental impacts.