

# 2010

## Loughs Agency Water Framework Directive Fish in Rivers Report



Loughs Agency of the Foyle  
Carlingford and Irish Lights  
Commission

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# **Loughs Agency Water Framework Directive Fish In Rivers Report 2010**



## **For Inland Fisheries Ireland 2011**

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The Loughs Agency sponsoring departments and staff are gratefully acknowledged for the assistance provided to conduct Water Framework Directive fish monitoring in the Foyle and Carlingford areas.

## Executive Summary

Eight Water Framework Directive fish surveillance monitoring stations were surveyed within the Loughs Agency jurisdiction in 2010. Three of these were in the Republic of Ireland and five were in Northern Ireland. This report presents the results for the monitoring stations within the Republic of Ireland.

An overview of the Loughs Agency Water Framework Directive fish monitoring programme is provided and a synopsis of the biological and habitat data presented. Additional data and information has been presented in a series of excel spreadsheets submitted to Inland Fisheries Ireland (IFI). All data reported is stored within the Loughs Agency Geographical Information System (GIS) and is available upon request.

Photographs of each site have been included where available and outline recommendations made for consideration as part of any programme of measures.

## 1.0 Introduction

This report is submitted to Inland Fisheries Ireland (IFI) by way of fulfilling the Loughs Agency agreement to survey and provide data for Water Framework Directive river fish monitoring. The report provides summary data for monitoring stations within the Loughs Agency jurisdictions of the Foyle and Carlingford areas for 2010. Additional information has been provided in electronic format.

A synopsis of targeted Water Framework Directive river fish sampling within the Foyle and Carlingford areas has been provided below for fieldwork conducted in 2010.

Other sites outside of the Foyle and Carlingford areas have been monitored by Inland Fisheries Ireland.

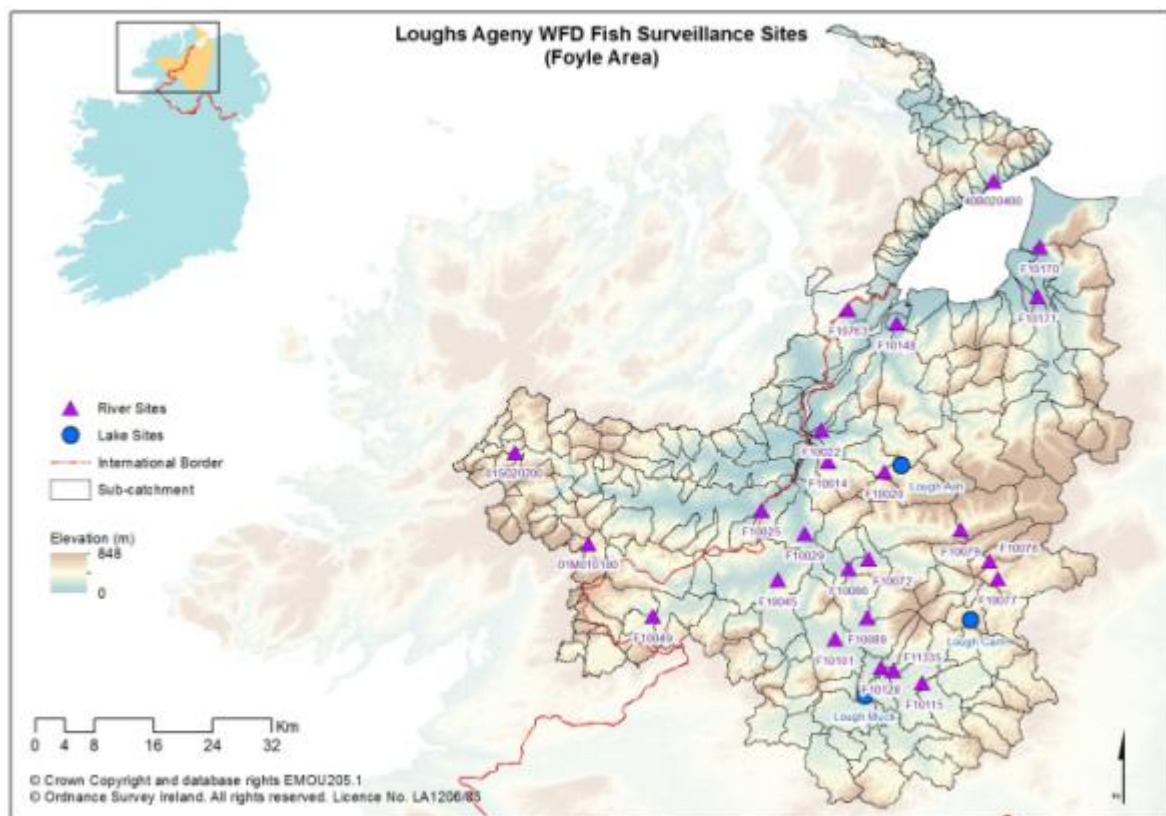


Figure 1. WFD river fish surveillance monitoring stations within the Loughs Agency jurisdiction (Foyle area only, there are no WFD river fish surveillance stations within the ROI component of the Carlingford area).

## **2.0 Basis for Loughs Agency Water Framework Directive Fish Monitoring**

In the absence of a finalised fish in rivers classification tool (currently under development) no classification has been assigned to the fish surveillance monitoring stations included in this report. The Northern Ireland Water Framework Directive Fish Group which consists of members from Northern Ireland Environment Agency (NIEA), Agri Food and Bioscience Institute (AFBI), Department of Culture Arts and Leisure (DCAL) and the Loughs Agency has assigned provisional classifications for sites within Northern Ireland based on professional assessment of the data collected. Once available the new fish classification system will be used to derive WFD compliant classifications.

Data collection was conducted in the field during July 2010 and involved the use of a quantitative electrofishing methodology commonly used for wadable rivers. This technique requires the netting off of a small section of river approximately 100m<sup>2</sup> using stop nets.

Removal sampling is then conducted utilising electrofishing equipment with the numbers, age class and species of each fish being recorded for each pass. After an appropriate depletion has been achieved, which facilitates a density estimation to be made all fish are returned alive to the river.

Additional habitat variables were recorded and the exact location of upstream and downstream stop nets were recorded using a Trimble Geo HX hand held GPS unit.

Additional in-channel habitat variables were recorded using the DANI habitat classification system outlined.

<b>NURSERY AREA</b>	
<b>Grade 1</b>	<ul style="list-style-type: none"> <li>• 50 -80mm water depth</li> <li>• 0.5 – 8% gradient</li> <li>• Stable cobble/boulder substrate &gt; or = 70% bed cover</li> <li>• Providing adequate cover</li> </ul>
<b>Grade 2</b>	Marginally outside grade 1 on one count only
<b>Grade 3</b>	Well outside grade 1 on one or more counts
<b>Grade 4</b>	Absent, deep, channelized, silty etc.
<b>SPAWNING AREA</b>	
<b>Grade 1</b>	<ul style="list-style-type: none"> <li>• Flow 300 – 600mm/sec</li> <li>• Water depth 150 – 700mm</li> <li>• 70% substrate 30-80mm diameter</li> <li>• Gravel depth: Trout = 50-150mm Salmon = 200-500mm</li> </ul>
<b>Grades 2-4</b>	Failing as for nursery habitat above
<b>HOLDING AREA</b>	
<b>Grade 1</b>	<ul style="list-style-type: none"> <li>• Depth minimum m ideally &gt; or = 2m</li> <li>• Suitable cover</li> <li>• Bankside/substrate stability</li> </ul>
<b>Grades 2-4</b>	Failing as for nursery habitat above

Table 1. Habitat classification based on Department of Agriculture for Northern Ireland (Fisheries Division) advisory leaflet on the evaluation of habitat for salmon and trout

## 3.0 Results

### 3.1 01M010100 Mournebeg at Red Burn Bridge Derg Catchment Co Donegal

FISHING	Trout 0+	Trout 1+	Eel	Total
1st	11	10	1	22
2nd	5	3	4	12
<b>TOTAL</b>	<b>16</b>	<b>13</b>	<b>5</b>	<b>34</b>

Table 2. Removal sampling results

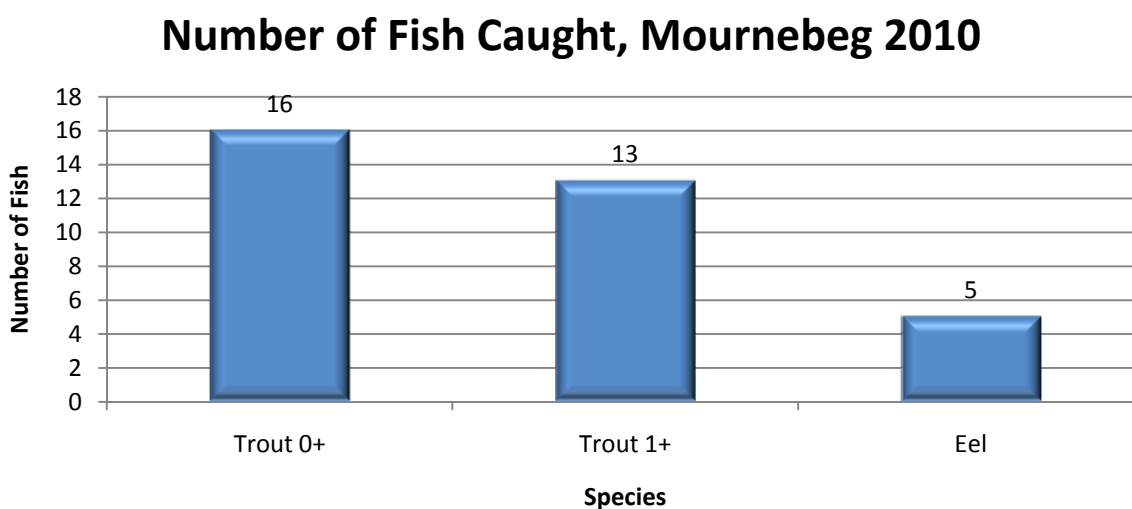


Fig 2. Total catch

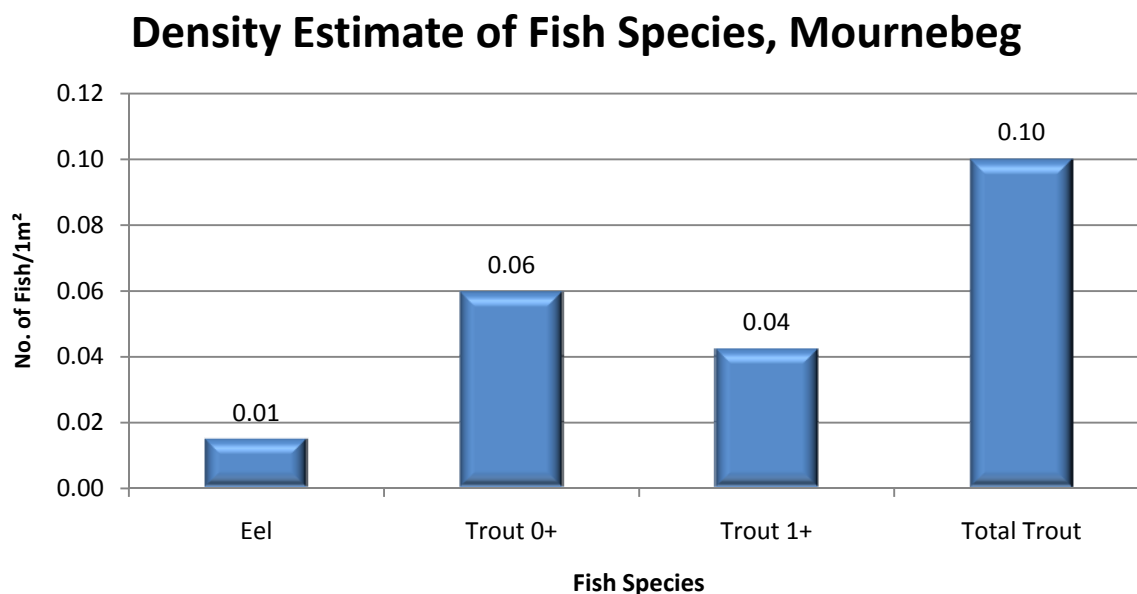


Fig 3. Density/m<sup>2</sup>

### Length Weight Relationship Trout 0+ and 1+ Mournebeg (N=29)

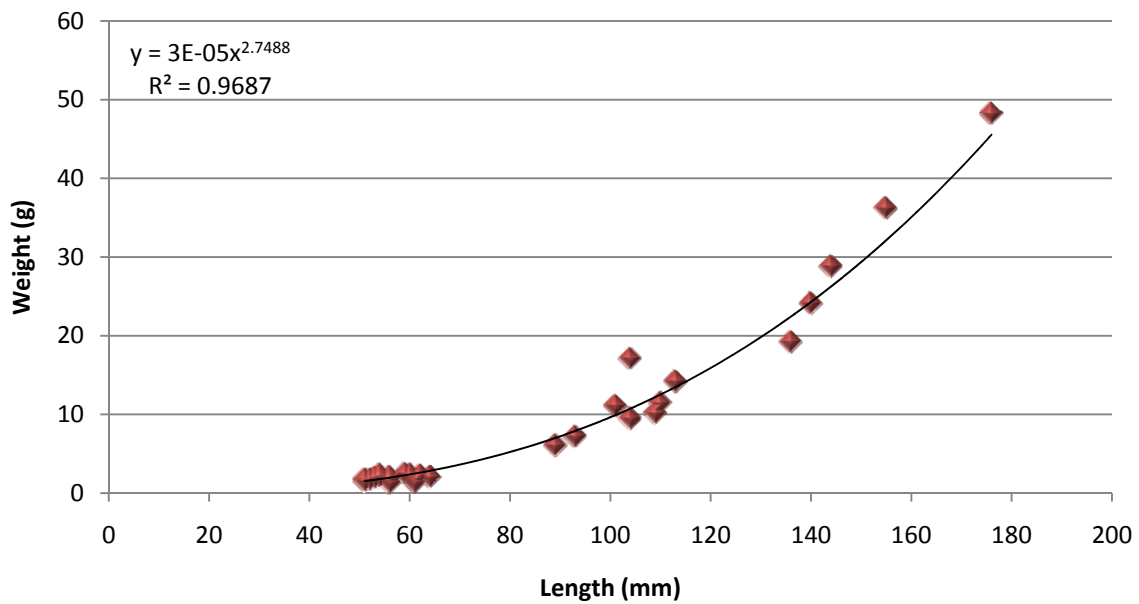


Fig 4. Length weight relationship of all age classes of trout (this can be used to visually assess the presence of different age classes/cohorts)

### Length Frequency Trout 0+ and 1+ Mournebeg (N=29)

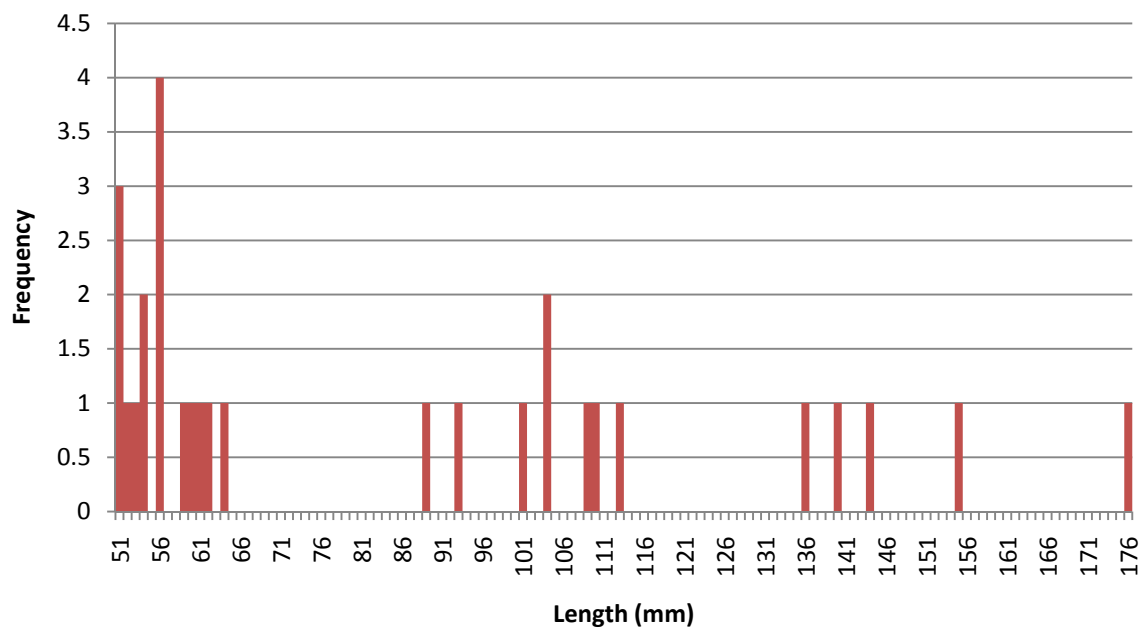


Fig 5. Length frequency distribution for all trout caught (this can also be used to assess the presence of different age classes/cohorts)

This site is composed predominantly of grade 3 nursery habitat (50%) with grade 3 spawning habitat (10%) and grade 1 holding habitat 40%. Additional biological data and habitat data is available in the spreadsheets provided.

This site is located on a tributary to Lough Mourne, which in turn feeds into the Mournebeg River, a tributary of the River Derg. A “V” notch weir is currently present on the Mournebeg River near Lough Mourne and may act as a barrier to certain migratory fish entering Lough Mourne and its tributaries/feeder streams. Donegal County Council has received planning permission to impound Lough Mourne to increase water abstraction. This development will increase the area of Lough Mourne and drown out the lower reaches of any feeder streams. A large impounding structure will be constructed at the outflow to Lough Mourne (Mournebeg River). Migratory fish passage suitable for eels and salmonids has been incorporated into the design.



Fig 6. 01M010100

**3.1 01SO20200 U/S of Finn River Confluence 01M010100**  
**Finn Catchment Co Donegal**

FISHING	Salmon 0+	Salmon 1+	Trout 0+	Trout 1+	Eel	Total
1st	18	7	0	2	2	29
2nd	8	5	1	0	0	14
3rd	6	4	1	0	0	11
<b>TOTAL</b>	<b>32</b>	<b>16</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>54</b>

Table 3. Removal sampling results

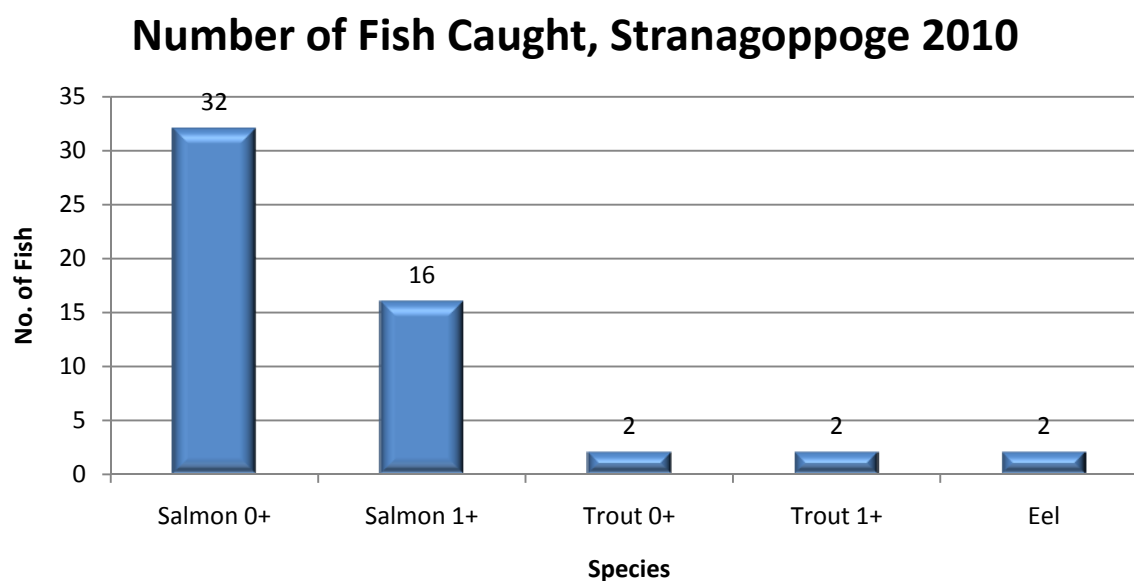
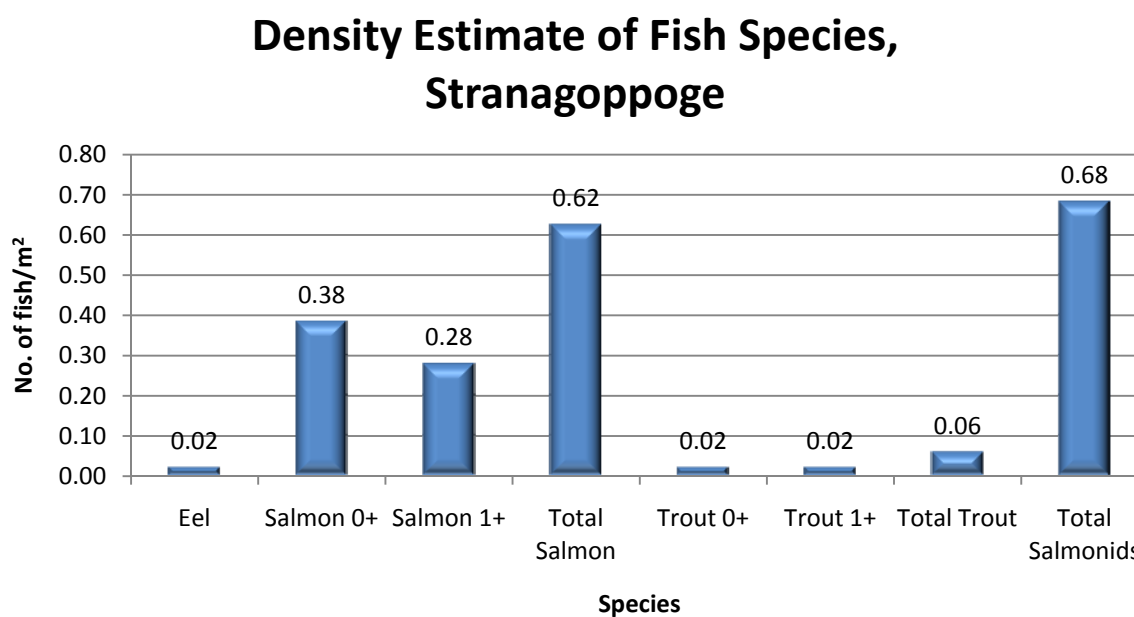


Fig 7. Total catch

Fig 8. Density/m<sup>2</sup>

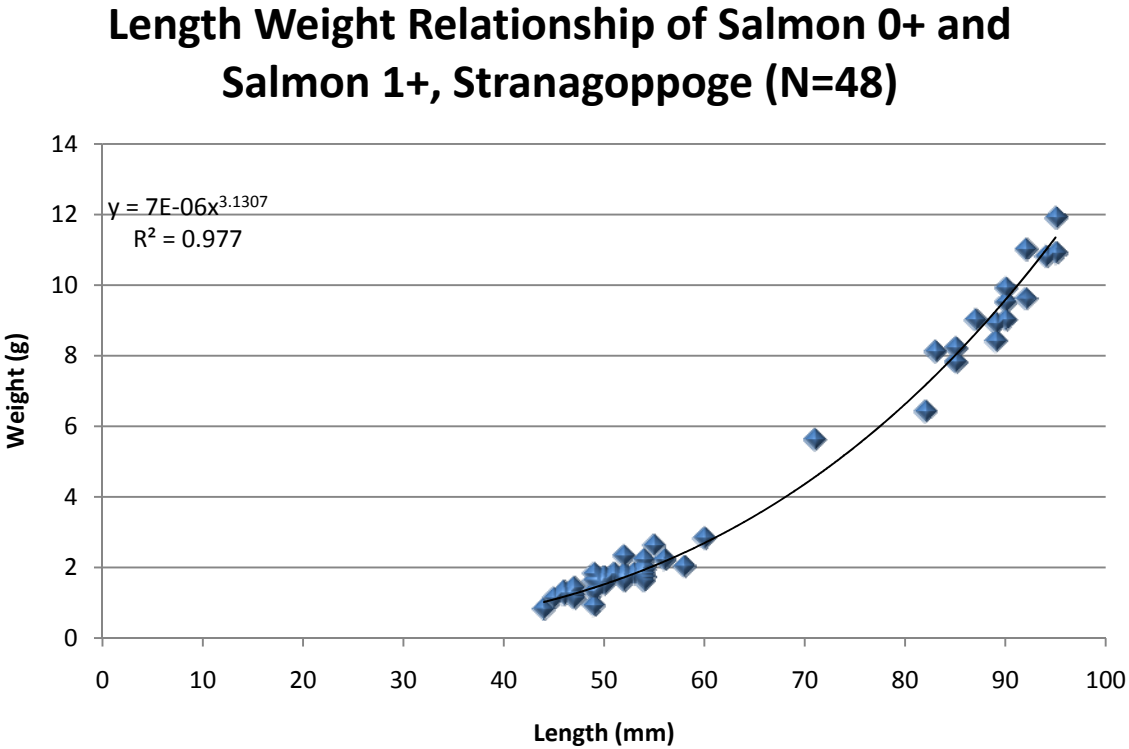


Fig 9. Length weight relationship of all age classes of salmon (this can be used to visually assess the presence of different age classes/cohorts)

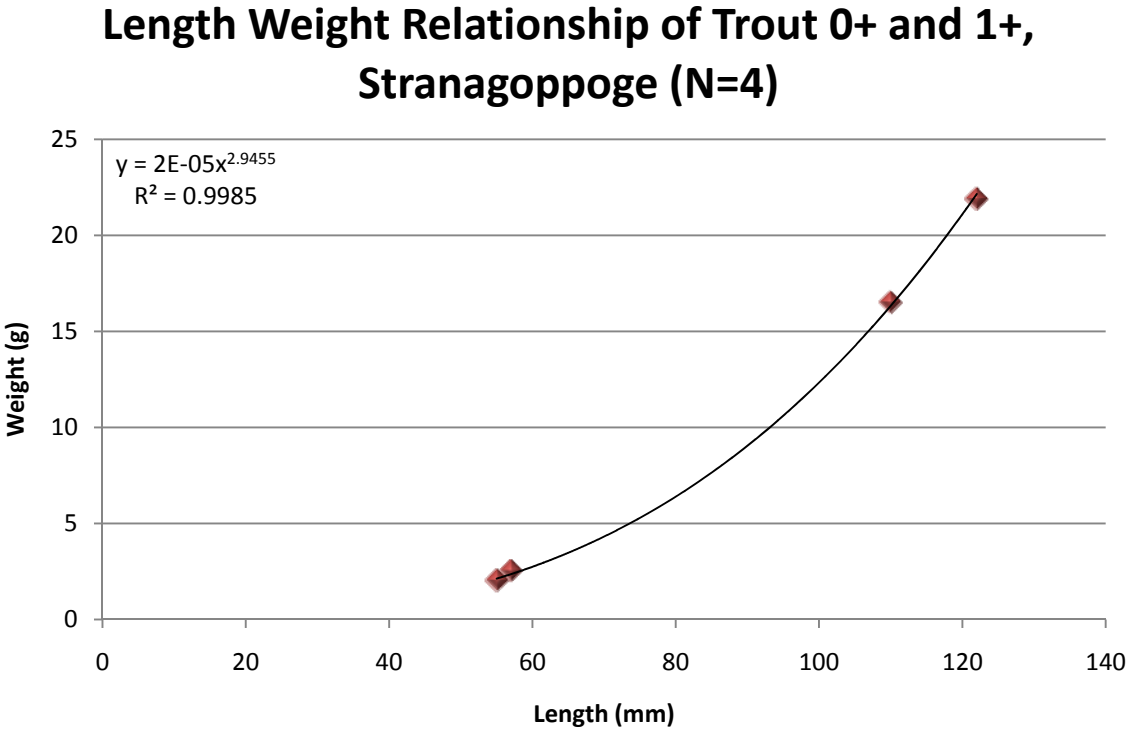


Fig 10. Length weight relationship of all age classes of trout

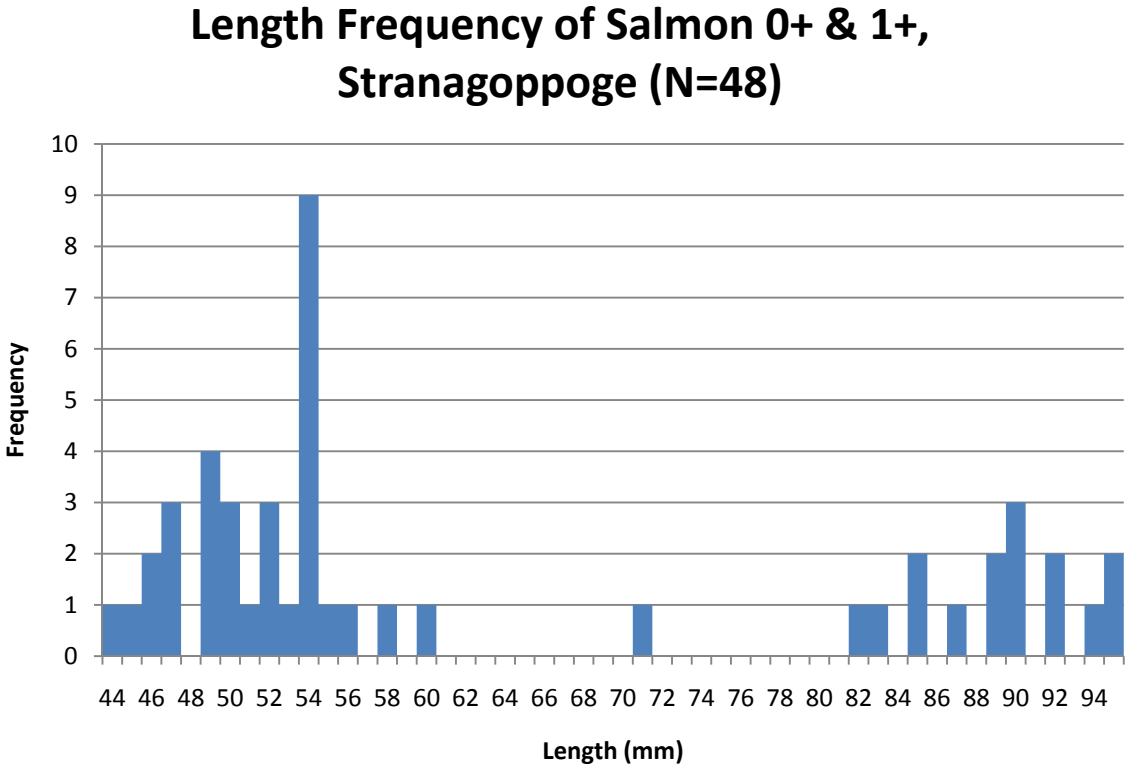


Fig 11. Length frequency distribution for all juvenile salmon caught (this can also be used to assess the presence of different age classes/cohorts)

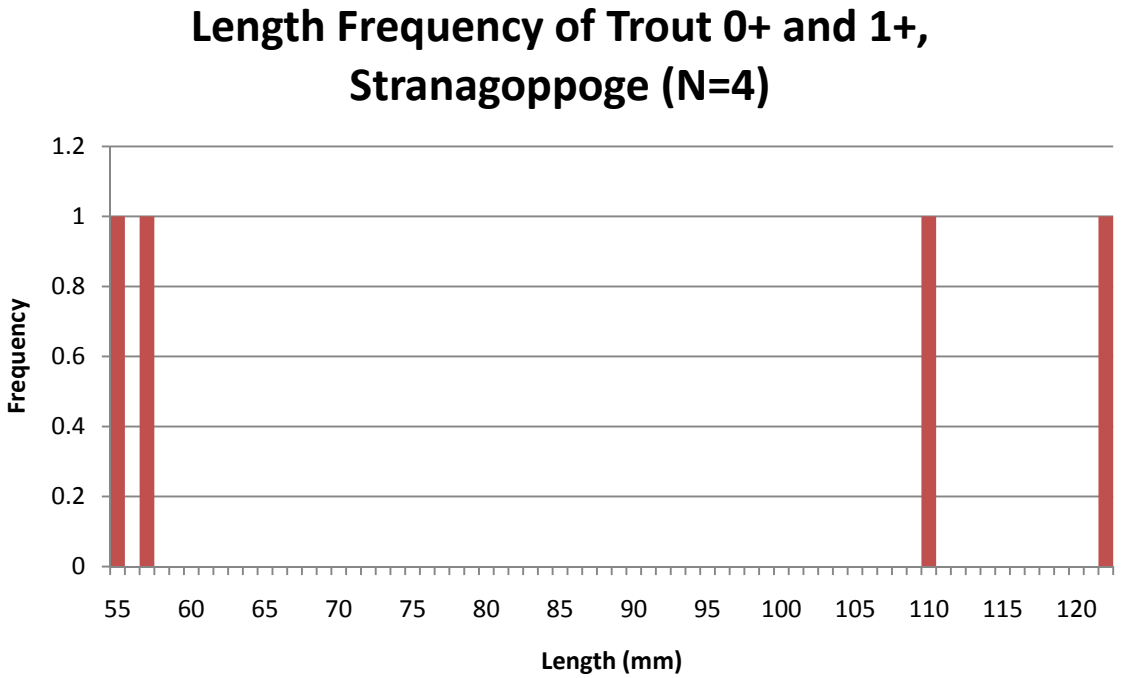


Fig 12. Length frequency distribution for all trout caught

This site has been moved slightly upstream to accommodate access requirements for survey.

This site is composed predominantly of grade 3 nursery habitat (70%) with grade 3 spawning habitat (10%) and grade 3 holding habitat 20%. Additional biological data and habitat data is available in the spreadsheets provided.

This site is located within the River Finn and Tributaries SAC. The surrounding land use is dominated by upland grazing and coniferous forestry plantations. The catchment could benefit from native riparian buffer zone creation, catchment scale native planting and cleaning of spawning gravels. The catchment is also impacted upon by insensitive planning and poor riparian stewardship in places.



Fig 13. 01S020200

**3.1 40B020400  
Bredagh Catchment**

**U/S of Moville Bridge  
Co Donegal**

**40B020400**

FISHING	Trout 0+	Trout 1+	Eel	Total
1st	7	70	5	82
2nd	2	26	2	30
3rd	2	13	1	16
<b>TOTAL</b>	<b>11</b>	<b>109</b>	<b>8</b>	<b>128</b>

Table 4. Removal sampling results

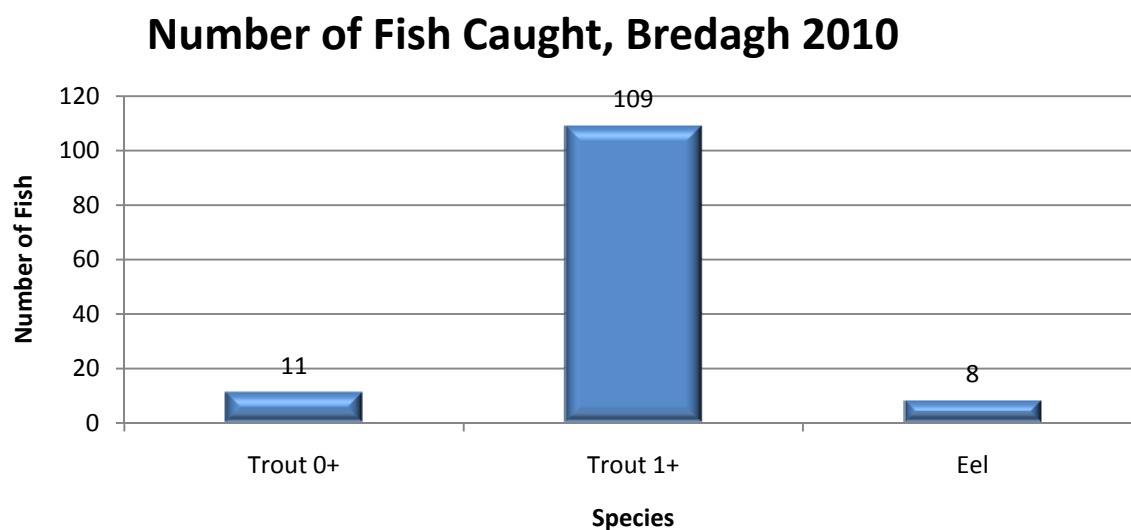


Fig 14. Total catch

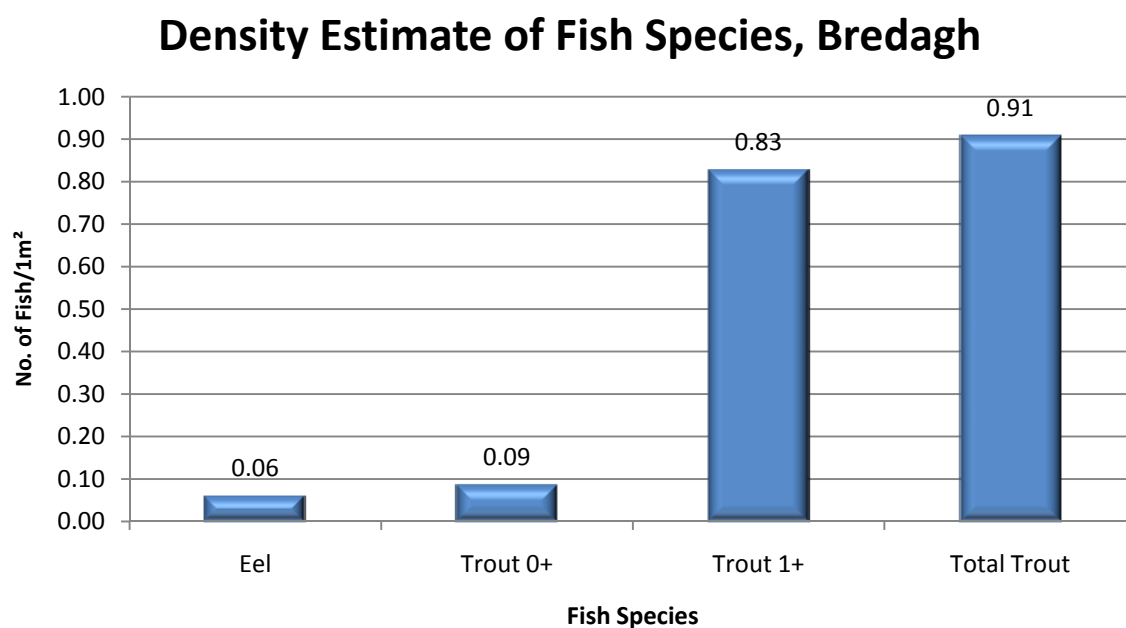


Fig 15. Density/m<sup>2</sup>

**Length Weight Relationship, Trout 0+ & 1+,  
Bredagh (N=85)**

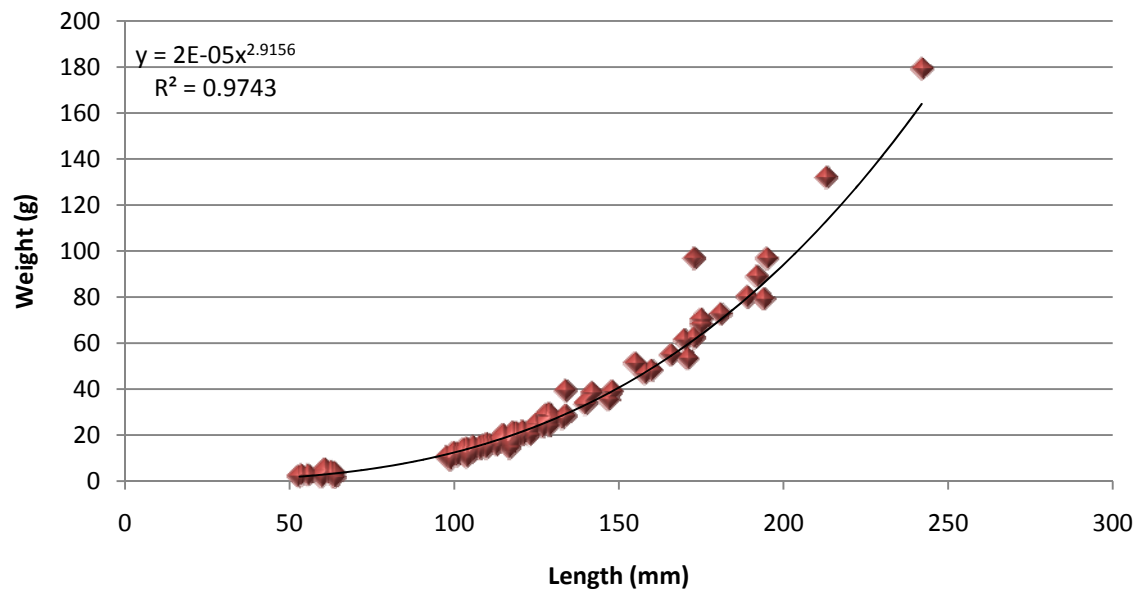


Fig 16. Length weight relationship of all age classes of trout (this can be used to visually assess the presence of different age classes/cohorts)

**Length Frequency Trout 0+ and 1+ Bredagh  
(N=85)**

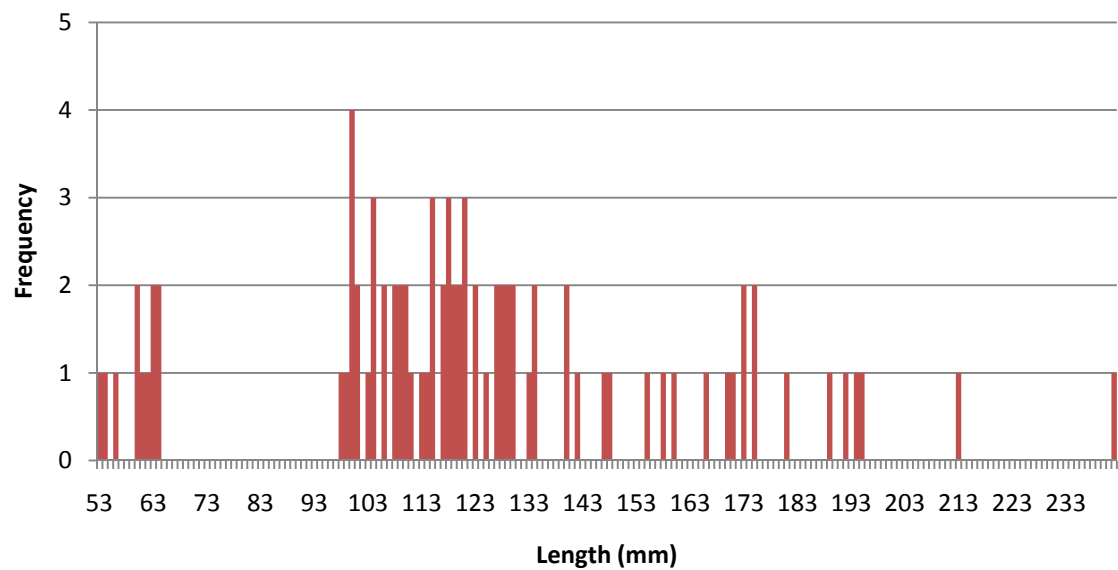


Fig 17. Length frequency distribution for all juvenile trout caught (this can also be used to assess the presence of different age classes/cohorts)

This site has been moved slightly upstream to accommodate access requirements for survey.

This site is composed predominantly of grade 3 nursery habitat (30%) with grade 3 spawning habitat (10%) and grade 1 holding habitat 60%. Additional biological data and habitat data is available in the spreadsheets provided.

This site is located upstream of the town of Moville which is currently without adequate waste water treatment facilities. Untreated effluent is known to enter the Bredagh River downstream of the sampling location. This may have hampered migratory fish movements and colonisation of the lower part of the Bredagh River through Moville. Waste water treatment is the key priority for any programmes of measures. In addition to the water quality issues a number of in-channel alterations may be creating barriers/partial barriers to migration. Assessment of these structures is required. Riparian management is poor with significant tunnelling in places.



Fig 18. 40B020400

## 4.0 Conclusion

In 2010 within the Loughs Agency jurisdiction in addition to the three WFD fish surveillance sites surveyed in the Republic of Ireland five WFD fish surveillance sites were surveyed in Northern Ireland. Twelve other sites were surveyed within the Loughs Agency jurisdiction using similar methods. This data has also been made available in electronic format as part of the WFD fish reporting procedure.

There are no planned WFD river fish surveys in Loughs Agency ROI jurisdiction in 2011. The majority of sites to be surveyed in 2011 are large river sites in Loughs Agency Northern Ireland jurisdiction where a multi method approach will be utilised as agreed by the Northern Ireland Water Framework Directive Fish Group.

Site Code	Year Surveyed	Catchment	Provisional Classification
01M010100	2010	Derg (ROI)	N/A
01S020200	2010	Finn (ROI)	N/A
40B020400	2010	Bredagh (ROI)	N/A
F10086	2008	Strule (NI)	Good
F10089	2009	Strule (NI)	Moderate
F10076	2009	Owenkilnew (NI)	Good
F10020	2009	Burndennet (NI)	Good
F10014	2009	Glenmornan (NI)	Moderate
F10626	2009	Newry (NI)	Moderate
F10644	2009 (AFBI)	Killbroney (NI)	Moderate
F10077	2009	Owenkilnew (NI)	Good
F10763	2009	Skeoge (NI)	Poor
F10022	2010	Burndennet (NI)	Good
F10049	2010	Derg (NI)	Good
F10079	2010	Glenelly (NI)	Good
F10115	2010	Camowen (NI)	Good
F10170	2010	Roe (NI)	Good

Table 5. WFD fish surveillance stations surveyed by the Loughs Agency 2008-2010

In addition to the seventeen WFD fish monitoring stations quantitatively surveyed from 2008-2010 as outlined in the table above the Loughs Agency has conducted similar quantitative surveys at an additional 65 stations throughout the Foyle and Carlingford areas between 2005 and

2010. The potential use of semi quantitative data collected in the Foyle and Carlingford areas at approximately 500 stations annually is currently being investigated by the Northern Ireland Water Framework Directive Fish Group for use in operational monitoring classification.

A number of lakes will be surveyed as part of WFD fish monitoring requirements in Northern Ireland. The N/S SHARE methodology will be used. In 2010 two lakes were surveyed in the Loughs Agency jurisdiction, Lough Carn in NI and Lough Mourne in the ROI. In addition to meeting requirements under WFD the Loughs Agency Corporate and Business plans 2011-2013 highlight the need to survey lake fish populations within the Foyle and Carlingford jurisdictions. Reports on these surveys will be available in 2011.



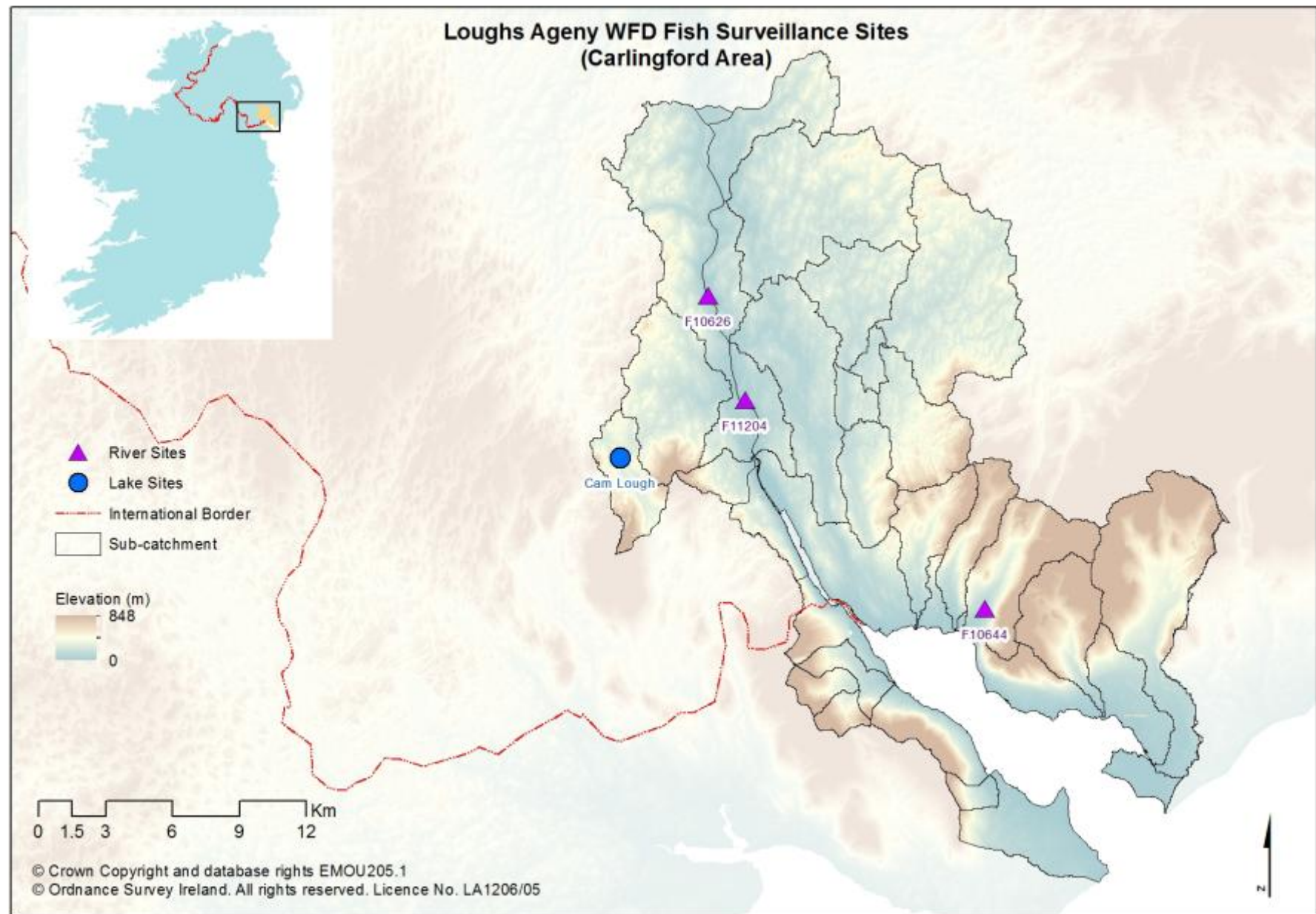


Fig 20. WFD Fish surveillance river and lake sites within the Carlingford area, Northern Ireland. There are no sites within ROI in the Carlingford area

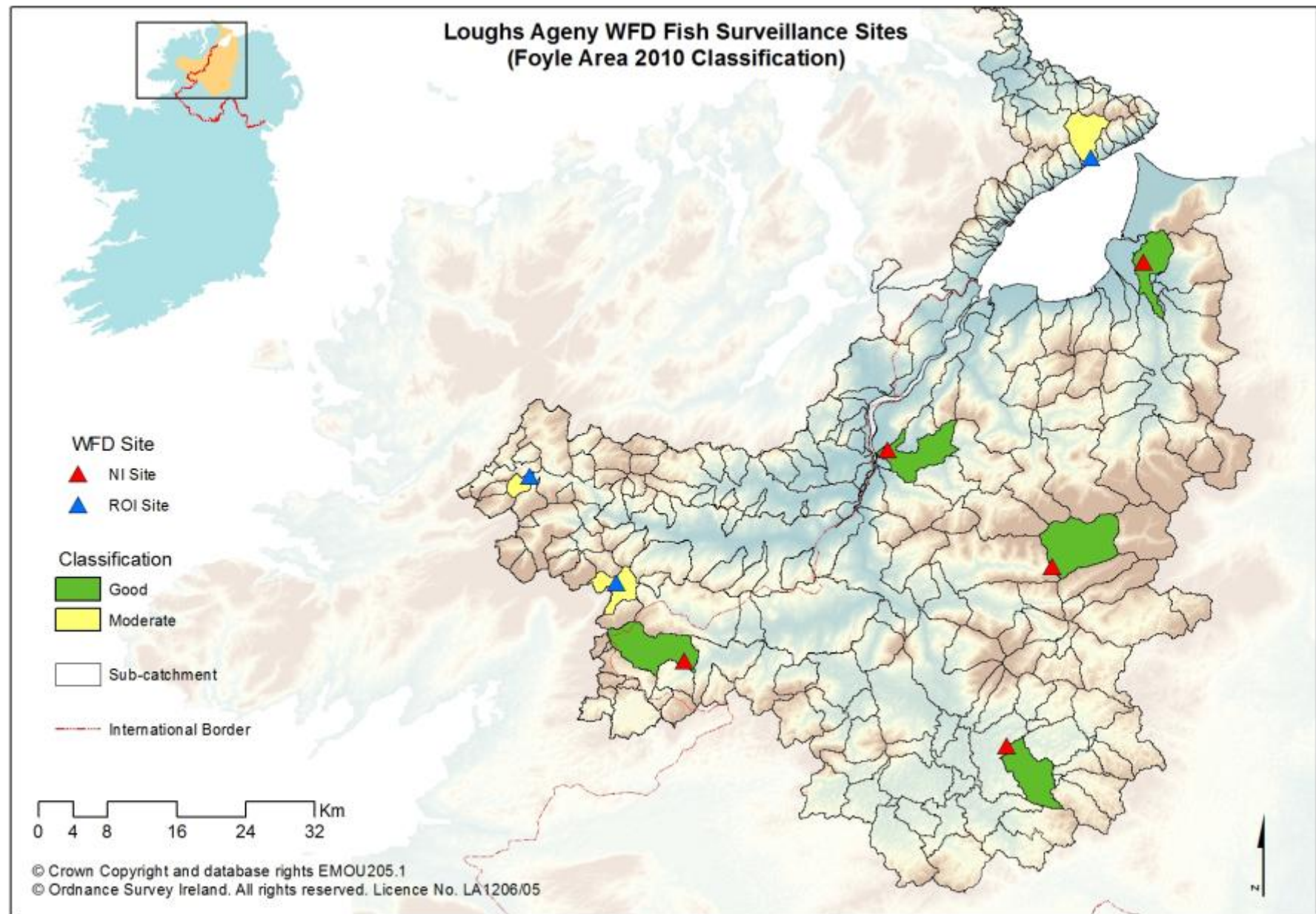


Fig 21. Provisional WFD fish surveillance river classifications within the Foyle area, Northern Ireland and Republic of Ireland 2010

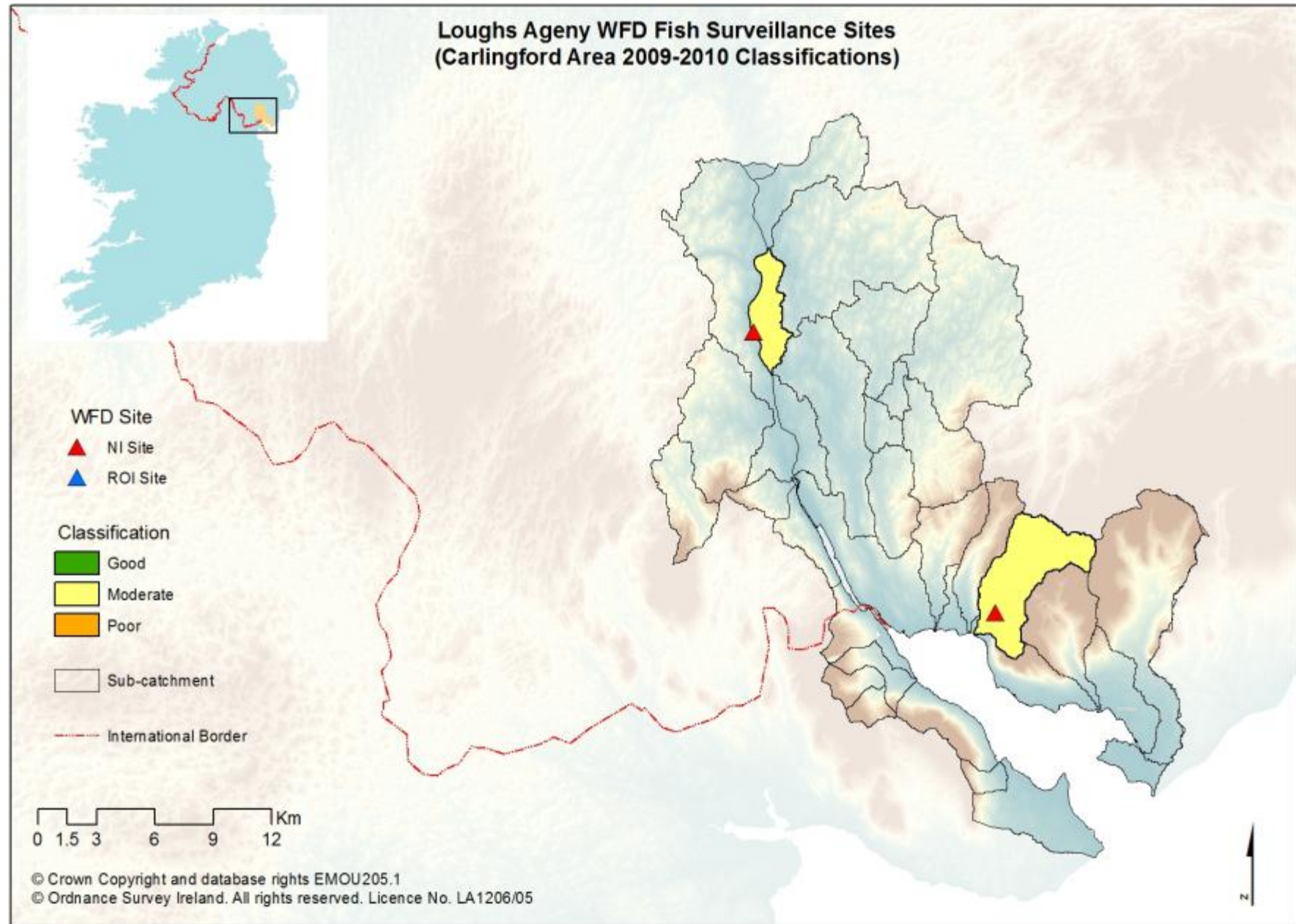


Fig 22. WFD fish surveillance classifications within the Carlingford area, Northern Ireland 2009-2010. There are no sites within Carlingford area lying within ROI.

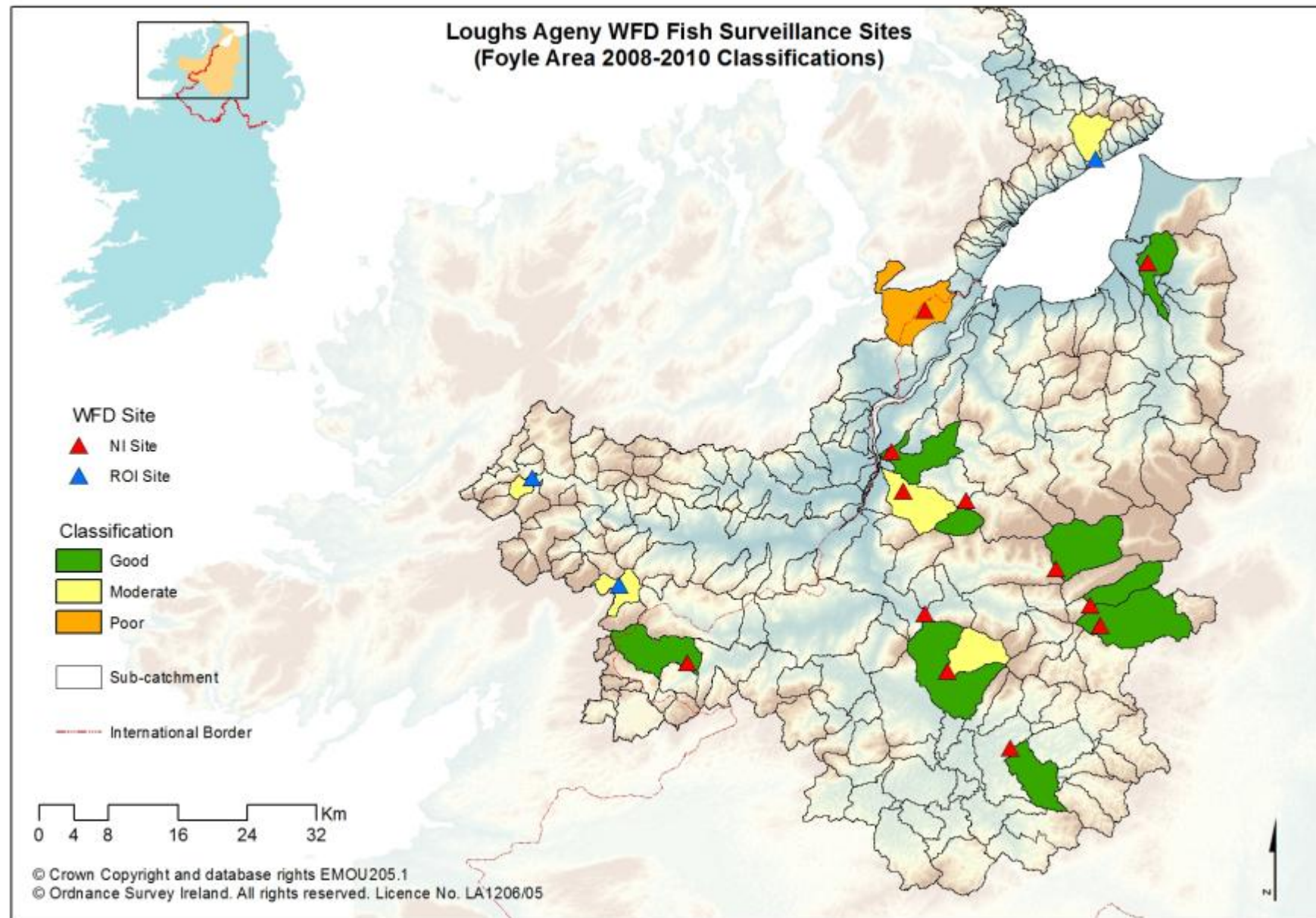


Fig 23. Provisional WFD fish surveillance classifications within the Foyle area 2008-2010.