Department of Agriculture Food and the Marine
National Seafood Centre, Clonakilty, Co. Cork, Ireland

The Marine Institute, Fisheries Ecosystems Advisory Services,
Rinville, Oranmore, Galway, Ireland

An Bord Iascaigh Mhara (Irish Sea Fisheries Board),
Crofton Road, Dun Laoghaire, Co Dublin, Ireland

EU Council Regulation 199/2008

Concerning the establishment of a community framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the Common Fisheries Policy

Annual Report 2015

IRELAND

31st May 2016

I. General framework

The Marine Institute has been delegated responsibility by its parent government department, Department of Agriculture Food and Marine (DAFM) to organise and co-ordinate Irelands obligations under the DCF and the MI has therefore compiled this document as the Annual Report on 2013 sampling activity for Ireland. This programme addresses the following; Article 7 of Council Regulation 199/2008, Article 5 of Commission Regulation 665/2008 and the Annex of Commission Decision 2010/93/EU. The general framework presented adheres to the most recent guidelines, (version March 2013) as agreed and circulated by the European Commission.

Table I.A.1 provides an updated list of Ireland's bi – lateral agreements with UK – Scotland, Denmark, and France. The current French bi – lateral is with the French National Correspondent to sign but is, in effect an extension of previous bi – laterals and as such the sampling covered within it is currently taking place in both countries. Ireland also has agreements with the Danish and the Dutch on Regional Coordination for the Cost sharing of the International Ecosystem Survey in Nordic Waters, and the Blue Whiting joint research surveys. This agreement was coordinated through the RCM NS&EA in 2015.

No Major methodological changes have been made during 2015. However the ranking and selection of métiers in Irelands National Programme 2011 – 2013, which was rolled over into 2014 – 2015 was felt to be outdated and as a result Ireland updated its ranking system and the naming of its métiers in 2014, to more accurately reflect activity in the fisheries and associated sampling. These updated métiers and the associated changes are detailed in Module III.C.

II. National data collection organisation

II.A National correspondent and participating institutes

National Correspondent for Ireland

Dr. Leonie O Dowd,
The Marine Institute (MI)
Fisheries Ecosystems Advisory Services,
Rinville,
Oranmore,

Co. Galway.
IRELAND
Phone: 00353 91 387200
Fax: 00353 91 387201
leonie.odowd@marine.ie

Participating Institutes

The Irish National Programme was conducted in close co-operation between three organisations in Ireland;

Department of Department of Agriculture, Food and Marine (DAFM)

DAFM is the main governmental department with responsibility for sea fisheries policy, and management. In carrying out its mandate the Department undertakes a variety of functions including:

- Policy advice and development on all areas of Departmental responsibility.
- Representation in international especially EU and national negotiations.
- Development and implementation of national and EU schemes in support of Agriculture, Food, Fisheries, Forestry and Rural Environment.
- Monitoring and controlling aspects of Food Safety.
- Control and audit of public expenditure under its control.
- Regulation of the agriculture, fisheries, and food industries through national and EU legislation.
- Monitoring and controlling animal and plant health and animal welfare.
- Monitoring and direction of State Bodies engaged in the following areas - research training and advice - market development and promotion- industry regulation and development- commercial activities.
- Direct provision of support services to Agriculture, Fisheries, Food and Forestry.

Department of Agriculture, Food and the Marine
National Seafood Centre,
Clonakilty, Co . Cork
Phone : 00353 23 59500
Fax : 00353 23 59508
www.agriculture.gov.ie

The Marine Institute (MI)

The MI is a state marine research organisation charged by DAFM with the collection of scientific data on the fisheries sector. The MI is the State agency responsible for marine research, technology development and innovation in Ireland. It provides scientific and technical advice to Government to help inform policy and to support the sustainable development of Ireland's marine resource.

The aim of the MI is to safeguard Ireland's unique marine heritage through research and environmental monitoring. The research, strategic funding programmes, and national marine research platforms support the development of Ireland's maritime economy.

The Marine Institute was set up under the Marine Institute Act 1991:

"To undertake, to coordinate, to promote and to assist in marine research and development and to provide such services related to research and development, that in the opinion of the Institute, will promote economic development and create employment and protect the marine environment." and the Marine Institutes vision is for:

"A thriving maritime economy in harmony with the ecosystem and supported by the delivery of excellence in our services."

The Marine Institute
Rinville,
Oranmore.
Co. Galway
Phone: 00353 91387200
Fax : 00353 91387201
www.marine.ie

An Board Iascaigh Mhara (BIM – The Irish Sea Fisheries Board)

BIM, was established under the Sea Fisheries Act 1952, and is the Irish State agency responsible for developing the Irish seafood industry.

BIM's mission is to grow a thriving Irish seafood industry; expand the raw material base, add value and develop efficient supply chains that together deliver on the Government's Food Harvest 2020 targets for seafood and create sustainable jobs. The Agency helps to develop the Irish seafood industry by providing:

- technical expertise
- business support
- funding
- training
- and by promoting responsible environmental practices

BIM Strategy

BIM Strategy 2013-2017 (pdf 1,482Kb) is an action plan to deliver 1200 jobs and €1 billion seafood sales by building scale and enhancing competitiveness in the Irish seafood sector.

Board Iascaigh Mhara
PO Box 12
Crofton Road.
Dun Laoghaire
Co. Dublin.
Phone : 00353 1 2144100
Fax : 00535 1 2144119
www.bim.ie

A **National Data Collection Framework portal website** for the dissemination of information on DCF related activities by Ireland has been established in accordance with Commission Regulation (EC) 665/2008 Article 8(2): and can be accessed at the following web link:

www.dcmap-ireland.ie

National Co – Ordination

A National Co – Ordination meeting was held in The Marine Institute**,** Galway on the 22nd of July 2015 to ensure all participating institutes were clear on their roles and responsibilities regarding the DCF programme. The Commission was also invited to participate.

Main Outcomes.

- STECF EWG Comments on the 2014 Annual Report Submission were discussed and actioned.
- All inputs to 2015 reports: cost statement/annual report and the clarifications required for the NP: 2015 roll – over programme were discussed, coordinated and agreed. And as a consequence all supporting information requested was submitted on time.
- The EU Commission decisions on fines and data deficiencies in relation to Ireland were also discussed, and a response was agreed.
- Progress reports on tasks for the present year were discussed and corrective actions agreed if not on track.
- Updates were provided on the 2015 National Correspondent meeting, and progress towards the new DC-MAP 2014 – 2020.
- Updates on the new legislation for the DC-MAP were reviewed and changes highlighted.
- The EMFF and Ireland's Seafood Operational Programme were also discussed.
- The progress of Data Calls was discussed and plans were put in place to facilitate any anticipated data calls to the year end.
- Leonie O Dowd took over as the new DCF National Correspondent and Paul Connolly; FEAS Director stepped down from the role.
- A new internal DCF Coordination group was also established to ensure the continued prioritisation of the DCF programme within Ireland, and these meeting notes were reviewed.

II.B Regional and International coordination

II.B.1 Attendance of international meetings

Attendance at International meetings in 2015 is described in Table II.B.1. During 2015 Ireland participated fully at the relevant ICES planning groups, study groups, working groups, regional co-ordination meetings and workshops which are directly related to data collection requirements under Commission Regulation (EC) 199/2008.

II.B.2 Follow-up of regional and international recommendations

All relevant recommendations addressed directly to Ireland, to the Member States in general, or to the National Correspondents are outlined in Table II.B.2 along with Ireland's responsive actions in 2015. Recommendations from the RCM NA, are included in Table II.B.2. No new recommendations arose during discussions at the 46th plenary meeting of the STECF (PLEN-14-02), nor from the 47th plenary meeting of the STECF (PLEN-14-03) and finally no new recommendations arose during discussions at the 48th plenary meeting of the STECF (PLEN-15-01. The relevant survey planning group recommendations are also listed in Table II.B.2. PGECON made no recommendations in 2014 to be actioned in 2015, by individual Member States, which is why no recommendations appear in Table II.B.2. In 2015 the International Bottom Trawl Survey Working Group (IBTSWG) made four recommendations which were directed at working groups, gear technologists and the ICES Data Centre, and so no IBTSWG recommendations appear in Table II.B.2. The Working Group on Nephrops Surveys (WGNEPS) made four recommendations in 2014 for action in 2015, however none of these were addressed to the individual Member States, and were instead addressed to various working groups, ACOM, The ICES Data Centre etc….

Ireland participates at the RCM-NA and does not participate at any other RCM, as the vast majority of our fisheries are in the North Atlantic. Ireland has never attended the RCM NS & EA, as Irish fishing activity in the North Sea in recent years has been limited to pelagic fisheries and some crab potting in the central North Sea, accounting for between 5 – 8% of Irish landings, and accounting for <1% of the total fishing effort in this

area. It is clear that under these circumstances Ireland can have no meaningful contribution to make at the RCM NS & EA, and we would ask that our non-attendance at this meeting is considered reasonable.

III. Module of the evaluation of the fishing sector

III.A General Description of the fishing sector

The Irish fishing fleet consists of a little over 1,400 vessels and is divided into 5 segments; polyvalent, pelagic trawl, specific bivalve, aquaculture and beam trawl. Inshore vessels (<10m) are also sampled under the DCF and are included in the polyvalent, specific bivalve and aquaculture segments. There are about 6,000 people working in the fishing fleet associated activities. The majority of Irish fishing, data collection and sampling activity is concentrated in the ICES Sub-areas around Ireland VI and VII where Irish vessels are engaged in demersal, pelagic, industrial, and tuna-like fisheries (Table III A 1). The pelagic fishery targeting mackerel and horse mackerel also operates in the II, IIIa, IV and since 2015 have been subject to the landing obligation for both small and large pelagic species. Some pelagic landings in those fisheries are landed in the UK–Scotland, France, Denmark and Norway where scientists in those countries sample them. In recent years Ireland has one vessel fishing small pelagics off Mauritania which are landed into Spain. In the RCM long distance fisheries held in Vigo it was decided that sampling levels by Spain and the Netherlands cover this metier adequately. Ireland no longer has a deep water or eel fishery.

Two new metiers for sampling have emerged in area VIIa as a response to the Cod Management Plan (EC regulation 1342/2008). In 2010, three Irish vessels were exempted from effort restrictions associated with 1342/2008. These vessels use a selective grid to maintain cod catches below 1.5%, in accordance with article 11.3 of 1342/2008. The number of vessels using grids initially increased to eleven but this has subsequently decreased again as vessels have tended to take up alternative species selective gears including large (300mm) square mesh panels and the SELTRA trawl. In addition, UK vessels operating in the same fishery have been granted exemption for effort limitations due to the use of large square mesh panels, SELTRA trawls. Irish vessels are also being encouraged to use this gear and will automatically avail of effort exemptions. Those vessels opting to use such gears can automatically avail of

exemption from effort restrictions but are required (EU Regulation 237/2010) to be subject to an increased sampling programme and are now considered as a separate metier for sampling purposes as their catch composition is different to other otter trawl vessels targeting *Nephrops*, as well as to satisfy reporting requirements under article 11.3. Given the shift towards more selective gears and the two articles associated with the cod recovery plan, it is necessary to treat the vessels using grids or SELTRA trawls as one discrete metier while those using separator panels or the large square mesh panels as another. As a result the numbers of metiers targeting prawns is now two, however they are now divided into grid, SELTRA and other separator methods and this has been reflected in our sampling strategy.

The landing obligation is now being phased in for demersal species. Currently OTB vessels in the Celtic Sea are obliged to land all catches of whiting and *Nephrops* depending on the contribution to their overall catches, while in the Irish Sea and West of Scotland, vessels are obliged to land haddock and *Nephrops*. It is unclear at this stage how the introduction of the landing obligation will affect the willingness of skippers to carry scientific observers; this is being closely monitored.

III.B Economic variables

Baltic Sea (ICES areas III b-d), North Sea (ICES areas IIIa, IV and VIId) and Eastern Arctic (ICES areas I and II), and North Atlantic (ICES areas V-XIV and NAFO areas)

III.B.1 Achievements: Results and deviation from NP proposal

See tables III.B.1, III.B.2 and III.B.3 for information collected during the sampling year.
The data sources for the implementation of the NP are:

- Fleet register information from the Community Fishing Fleet Register;
- Fleet register information from the Department of Agriculture, Food and the Marine (DAFM);
- Log sheet information from the Sea Fisheries Protection Authority (SFPA) of DAFM;
- Voluntary questionnaire information, returned from vessel owners targeted for the annual economic survey;
- Mandatory questionnaire information, returned from vessel owners when applying for government grant aid;
- End of year accountant's reports, from certified accountants, containing income and earnings and balance sheet details;

The structure of the fishing fleet, for 2014 (Table III.B.1), represents all active vessels over 10m in length and all vessels on the Community fishing fleet register under 10m fleet with an estimate of activity as it is not possible to accurately estimate the inactivity in this segment. The frame population consisted of all active vessels from which a planned sample was targeted.

The following data sources have been used to segment the fleet:

- EU Fleet Register on the 1st January of the reference year;
- EU log-book gear effort activity records for vessels active in the reference year (>10 metres LOA);
- Recorded fishing activity from previous economic surveys.

The MS continued to operate a system of data collection, whereby all vessel owners were required to submit DCF data with all applications for EU and National grant aid. These actions contributed significantly to the successful achievement of the data collection strategy by the MS and improved the returns rates when compared with previous years. As in previous years, the timing of the 2014 survey was scheduled to coincide with the final date for submission of tax returns for the previous financial year. However, the survey was circulated earlier in the year (July) to encourage the active participation of fishermen and their accountant's in providing the relevant data in a timely fashion.

Estimation of capital value and capital costs

In accordance with Appendix VI of Commission Decision (2008/199/EC), the Perpetual Inventory Method (PIM) was applied to estimate capital value and costs for each of the fleet segments in Table III.B.1. The following input parameters (required by the STECF model) were estimated;

- Selected capacity unit,
- Price per capacity unit,
- Share in total investment ,
- Government bonds,
- Market rate for loans.

Capacity indicators and capital value was estimated for those vessels that responded to the annual survey. This was a deviation from the NP. In future, capacity indicators and capital value will be estimated for all vessels on the register, regardless of their activity. The following sources will be used to estimate the input parameters to the PIM model:

- Questions on fixed assets, investments, and depreciation from the annual economic survey,
- EU fleet register,
- EU log-book data,
- Sentinel vessel programme.

Specifically, the following methods, are used to determine capital value:

- Book value (depreciated value of capital at acquisition prices) is the reference value used in the estimation of the Price per Capacity unit;

- Calculation of gross historical value (observed depreciated historical value + cumulated depreciation costs);

Depreciation rates are indicated on the balance sheet provided by each vessel. For vessels with no survey returns, the depreciation schedules permitted by national tax laws were used to estimate depreciation.

The following service lives are used for macro-economic analysis:

- Hull – 25 years;
- Engine – 10 years;
- Electronics – 5 years;
- Other equipment – 7 years.

Agreed values for share of each asset on the total value of capital were taken from No FISH/2005/03, Evaluation of the Capital Value, Investment and Captial Cost in the Fisheries Sector.

Results

The national programme tables indicate higher planned sample numbers than those in III.B.1 in this report. This was due to the inclusion of all registered vessels in the frame population of the National Programme table II.B.1. This overestimated the planned sample rate. Correcting the frame population to account for inactive vessels has lessened the frame population and increased the achieved sample returns rates.

Due to the timing of the 2015 survey the MS is still collecting data for 2014.

All efforts are made to upload the most up-to-date estimates. At the time of the 2016 Economic data call there was an overall 13% survey return. This is expected to rise up until the next survey is launched in July 2016.

Deviation from NP proposal

Where possible and not withstanding any programmatic change, and fleet changes, the annual report tables aim to reflect the National Programme's tables for the reference year, in this case 2014.

The fleet segmentations presented in Table III.B.1 deviate slightly from those presented in the National Programme and have been updated to match the fleet segment clustering

used for the 2016 DCF economic data submission to the Joint Research Council (JRC) for years 2008-2014.

Clustering was carried out following the methodologies required by the DCF and STECF recommendations. Clustering has taken place where the segments are not important or to protect confidentiality. As clustering is kept temporally consistent, some clusters, in certain years, can have zero vessels for some segments. This reflects changes in gear effort and thus the gear classification.

The operation of the economic aspect of the data collection framework has been much improved relative to previous years with MS sampling targets increasing for some segments. The MS has also increase its target sampling size in some instances in an attempt to tackle data poor segments. There was an effort to collect more data from the under 10m fleet and this was realised.

Lacking a mandatory European legislative instrument to direct compliance with DCF data requests, the MS continues to be forced to rely on the goodwill of the seafood industry to provide data on a voluntary basis. This situation is far from ideal and as a result, survey response rates are highly variable and unpredictable. Without incentive, this unstable situation is likely to persist.

III.B.2 Data quality: Results and deviation from NP proposal

See tables III.B.3 with the values of the accuracy indicators.

Deviation from NP

Due to the voluntary nature of the national survey, it was not possible to guarantee that the sampling levels of the national programme were achieved. The actions of the MS in the encouragement of the industry to provide DCF returns resulted in the over-achievement of sampling targets in a number of segments and an under-achievement of targets in other segments. The total number of returns for vessels from the voluntary survey exceeded the sampling target total and this is regarded as a positive achievement by the MS and a first indication of recognition from the industry.

Estimation of Employment

In accordance with Appendix VI, a harmonised FTE was estimated for each of the fleet segments in Table III.B.1. For vessels >10 meters in length (LOA), operational data from log-book submissions was used in the estimation of fishing time on a trip-by-trip basis. In addition, several questions on the annual economic survey forms that deal specifically with hours worked, both at sea and in land-based activities associated with fishing, were used to provide additional detail. For segments that lacked data industry averages were applied from similar, data rich segments.

III.B.3 Actions to avoid deviations

The Member State is fully aware of its obligations under the DCF in relation to population coverage and the reporting of precision. As the MS has no current option but to operate a voluntary survey, success is dependent on industry cooperation to achieve the required level of sampling detailed in the National Programme. Mindful of the limitations of a voluntary survey, the following actions have been taken by the MS, to increase the response rates to present and future surveys and to improve the management of the DCF:

- The MS will retain conditions relating to EU or National grant-aid which make it mandatory for the provision of economic data under the DCF. This action was included in the 2014 Annual Report and the MS has delivered on this action and has significantly increased survey return rates, especially for the under 10m fleet.
- The MS expects to improve the data provision rate in compliance with the DCF, through the requirements of the national ISO65 standard for wild seafood. This action was included in the 2014 Annual Report. This standard will be put in place this year and survey response rates are expected to increase once this is in operation.
- The MS has improved the survey return rate and decreased the time lag between the end of the reference year and the provision of data. The MS tightened this gap further by conducting the annual economic survey earlier in 2015 so that more data was available by the time of the DCF data call in early 2016.

- In previous years data for effort and landings for under 10m segments was lacking. This has been addressed this year and the best available data was provided.

III.C Metier-related variables

North Atlantic (ICES areas V-XIV and NAFO areas)

III.C.1 Achievements: Results and deviation from NP proposal

For details of identified métiers, merges and planned and achieved sampling trips per sampling frame, métier and numbers aged and measured please see Tables IIIC1, III.C.3, III.C.4 and III.C.6
In 2015 Ireland maintained it's Métier – Based sampling strategy, with a view to moving towards Statistically Sound sampling strategies on a phased basis in 2016.
The use of sampling frames evolved from the recommendations of the ICES WKPRECISE workshop (September 2009) and developed by the ICES WKMERGE workshop (January 2010). The use of sampling frames was introduced into the DCF in 2010 for sampling taking place from 2011 onwards and so Ireland is reporting its planned and achieved sampling including sampling frames.
In 2014 the reference period used to rank and select métiers for sampling was updated from 2008 – 2009 and now refers to the reference years 2011 – 2013. The previous ranking which appears in the National Programme; NP 2011 – 2013, which was subsequently rolled over into 2014 – 2015 is now considered to be outdated

III.C.2 Data quality Issues

Changes to Métiers

The following changes have been made to the métiers stated within the 2015 national program due to the implementation of gear technology regulations:

- Vessels operating within the Irish Sea *Nephrops* fishery are now required to install a separator panel, therefore the métier OTB_CRU_70-99_0_0 has been replaced by OTB_CRU_70-99_1_0. Métier OTB_CRU_70-99_2_0 with the use of a separator grid is still permitted.

- Vessels using bottom otter trawl gears within the west of Scotland (VIa) are now required to use a 120mm square mesh panel within the codend. Therefore in fishing ground VI this

results in the splitting of métier OTB_100-119_0_0 into OTB_100-119_0_0 for those trips occurring in VIb and OTB_100-119_1_120 for those occurring in VIa.

- From August 1st 2012 within VIIf and VIIg bottom otter trawls using 70-99mm mesh cod ends were required to fit a 110mm square mesh panel this therefore splits the métier OTB_70-99_0_0 into OTB_70-99_0_0 and OTB_70-99_1_110. Within larger mesh cod ends 100-119mm meshes, a 120mm square mesh panel was required, splitting métier OTB_100-119_0_0 into OTB_100-119_0_0 and OTB_100-119_1_120.

Metier LVL6	Replacement Métier LVL6	Space strata	Time strata	Comments
OTB_CRU_70-99_0_0	OTB_CRU_70-99_1_0	VIIa	Yearly	Inclusion of separator panel
	OTB_CRU_70-99_2_0	VIIa	Yearly	Inclusion of separator grid
OTB_DEF_70-99_0_0	OTB_DEF_70-99_0_0	VIIfgh	Yearly	Prior to 1/8/2012 in VIIf and VIIg, else VIIh
	OTB_DEF_70-99_1_110	VIIfgh	Yearly	Post 1/8/2012 in VIIf and VIIg
OTB_DEF_100-119_0_0	OTB_DEF_100-119_0_0	VIIfgh	Yearly	Prior to 1/8/2012 in VIIf and VIIg, else VIIh
	OTB_DEF_100-119_1_120	VIIfgh	Yearly	Post 1/8/2012 in VIIf and VIIg
OTB_DEF_100-119_0_0	OTB_DEF_100-119_0_0	VI	Yearly	Fishing activity in VIb
	OTB_DEF_100-119_1_120	VI	Yearly	Fishing activity in VIa

Table III.C.1 provides details of the updated ranking and métier selection using the reference years 2011 – 2013.

Table III.C.4 outlines Ireland's planned sampling strategy by sampling frame in 2015. And Table III.C.3 further breaks this down to present the achieved sampling trips by metier within each of the sampling frames. In general, the majority of the planned sampling targets were achieved or surpassed.

Additional sampling over the DCF targets was funded at national expense.

Table III.C.4: Planned sampling by Sampling Frame

E1 Towed demersal Gears: 16 of the planned 20 trips at sea achieved, and 62 trips ashore sampled instead of the 24 planned. Sampling targets achieved

E2 Towed Pelagic Gears: 1 of 4 concurrent at sea trips achieved and 2 of the planned 3 concurrent at the market trips were achieved. Landings within this sampling frame have been steadily declining since 2008.

E3 Static Gears: Sampling targets achieved

NW1 Towed Demersal Gears: Sampling targets achieved

NW2 Towed Pelagic Gears: 82 % of sampling targets achieved (7of the 9 at sea sampling trips and 68 of the planned 83 trips ashore achieved).

NW3 Static Gears: Sampling targets achieved

S1 Towed Demersal Gears: Sampling targets achieved

S2 Towed Pelagic Gears: 66% of Sampling targets achieved (7 of a planned 10 trips at sea and 39 of a planned 60 trips ashore achieved).

S3 Static Gears: Sampling targets achieved. Sampling effort was re directed in 2015 away from on shore sampling to at sea sampling. As a result, none of the 12 planned concurrent at the market sampling targets were reached but 57 concurrent at sea sampling events were achieved, instead of the 6 planned..

W1 Towed Demersal Gears: A total of 60 trips at sea and on shore were planned for this sampling frame in 2015 and a total of 47 trips were achieved – a 78% achievement rate. In 2015 there was a shift from concurrent at sea to concurrent on shore sampling. This redistribution of effort does not in any way adversely affect the quality of the data.

W2 Towed Pelagic Gears: 47 concurrent at the market sampling trips were achieved out of the planned 60 trips, and none of the planned 8 concurrent at sea trips were achieved. A decision was taken not to complete any concurrent at sea trips within this sampling frame due to budget constraints and to focus resources on those métiers known to have high discarding rates.

W3 Static Gears: Within this sampling frame 3 concurrent at sea trips and 2 concurrent at the market, with a further 6 stock – specific sampling trips ashore were planned. 13 concurrent at sea trips were completed. In this case there was a shift in effort away from concurrent at the market sampling to concurrent at sea sampling. This is a reflection of the increased ability of Marine Institute staff and contractors to get to sea, and does not in any way adversely affect the quality of the data.

Table III.C.3: Sampling Trips by Métier.

All four pelagic sampling frames experienced a degree of under sampling. This was due in part to budget constraints. A consequence of this was a shortfall in sea trips for the metiers targeting small pelagic fish: PTM_SPF_32-69_0_0 in all four sampling frames. However discarding is considered less of an issue for stock assessments within these métiers, and every effort was made to focus limited resources on those métiers where discards are known to be significant.

FPO_CRU_0_0_0:, in VI; targeting brown crab. Targets achieved.

FPO_CRU_0_0_0:, in VI; targeting Lobster and Brown Crab : Opportunistic sampling was carried out on this locally important métier

DRB_MOL_0_0 in VIIa, targeting scallops, and cockles. 5of the planned 13 at sea trips were achieved and 2 additional concurrent trips to those planned were achieved ashore. No at sea cockle sampling was undertaken in 2015 as there was no fishery

FPO_CRU_0_0_0:, in VIIa, targeting lobster and brown crab. A total of 12 trips were planned for this metier, and 30 concurrent at sea sampling trips were achieved.

FPO_MOL_0_0_0 in VIIa, targeting Whelk (Buccinum undatum). A total of 12 concurrent at sea sampling trips were planned for this metier. No at sea trips were achieved but 90 concurrent trips ashore were achieved instead.

DRB_MOL_0_0_0 in VIIbcjk, targeting Razor Clams (Ensis silique). A total of 4 opportunistic, concurrent at sea trips were achieved for this metier.

FPO_CRU_0_0_0:, in VIIbcjk targeting lobster. A total of 16 trips were planned and 42 concurrent at sea trips were achieved.

DRB_MOL_0_0_0 in VIIfgh, targeting scallops. 10 trips were planned and 9 trips were achieved.

FPO_CRU_0_0_0:, in VIIfgh; targeting lobster. 13 trips were planned for this metier and 12 concurrent at sea trips were achieved.

OTB_DEF_100-119_0_0 in VI, targeting whitefish. 24 trips were planned for this metier and 53 trips were achieved. As with all OTB_DEF fisheries: often these vessels will fish across fishing grounds and an "a priori" analysis of the data means that additional sampling may have occurred in some areas.

PTM_SPF_32-69_0_0 in VI, targeting Herring, Mackerel, Blue whiting and Scad.. A total of 83 trips were planned on this metier and 35 trips were achieved. This was as a result of shortfalls mainly in the herring, mackerel and Blue whiting fisheries. In the northwest there was no Irish quota for Herring therefore the 4 planned concurrent at sea trips and associated market sampling trips could not be completed. No sampling was completed on the Blue whiting fishery due to budgetary constraints, and resources were instead allocated to fisheries where discarding is thought to be high. A key member of the sampling team in the North West was on long term sick leave for 2015 and sampling opportunities were missed as a result. Thankfully this staff member is back in 2016, so this issue should be resolved.

GNS_DEF >= 220_0_0 in VIIa This métier represents the inshore Spring cod fishery in Q1. No sampling was carried out in this metier in 2015 as the uptake on this fishery was minimal. Only 14 fishing trips were carried out.

OTB_CRU_70 – 99_0_0: *Nephrops* in VIIa. A total target of 12 trips were planned in 2015 and 42 trips were achieved.

OTB_DEF_100-119_0_0 in VIIa: A total of 8 trips were planned and 9 trips were achieved for this metier.

PTM_SPF_32-69_0_0 in VIIa. 3 of the 4 planned observer trips at sea were achieved but only 2 trips ashore were achieved instead of the original 8 planned. Sampling was lower than expected due to staff shortages and budgetary constraints. Both situations have been resolved in 2016.

SSC_DEF_70-99_0_0 VIIa : A total of 6 trips were planned for this metier but unfortunately 0 of the planned trips could be carried out. Only one vessel operates in this métier and does so sporadically in the Irish sea making sampling very difficult. All efforts will be made to secure sampling trips from this vessel in the future.

TBB_DEF_70-99_0_0 VIIa: only 2 of the planned 24 planned trips for this metier were achieved. This is a difficult métier to sample as it comprises of only a few vessels. Over 50% of this fleet was decommissioned in 2009. In 2015, only 8 vessels reported landings from VIIa with 1 vessel accounting for the majority of the landings (79%), and in 2015 became uncooperative with the observer and market sampling programmes. The next most important vessel with 7% of the landings is not co-operative with sampling programmes. The other vessels in the fishery, fish sporadically in VIIa making sampling difficult to plan. In addition landings from the vessels in this métier are often split with a portion of the landings being sold and shipped outside Ireland.

GNS_DEF >= 220_0_0 in VIIbcjk: 1 out of 8 at sea trips were achieved for this métier. A further 14 on shore sampling trips were planned, however only 2 were achieved. Landings from this métier have been steadily declining over the past four years, and landings are very fragmented. The main vessel in this métier lands into a remote location in which we have no presence at the moment, making access to samples difficult. This vessel has also refused to cooperate with the at sea observer programme. Attempts will be made to increase sampling on this métier in the future.

OTB_CRU_70 – 99_0_0: *Nephrops* in VIIbcjk. 6 of the planned 13 concurrent at sea sampling trips were completed in 2015. Effort was re – directed to concurrent sampling ashore and as a result 31 trips were achieved instead of the originally planned 6 trips.

OTB_DEF_70-99_0_0 in VIIbcjk targeting whitefish: A total of 14 concurrent at sea sampling trips were achiever out of a total of 16 planned. However a total of 90 shore based trips were completed instead of the 16 planned, to balance this shortfall.

PTM_LPF_100-119_0_0 VIIbcjk: Tuna: 1 concurrent at sea sampling trip was achieved of the 1 trip planned on this tuna métier, and 1 concurrent at the market trips were achieved of the 2 planned.

PTM_SPF_100-119_0_0 VIIbcjk targeting mackerel, scad, blue whiting and boarfish. A total of 43 trips were planned, and 53 trips were achieved, with a slight re focusing of effort from at sea to on shore sampling.

SSC_DEF_70-99_0_0 VIIbcjk, 0 of the 3 planned concurrent at sea trips were achieved, however 12 concurrent at the market trips were completed instead of the 3 trips planned to compensate for this shortfall.

TBB_DEF_70-99_0_0 VIIbcjk: No sampling was possible on the beam trawl métier in VIIbcjk, as only 9t were landed from this metier in total for the year.

GNS_DEF >= 220_0_0 in VIIfgh: A total of 6 trips were planned for this metier and 5 trips were achieved. Landings from the gillnet fleet have declined significantly in the past three years, dropping by almost 50%.

OTB_CRU__70 – 99_0_0 and OTB_CRU__100 – 119_0_0 in VIIfgh: 13 concurrent at sea trips were planned and a total of 16 trips were achieved. 8 concurrent sampling trips at the market were planned and 25 trips were achieved.

OTB_DEF__70 – 99_0_0 and OTB_DEF__100 – 119_0_0 in VIIfgh. 4 concurrent at sea trips were planned and 9 were achieved. 4 concurrent in the market trips were also planned and 65 trips were achieved.

PTM_SPF_32-69_0_0 VIIfgh.. Three of the planned 10 concurrent at sea trips were achieved and only 25 of the planned 57 concurrent at the market trips could be achieved. A decision was taken in 2015, that due to a very limited budget and staff shortages, no concurrent at sea trips would be completed for boarfish and blue whiting.

TBB_DEF>=70_99_0_0 VIIfgh: 6 of the 7 at sea trips were completed. All concurrent targets were reached and additional stock specific sampling trips were also carried out to supplement the at sea sampling. As a result 7 trips were planned ashore and 34 were achieved.

PTM_LPF_100-119_0_0 VIIIabde: Tuna: No concurrent at sea sampling trip was achieved, even though 1 was planned. No concurrent trip was possible ashore as only two fishing trips occurred for Tuna in area VIII in 2015. Notable changes in the fishery over the past four years, includes a geographic shift in effort from the Bay of Biscay to an area southwest of Ireland, and an associated shift in sampling effort. 962 albacore tuna were sampled in VIIbcjk and XII XIV Va

PTM_SPF_32-69_0_0 VIIIabde: Targeting Mackerel: There was very little effort in this fishery by Irish vessels in 2015. A total of 4 fishing trips were completed, however no sampling was achieved. Ireland will continue to monitor this fishery annually if Irish vessels participate.

PTM_LPF_100-119_0_0 in XII XIV Va: Tuna: No targets were set for this tuna fishery in the original NP, as Ireland does not generally have Tuna landings from this area, however 1 opportunistic sample was collected in 2015.

PTM_SPF_32-69_0_0 IV, VIId: one of the 3 planned concurrent at sea sampling trips were achieved and 19 concurrent at the market sampling trips were achieved out of the 26 trips planned. The total landing from this fishery into Ireland decreased to 25,000t in 2015, and due to staff shortages sampling opportunities were missed. Both situations have been resolved in 2016.

Table IIIC6: Achieved length sampling of catches, landings and discards by metier and species

Any sampling in excess of the DCF minimum required levels is the result of several reasons. These are the additional length measurements resulting from the implementation of the concurrent market sampling programme, and also the additional sampling carried out by the at sea observers whilst on discard trips. As has been stated in past reports the main cost associated with the observer at sea programme is getting the observer on board, once on board any sampling in excess of the planned targets is effectively cost neutral.

Clupea harengus in VI: Landings of herring in ICES Area VI have steadily declined over the past few years. The targets in the National Programme are based on the average landings from 2008 and 2009, when the average landings from those two years, in VI was 8,471 tonnes, as compared with 1,866 tonnes landed in 2015. It is clear that the targets previously set in the NP are now unrealistic, this will be reviewed in future National Programmes. Approx. 5,438 herring were sampled from Area VI.

Clupea harengus in VIIbcjk: Irish vessels have usually concentrated there fishing effort on herring in ICES Area VIIb. As with herring in VI, the landings have steadily decreased over the years from an average landing in 2008/2009 of 837 tonnes to average landings of 200 tonnes in 2013/2014. In 2015 landings from VIIb were only 166 tonnes. The majority of herring landings now come into ICES Area VIIg, accounting for approx 14,769t in 2015, and as a result of this change, 6,843 individual herring were sampled here instead of from VIIbcjk as originally planned in the NP.

Clupea harengus in VIIa. This is an opportunistic fishery, and many of the vessels fish on the line between VIIa and VIIg, resulting in the majority of the landings being reported in VIIg, where 6,843 individual fish were sampled.

Gadus morhua VIIa. 1430 of the planned 2500 individuals were sampled. In response to the Cod Management Plan (EC regulation 1342/2008), the use of species selective gears to minimise the capture of cod by-catches has become mandatory for all Irish vessels targeting *Nephrops* in the Irish sea since March 2012. The use of the grids and separator panels has resulted in a significant decrease in other fish species landings from this fleet operating in area VIIa, and has resulted in lower sampling levels than planned in proportion to this decline in landings across the board in VIIa.

Gadus morhua VIIbcjk: Landings of cod by the Irish fishing fleet, come mainly from areas VIIb and VIIj. In 2015 landings from VIIb were only 33t which was landed across 17 different ports. Landings from VIIj were also low at 109t, landed across 22 ports. It's clear from this information that tracking and sampling these landings is very difficult, as they are so small and dispersed. However in spite of this 1,155 individual cod were sampled and all efforts will be made to build on this sampling in the future.

Lepidorhombus whiffiagonis VIIa*:* In response the Cod Management Plan (EC regulation 1342/2008), the use of species selective gears to minimise the capture of cod by-catches has become mandatory for all Irish vessels targeting *Nephrops* in the Irish sea since March 2012. The use of the grids and separator panels has resulted in a significant decrease in megrim landings from this fleet operating in area VIIa, down to 12.6t in 2014, and with only 12t landed in VIIa in 2015. This decrease in landings has resulted in lower sampling levels than originally planned in the NP.

Lophius piscatorious VIIbcjk: 1,953 individuals were sampled from the 2,400 planned in the NP. This slight under sampling is in line with a decrease in the landings of monkfish from 992t in 2014 to 851t in 2015.

Merlangius merlangus VIIbcjk 4,621 individuals were sampled out of 7,500 planned. This represents approximately 61% achievement rate. The achieved sample numbers are actually very large and these numbers are more than adequate to support a stock assessment.

Pleuronectes platessa in VIIa: In response the Cod Management Plan (EC regulation 1342/2008), the use of species selective gears to minimise the capture of cod by-catches has become mandatory for all Irish vessels targeting Nephrops in the Irish sea since March 2012. The use of the grids and separator panels has resulted in a significant decrease in other fish species landings from this fleet operating in area VIIa. 2,258 individual Plaice were sampled, even though Landings of Plaice in VIIa in 2015 fell to 114 tonnes.

Pleuronectes platessa in VIIfgh*:* 5,477 individuals were sampled out of a planned 6,000, this was a very good achievement considering the landings of Plaice have remained low in VIIfgh in 2015 at approximately 50t.

Pleuronectes platessa in VIIbcjk*:* 2,396 individuals were sampled in 2015, and this number provides ample data to support the stock assessment.

Pollachius virens VIIfgh: unfortunately saithe proved difficult to find in the markets and as a result was under sampled. However a more concerted effort to ensure these targets are reached will be made in 2016.

Raja brachyuran, Raja clavata, and Raja montagui, Raja naevus All Areas: Just 980t of skates and rays were landed by Irish fishing vessels across all areas in 2015. As rays are landed as a mixed species it can be difficult to target individual species to reach targets. Overall 5,112 measurements on rays were achieved from a planned number of 900. The overall sampling reflects what was landed on any given sampling event.

Solea solea VIIa: Landings of sole declined to a mere 13.5t in 2015, and these landings have been steadily decreasing due to the implementation of the Cod Management Plan (EC regulation 1342/2008). In spite of this however 644 individual measurements were taken for sole.

Solea solea VIIfgh are fished by the Irish fishing fleet mostly in ICES area VIIg. Landings in 2015 remained very low at 29t. These small landings are very difficult to track and sample. However in spite of this, 2180 individuals were sampled. All efforts are made to secure these samples and sampling targets for future work programmes may need to be reduced further in line with the low landings.

Trachurus trachurus VIIbcjk: 3,419 individuals were sampled out of a planned 5,000. The majority of the horse mackerel landings in 2015, came from Area VI and as a result the targets for area VI were exceeded (2,500 planned and 5,325 individuals sampled). Given the decline in landings over recent years, from area VIIbcjk, the target of 5,000 individuals may need to be adjusted to a more realistic number in future NP's.

Thunnus alalunga VIIIadbe: None of a planned 400 individuals of tuna were measured from this area.. Notable changes in the fishery over the past three years, includes a geographic shift in effort from the Bay of Biscay to an area southwest of Ireland. However Ireland instead sampled the fishing fleet operating in ICES Areas VIIj and VIIk, 792 tuna were measured from this area, and also sampled landings from XIIc, where 233 individuals were sampled. Resulting in a total of 1,025 individuals sampled (planned target was 600) in 2015.

III.C.3 Actions to avoid deviations

On-going consultation with the fishing industry to improve relations will continue to assist in getting better observer coverage, but this is a continuing challenge. Several skippers were

reluctant to allow observers on board their ships during 2015, and several co – ops were also reticent about facilitating market sampling, as a reaction to concerns about the implementation of the Landing Obligation. The situation was further complicated in 2015 by budgetary constraints (which mainly impacted the pelagic fisheries) and staff shortages, which have thankfully now been resolved at a National level.

A more focused approach has been adopted in 2015 to ensure the most representative coverage possible of all target metiers and their landings. New industry contacts have been fostered which have opened up new sampling locations and opportunities and we are confident this strategy will result in improved data collection in 2016.

In addition in 2015 Ireland undertook 19 other commercial trips related to trials for the landing obligation. These trials drew on the existing pool of contractors and each vessel had two contractors on board thus limiting their availability for commercial catch sampling work.
These trials have ceased and will not be a drain on resources in 2016.

The Irish sampling programme will be further adapted in 2016, to encompass statistically sound sampling principals. This will be done on a phased basis, and should further ensure sampling which is representative of fleet activity and which is fit for purpose.

III.C Metier-related variables

North Sea (ICES areas IIIa,IV and VIId and Eastern Arctic (ICES I and II)

III.C.1 Achievements: Results and deviation from NP proposal

For details of identified métiers, merges and planned and achieved sampling trips per sampling frame, métier and numbers aged and measured please see Tables IIIC1, III.C.3, III.C.4 and III.C.6

The use of sampling frames evolved from the recommendations of the ICES WKPRECISE workshop (September 2009) and developed by the ICES WKMERGE workshop (January 2010). The use of sampling frames was introduced into the DCF in 2010 for sampling taking place from 2011 onwards and so Ireland is reporting its planned and achieved sampling including sampling frames.

In 2014 the reference period used to rank and select métiers for sampling was updated from 2008 – 2009 and now refers to the reference years 2012 – 2013. The previous ranking which appears in the National Programme; NP 2011 – 2013, which was subsequently rolled over into 2014 – 2015 is now considered to be outdated

III.C.2 Data quality issues

Table III.C.1 provides details of the updated ranking and métier selection using the reference years 2011 – 2013.

Table III.C.4 outlines Ireland's planned sampling strategy by sampling frame in 2014. And Table III.C.3 further breaks this down to present the achieved sampling trips by metier within each of the sampling frames. In general, the majority of the planned sampling targets were achieved or surpassed.

Table III.C.4: Planned sampling by Sampling Frame

NS2 Towed Pelagic Gears: 1 of the 3 planned concurrent at sea sampling trips was achieved and all 12 of the planned concurrent at the market sampling trips were achieved. The deviation from the planned concurrent at sea sampling trips was due to budget constraints and a decision was taken to focus limited resources on those fleets where discards are known to be significant.

Table III.C.3: Sampling Trips by Métier.

PTM_SPF_32-69_0_0 IV&VIId: 2 concurrent at sea trips were planned and 1 was achieved. 10 concurrent at the market trips were planned, with 19 achieved.

OTB_DEF_>=120_0_0 I&II. Only 8 fishing trips occurred in this metier in 2015 and all the fish were landed into foreign ports, so no sampling trips were secured.

DRB_MOL_0_0_0 in IV & VIId. 2 trips ashore were opportunistically sampled in 2015.

Table IIIC6: Achieved length sampling of catches, landings and discards by metier and species

Clupea harengus I&II: Landings of herring from area I&II continued to decline in 2015, from an average of 8,000t in 2008 and 2009, to just 705t in 2014, and 180t in 2015 As a result the

planned target of 400 fish could not be reached. This target will need to be revised in future National Programmes.

Scomber scombrus IV & VIId: 4,133 individual Mackerel in IV and VIId were sampled in 2015.

Pecten maximus IV & VIId: Opportunistic sampling of .scallop took place in 2015, with 588 individuals measured.

III.C.3 Actions to avoid deviations

On-going consultation with the fishing industry to improve relations will continue to assist in getting better observer coverage, but this is a continuing challenge. Several skippers were reluctant to allow observers on board their ships during 2015, and several co – ops were also reticent about facilitating market sampling, as a reaction to concerns about the implementation of the Landing Obligation. The situation was further complicated in 2015 by budgetary constraints (which mainly impacted the pelagic fisheries) and staff shortages, which have thankfully now been resolved at a National level.

A more focused approach has been adopted in 2015 to ensure the most representative coverage possible of all target metiers and their landings. New industry contacts have been fostered which have opened up new sampling locations and opportunities and we are confident this strategy will result in improved data collection in 2016.

In addition in 2015 Ireland undertook 19 other commercial trips related to trials for the landing obligation. These trials drew on the existing pool of contractors and each vessel had two contractors on board thus limiting their availability for commercial catch sampling work.
These trials have ceased and will not be a drain on resources in 2016.

The Irish sampling programme will be further adapted in 2016, to encompass statistically sound sampling principals. This will be done on a phased basis, and should further ensure sampling which is representative of fleet activity and which is fit for purpose.

Landings for *Clupea harengus* in area I&II have been steadily declining since the original National Programme targets were set. As a result the targets in the new National Programme from 2017 will be revised accordingly.

III.D Recreational fisheries

North Atlantic (ICES areas V-XIV and NAFO areas)

III.D.1 Achievements: Results and deviation from NP proposal

Recreational fisheries in Ireland occur in freshwater and at sea. In the marine environment shore based and sea-based angling targets a wide range of species including shark. Freshwater recreational fishing includes salmon. Salmon and Eel are targeted in freshwater and in estuarine waters.

Eel

Ireland does not have a commercial fishery for Eel. Eel is now protected in Ireland by legislation. There are the two byelaws, one prohibiting the issuing of eel fishing licences and the other prohibiting the possession and sale of Irish caught eel:
http://www.dcenr.gov.ie/Natural/Inland+Fisheries/Legislation/Bye+Laws/Bye-Laws+2009.htm

- Bye-Law No 858, 2009 prohibits the issue of eel fishing licences by the regional fisheries boards in any Fishery District.

- Bye-law No C.S. 303, 2009 prohibits fishing for eel, or possessing or selling eel caught in a Fishery District in the State until June 2012.

Recreational eel fishing is now only carried out by a minority of rod anglers on a catch and release basis. Length and age composition of eels will not be sampled as there is no legitimate catch, and as a result Ireland has a derogation to sample Eel, which is supported by the RCM North Atlantic.

***RCM NA 2012 Comment**: RCM NA supports the request under the assumption that the laws are respected.*

Salmon

There are approximately 140 salmon rivers in Ireland and advice is provided for all of these. In addition separate advice may be given for upstream and downstream areas of large rivers with hydroelectric dams and for two adult age cohorts separately. All recreational fisheries take place in freshwater.

The provisional rod harvest in 2015 was 15,734 (42.5 t) compared to 11,313 (30.5 t) in 2014. However, these catches are all lower than the reported catches prior to the introduction of the carcass tagging and logbook scheme (102 t in 2000 and 97 t in 1999) and reflect the fact that many rod fisheries are closed since management moved to individual river assessment and the requirement to have harvest fisheries only on rivers exceeding conservation limits. In 2015, the estimated number of fish caught and released by anglers was 9,374 compared to 6,537 in 2014 and 10,682 in 2013. The 2015 released catch represented 37% of the total rod catch and 29% of the total catch. This figure may change when official logbooks are fully available for analyses.
The stock status and catch advice for the 2015 fishery was that:

- 55 rivers had an advised harvestable surplus as they are exceeding their Conservation Limits.
- A further 27 rivers could open for catch and release only based on exceeding a minimum fry threshold (>17 salmon fry/5 min electro-fishing average) in catchment wide electrofishing surveys or based on IFI management criteria that they meet over 65% of their Conservation Limits.
- 61 rivers should be closed for fishing as they do not exceed the management target of meeting 65% of Conservation Limits, electrofishing thresholds have not been met or there is insufficient information for full stock assessment. Of these 61 rivers closed, there are only two rivers with no index of stock status.

There are 16 rivers for which a separate assessment is made for MSW (Spring) salmon where there are significant fisheries. Of these:

- 12 had an advised harvestable surplus as they are exceeding their Conservation Limits.
- The remaining 4 rivers could open for catch and release only based on exceeding a minimum fry threshold in catchment wide electrofishing surveys or based on IFI management criteria that they meet over 65% of their Conservation Limits.

There are currently 40 rivers or river tributaries in SACs where salmon have a qualifying interest under the EU Habitats directive. Of these, 22 are above their CL

Amongst the stocks being assessed are 54 river stocks where no rod catch data has been available since 2006 and the most recent annual average rod catch (2002-2006) has been less than 10

salmon, making a direct assessment difficult. Although these are insignificant fisheries (accounting for less than 0.5% of the total national rod catch when combined), their stocks are important as spawning populations in their own right which must be maintained for biodiversity as required under the EU Habitats Directive. Because there is no recent means of direct salmon stock assessment on these rivers, the SSCS have not provided an assessment of CL attainment on these rivers for the 2015 advice. The Standing Scientific Committee advise that these rivers should remain closed until additional information is made available to assess stock status relative to their Conservation Limits.

In addition, there are four assessments on rivers used for hydro power which have been assessed as being below their conservation limits i.e. Upper Liffey (Dublin), Upper Lee (Cork), Upper Shannon (Limerick) and the River Erne., Stocks in the areas above the impoundments are significantly below their Conservation Limits and following the scientific advice already provided for other rivers, there should be no harvest fisheries on wild salmon in these specific

Cod

A 10 year time series of catch and effort of cod in the sea angling sector in the Irish and Celtic Seas has been compiled.

A register of sea angling charter vessels was also been maintained during 2015.

Sea Bass

The steep decline in bass stocks in Ireland in the mid-1970s led to severe restrictions on the level of bass exploitation which included the cessation of the commercial fishery in 1990 through the Bass (Conservation of Stocks) Order, 1990. Since then bass have been regarded solely as an angling species and are restrictively managed. Bass is the only marine species in Ireland to be managed for angling. Apart from the closure of the commercial fishery, legislation also prohibits the taking of bass using nets and Irish fishing boats must not have bass on board or engage in transhipment of bass. The recreational angling fishery has also been heavily regulated - a bag limit of 2 bass per 24 hr day applies in addition to a minimum size limit of 40cm. The angling fishery is closed from 15th May to 15th June to protect spawning fish. It is also prohibited to sell or offer for sale any bass (other than bass which has been imported into the State).

The Marine Institute collaborated with Inland Fisheries Ireland (IFI) to complete a pilot survey of sea bass in Ireland in 2011. Data from the angler intercept survey, carried out during the

recreational sea bass pilot survey shows high variability in the data on angling days per annum per angler, catch per annum per angler, and landings per annum per angler. Extrapolations are based on previous work in the 1980s and the use of expert opinion that 40% of sea anglers are bass anglers. Total landings are estimated at between 30-44t per annum.

Despite not knowing the stock biomass, an annual landing of 30-40 tonnes (which is possibly an inflated figure) represents a very low exploitation level, especially if we consider that the south coast stock may be a northern extension of the Celtic sea channel stock. Ireland considers that sea bass exploitation levels can be agreed to be at a minimum exploitation level below which no sampling is required in the future. On foot of this pilot study, Ireland now has a derogation to sample Sea bass, which is supported by the RCM North Atlantic.

***RCM NA 2012 Comment**: RCM NA supports the request given the outcomes of the study. Ireland should specify the request officially in the National Program 2013.*

Sharks

Under the DCF, the term sharks covers all Chondrichthyan fishes, thus sharks, rays, dogfish and Chimaeras. Recreational fisheries for rays are small and dispersed. There is no legal or voluntary declaration of catch. Length and age composition of the recreational catch of rays will not be sampled.

Recreational fisheries for sharks, including dogfish, is on a catch and release basis. Claims for specimen fish of tope and blue shark are now taken as length only, so as to ensure that the fish can be returned alive (http://www.irish-trophy-fish.com/notices/conservation.htm). Most commercial angling operators now take part in the IFI Marine Sport Fish Tagging Programme, where live sharks, skates and rays are tagged with the appropriate tag and released (http://www.fisheriesireland.ie/Tagging/marine-sport-fish-tagging-programme.html). Records are kept by Inland Fisheries Ireland.

Length and age composition of the recreational catch of sharks are not sampled and Ireland now has a derogation for recreational shark sampling, which is supported by the RCM North Atlantic.

***RCM NA 2012 Comment:** Given the information provided by the tagging study as well as the assumption that recreational fishery takes place on a catch and release basis, RCM NA supports this request*

III.D.2 Data quality: Results and deviation from NP proposal

Salmon

Recreational fisheries are required to obtain a state license and report their catches as soon as they are landed in a mandatory logbook. They are also required to fix a self-locking tag on the carcass of the fish and record the unique tag number into the logbook. Other data required to be recorded in the logbook are Date of capture, River/lake, Beat, County, Species (salmon or sea trout), Weight (lbs or Kgs), lure (fly, spinner, worm, prawn/shrimp, other and total days fished. The information must be returned to the fisheries authority on the 19th of October of the year for which the licence is valid. Returns of recreational logbooks are over 60% while returns for commercial logbooks is 100%. Data are centralised by the Inland Fisheries Ireland and published annually.

Specific biological sampling of the salmon fisheries (commercial and recreational) is carried out in selected rivers where artificially reared salmon are tagged and released either in scientific "ranching" programmes or to mitigate against loss of natural production by hydro-damming, or other man made problems. A National Microtagging and Tag Recovery programme was established in 1980 by the fisheries authorities. Approximately 200,000 salmon smolts were tagged and released in 2014 for return in 2015. Approximately 2,300 were recovered subsequently during sampling of commercial/recreational fisheries and brood stocks in 2015 and measured for fork length and weighed. Random samples of wild fish were also taken for age, length and weight comparisons. The data from the National Coded Wire Tagging and Tag Recovery programme provides information on marine survival, exploitation rates, and survival to spawn for national and international stock assessments.

Salmon stock assessment is reported on the basis of numbers rather than biomass. There are only two principal sea-age classes which are represented in the fisheries in Ireland i.e 1Sea Winter and multi sea Winter (MSW) which are predominantly 2 SW fish. Recent catch information from angling logbooks suggests an average MSW proportion of 14% for the period 2007 to 2015. Stock assessment is not dependent on sampling for length and age and results from these analyses are mainly for monitoring the biological characteristics of the stocks. On the reported recreational catch statistics estimated individual weights are provided by anglers in the mandatory reporting logbooks. In the sampling of salmon in the National Coded Wire Tagging and Tag Recovery Programme, approximately 2,000 adult salmon were measured and weighed.

Recreational catch data quality is assessed initially by district salmon fishing inspectors of Inland Fisheries Ireland. Subsequent data quality checking and analyses may be carried out by the Standing Scientific Committee for Salmon, a multi-agency scientific advisory group established under the Fisheries Act 2010. The catch data are modified to account for non-return of logbooks, anomalous returns in logbook data and for the provision of a total estimated catch and unreported catch is included. Long term trends are examined and an assessment of stock status relative the attainment of Conservation Limits (defined as Maximum Sustainable Yield in numbers of salmon) is carried out by the SSC. Advice on catch levels and river TACs is provided on an individual river or stock basis.

Length composition of the catch originates from voluntary data provided by recreational fishermen in the logbook and from private fishery owners who monitor the number and size of fish captured in their rivers, as well as sampling carried out by staff of the Central Fisheries Board. There are no specific sampling, or precision targets associated with this process.

Up to 2010, the Wild Salmon and Sea Trout Tagging Scheme was administered by the Central and the seven Regional Fisheries Boards (Eastern, Southern, South Western, Shannon, Western, North Western and Northern Regional Fisheries Boards) on behalf of their parent Department, the Department of Communications, Energy and Natural Resources (DCENR) In 2010, a new institution was created which amalgamated the Regional and Central Fisheries Boards into one organisation i.e. Inland Fisheries Ireland (IFI). Cross boarder collaboration with the Loughs Agency (an inter-government agency between Ireland and the UK) occurs in the case of the river Foyle, while inter-governmental collaboration also exists between the UK and Ireland in the case of the River Erne. Data collection at a regional level is co-ordinated by the IFI while, data analyses, stock assessment and research is co-ordinated by the IFI and the Marine Institute.

Cod

Sea angling returns from vessels participating in the Central Fisheries Board voluntary logbook programme and the register of sea angling vessels from 2000-2014 provide data on

- Number of cod captured per boat per day
- Number of cod captured per angler per day
- Total number of angling days and rod days covered by the sample
- Estimates of weight of fish landed by vessel day

- Raising factors (to fleet) for the sampled vessels for Irish sea and Celtic Seas
- Estimates of the total number of cod landed by the vessel based sea angling sector
- Weight of cod landed by the vessel based sea angling sector

III.D.4 Actions to avoid deviations

There were no deviations; therefore no remedial actions are required.

III.E Stock-related variables

North Atlantic (ICES areas V-XIV and NAFO areas)

The vast majority of the Irish fishery takes place in the North Atlantic Region. Three widely distributed stocks also extend into the North Sea and Eastern Arctic Regions (Micromesistius poutassou I-IX, XII, XIV; Scomber scombrus II, IIIa, IV, V, VI, VII, VIII, IX and Trachurus trachurus IIa, IVa, Vb, VIa, VIIa-c, e-k, VIIIabde) . The numbers for these stocks are simply repeated for the two regions.

The planned stocks requiring sampling are highlighted in Table III E1 and III E 2

III.E.1 Achievements: Results and deviation from NP proposal

The achieved sample numbers are listed in table III E 3.

General deviations from sampling targets

In all cases where more than 100% of the target sample numbers were collected, this was done at the expense of the member state.

In some cases the target numbers were set at unrealistic levels but due to the 'roll-over' national programme, and targets were not revised, resulting in achievement of less than 100%.

In VIIa, the landings of finfish have decreased in general as a consequence of the introduction of technical measures to reduce the bycatch of gadoids which has resulted in reduced availability of samples.

For many stocks it has been difficult to obtain sufficient maturity samples in absence of a Q1 survey. However the sampling levels appear to be sufficient for monitoring changes in the proportion mature of these stocks (based on an analysis of maturity data supplied as a working document to ICES assessment working groups WGCSE and WGBIE).

The actual sampling numbers generally deviate from the planned numbers for two main reasons:

- Ireland is moving towards probabilistic sampling which means the number of samples are proportional to the landings (which are subject to change). Sampling levels have increased, relative to planned levels, for stocks with increasing landings trends.
- The target is the number of samples, not the number of individuals. The number of individuals that were sampled is largely irrelevant for the precision estimate as this is mainly determined by the number of independent sampling events (see e.g. WGPRECISE 2009; WGMERGE 2010; WGPICS 2011, 2012, 2013; WGCATCH 2014, 2015).

For these reasons it is not appropriate to judge a sampling programme using the sampling targets in table III E 3.

Specific derivations from sampling targets

Specific derivations from sampling targets are outlined in detail in the comments field in table III_E_3.

III.E.2 Data quality: Results and deviation from NP proposal

In general, the data quality is fit for purpose.

III.E.4 Actions to avoid deviations

The lack of availability of samples for certain stocks was generally related to low landings of these stocks, there is little to be gained from increasing the sampling effort if the landings are minimal.

Ireland is in the process of implementing probabilistic sampling programmes, following the recommendations from WKACCU (2008), WKPRECICE (2009), WKMERGE (2010), WKPICS (2011,12, and 13) and WGCATCH (2014,2015). These changes to the sampling programmes are likely to result in deviations from the planned sample numbers.

Ireland remains focused on providing high-quality data to stock assessment working groups. Therefore the sampling effort is concentrated on providing these data with the highest feasible level of accuracy and precision. Data collection of parameters that are not directly relevant will receive a lower priority.

III.F Transversal variables

Baltic Sea (ICES areas III b-d), North Sea (ICES areas IIIa, IV and VIId) and Eastern Arctic (ICES areas I and II), and North Atlantic (ICES areas V-XIV and NAFO areas)

III.F.1 Capacity

III.F.1.1 Achievements: Results and deviation from NP proposal

Fleet capacity data has been updated and maintained during 2015 in the national register of sea fishing vessels, and includes vessels operating in both the Atlantic and North Sea and Eastern Arctic.

III.F.1.2 Data quality: Results and deviation from NP proposal

Data from the national register can be used to report exhaustively on

- Fleet capacity (kws, GTs), length distribution, age of vessels by fleet segment

III.F.1.3 Actions to avoid deviations

There were no deviations in 2015, therefore no action is required.

III.F.2 Effort

III.F.2.1 Achievements: Results and deviation from NP proposal

Sampling Strategy

In 2015 the sampling strategy laid down in Irelands DCF proposal targeted a specific number of vessels within each of the sub-métiers of the pot (FPO) and dredge (DRB) métiers in a self-sampling programme or sentinel vessel programme as outlined in the following table.

Metier	Number	Target species
VI Crustaceans (Pots)	17	Lobster, crab
VII crustaceans (Pots)	9	Lobster, crab
VII f-k Demersal (Nets)	2	Demersal fish
VIIa Molluscs (Dredgers)	7	Scallop, razor clam
VIIa-g Demersal (Nets)	3	Demersal fish
VII Crustaceans (Pots)	35	Lobster, crab
VIIa Molluscs (Pots)	6	Whelk

Results

Vessel <12m LOA:

Effort of vessels under 12m LOA (Metier FPO, DRB and GNS) was sampled by the sentinel vessel programme. The Sentinel Vessel Programme was reviewed and revised in 2011 to improve the quality and quantity of data collected. A new operational logbook was issued to 80 vessels in 2015 from multiple sectors of the inshore fleet, representing 5% of the total national registered fleet. All 80 vessels subsequently participated successfully.

Effort indicators include:

- Number of nominal effort units (pot hauls, dredge hours, net length) per vessel per year
- Number of standardized effort units (pot hauls, dredge hours, net length) per vessel per year
- Number of days at sea per vessel per year

In addition effort census in a number of DRB sub-metier for vessels <12m LOA was achieved

- Gatherers records provide effort indicators in number of days fished per vessel for all vessels in the fleet fishing for bivalves at the level of individual target species
- All vessels dredging for razor clams nationally, numbering approximately 60 vessels, report high frequency VMS data from which effort can be estimated

In addition to the SVP data a total of 90 trips at sea by sampling contractors and MI were completed in 2015 on vessels under 12m in length. Data on fishing effort and catch composition were obtained.

Vessels 10-12m LOA

Logbook data provided a census of effort for all active vessels. The effort indicator is

- Days at sea per vessel per year
- Kw days at sea
- Vessels 10-12m in length also report number of gear units, fishing time and landings composition

The proportion of the fleet between 10-12m LOA that was active in 2015 was estimated by comparing the number of such vessels in the national register and the number in the national

logbook database. This proportion was used as a raising factor for the sentinel vessel programme data for vessels 10-12m in LOA.

Vessels <10m LOA

The Sentinel Vessel Programme provides effort indicators for participating vessels

- Days at sea and kw days at sea per vessel per year disaggregated to metier and coastal area

The proportion of the fleet <10m that was active was estimated from the number of vessels selling fish, as indicated in the buyers and sellers data, compared to the number of vessels on the national register.

Deviations

Although vessels can be identified as belonging to a particular sub-metier in a given year and a given number of vessels in each sub-metier can therefore be sampled vessels may switch métier unpredictably depending on market conditions.

III.F.2.2 Data quality: Results and deviation from NP proposal

Results

A census of effort for all vessels over 10m has been obtained. Various effort indicators can be developed from these data

In the case of vessels <10m LOA, detailed daily effort information has been obtained for sampled vessels and a census of effort data was obtained for some sub-metiers. The proportion of the under 10m registered fleet that is active has been estimated from sales notes.

III.F.2.3: Actions to avoid deviations

No deviations, other than the addition of exhaustive sampling of some DRB sub-metiers, which was carried out at national expense.

III.F.3 Landings

Sampling Strategy

Landings by vessels <10m LOA métier were sampled in the same way as effort is sampled and outlined above. The landings indicators from the sampling programme are:

- Total live weight per vessel
- Total value per vessel
- Unit value per species per vessel

These indicators can be disaggregated to live weight or value per day, per kw*day or per effort unit.

III.F.3.1 Achievements: Results and deviation from NP proposal

For vessels over 10m LOA a census of landings was obtained in 2015 from the national logbook data and, in the case of vessels less than 10m LOA, from sales notes. The sales note data is an estimate of the landings of each vessel and also all vessels less than 10m LOA landing into each port aggregated to the fleet level at that port.

III.F.3.2 Data quality: Results and deviation from NP proposal

Results

Landings data by species and métier have been exhaustively sampled by the national logbook programme and from national port reports and buyers and sellers data programmes for vessels under 10m LOA.

III.F.3.3 Actions to avoid shortfalls

There were no deviations.

III.G Research surveys at sea

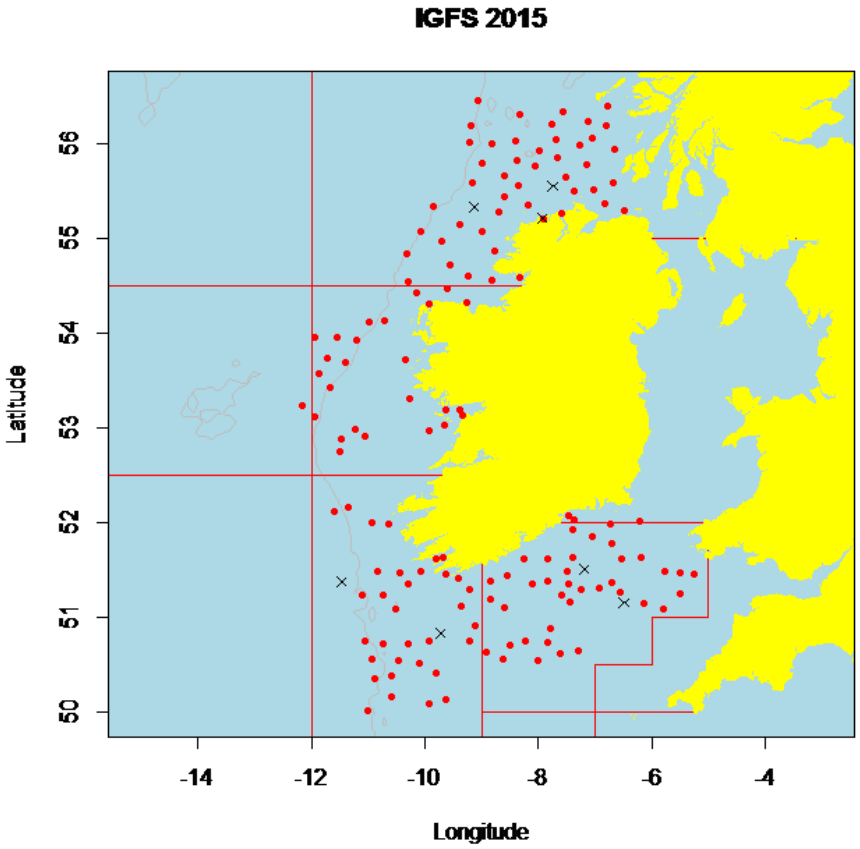
III.G.1 Achievements: Results and deviation from NP proposal

Seven surveys were planned and completed in 2015. Below are the details of each survey including a survey map.

Western IBTS 4th Quarter

The Western IBTS survey was hampered slightly by adverse weather conditions resulting in the loss of 7 days at sea. However in spite of this 90% of the planned fishing hauls were completed. The provision of indices for assessment were not affected, as lost effort was restricted as far as possible to strata with lowest input to into indices.

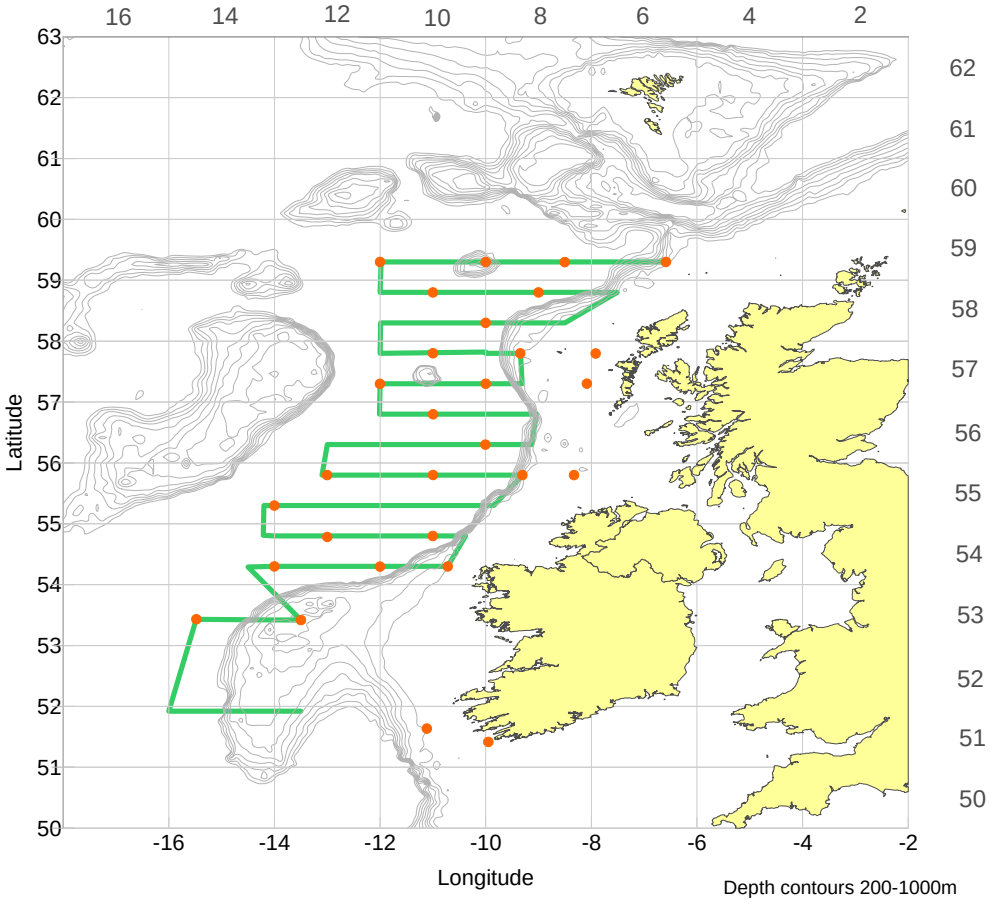
Fig 1: Western IBTS Q4 Groundfish survey cruise haul positions 2015. Valid hauls are in red, and invalid stations are marked with an x.



Blue whiting Survey

The Blue Whiting survey is an internationally coordinated survey, including 5 vessels, covering upwards of 85,000nmi² using over 7,500nmi of transects. In 2015 the blue whiting survey achieved planned 18 days at sea. Survey planning is coordinated through WGIPS and vessel effort is allocated during the planning phase, which occurs after the submission of the DCF NP. The amount of track in (acoustic miles) is not necessarily the best measurement of achievement. In this instance it is the coverage of the allocated area which is critical, and on this critical measure of success Ireland covered 100% of the area assigned to it, ensuring the integrity and quality of the survey results. Directed fishing trawls are conducted as and when required and are required to groundtruth the insonified echotraces. The number of trawl stations is variable from year to year and is not a consistent metric on which to base success as would be the case for pre-allocated trawl stations for bottom trawl surveys. All WGIPS allocated oceanographic stations were achieved. Seabird, marine mammal and surface litter surveys are now undertaken as part of this survey since 2014.

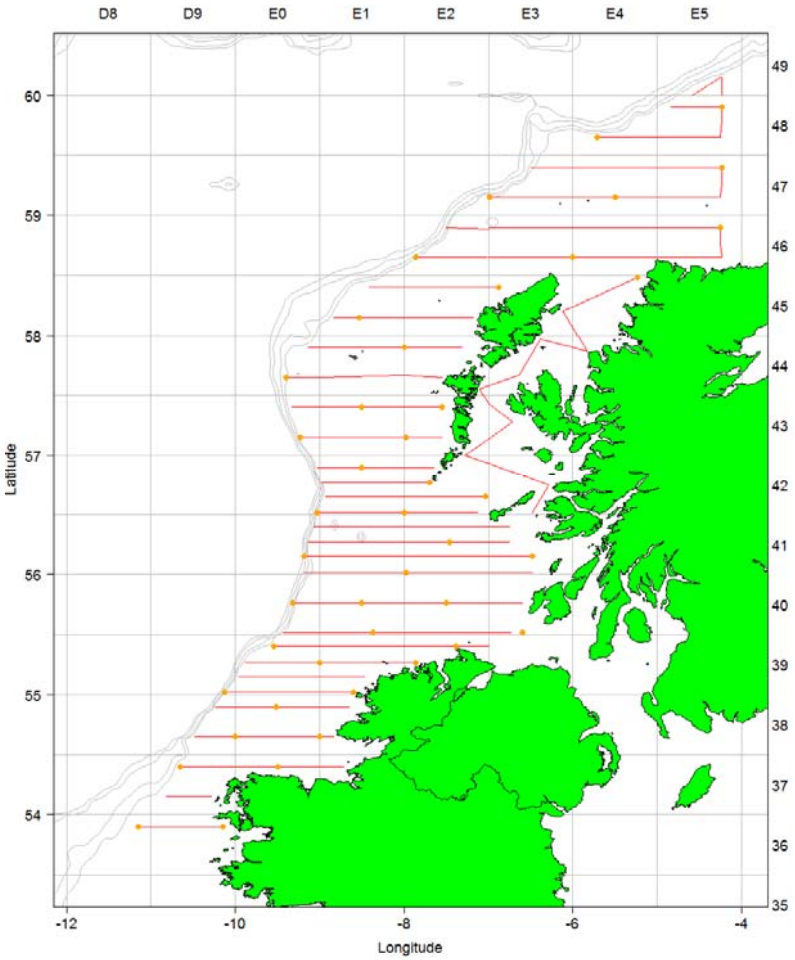
Figure 2 Blue whiting survey cruise track completed in 2015



Pre Spawning herring acoustic survey

The pre – spawning herring acoustic survey targets for survey track, oceanographic and marine mammal stations were all achieved and exceeded. In 2015 an additional 600 nautical miles of acoustic track were completed covering an area north of the Hebrides which is usually surveyed by Scotland. The number of trawl stations is variable from year to year and is not a consistent metric on which to base a measure of a successful survey. All WGIPS allocated oceanographic stations were achieved. Seabird, marine mammal and surface litter surveys are now routinely undertaken as part of this survey since 2013.

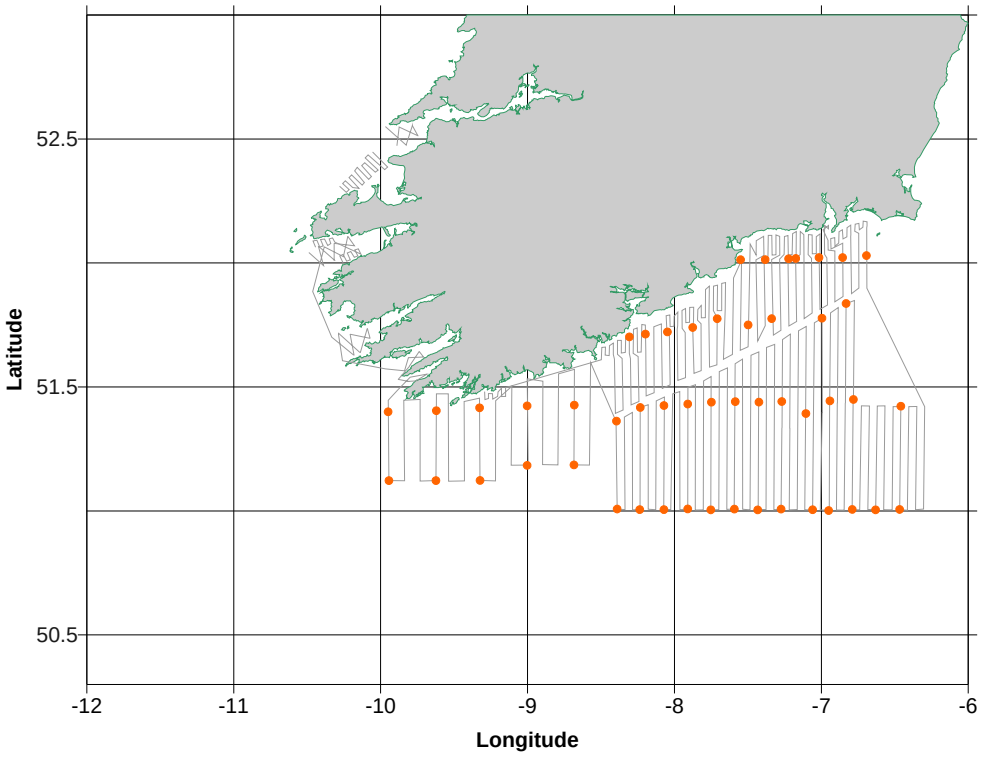
Figure 3 Pre-spawning herring acoustic survey cruise track & CTD positions in 2015



Spawning herring acoustic survey

The Spawning Herring Survey targets for days at sea, oceanographic stations and marine mammal observations were all achieved at least 100%. 27 of the planned 30 fishing hauls were achieved, however the number of fishing hauls achieved each year changes depending on the echo traces encountered

Figure 4 Herring spawning acoustic survey cruise track and haul positions 2015.



International Mackerel and Horse Mackerel Egg Survey

The International Mackerel egg survey took place in 2013 and is scheduled to take place again in 2016. WGMEGS is responsible for the international coordination of the mackerel egg surveys and at its most recent meeting has agreed the survey areas to be covered by each Member State involved. Ireland will complete two surveys in 2016, very similar to those completed in 2013. The first survey will commence in Early February, lasting three weeks and will survey the Celtic sea and the Bay of Biscay. The second survey will commence in early June, lasting three weeks, and will cover West of Ireland and West of Scotland. Below are maps from the two legs of the survey completed by Ireland in 2013. The 2013 cruise track is indicative of what will be completed by Ireland in 2016,

Figure 5 International Mackerel Egg survey cruise track Ireland. February 2013.

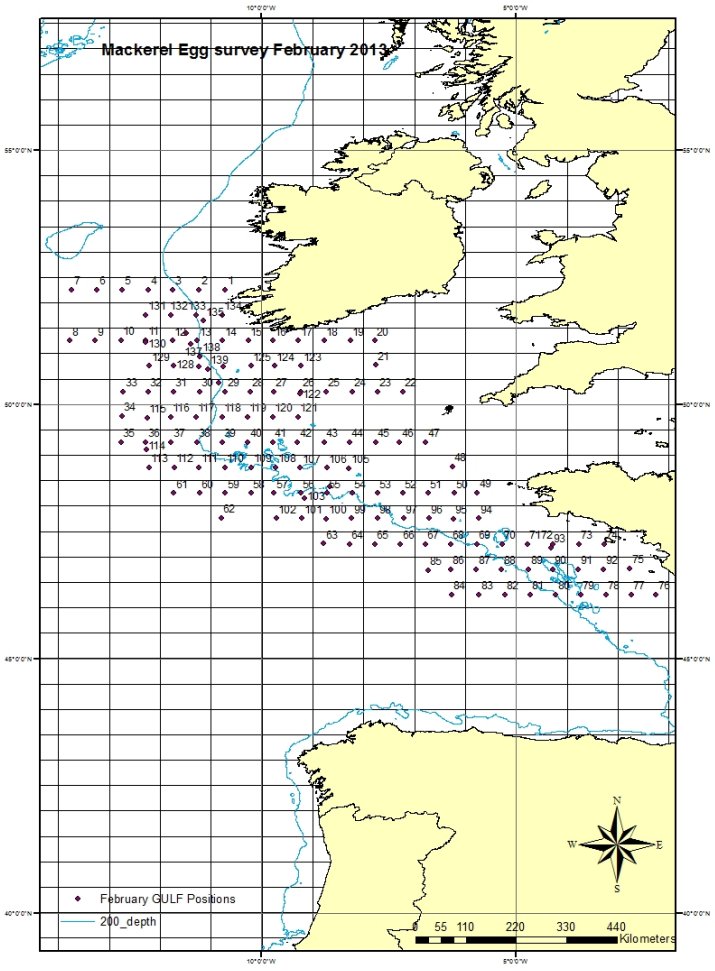
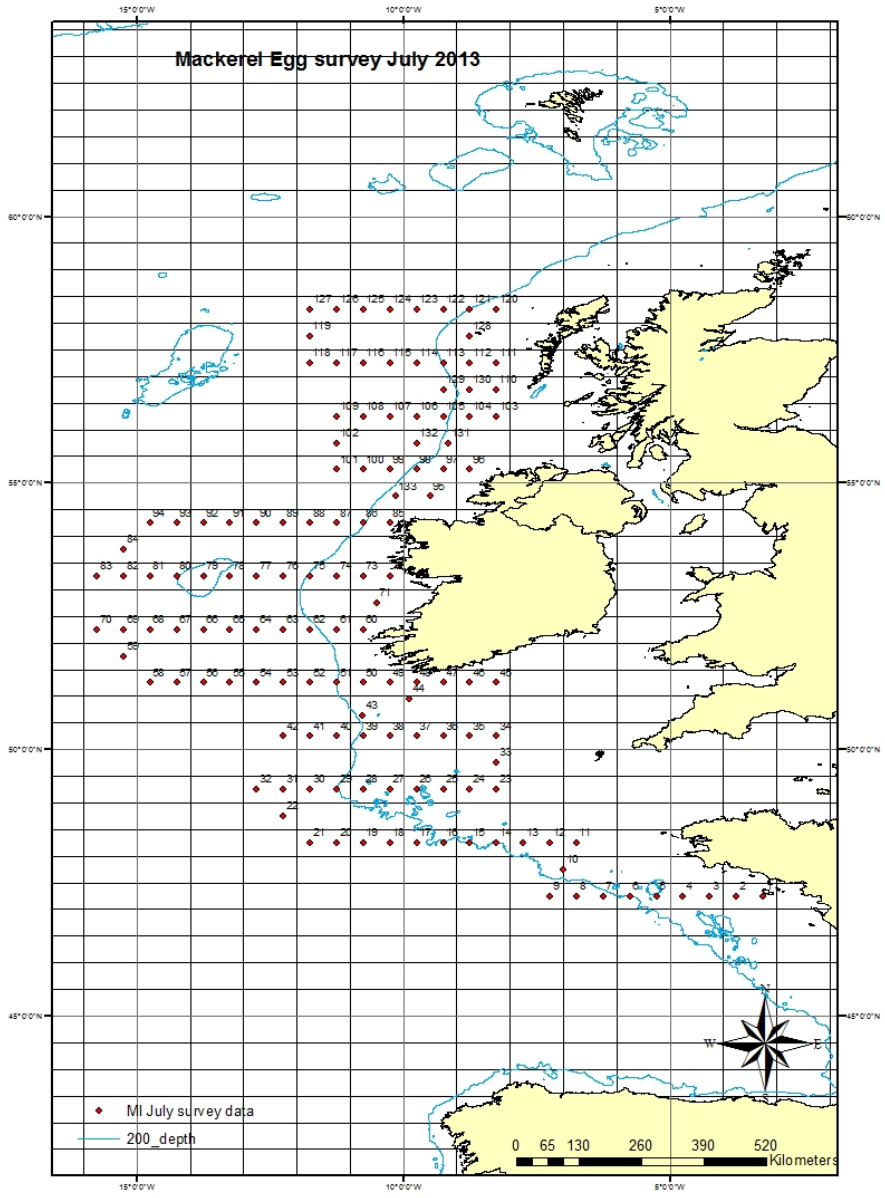


Figure 5(b) International Mackerel Egg survey cruise track Ireland. July 2013.



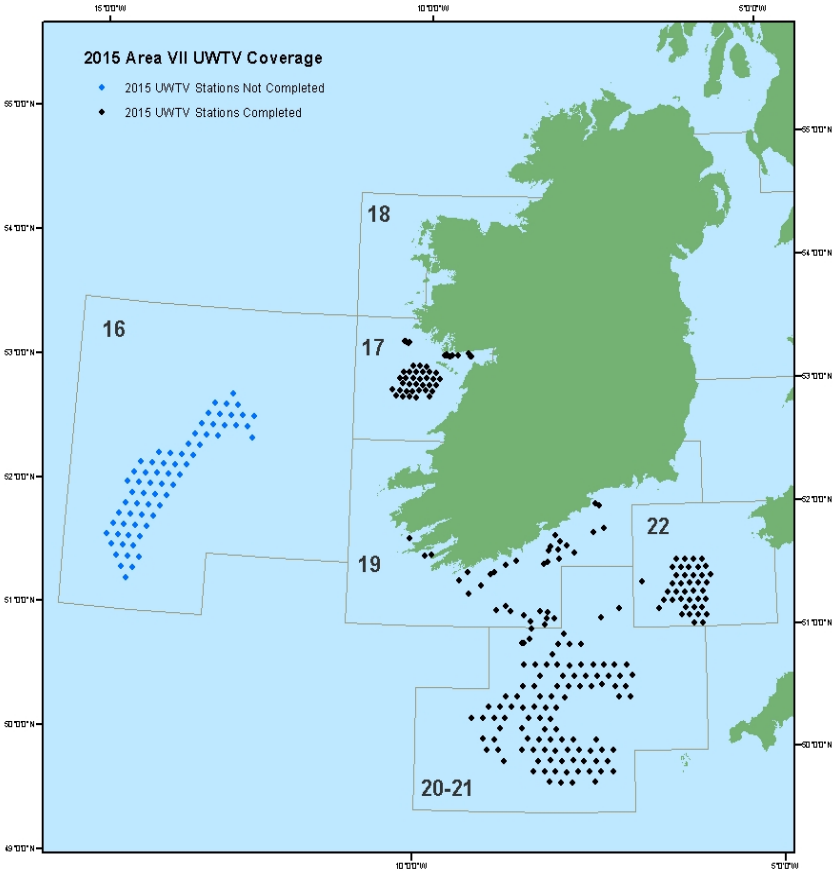
Nephrops UWTV Survey 1

In 2012 SGNEPS recommended that a CV (or relative standard error) of < 20% is an acceptable precision level for Nephrops UWTV surveys, from analysis of the historical survey sampling effort. This conclusion was further supported by WKNEPH (ICES, 2013). In response to this recommendation Ireland reviewed its survey effort in FU 15, 17 and 22. In line with the recommendation Ireland has reallocated survey effort to FU16, 19 and 20-21 in 2015. In the interest of clarity the surveys have been renamed as UWTV Survey 1, 2 and 3.

The original targets for UWTV surveys in the National Programme were set at 343 UWTV stations. However in line with WGNEPs recommendations this target was adjusted to a total of 295 UWTV stations in 2015. As the National Programme was a roll – over these targets were not adjusted in the relevant NP table, so the original targets remain in Table III.G.1. The UWTV stations planned for 2015 cover the 5 *Nephrops* Functional Units (FU16, 17, 19, 22 and 20-21). As a result of engine failure, on the national research vessel RV. Celtic Voyager in June 2015, 227 of the planned 295 UWTV stations were completed successfully resulting in 76% achievement for the total UWTV survey programme.

All Nephrops Functional Units had 100% survey coverage and the survey results were used directly to update the scientific advice with the exception of FU16.
Unfortunately, FU16 was not surveyed and no update to the advice was possible. Therefore the same advice as last year was issued for this stock.

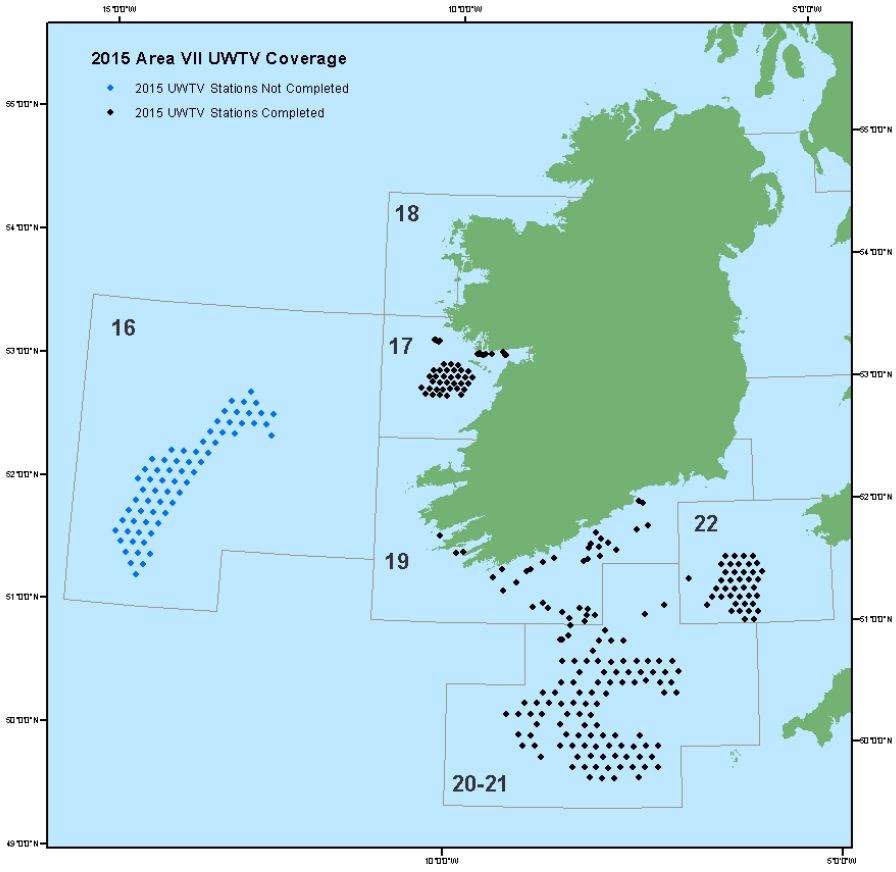
Figure 6 *Nephrops* UWTV Surveys of FU 16 (Porcupine Bank), FU 17 (Aran grounds), FU19 (South and South west coast), FU22 (Smalls) and FU 20-21 (Labadie, Jones and Cockburn Banks) and haul positions in 2015. Black dots = stations completed. Blue dots = FU 16 stations not completed.



Nephrops UWTV Survey 2

The same recommendation also applied to the Aran Grounds UWTV survey, where SGNEPS (ICES 2012) and WKNEPH (ICES 2013) recommended extending the survey coverage to include FU 22 and FU16 Porcupine Bank. Unfortunately due to complete engine failure on the RV Celtic Voyager in June, FU16, could not be surveyed in 2015.

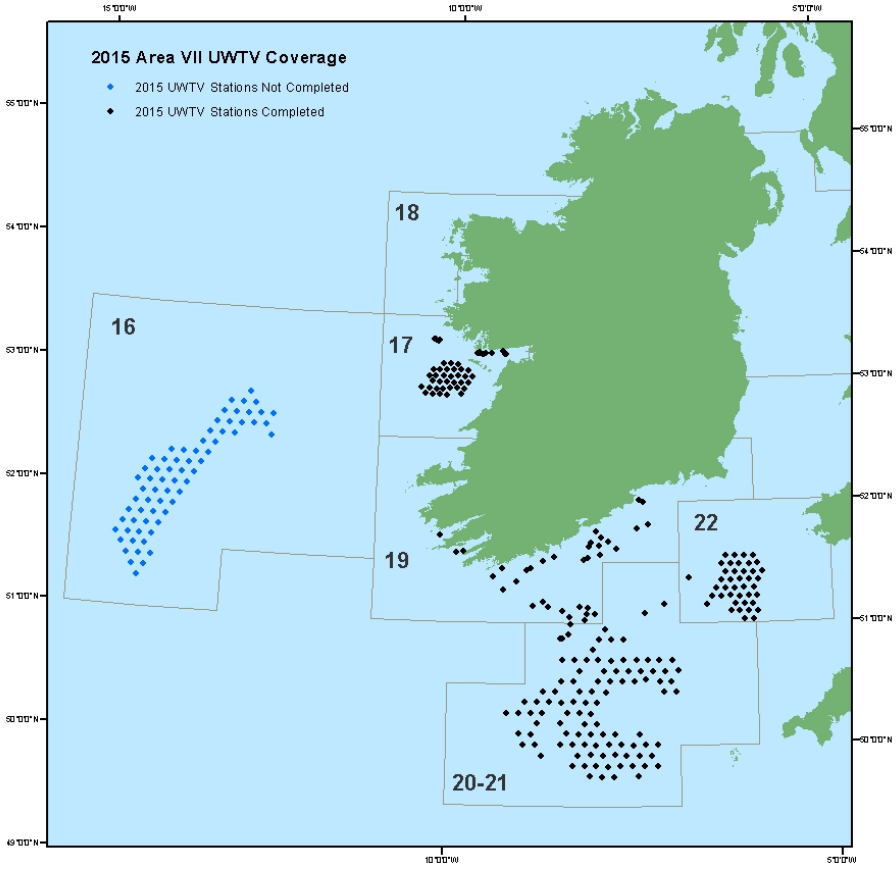
Figure 6 *Nephrops* UWTV Surveys of FU 16 (Porcupine Bank), FU 17 (Aran grounds), FU19 (South and South west coast), FU22 (Smalls) and FU 20-21 (Labadie, Jones and Cockburn Banks) and haul positions in 2015. Black dots = stations completed. Blue dots = FU 16 stations not completed.



Nephrops UWTV Survey 3

The same recommendation also applied to the Aran Grounds UWTV survey, where SGNEPS (ICES 2012) and WKNEPH (ICES 2013) recommended extending the survey coverage to include FU 20-21 Labadie, Jones and Cockburn Banks. The planned target number of stations in the Irish NP (NP 2011 – 2013 – rolled over to 2014 – 2015) are now outdated. The revised NP target for FU 20-21 stations is 95 in line with WGNEPS recommendations that all UWTV surveys should aim for full spatial coverage and a target precision of less than 20% cv. This means that 100% of the planned stations were achieved for this survey in 2014. For the purpose of reporting however, the outdated target of 142 stations must still be reported as this is the target in the NP and the DCF NP has not been updated and resubmitted for 2014 and 2015.

Figure 6 *Nephrops* UWTV Surveys of FU 16 (Porcupine Bank), FU 17 (Aran grounds), FU19 (South and South west coast), FU22 (Smalls) and FU 20-21 (Labadie, Jones and Cockburn Banks) and haul positions in 2015. Black dots = stations completed. Blue dots = FU 16 stations not completed.



III.G.2 Data quality: Results and deviation from NP proposal

All data collected during the 2015 surveys were quality checked according to established criteria, and all survey data was submitted for use in the stock assessment process where appropriate. The only shortfalls in survey targets occurred on the Blue whiting, Pre Spawning Herring Acoustic surveys for Nautical miles on the acoustic track and on the UWTV survey 2 for tv tracks - These shortfalls were very minor and did not substantially affect the quality of the outputs of any of those surveys.

III.G.3 Actions to avoid deviations

The catastrophic engine failure experienced by the RV Celtic Voyager, could not be predicted or planned for and is a one off event. Every effort was made to continue the UWTV surveys and this was relatively successful. Abundance estimates were provided for four of the five functional units from the 2015 surveys. Only one Functional Unit, that of the Porcupine Bank (FU16) could not be covered. As a result the advice for this stock was rolled over from the previous year.

IV. Module of the evaluation of the economic situation of the aquaculture and Processing industry

IV.A Collection of data concerning the aquaculture

In 2014 the frame population of entities engaged in aquaculture were 277 production units or 250 business entities. The national program for 2014-2016 was followed.
It was felt that the basic statistical unit of the survey should be more clearly defined than was done in the NDP as follows:

- The basic statistical unit used in the survey is the production unit.
- The production unit is the smallest disaggregation of data possible for a business entity of any size and refers to a distinct livestock, that has undergone a distinct aquaculture practice, located within a distinct bay site(s) or land facility, generating a distinct turnover, with a measurable, associated labour effort. The statistical unit was so chosen in an effort to increase comparability between variable business sizes within and between segments and within specific areas. Each production unit is intended to be represented by the data on one census survey form. In exceptional circumstances, a business activity, spread over more than one but adjacent bays are represented as one production unit, on one form. As far as possible, this is the case for sample survey forms also, though financial variables cannot be disaggregated precisely below the company level for some survey respondents. In such cases, the company variable data is treated as the sum for all its production units, where applicable.

IV.A.1 Achievements: Results and deviation from NP proposal

Tables IV.A.2 and IV.A.3 have been updated for the surveyed year 2014
The return rate for the census component of the 2014 survey was 79.4%. A full response was obtained for the sampling survey but not for all of the ‘economic’ variables. More than a 20% response was obtained for variables found within abridged accounts available online. Operational costs variables continue to be difficult to obtain for some segments

but a gradual improvement is evident, with a minimum of 11.19% response rate of the frame population achieved for the most difficult cost variables.

IV.A.2 Data quality: Results and deviation from NP proposal

The table has been updated for the surveyed year 2014 in Table IV.A.3

Return rate is used to date as the main indicator of accuracy. No other accuracy indicators have been described for aquaculture.

IV.A.3 Actions to avoid deviations

Action has been taken to avoid future interference with the survey schedule of the DCF. Shortfalls in census data and more particularly in operational costs data are being improved by a gradual acceptance of the survey, through the efforts of regional staff, to improve perceptions of the survey as a tool also useful to the producer.

IV.B Collection of data concerning the processing industry

See Tables IV.B.1 and IV.B.2, which provide a general overview of processing activities and the sampling strategy.

IV.B.1 Achievements: Results and deviation from NP proposal

In 2015, data was collected for 2013.

The collection and collation of data from the processing sector was reliant on the use of questionnaires completed in respect of applications for the receipt of EU or National grant aid and audited accounts from the Companies Registration Office (CRO).

For this reason, the achieved sample number for the companies in the size category 11-49 and size category 50-249 was greater than the planned sample number due to a larger number of returns from these companies. For companies with less than 10 employees the achieved sample number was less than the planned sample number as there was not as much information made available.

There was a deviation from the sampling targets detailed in the NP, but the MS has a high degree of confidence that the data source used is of the highest quality. The achieved sample rate was 32 companies which was higher by 1 than the target set out in the national programme.

Also there is a difference between the numbers of companies per size category outlined in the National Programme and those in the tables provided. The figures in the tables are more accurate as these have been updated based on information returned from the seafood companies in Ireland.

IV.B.2 Data quality: Results and deviation from NP proposal

The MS did not contact seafood companies to calculate the estimation of unpaid labour. Instead however, the MS used another method calculating the average wage per company and applied a multiplier to calculate unpaid labour.

The MS did not use a census method to collect turnover statistics, but used the same method of calculation for turnover based on the sample of respondents as for all other variables excluding employment, FTE and number of enterprises. However a census survey was used to collect employment statistics and this information was then used for the DCF. Best estimates were used to calculate figures for employment, where no information was available based on the expertise of staff within the organisation and the information available to them.

IV.B.3 Actions to avoid deviations

The quality of data collected has increased as the MS introduces a mandatory requirement for any applicant for EU or National grant aid to complete the DCF data collection form for the processing sector and this will continue in 2016.

V. Module of evaluation of the effects of the fishing sector on the marine ecosystem

V.1 Achievements: Results and deviation from NP proposal

Indicators 1-4: Conservation status of fish species Proportion of large fish Mean maximum length of fishes Size at maturation of exploited fish species

Data for the Indicators for this module were collected by survey.

- The Western IBTS Fourth Quarter Groundfish Survey collects data for Indicators 1-4 in waters up to 200m deep from Divisions VI and VII, with the exception of VIIa and VIIf. (Years 2003-Present)
- The Spawning Herring Acoustic Survey collects data for Indicators 1-4 from VIIb, VIIj, VIIg and VIIaS in Q4 each year.
- The Pre-spawning Herring Acoustic survey collects data for Indicators 1-4 in VIa and VIIb in Q2.
- The Blue Whiting Acoustic Survey collects data for Indicators 1- 4 in VIa and VIb in March-April each year.
- Underwater TV surveys collects data for Indicators 1- 4 in VIIb (Aran survey – Q2) , VIIa (Irish Sea survey – Q3), and VIIg (Celtic Sea Survey – Q3). (Years 2002-Present).
- The International Mackerel/Horse mackerel surveys collected data in ICES areas Via, VII, VIII, IXa for indicator 1 in 2013, and will be completed again in 2016.

Indicators 5-7: Distribution of fishing activities, Aggregation of fishing activities, Areas not impacted by mobile bottom gears.

The Marine Institute was granted access to VMS data by SFPA for the purposes of the DCF. Currently, vessel position data is collected hourly or every two hours for all Irish vessels over 15m. It has already proven possible to link daily VMS positional data with logbook information for the Irish fleet thus allowing all positional data to be classified to level 6. The distribution of fishing activities, aggregation of fishing activities and areas not impacted by mobile bottom gears can be mapped and provided as required.

Ireland continued to manage and analyse all of the relevant resulting data sets from the DCF process and made these data available to ICES STECF and other expert groups.

Indicator 8: Discarding rates of commercially exploited species

Metier based discard sampling is conducted as part of the concurrent sampling at sea programme. Details of this programme are described in Module III.C, with sampling effort by metier outlined in table III.C.3 and III.C.4, and details on data collected by species shown in Table III.C.6 of the Annual Report 2015.. Trip specific discard rates by species measured in weight are raised to discard rates by quarter and metier using species landings data.

Indicator 9: Fuel efficiency of fish capture

The calculation of fuel efficiency is also described in section IIIB. Fuel efficiency of fish capture is defined in Appendix XIII of Commission Decision (2008/199/EC) as the ratio between value of landings and cost of fuel, and must be estimated by quarter and by metier. The inshore components were estimated from the following data collected on a daily basis under the sentinel vessel programme;

- Landings per species,
- Price per species,
- Fuel costs,
- Fuel prices.

These data, can be raised to the total active population of vessels <10 metres in length (LOA) and will be included in their respective national metier, by quarter.

Fuel costs received from vessels >10 meters length (LOA), targeted in the annual economic survey, are apportioned equally on an effort basis to their relevant metiers and quarters, and raised to the active population. Effort was based on a log-book analysis that apportioned each fishing trip to a particular metier (see Section III.F for more details).

V.2 Actions to avoid deviations

There were no deviations

VI. Module for management and use of the data

VI.1 Achievements: Results and Deviations from the NP Proposal.

For Data transmission by Ireland please refer to Table VI.1 All relevant and requested data was submitted in 2015.

2015 involved both a consolidation of previous work and new developments. Two notable developments were the complete re-design and development of the MI port sampling database, and the improved method of receiving Logbooks data. R has continued to grow in importance and the MI scientists now regularly access the various databases using R, SQL, Microsoft Excel, Microsoft Access, and specific application interfaces.

The Stockman port sampling database application was completely re-written to be a web based application. This allowed a migration away from a legacy application that was becoming increasingly difficult to support. The new Stockman application has been developed with constant feedback from the analysts' team. Extra functions have continued to be added throughout the year and it is envisaged that extra modules will be added to the application to replace some of the other departmental applications.

Traversal data is primarily collected via Logbooks initially collected by the Sea Fisheries Protection Agency (SFPA) and stored on databases managed by the Department of Agriculture, Food, and the Marine (DAFM). During 2015 the MI working in combination with DAFM developed a new system for receiving the Logbooks data. Previously a manual process was used to extract the data at DAFM and then import it into an MI database. This has now been changed to an automated process which has improved the data consistency and reduced the amount of work for both parties. It has also allowed the MI to receive a weekly secure Logbooks data feed that allows preliminary analyses to be conducted earlier. The Logbooks data is completely refreshed on a quarterly basis, and in between the full refreshes a smaller weekly update of changes takes place.
VMS data is still collected by the Naval Forces Fisheries Monitoring and Control Centre (FMC) and is made available to the MI through an annual data request sent to the FMC, via DAFM.

Survey information is stored on individual databases. The Nemesys data was moved from the original Stockman Database into a separate database. Work continued in 2015 with improving the

Nemesys data acquisition software. The acquisition software is used for collecting *Nephrops* data sampled both on Survey and Commercial vessels. Nemesys collects Sample Metadata (including sampling personnel, vessel, gear, functional unit and sample weight details) along with individual measurement data of the *Nephrops* measured. The application was upgraded for use with Bluetooth calipers, and redesigned to be useable on ruggedised tablets. The application includes an upload utility allowing data collect locally on the tablet / laptop to be uploaded into the central Nemesys Database. The *Nephrops* underwater TV survey database is completed and continues to be used for storage of *Nephrops* survey data. The *Nephrops* underwater TV survey database stores survey metadata, burrow count, haul and fish data, as well as links to video data, and has analyses routines developed to facilitate the production of live burrow counts for the *Nephrops* UWTV index, which is used by ICES in providing advice on the *Nephrops* stocks covered by the Irish surveys.

The IBTS survey database is based on SQL server 2008, which has improved the validation checks on the data and improved the quality. The database also has a Datras export facility which is automated to facilitate upload of Irish IBTS data to Datras. A generic upload facility is available to allow data collected at sea on the RV's to be uploaded to the SQL server database on the MI network. This work is part of the ongoing improvement carried out on Irelands DCF data holdings.

Economic data are stored in a MS Office Access database, located on a secure server within the BIM network. In 2015, the review of the database structure and function continued and various steps were initiated on foot of this review, to improve data storage and access. In addition, the development of dynamic links with national data sources was progressed with other national agencies (i.e. MI and SFPA).

The Marine Institute continues to create meaningful links between its databases. During 2015 this has taken the form of retiring legacy stand-alone applications and replacing them with more integrated systems. This can save time in that multiple entry of the same or similar data can be avoided and also increase accuracy due to the reduction of errors produced by data keying errors. When systems are developed (or re-developed) time is taken to evaluate whether existing reference lists can be used rather than creating new, stand-alone reference lists. New developments use centralized facilities which can be more effectively managed – ad-hoc legacy application are being replaced although due to resource constraints there will still be some of

these applications remaining operational in the short-term. Data security and integrity can also be better managed on the centralised systems.

Data exchange to the EU is still via Excel templates as supplied by the JRC. The data is pre-validated prior to submission by the import procedures (described below), but undergo additional validation and quality checks. The key shortcoming to supplying data via this route (to meet the format of STECF requests for data) remains the manual integration required between the Logbooks and Stockman databases.

Quality control and validation procedures.

Data on biological variables from port sampling are collected according to documented SOP's. These SOP's cover areas such as data quality and checking and are follow closely PGCCDBS discussions and recommendations regarding international best practice. At the database front end there are validation procedures ensuring the integrity of data entered from biological sampling events. The database itself has a dedicated DBA (data base administrator) who checks inputs at a regular interval for range, date and sum cross checks.

In 2015, the on-line, electronic submission of socio-economic data using interactive PDF forms, with in-built data checks provided validation, on submission, of these data. Where paper survey forms were returned, the interactive PDF form was used as the point of data entry and checking, for all such information.

Validation of financial information was provided by qualified accountants who endorsed survey forms containing financial data. Following a review of procedures, the collection of financial data has been decoupled from the historical association with the final date for the submission of national tax returns, which had provided the fundamental basis of the data collection programme in previous years. The current procedure requests financial data in the year following the reference year and is independent of the national taxation system.

Use of the data

The data generated or used by the Marine Institute is generally uploaded to international working groups, in which Marine Institute scientists are heavily involved.

The IBTS groundfish survey and acoustic surveys are stored on SQL server databases, and these automatically generate output to internationally coordinated survey databases such as that in PGIPS and the IBTSWG (Datras and Fishframe).

Biological data from commercial fish sampling is transmitted to ICES for international stock assessment. These data are either raised by Ireland, or sent to the ICES stock coordinator. In most cases Ireland uses either the Fishframe or Intercatch format to transmit these data. In 2015 Ireland continued to use the tools developed by the COST project to analyse and report on the sampling data for the ICES WG's. Ireland has also been involved with plans for the establishment of a regional database, and are well prepared to be able to deliver data to this initiative when required.

Work was commenced in 2014 on the Third edition of the "Atlas of commercial fisheries around Ireland", was produced and published in March 2015.

Ireland responded to all data requests from the EC in 2015, and achieved successful transmission in all cases except where the terms of the request were beyond the operational capacity of the data collection exercise.

VI.2 Actions to avoid deviations

The application of sound data management practices, alongside a continuing effort for upgrade and consolidation of databases and exploration tools, has helped to avoid many shortfalls with the Irish DCF data. Further work will also be undertaken to link logbook records to Marine Institute database records when the data is recorded rather than at the year's end – this will highlight any problems that arise at an earlier stage than is currently possible.

VII. List of acronyms and abbreviations

Acoustic surveys Acoustic surveys use sound waves emitted from a "transducer" to estimate the density of plankton and fish shoals. The transducer is attached to a drop keel on the survey vessel, which is linked to an echo sounder in the vessel which records the shoals of fish as "marks" on a screen or paper trace. The density of these marks is used to calculate total biomass of a stock.

Age The number of years of life completed, here indicated by an Arabic numeral, followed by a plus sign if there is any possibility of ambiguity (age 5, age 5+).

BIM An Bord Iascaigh Mhara, The Irish Sea Fisheries Board, charged with responsibility for development of the fishing and aquaculture industries in Ireland. **(**see www.bim.ie**)**

By-catch Refers to discarded catch (see Discards) plus incidental catch not purposely targeted by the fishermen.

CFB Central Fisheries Board (www.cfb.ie)

CPUE /Catch Per Unit of Effort The catch of fish, in numbers or in weight, taken by a defined unit of fishing effort. Also called catch per effort, fishing success, or availability.

DAFM Department of Agriculture Food and Marine. (see www.dafm.gov.ie)

DATRAS: Is the ICES developed, Database of Trawl Surveys

DCENR Department of Communications Energy and Natural resources (see www.dcenr.gov.ie)

DCF / Data Collection Framework EU Council Regulations 1543/2000, 1639/2001, 199/2008 established a community framework for the collection and management of the data needed to conduct the common fisheries policy. Each member state must collect data on the biology of the fish stocks, on the fleets and their activities and on economic and social issues

Discard Discards are defined as that part of the catch returned to the sea as a result of economic, legal or other considerations.

Discard rate The percentage (or proportion) of the total catch which is discarded.

FAT Fisheries Assessment Technician – regionally-based sea-going staff employed by FEAS.

FEAS / Fisheries Ecosystems Advisory Services – One of seven service areas of the Marine Institute, FEAS's mission is to assess, research and advise on the marine fisheries resource in Irish waters

Fishing Effort The total fishing gear in use for a specified period of time. When two or more kinds of gear are used, they must be adjusted to some standard type

Groundfish Species of demersal fish dwelling on, or close to the sea floor, as targeted in the annual Western IBTS 4th quarter survey around the Irish coast.

IBTS International Bottom Trawl Survey Working group

ICES International Council for the Exploration of the Seas –Ireland shares the Total Allowable Catches TACs for many stocks we exploit with our European Union partners. Because of this international dimension many stocks need to be assessed in international fora such as ICES.

ICCAT International Commission for the Conservation of Atlantic Tuna

Marine Institute The Marine Institute is Ireland's national agency with the following general functions: "to undertake, to co-ordinate, to promote and to assist in marine research and development and to provide such services related to marine research and development, that in the opinion of the Institute will promote economic development and create employment and protect the environment." Marine Institute Act, 1991 **(**see **www.marine.ie)**

Inland Fisheries Ireland (IFI) Inland Fisheries Ireland was formally established as the agency responsible for the conservation, protection, management, marketing, development and improvement of Irelands inland fisheries and sea angling resources.

IFIS Integrated Fisheries Information System .Database held by DAFF with landings, effort and first sale value of fish species

HAWG Herring Assessment Working Group

LA Laboratory Analyst.

Latt Laboratory Attendant

MS Member State.

Nemesys *Nephrops* measuring system.

NP National Programme.

RCM Regional Co-ordination Meetings.

PGCCDBS, Planning group commercial catch discards and Biological sampling

WGBIE Working Group for the Bay of Biscay and the Iberic Waters Ecoregion - Formally the Celtic seas eco region assessment working group

WGHMM Working group Hake Monk and Megrim

WGIPS ICES Working Group International Pelagic Surveys

WGMEGS ICES Working Group on Mackerel and Horse Mackerel Egg Surveys (WGMEGS)

WGNAPES ICES Working Group on North East Atlantic Pelagic Ecosystem Surveys

WGNEACS ICES Working Group on the North-east Atlantic Continental Slope Survey

WGWIDE Working group on Widely distributed stocks

WKDRP Workshop on Discard Raising Procedures

Recovery Plan This is a multi-annual plan to recover seriously depleted stock. The plans generally involve agreed Harvest Control Rules, Technical Measures, Effort Controls and various control and enforcement measures.

Recruitment The amount of fish added to the exploitable stock each year due to growth and/or migration into the fishing area. For example, the number of fish that grow to become vulnerable to the fishing gear in one year would be the recruitment to the fishable population that year. This term is also used in referring to the number of fish from a year class reaching a certain age. For example, all fish reaching their second year would be age 2 recruits.

Sample A proportion or a segment of a fish stock which is removed for study, and is assumed to be representative of the whole. The greater the effort, in terms of both numbers and magnitude of the samples, the greater the confidence that the information obtained is a true reflection of the status of a stock (level of abundance in terms of numbers or weight, age composition, etc.)

SFPA Sea Fisheries Protection Agency

STECF The Scientific Technical and Economic Committee on Fisheries was established by the European Commission and comprises fisheries scientists and economists from the Member States. The role of STECF is to advise the European Commission on scientific, technical and economic issues related to the management of fisheries resources that are exploited worldwide by members of the European Union.

STO Scientific and Technical Officer

Stock A "stock" is a population of a species living in a defined geographical area with similar biological parameters (e.g. growth, size at maturity, fecundity etc.) and a shared mortality rate. A thorough understanding of the fisheries biology of any species is needed to define these biological parameters.

SSB / Spawning stock biomass The total weight of all sexually mature fish in the population. The size of SSB for a stock depends on abundance of year classes, the exploitation pattern, the rate of growth, fishing and natural mortality rates, the onset of sexual maturity and environmental conditions.

STOCKMAN A custom developed relational database which houses the Marine Institute Fisheries Ecosystem Advisory Services sampling data.

TAC / Total Allowable Catch is the total regulated catch from a stock in a given time period, usually a year.

TL Team Leader

Landing Obligation (LO) From the 1st of January 2015 onwards, fishermen in certain parts of the EU must land all the fish they catch. By 2019 all fishermen will have the same obligation.

VIII. Comments, suggestions and reflections

IX. References

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X. Annexes – Bi – Lateral Agreements

Bilateral Agreement between the Marine Institute Ireland and Marine Scotland (for the collection of length, maturity and age samples in accordance with EC Regulation 665/2008, laying down detailed rules for the application of Council Regulation (EC) 199/2008, and its Commission Decision 2008/949/EC.

Agreement: Vessels fishing on the Irish register, which operate and / or land into Scotland for first point of sale will be sampled as part of the 2014-2016 National Programme under the requirements of the EC Data Collection Framework (199/2008). A portion of these vessels land into Scotland. The eventual additional sampling costs will be covered within the Scottish National Sampling Programme from 2014-2016

Description of sampling: The sampling will be for length maturity and age of Demersal and Pelagic landings, sampling will be carried out in accordance with the Scottish National Sampling Programmes.

Sampling Intensity: Sampling intensity will be in accordance with the guidelines set down by Commission Decision 2008/949/EC.

Data responsibility: Scotland will send this sampling data to Ireland for inclusion with the Irish assessment working group data sets. Ireland will then be responsible for submitting the data to the relevant ICES Expert Groups, and to the EC under the requirements of its Data Collection Framework. Scotland will provide the required data for the species that are requested by the relevant ICES Expert Groups, and the data for the additional species to Ireland as and when requested.

ALSO:

Agreement: Fishing vessels on the UK- Scotland register, which operate and / or land for first sale into Ireland, will be sampled by Ireland as part of the 2014-2016 National Programme under the requirements of the EC Data Collection Framework (199/2008). The eventual additional sampling costs will be covered within the Irish National Sampling Programme from 2014- 2016.

Description of sampling: The sampling will be for length maturity and age of Pelagic landings. Sampling intensity will be in accordance with the guidelines set down by Commission Decision 2008/949/EC.

Sampling Intensity: Sampling intensity will be in accordance with the guidelines set down by Commission Decision 2008/949/EC.

Data responsibility: The samples will be processed and age, sex, length, maturity information recorded. These data will be sent to the Scottish scientist with responsibility for submitting Scottish data to the ICES WGWIDE.

Scotland is responsible for submitting the data to the relevant ICES Expert Groups, and to the EC under the requirements of its Data Collection Framework. Ireland will provide the required data for the species that are requested by the relevant ICES Expert Groups, and the data for the additional species to Scotland as and when requested.

Landings of Scottish vessels into Ireland and of Irish landings into Scotland are obviously subject to change over the period of this bi lateral agreement and will need to be monitored on an on - going basis.

Contact persons: paul.connolly@marine.ie DCF National Correspondent

Marine Institute, Ireland

Signed: Paul L. Connolly

Date : 30th July 2014.

Scotland (Marine Scotland)

Signed: Margaret Beel

Date: 26th August 2014

Marine Institute
Foras na Mara

Bilateral Agreement between the Marine Institute Ireland and National Institute of Aquatic Resources (DTU Aqua), Denmark for the collection of length maturity and age samples in accordance with EC Regulation 665/2008, laying down detailed rules for the application of Council Regulation (EC) 199/2008, and its Commission Decision 2008/949/EC.

Agreement:

Five Vessels fishing on the Danish register, which operate and / or land for first sale into Ireland, will be sampled as part of the 2014-2016 National Programme under the requirements of the EC Data Collection Framework (199/2008). The eventual additional sampling costs will be covered within the Irish National Sampling Programme from 2014- 2016.

Description of sampling: The sampling will be for length maturity and age of Blue whiting landings, sampling will be carried out in accordance with the Irish National Sampling Programme.

Sampling Intensity: A maximum of 3 samples of blue whiting will be collected from Danish vessels landing into Irish ports.

Data responsibility: The samples will be processed and age, sex, length, maturity information recorded. These data will be sent to the Danish scientist with responsibility for submitting Danish data to the ICES WGWIDE.

Denmark is responsible for submitting the data to the relevant ICES Expert Groups, and to the EC under the requirements of its Data Collection Framework. Ireland will provide the required data for the species that are requested by the relevant ICES Expert Groups, and the data for the additional species to Denmark as and when requested.

Contact persons: frank.obrien@marine.ie National Correspondent

Marine Institute, Ireland

Signed:

Date : 24/9/2013.

Marine Institute
Foras na Mara
Rinville
Oranmore Galway
Tel: 353 91 387 200
Fax: 353 91 387 201
Email:institute.mail@marine.ie

Danish Institute for Fisheries Research

Signed:

Date: 4/10-13

Marine Institute
Foras na Mara

Bilateral Agreement between the Marine Institute Ireland and France (Ministère de l'écologie, du développent durable et de l'énergie) for the collection of length, maturity and age samples in accordance with EC Regulation 665/2008, laying down detailed rules for the application of Council Regulation (EC) 199/2008, and its Commission Decision ~~2008/949/EC~~. 2010/93/UE

Agreement:

1. Fifty four vessels fishing on the French register, which operate and / or land into Ireland and transported for first point of sale to France, will be sampled as part of the 2014-2016 National Programme under the requirements of the EC Data Collection Framework (199/2008). The eventual additional sampling costs will be covered within the French National Sampling Programme from 2014-16

2. In addition, four pelagic vessels fishing on the Irish register which operate and / or land for first sale into France, on an opportunistic basis, will be sampled as part of the 2014-2016 National Programme under the requirements of the EC Data Collection Framework (199/2008). The eventual additional sampling costs will be covered within the Irish National Sampling Programme from 2014-16.

Description of sampling:

1. The sampling will be for length maturity and age of Hake, Monkfish and Megrim landings, sampling will be carried out in accordance with the French National Sampling Programme.

Sampling Intensity: In accordance with the rules laid down by the regulation.

2. The sampling will be for length maturity and age of mackerel, horse mackerel and herring landings, sampling will be carried out in accordance with the Irish National Sampling Programme.

Ten samples of herring, mackerel, horse mackerel and/or albacore tuna will be sampled annually by a contractor based in Douarnenez, France. This contractor will collect and primary-process the samples and send the data to the Irish Marine Institute where they will be aged. The data will be submitted by the relevant Irish scientist to WGWIDE, HAWG and/or ICCAT.

Sampling Intensity: Ten samples will be processed and age, sex, length, maturity information recorded. These data will be sent to the French scientist with responsibility for submitting French data to the ICES WGWIDE.

Data responsibility:

1. France is responsible for submitting the data to the relevant ICES Expert Groups, and to the EC under the requirements of its Data Collection Framework. France will provide the required data for the species that are requested by the relevant ICES Expert Groups, and the data for the additional species to Ireland as and when requested.

2. Ireland is responsible for submitting the data to the relevant ICES Expert Groups, and to the EC under the requirements of its Data Collection Framework. Ireland will provide the required data for the species that are requested by the relevant ICES Expert Groups, and the data for the additional species to France as and when requested.

Contact persons:

National Correspondent: paul.connolly@marine.ie

Marine Institute, Ireland

Signed: Paul L. Connolly

Date: 25/9/14

Ministère de l'écologie, du développent durable et de l'énergie

Signed: Marie-Bénédicte PEYRAT

Date: 28/5/15

La Cheffe de la Mission des Affaires Scientifiques

Marie-Bénédicte PEYRAT

Correspondant national : mas.sdrh.dpma@developpement-durable.gouv.fr