

LOUGHS AGENCY OF THE FOYLE CARLINGFORD AND IRISH LIGHTS COMMISSION



Burndennet, Glenmornan River and Tributaries Catchment Status Report 2011

Conservation, protection and assessment of fish
populations and aquatic habitats

Art Niven, Loughs Agency of the Foyle Carlingford and Irish Lights Commission

Art Niven, July 2012



Conservation, protection and assessment of the fish populations and aquatic habitats are presented for 2011. The series of catchment status reports has been streamlined in 2012 to facilitate quicker reference to contemporary information. Additional information can be found in associated publications and previous status reports available on the Loughs Agency website.

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1.0 INTRODUCTION

The Loughs Agency series of catchment status reports outlining information collected and actions completed during 2011 have been restructured for reporting in 2012. It is anticipated that this will facilitate the same level and diversity of information dissemination provided in previous years while directing interested parties to more detailed sources of information available in other Loughs Agency publications. More detail on any of the topics included in this report can be found in previous status reports available on the Loughs Agency website.

The joint themes for the 2012 series of catchment status reports are wild trout conservation and littering. Both of these contemporary issues are of great significance to the ongoing conservation and protection of our aquatic and riparian habitats and are important issues when attracting and informing responsible users to the local area.

In 2011 the Loughs Agency has continued to participate in innovative ways to tackle the growing problem of littering. The “throw away” society has resulted in rivers acting as major conduits for discarded materials from varied sources. On their journey downstream these discarded items catch on trees and other vegetation resulting in both visual and unseen impacts upon our biodiversity and water quality.

During 2011 the Loughs Agency in Partnership with Causeway Coast Kayak Association, Limavady Borough Council, Strabane District Council and Roe Angling Association conducted canoe and bank based river clean ups at key locations throughout the river corridors of both the River Roe and Glenelly River. Over three tons of mixed rubbish was removed during these two river clean up events. While the Loughs Agency does not have a legislative remit to tackle the issue of littering it is eager to encourage a partnership approach to tackling this key issue.

Within the Foyle and Carlingford areas the conservation of wild trout populations is of ever growing importance. Rod catch returns have shown a marked decline of Sea trout over recent decades. The Loughs Agency has been working with local partners in 2011 to monitor populations of brown trout and sea trout to collect information which can be used to develop conservation and

protection programmes. Targeted monitoring programmes have been ongoing within the Derg catchment, Burndennet catchments, Inishowen and Lough Foyle tributaries. This is in addition to ongoing annual electrofishing surveys which record the abundance and distribution of trout throughout the Foyle and Carlingford areas.

The Loughs Agency promotes responsible use of the valuable aquatic resources of the Foyle and Carlingford areas. The protection of these resources can only be achieved through effective collaborative partnerships. If your organisation is interested in participating in “hands on” action please contact the Loughs Agency to discuss possible partnership development.



2.0 ATLANTIC SALMON STOCKS SUMMARY

- There were no net fisheries pursued for Atlantic salmon in the Foyle area in 2011. This is due to the continued failure of the River Finn to meet its conservation limits as outlined under the Foyle Area (Control of Fishing) Regulations 2010. Angling is permitted in the River Finn and River Foyle on a catch and release basis only.
- Total declared Atlantic salmon rod catch for the Foyle and Carlingford area was 3533. Total declared rod catch for the Burdennet catchment was 28. Voluntary catch and release for the Foyle and Carlingford areas was 28%.
- Returning adult Atlantic salmon counts derived from an electronic fish counter at Sion Mills weir on the River Mourne recorded a minimum count of 1342 salmon/grilse in 2011. This compares to a 5 year average of 3856.
- Spawning redd counts for the Foyle area were 1313 in 2011. No redd counting was conducted in the Dennett catchment due poor weather conditions. Atlantic salmon do not currently spawn within the Glenmornan catchment.
- Juvenile electrofishing surveys within the Burdennett catchment at 18 standard sites recorded an average of 25 salmon fry (Young of Year). Electrofishing surveys in the Glenmornan catchment at 7 standard sites recording an average of 1 salmon fry.

Loughs Agency Management Strategy for Atlantic Salmon

The Loughs Agency uses an audit point management system for monitoring the populations of Atlantic salmon within the Foyle and Carlingford areas. Population estimates and indices are derived for various life history stages including adult counts from electronic fish counters situated at key locations, spawning redd counts, juvenile electrofishing indices, rod catch and commercial net catches.

Numbers of Atlantic salmon stocks particularly grilse (1SW fish) from southern populations of north east Atlantic stocks are currently at a low point. International research has highlighted climate change and marine ecosystem change as potential causes for this observed decline. The Loughs Agency is working with colleagues at regional, national and international levels to understand this decline and to implement best practice conservation actions.

2.1 NET FISHERIES

Net fisheries have not been operated in the Foyle area since 2009 (Figure 1). The Foyle Area (Control of Fishing) Regulations 2010 provides various mechanisms for regulating both commercial and rod fisheries for salmon including under Section 3. (1) The Commission shall make a declaration.....if it is satisfied that..... (d) the number of salmon which have migrated upstream of the River Finn fish counter during each of any two of the previous five calendar years has not exceeded 5,410. A declaration under this shall..... (d) in the case of sub-paragraph (d), suspend netting in the River Foyle, Lough Foyle and seaward of Lough Foyle and restrict angling in the River Finn to angling on a catch and release basis only from the date and time specified in the declaration....The Commission can make the relevant declaration ending the suspension of netting and restriction on angling if it is satisfied that the number of salmon migrating upstream of the relevant counter during each of any four of the previous five calendar years has exceeded the number of salmon for that river.

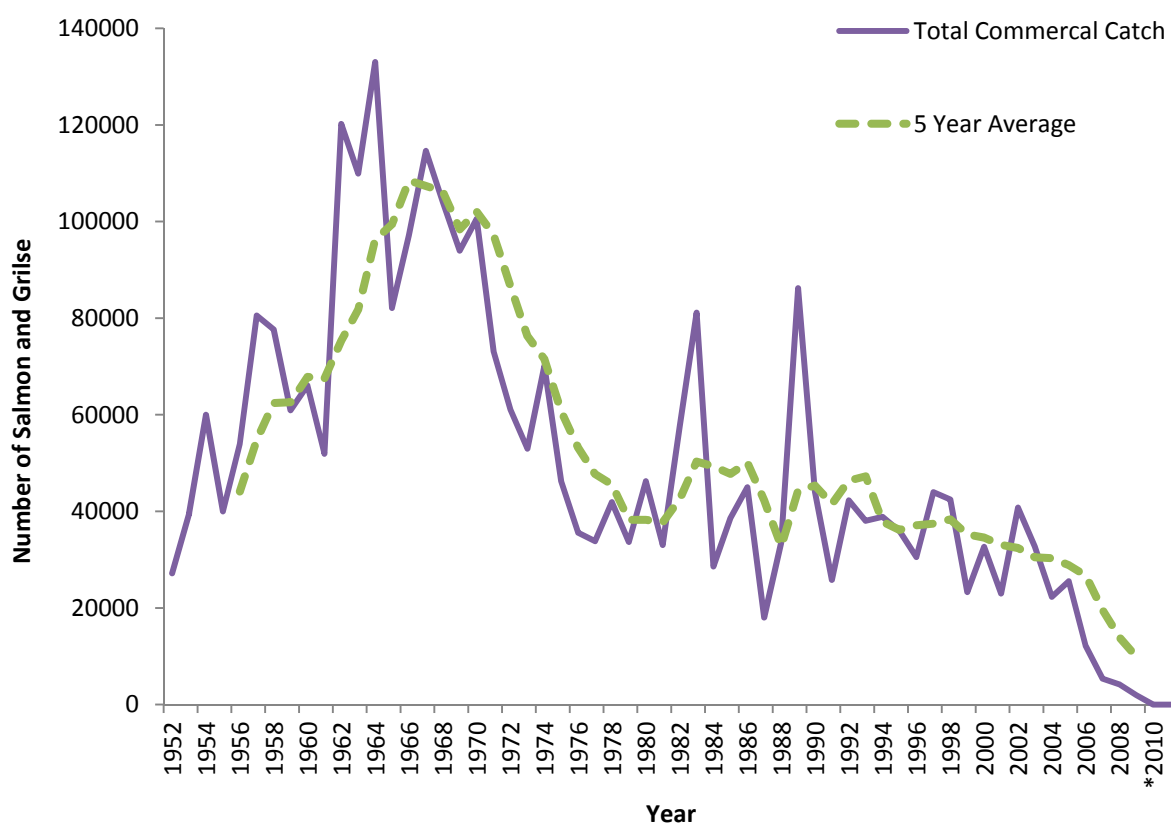


Fig 1. Total commercial catch 1952-2009 and 5 year average total commercial catch.

2.2 ROD CATCH

Total rod catch returns were 46% in 2011 (Figure 2). A total of 3533 salmon/grilse were reported caught in the Foyle and Carlingford areas in 2011 (Figure 2 & 3). 28 salmon and grilse were reported caught in the Burdennet catchment (Figure 4). Salmon/Grilse voluntarily caught and released were 28% in the Foyle and Carlingford area and 39% in the Burdennet area.

Trends in rod catch have generally increased over recent years. This is largely due to a number of factors including an increased number of rod licenses being issued and a higher % of returns being made (Figure 2). **It is your legal obligation to make an accurate and timely rod catch return.**

There are a number of important reasons for making rod catch returns.

- How many fish were caught in YOUR RIVER OR LAKE?
- What % of fish were caught and released in YOUR RIVER OR LAKE?
- Is catch and release increasing?
- What species were caught?
- Essential for developing sustainable fishery management policy
- Screening of future developments (roads, hydro etc.) against fishery interests.
- An important tool for assessing strength of runs
- Aids with developing access and infrastructure (stiles etc)
- It is required by law that all rod licence holders make an accurate catch return
- Facilitates long term trend monitoring
- Participate in the management of your river (doing your bit)
- At a time of reduced marine survival for Atlantic salmon accurate information is essential for sustainable management
- Aids in ensuring good decision making so that future generations can enjoy the sport of fishing
- Ensuring that all species caught are sustainably managed now and in the future

An unreported fish is a wasted opportunity, for economic development, for conservation, for protection of our fishery resources, for education and for future generations.

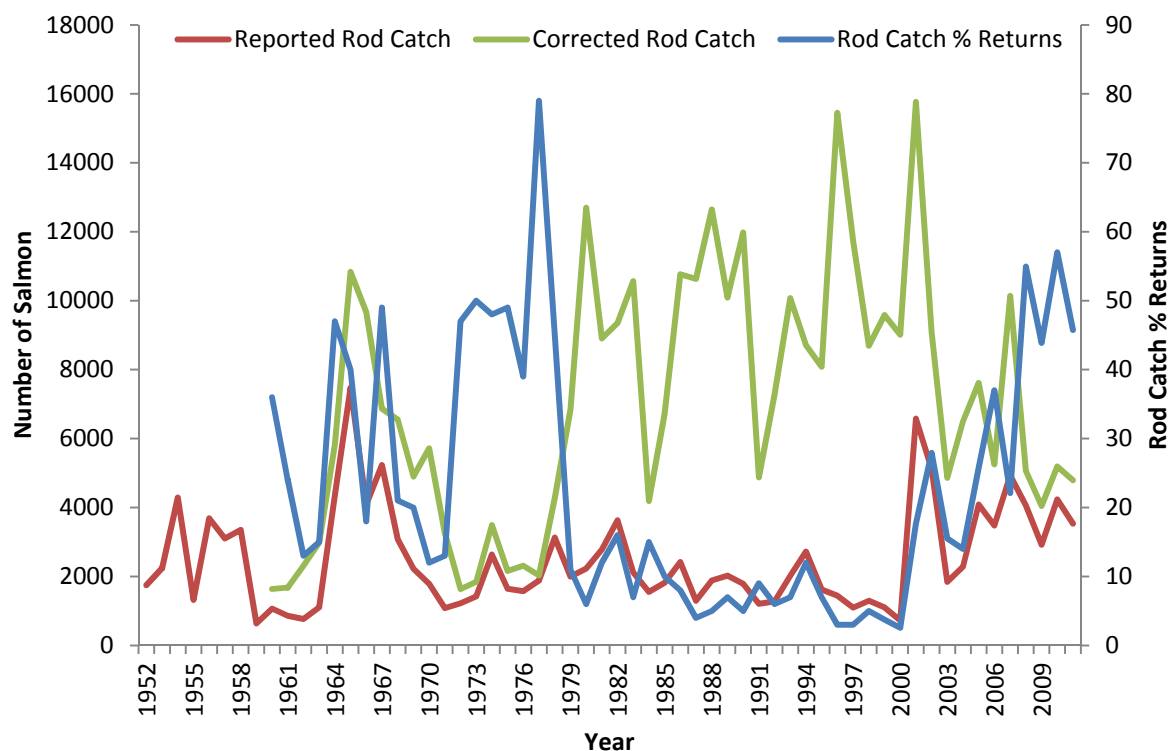


Fig 2. Loughs Agency reported and corrected rod catch with % returns made

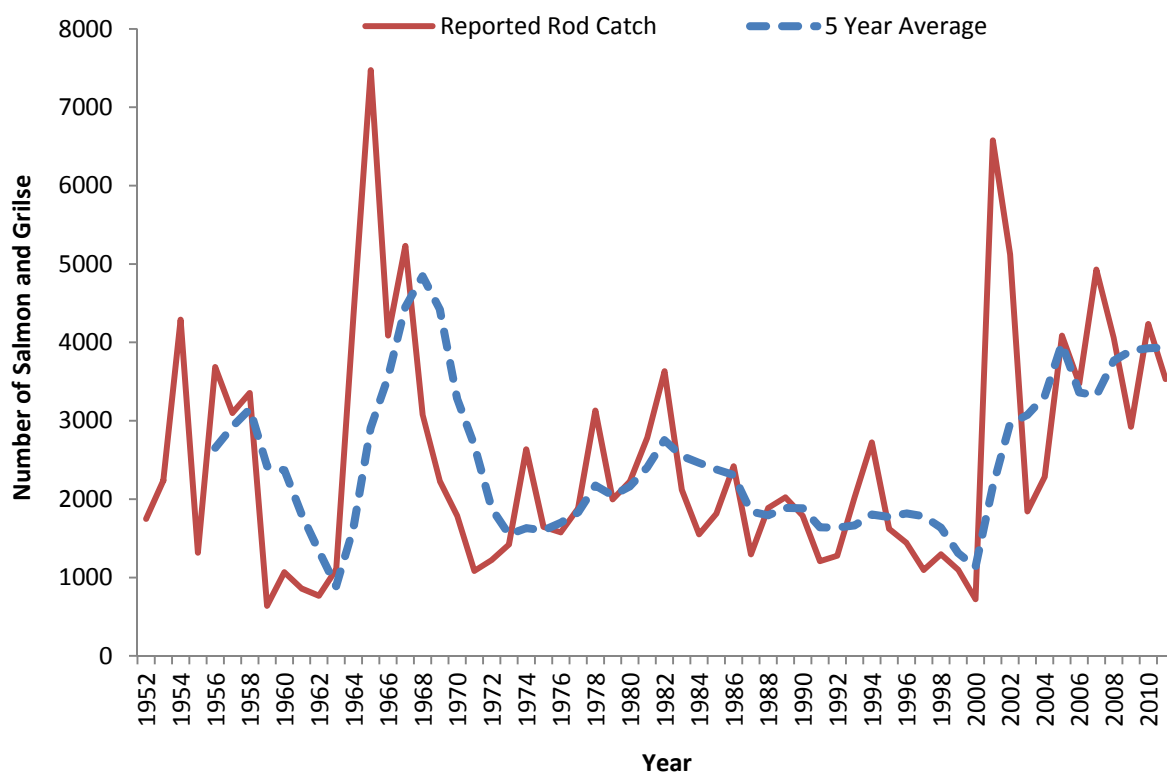


Fig 3. Reported rod catch for salmon/grilse in the Loughs Agency area and 5 year average.

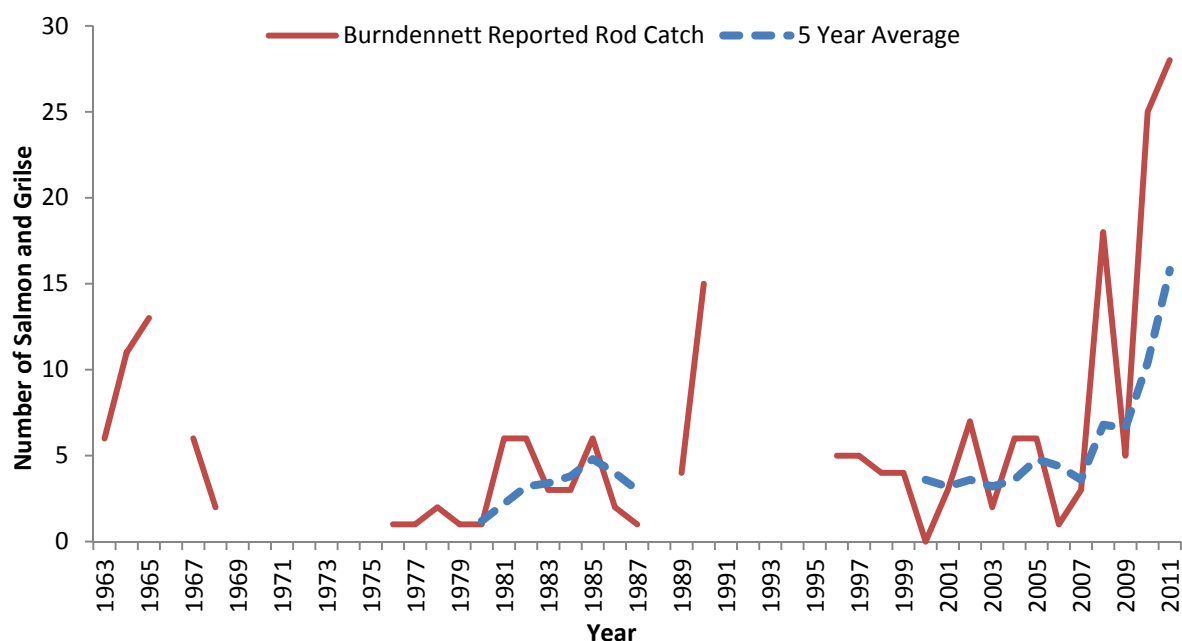


Fig 4. Burndennet Reported rod catch and 5 year average

2.3 FISH COUNTERS

The Loughs Agency operates a network of electronic fish counters throughout the Foyle and Carlingford areas to monitor the migration of Atlantic salmon into freshwaters. The counters are used to assess the attainment of conservation limits and management targets for key catchments.

In 2011 the Mourne fish count as recorded by the electronic fish counter at Sion Mills weir was 1342 with a 5 year average of 3856 (Figures 5 & 6). The management target for the Mourne is 8000 and the conservation limit is 6400.



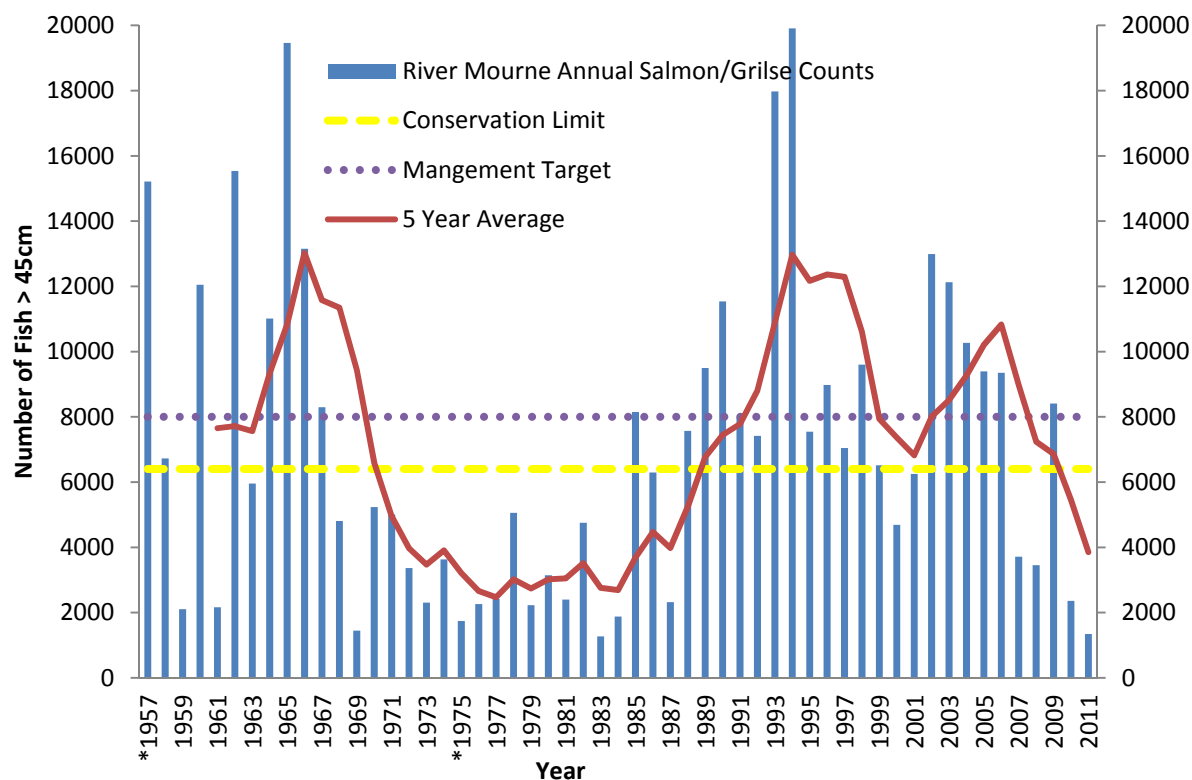


Fig 5. River Mourne annual fish counts. *Note variation in equipment over this period

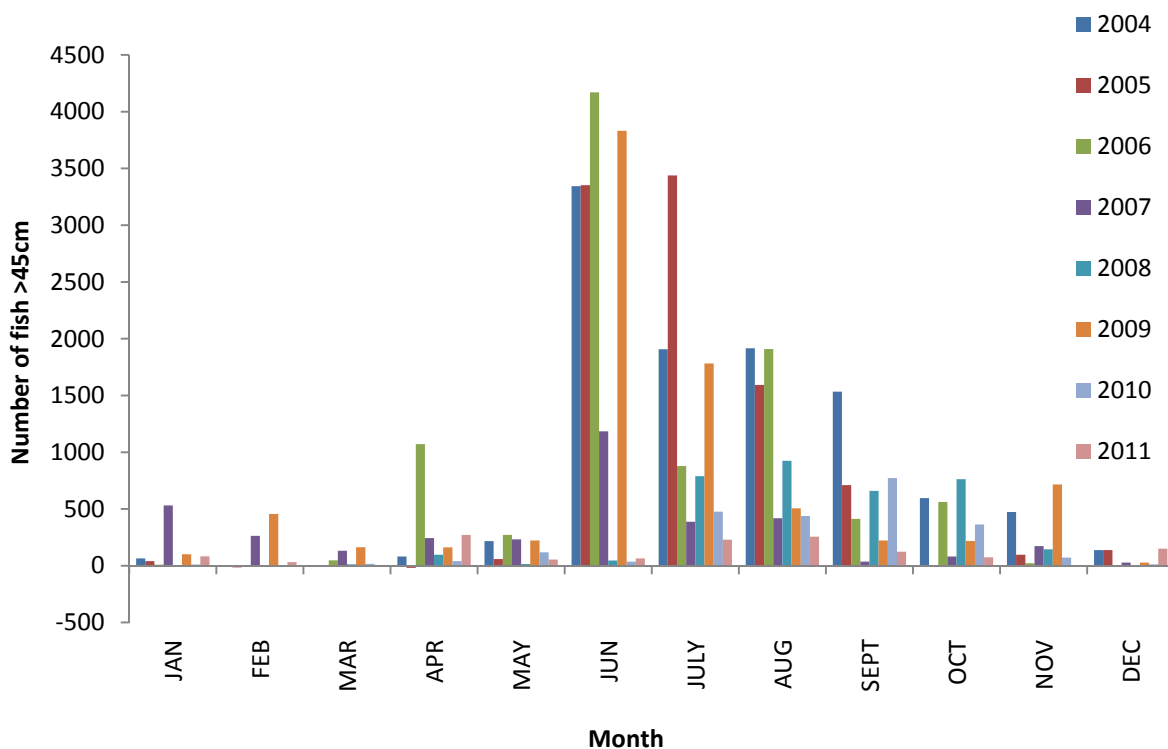


Figure 6. River Mourne monthly fish counts

2.4 REDD COUNTS

Atlantic salmon redds (spawning nests) are counted on an annual basis and have been shown to be a good indicator of returning population size. Annual redd counts and the 5 year running average are displayed in Figures 7 & 8. In 2011 there was a total count of 1313 redds with a five year running average of 3459. There was no redd count in the Burn Dennet catchment in 2011/12. It should be noted that there was poor redd counting conditions in 2011/12. Salmon redds have not been observed in the Glenmornan catchment.

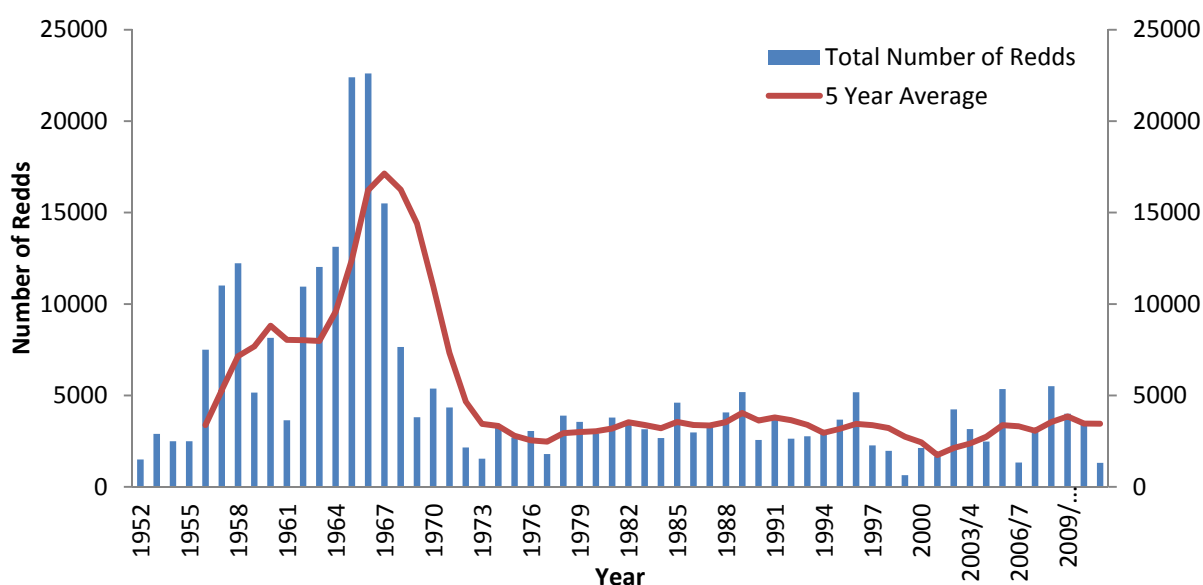


Figure 7. Annual redd counts and 5 year running average

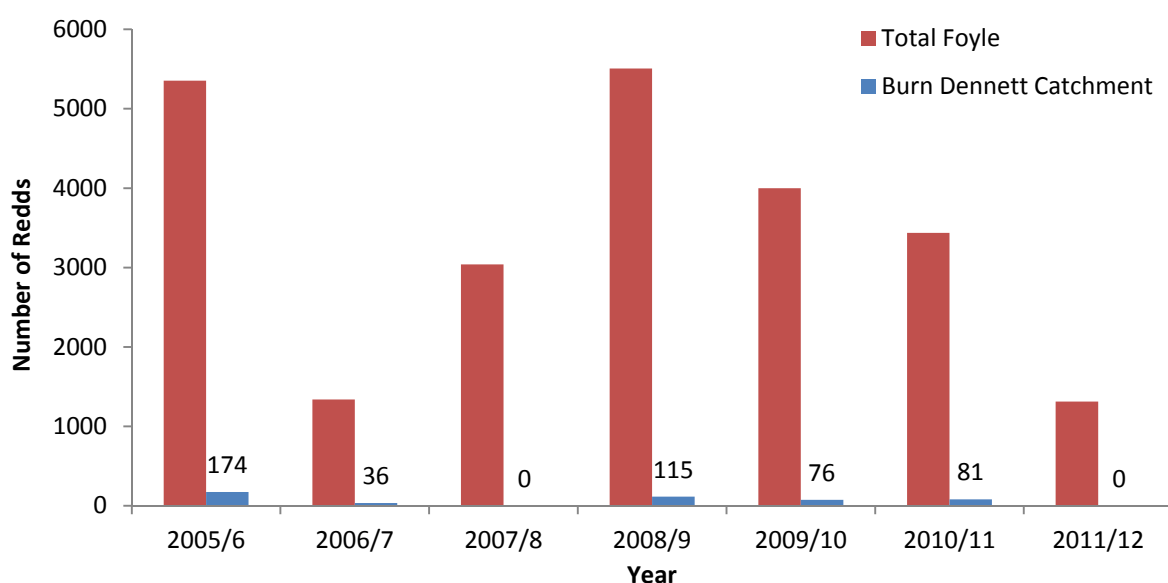


Figure 8. Recent redd count data for the total Foyle area and Burndennett catchment

2.5 JUVENILE ABUNDANCE/ELECTROFISHING SURVEYS

Juvenile Atlantic salmon abundance is measured on an annual basis by following a standardised procedure (Crozier and Kennedy, 1996). A fixed number of sampling stations are monitored using this semi-quantitative (5 minute timed) electrofishing methodology. Over many years an index has been developed to show trends for individual catchments (Figures 9 & 10). In 2011 the mean number of salmon fry (young of year) recorded at 18 standardised monitoring stations within the Burndennett catchment was 25.

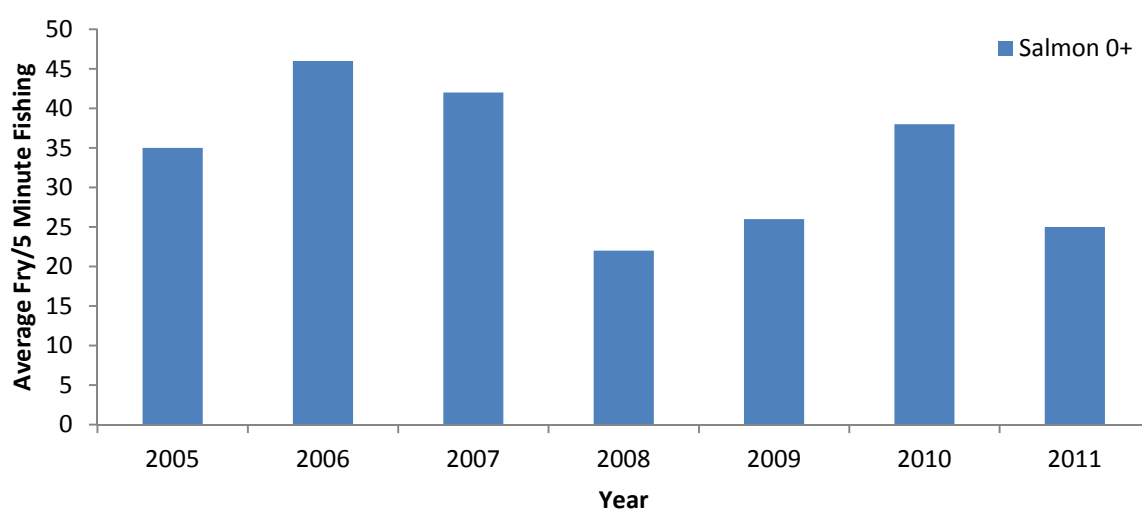


Fig 9. Burndennett salmon fry electrofishing index

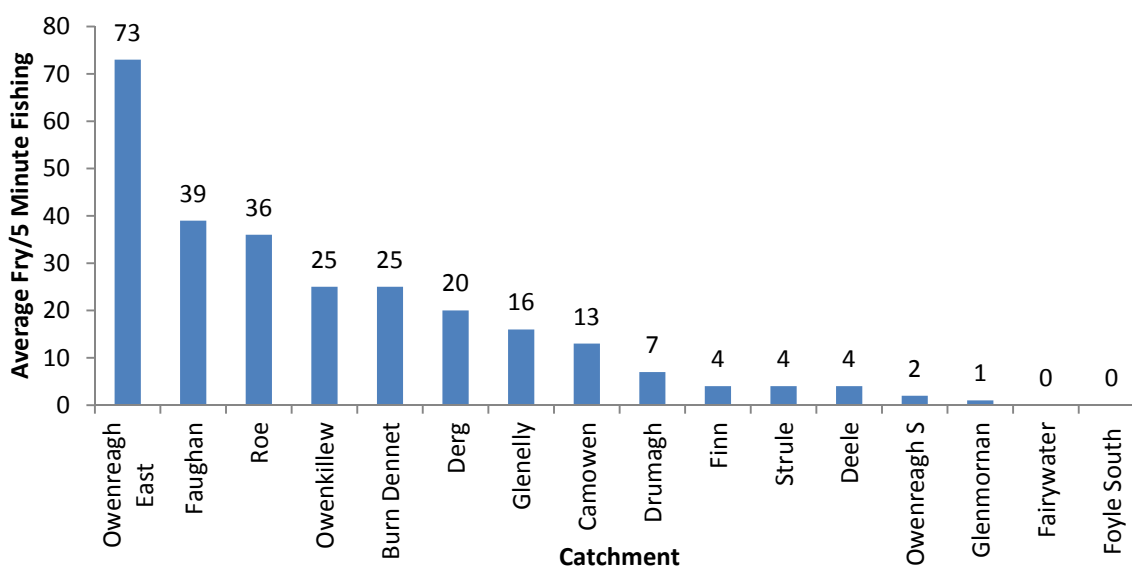


Fig 10. Foyle area salmon fry index comparison chart 2011 *the number of standard monitoring stations varies between catchments

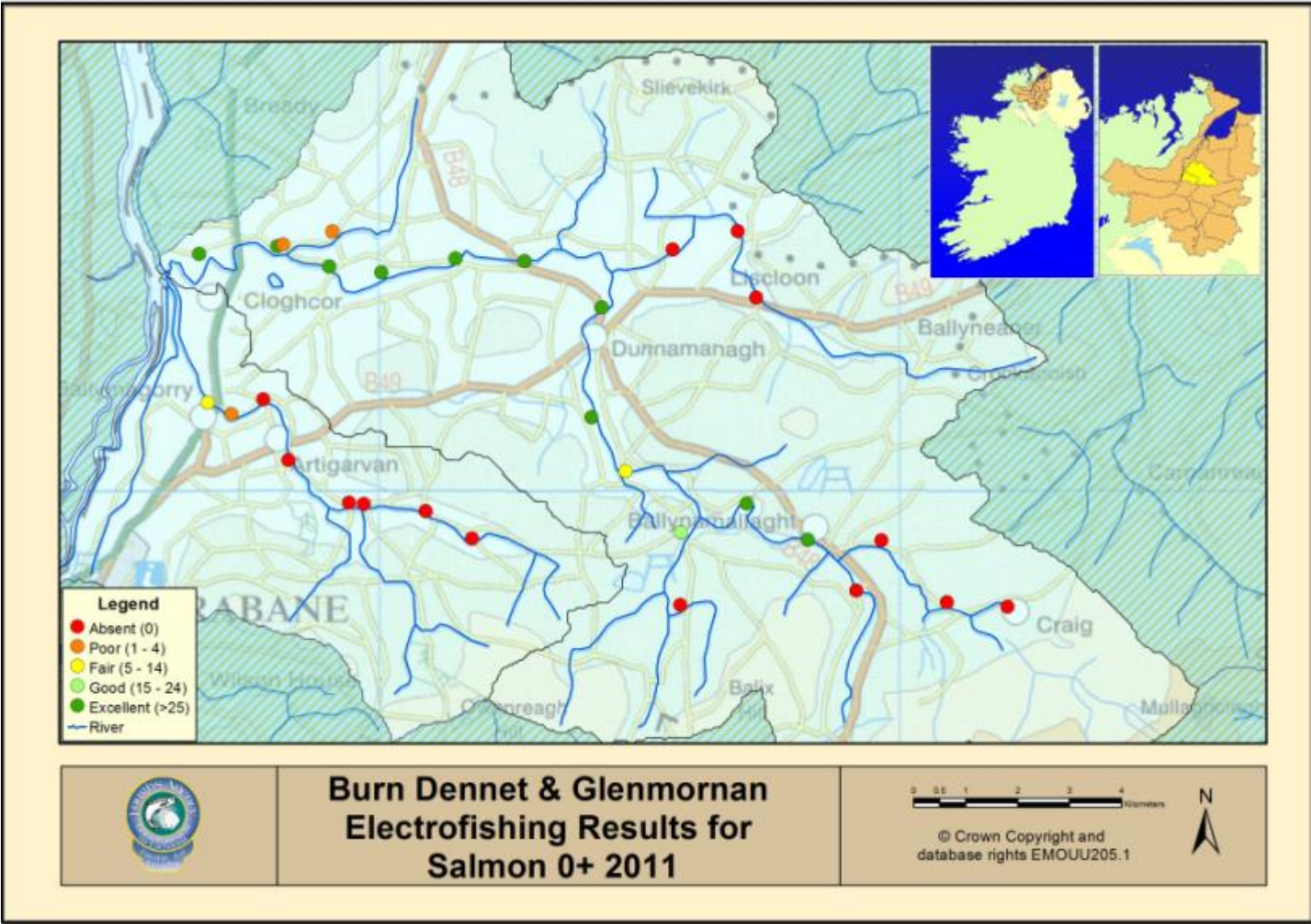


Fig 11. Burndennett and Glenmoran salmon fry electrofishing classifications

2.6 MARINE SURVIVAL

Marine survival continues to be of significant concern throughout the southern range of Atlantic salmon in the North East Atlantic. The nearest monitoring station to the Foyle area which provides robust survival data to the International Council for the Exploration of the Seas Working Group on North Atlantic Salmon is the River Bush in Co Antrim. Marine survival rates for One Sea Winter (1SW) grilse pre the mid 1990's was around 30%, in recent years this has fallen to extremely low levels with a marine survival rate of only 2.6% for the 2010 cohort returning to the river in 2011, this is the lowest on record. Multi Sea Winter (MSW) Atlantic salmon appear to be doing slightly better. The international SALSEA Merge project investigating the marine portion of the Atlantic salmon's life cycle reported in 2011. Further information can be found at http://www.nasco.int/sas/salseamerge_documents.htm this will provide a firm platform on which to develop future salmon management strategy at an international level that takes into consideration the complex lifecycle of Atlantic salmon and its place within both freshwater and marine ecosystems.

2.7 DISCUSSION

As outlined above Atlantic salmon have a complex lifecycle which can be impacted upon by many factors. The impacts cannot always be quantified making it difficult to accurately estimate the number of returning adult salmon/grilse to our rivers each year. An analysis of cohort/age class strength throughout its lifecycle from egg to spawning adult is complicated by numerous factors. These include varying egg survival rates, differing age at smolting, marine survival rates, time spent at sea/age at spawning and number of spawning migrations made.

It is extremely difficult to infer from one life history stage or stages what the strength of any returning cohort will be. This is currently exacerbated by extremely low marine survival rates possibly as a result of altered marine food webs and oceanic prey distribution all in the context of climate change.

In the table below a simple example is given to outline this complexity assuming that the dominant life history of Foyle salmon is followed.

YEAR	ROD CATCH	REDD COUNT	ELECTROFISHING INDEX
2002	7	67	N/A
2003	2	67	N/A
2004	6	11	N/A
2005	6	174	35
2006	1	36	46
2007	3	n/a	42
2008	18	115	22
2009	5	76	26
2010	25	81	38
2011	28	N/A	25

Table 1. Burdennett catchment Atlantic salmon/grilse statistics 2002-2011

Cohort analysis on the short time series of data above demonstrates that the strongest returning cohort (as inferred from rod catch) recorded in 2010 produced an above average redd count. When this cohort was followed through to the following summer it produced the second lowest number of juvenile salmon contained in the time series.

When the weakest returning cohort (as inferred from rod catch) for the short time series from 2006 is followed through it produces the second lowest redd count within the time series. When this cohort is followed through to the following summer it produced the second highest number of juveniles. It should be noted that using rod catch as a proxy for total run size is not ideal as weather conditions prohibiting angling can mask true trends. In the absence of an accurate estimate of returning year class strength analysis of other life history stages becomes more important.

In 2011 rod catch was 28 salmon/grilse. There was no redd count in 2011 due to poor weather conditions with peak spawning time dominated by high water. Juvenile electrofishing surveys in 2012 will provide information on the strength of the next cohort.



3.0 TROUT STOCKS SUMMARY

- In 2011 total declared Sea trout rod catch for the Foyle and Carlingford area was 315. Total declared rod catch for the Burdennett catchment was 2.
- In 2011 juvenile electrofishing surveys within the Burdennett catchment at 25 standard sites recorded an average of 7 trout fry. In the Glenmornan catchment at 7 standard sites an average of 5 trout fry were recorded
- Sea trout stocks have declined significantly in the Foyle area over recent decades with most recent rod catches being the lowest on record.
- Similar declines in sea trout stocks have been observed in other parts of Ireland and the west coast of Scotland. Diverse reasons for population declines have been proposed and are currently being investigated.
- The Loughs Agency implemented a sea trout research project in 2011 on the Altnaghree, a tributary of the Burdennet which will monitor local sea trout populations.
- Ongoing brown trout monitoring projects will continue in 2012 including a brown trout radio tracking study of the Lough Derg wild brown trout population.

Development of a Loughs Agency Trout Management Strategy

During 2011 the Loughs Agency consulted with stakeholders on the development of a trout strategy. The draft strategy contains 19 policies which relate to six main areas:

- **Habitat improvement**
- **Exploitation**
- **Stock management**
- **Barriers to migration**
- **Culverting**
- **Water abstraction and impoundment**

At present Loughs Agency monitor stocks of trout in a number of ways including analysis of rod catch data, and juvenile electrofishing surveys. During 2011 a sea trout monitoring programme was instigated on a tributary of the Burdennet and the Lough Derg Wild Trout Conservation Project continued with the Loughs Agency working in partnership with Pettigo and District Angling Association.

3.1 ROD CATCH

Sea trout are a prized quarry in both the Foyle and Carlingford areas but display very different life history strategies to both the resident brown trout and Atlantic salmon. Rod catch provides one of the key “audit points” for the management of this species. Declared rod catch has highlighted the significant declines over recent decades. It should be noted that sea trout populations fluctuate greatly and like many wild populations of animals they are prone to boom and bust cycles.

Over the duration of the decline in sea trout populations various reasons for the decline have been suggested including spawning habitat loss, barriers to migration, increased numbers of sea lice due to salmon aquaculture, natural population fluctuations, inshore marine ecosystem change, over fishing, pollution of key spawning streams etc. All of these will have impacted the Sea trout populations to some extent. Within the Foyle area Sea trout average weight tends not to exceed 2-3 lbs with larger specimens being quite rare. In the Carlingford area Sea trout are considerably larger with average weight somewhere between 5-8lbs with larger double figure specimens encountered from time to time. The difference between west and east may be down to the quality and availability of suitable prey species. Irish Sea populations of Sea trout tend to be much larger and may be indicative of less impacted prey species populations. A parallel could be made between documented north coast of Ireland sea bird populations and Irish Sea populations, with Irish Sea populations doing better because of better availability of prey species. North coast of Ireland sea bird populations have been in decline over recent decades, in parallel with the plight of Sea trout.

In the Foyle and Carlingford area the minimum size for retaining a Brown trout or Sea trout is 25.4cm. All Sea trout over 40cm must be tagged and there is a bag limit of 1 Sea trout per day, up to a maximum of 5 during the period from the start of the season to 31st May. A bag limit of 2 Sea trout over 40cm per day applies from the 1st June to the end of the season up to a maximum of 20. There is also a daily bag limit of 4 Brown trout or Sea trout of 40cm or less in length throughout the season. Stricter club/association rules may apply.

Within the Foyle area there is generally a geographic north south divide with sea trout dominant in the northern catchments and brown trout dominant in the southern catchments. Historically the northern catchments and their associated small streams provided excellent spawning and nursery habitat and when associated with high densities of salmon may have been a major reason for seaward migration of juvenile trout in search of prey and less competition. The southern catchments still hold good populations of resident Brown trout with significant angling development potential. These populations however are more susceptible to pollution events. Figures 11, 12 & 13 outline Sea trout rod catch for the Foyle and Carlingford areas and for the Burndennet catchment. While no rod catch data is available for the Glenmornan catchment this area is locally significant for brown trout production and may produce sea trout smolts and as such would merit closer investigation.

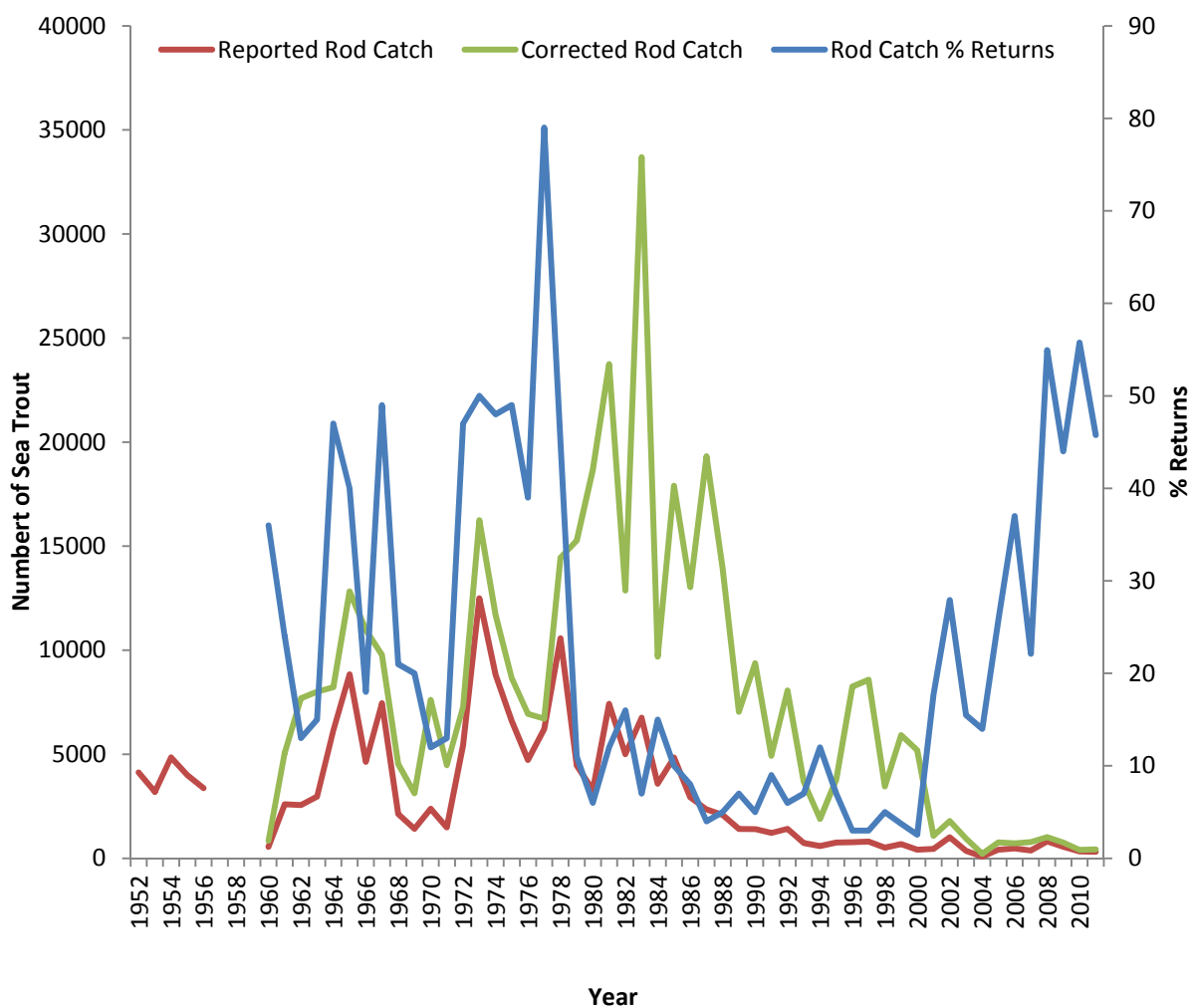


Fig 12. Loughs Agency reported and corrected rod catch (Sea trout) with % returns made

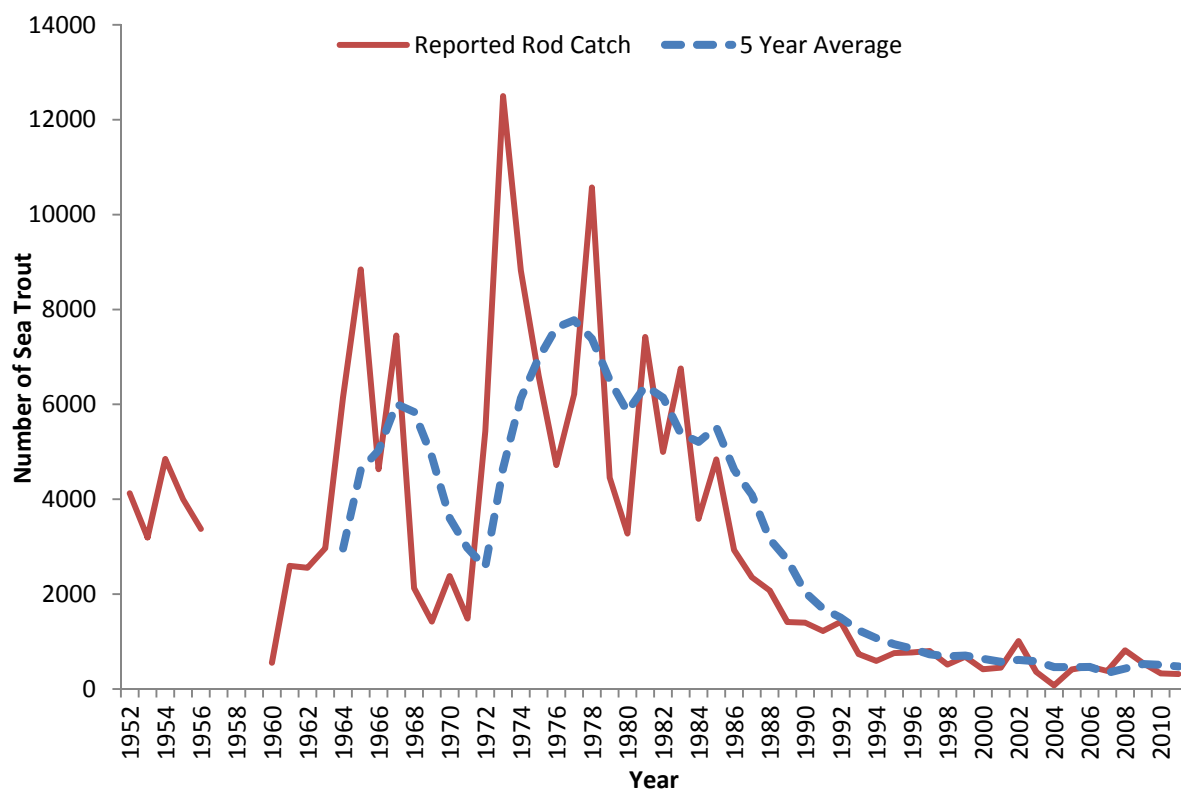


Fig 13. Reported rod catch for Sea trout in the Loughs Agency area and 5 year average.

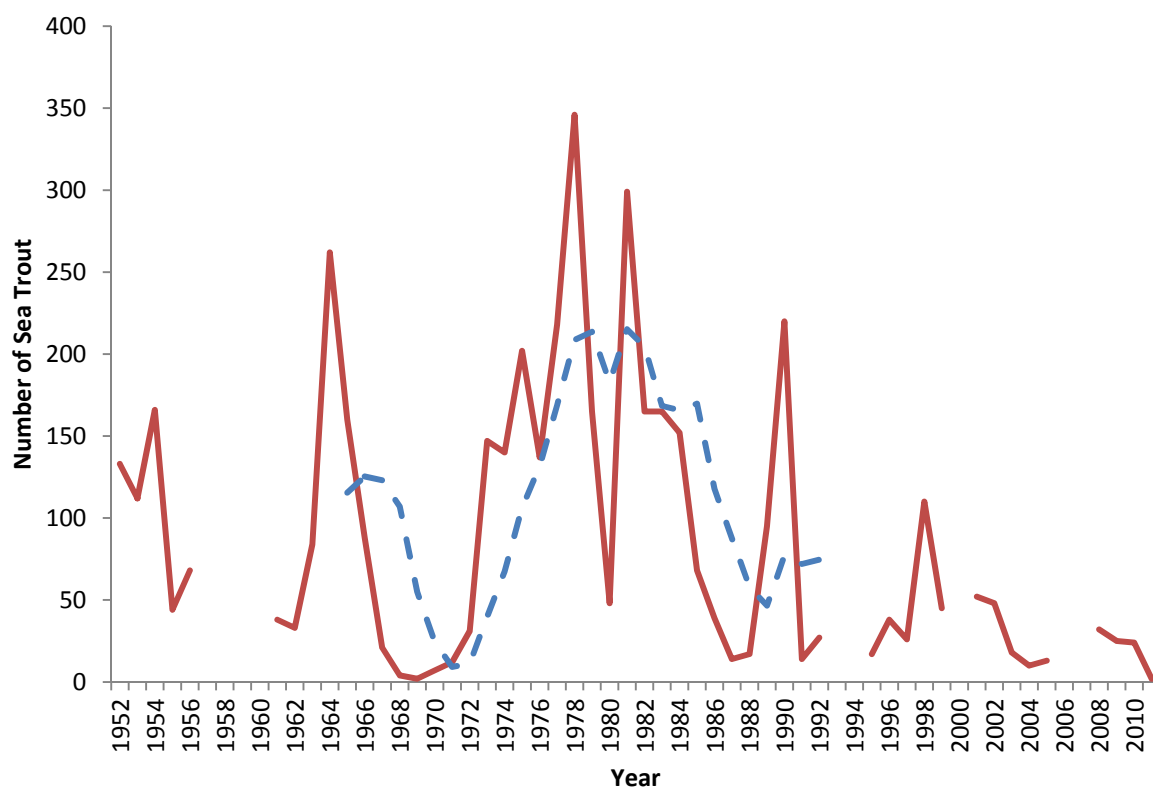


Fig14. Burndennett Reported Sea trout rod catch and 5 year average. Breaks in data denote no catch declared

3.2 JUVENILE ABUNDANCE/ELECTROFISHING SURVEYS

As for juvenile Atlantic salmon Trout abundance is measured on an annual basis by following the same standardised procedure (Crozier and Kennedy, 1996). A fixed number of sampling stations are monitored using this semi-quantitative (5 minute timed) electrofishing methodology. Over many years an index has been developed to show trends for individual catchments (Figures 14 & 15). In 2011 the mean number of trout fry (young of year) recorded at 25 standardised monitoring stations within the Burdennet catchment was 7. At 7 sites fish annually in the Glenmornan catchment an average of 5 trout fry were recorded.

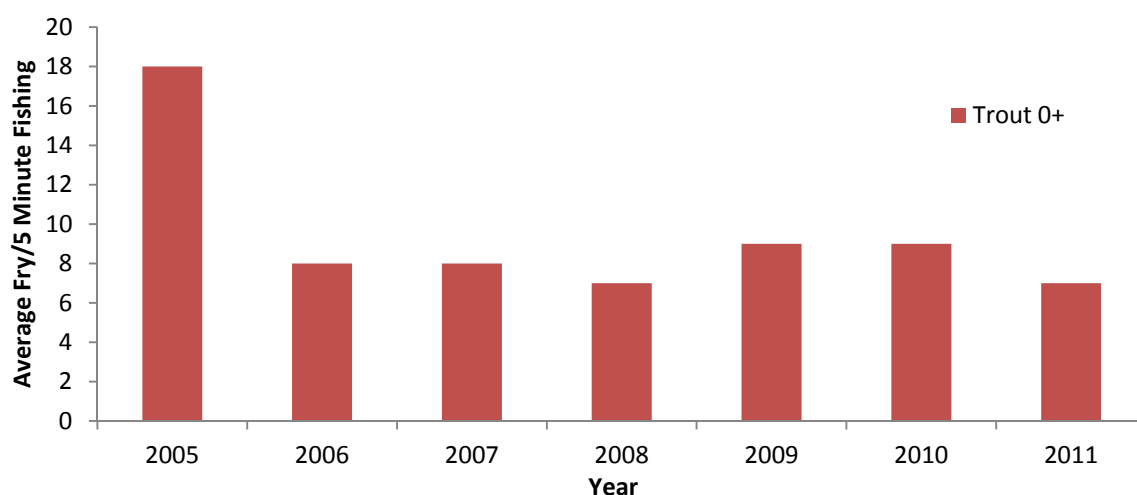


Fig 15. Burdennet trout fry index

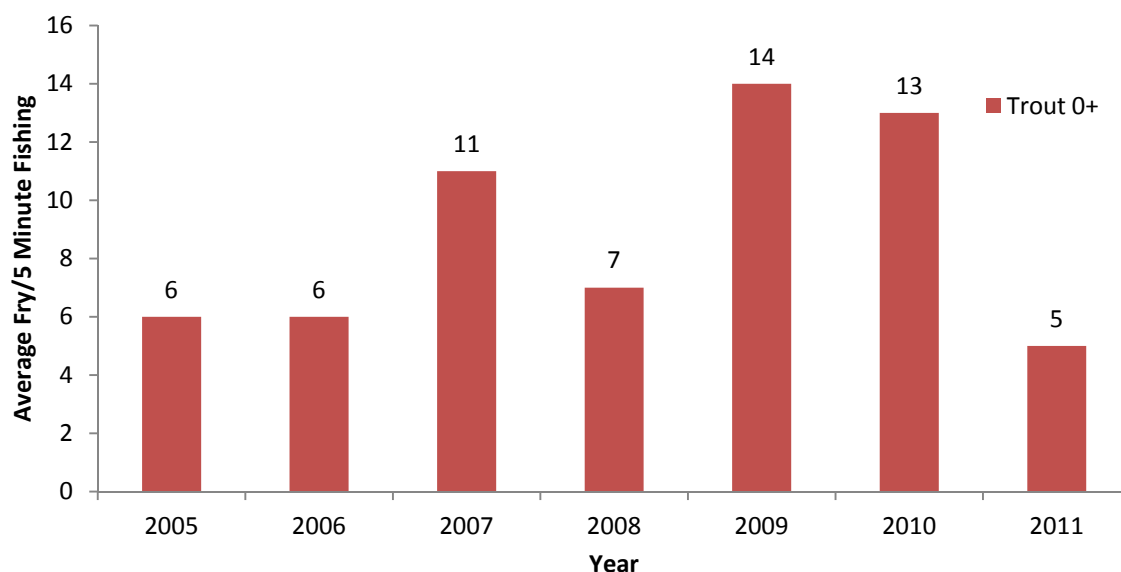


Fig 16. Glenmornan trout fry index

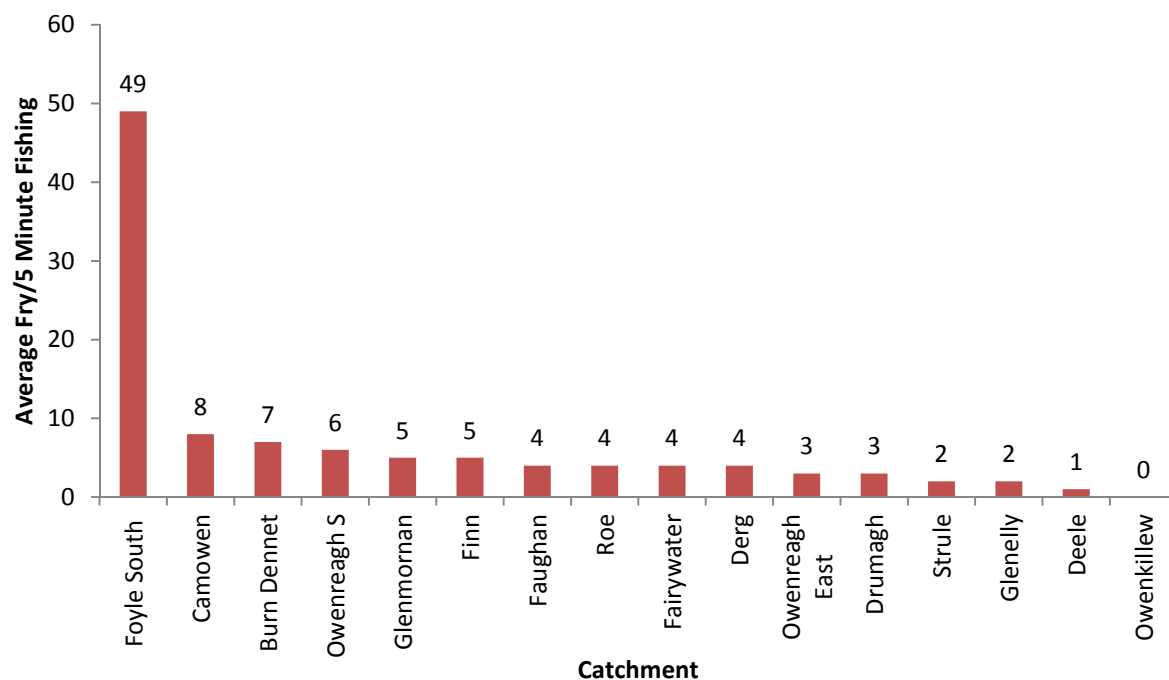


Fig 16. Foyle area trout fry index comparison chart 2011 *the number of standard monitoring stations varies between catchments



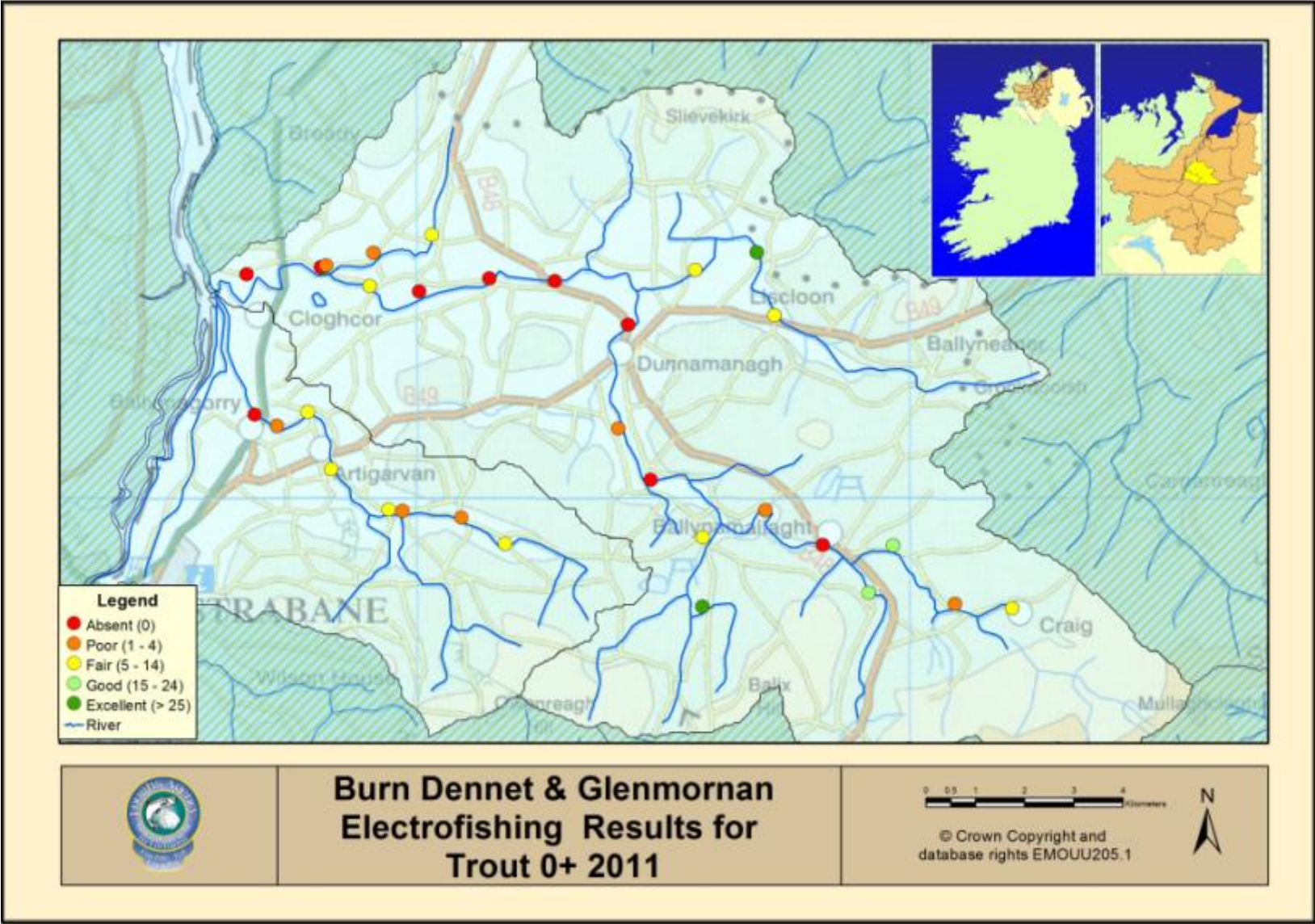


Fig 17. Burndennett and Glenmornan Trout fry classifications

3.3 DISCUSSION

At present rod catch and juvenile electrofishing surveys are the two monitoring programmes conducted annually on Trout populations within the Foyle and Carlingford areas. In order to extend the baseline of information future expansion of the monitoring programmes could include the development of a Trout redd index on key tributaries. This would facilitate the analysis of trends over time and the effects of any remedial works. Adult Sea trout electrofishing surveys could also be conducted to gain key biological information which could assist with regulating catch size. The Burndennet and Glenmornan catchments are significant habitats for Sea trout and Brown trout respectively. Within the Burndennet catchment there is competition with Atlantic salmon for feeding territories. While both species have slightly different habitat requirements at times they do overlap. The general trend in the Burndennet is that salmon dominate the main stem and swifter water while trout dominate the smaller tributaries. In the Glenmornan catchment where salmon are generally absent Trout dominate throughout with high numbers recorded in upper sections of the catchment.

Ongoing monitoring is essential for the development of appropriate and contemporary regulation of the rod fisheries.



4.0 SUMMARY OF OTHER SURVEYS AND FISH STOCK ASSESSMENTS

- A Sea trout monitoring programme was instigated on the Altnaghree a traditional Sea trout spawning tributary of the Burndennet. Key biological information was collected. This was the first year of monitoring on what is hoped will become an index monitoring tributary for Sea trout. A summary report will be available in 2012.
- A lake fish survey was conducted on Lough Ash following methods developed for Water Framework Directive fish monitoring. A summary report will be available on the Loughs Agency website in 2012.
- A barriers to migration and riparian invasive species survey was conducted in the Burndennet catchment in 2011. The results are stored on the Loughs Agency GIS and are available to interested parties.
- Eight Water Framework Directive fish surveillance monitoring stations were surveyed within the Foyle area in 2011. None were within the Burndennet or Glenmornan catchments. It is planned to monitor one surveillance station in each of the two catchments in 2012.

Additional Surveys and Fish Stock Assessments

Fish stock assessments are an extremely important part of fishery management. They provide the information on which to develop policy and to implement appropriate legislation and regulation to ensure future sustainable management.

The Sea trout monitoring programme on what is hoped will become an index tributary produced interesting results and acted as a catalyst for in-channel and riparian habitat improvement works.

Potential barriers to migration and riparian invasive species have been mapped on GPS and entered onto the Loughs Agency GIS. Potential removal projects for both will be investigated with partners.

A lake fish survey of Lough Ash was conducted in October 2011. Lough Ash is a stocked fishery and forms part of the public angling estate managed by DCAL. In addition to Brown Trout stickleback were the only other species recorded.

In 2011 the Loughs Agency continued to meet its obligations under a raft of national and international legislation. In addition to meeting its statutory duties the Loughs Agency plans its monitoring works to best inform current and future policy development and to deliver on conservation and protection targets as outlined in the Loughs Agency Corporate and Business Plans. In 2011 in addition to the collection of standard annual audit point fishery management information, surveys were conducted on a Sea trout population in a small tributary of the Burndennet catchment locally known for its significance, a lake fish survey and an invasive species and barriers to migration survey were also conducted during 2011.

4.1 SEA TROUT MONITORING

The Burndennet was once locally renowned for its sea trout run. Today while still maintaining a run of small sea trout the strength of the run is not what it formally was. Many ideas have been postulated as to why there has been such a significant local reduction in sea trout populations.

In 2011 the Loughs Agency instigated a small monitoring programme on one of the Burndennet catchments best known Sea trout spawning tributaries, the Altnaghree Burn also known locally as the Benone Burn. It is hoped that this will become an index tributary to monitor trends in the numbers of returning Sea trout over time. Initially a small trap was installed in an attempt to capture returning Sea trout. It was thought that the run was missed and it was decided to conduct electrofishing surveys in order to capture Sea trout and to collect key biological information from them. This included recording length, weight and taking a scale sample. Approximately 2.5km of the Altnaghree burn was surveyed in late September into early October. 16 Sea trout were sampled and returned to the burn. Some summary data is provided below.

Many of our tributaries and upper sections of our rivers have become tunnelled by unmanaged vegetation which may be having an adverse effect on fish populations and in particular Sea trout. As a result of the Sea trout survey on the Altnaghree Burn in 2011 in-channel and riparian habitat improvement work was conducted including bush trimming, habitat unit creation and bank protection.





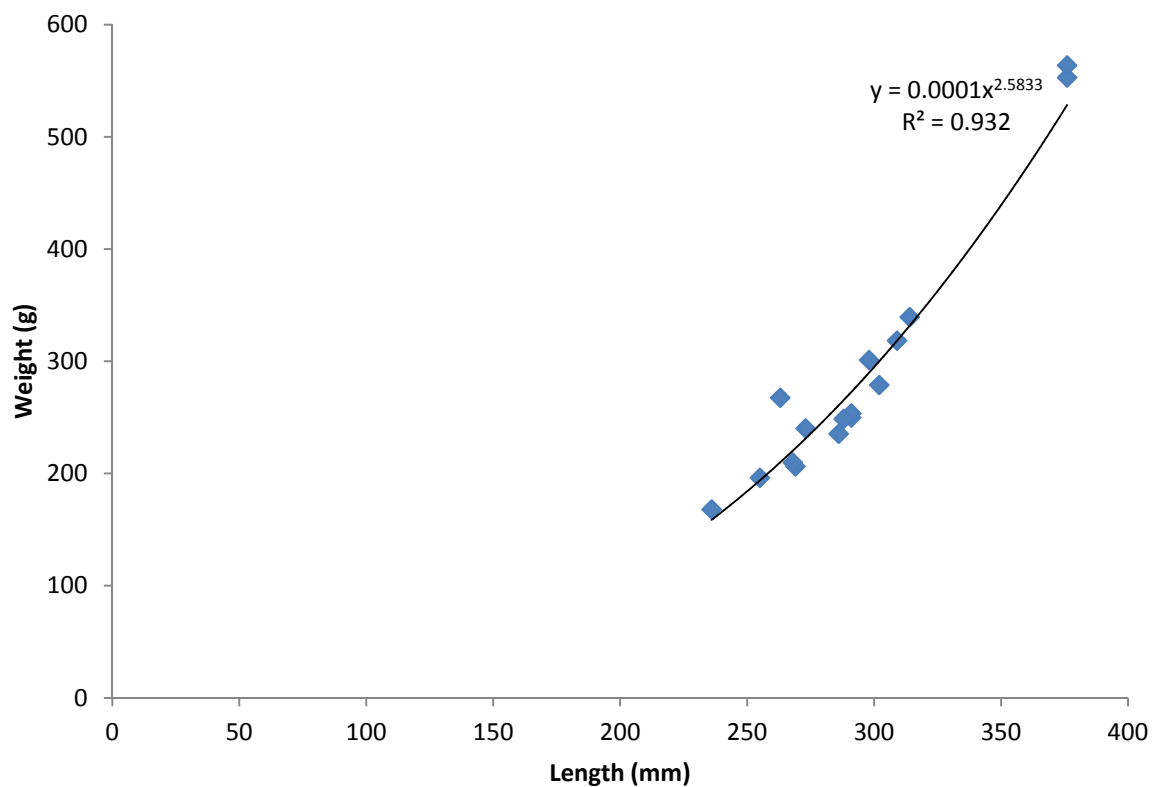


Fig 18. Length weight relationship for Sea trout from the Altnaghree Burn in 2011. n = 16

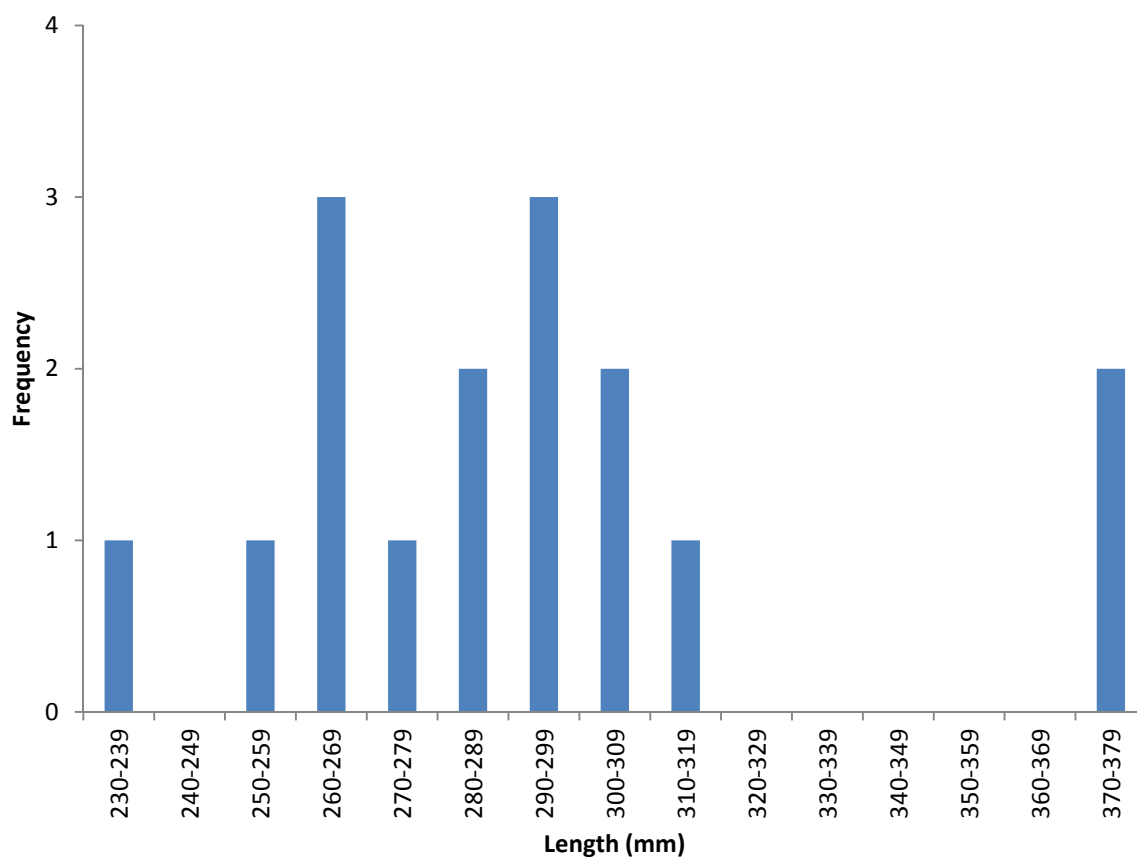


Fig 19. Length frequency distribution of Sea trout from the Altnaghree Burn in 2011

4.2 LAKE FISH SURVEY

A lake fish survey of Lough Ash was conducted in October 2011. Lough Ash is part of the DCAL public angling estate and is stocked with Brown trout. A full survey report will be available on the Loughs Agency website in 2012. Stocked Brown trout and Stickleback were the only species recorded. A mixture of benthic gill nets floating gill nets and fyke nets were deployed following the survey methodology developed for Water Framework Directive lake fish monitoring.



4.2 BARRIERS TO MIGRATION AND INVASIVE SPECIES SURVEY

In 2011 the Loughs Agency conducted a catchment wide survey of barriers to migration and riparian invasive species within the Burndennet catchment. All barriers and partial barriers to migrating fish were recorded on Trimble handheld GPS devices and incorporated into the Loughs Agency GIS. Where possible and finances pending efforts will be made to ease or remove major barriers. Any organisation or individual wishing to permit or assist with barrier removal should contact the Loughs Agency directly.

Stands of the three main riparian invasive species, Himalayan balsam, Japanese knotweed and Giant Hogweed were also recorded on GPS and GIS. This may facilitate future control or eradication programmes. If you are interested in developing control or eradication programmes for invasive species within the Burndennet and Glenmornan catchments please contact art.niven@loughs-agency.org Invasive species can have significant economic, environmental and social impacts.





4.3 WATER FRAMEWORK DIRECTIVE FISH MONITORING

The WFD is a key piece of European environmental legislation designed to facilitate improvements in our aquatic environments. The Loughs Agency under the guidance of the Northern Ireland WFD Fish Group is responsible for fish monitoring within the Foyle and Carlingford areas. This involves the monitoring of 24 surveillance monitoring stations on a rolling six year basis. Quantitative electrofishing is the preferred method where possible and the data collected is used to derive a fish classification which is then combined with the results from other monitored parameters to create an overall surface water body classification. This ranges from High Ecological Status through Good Ecological Status, Moderate Ecological Status, Poor Ecological Status to Bad Ecological Status. The target set by the WFD is that all water bodies must reach Good Ecological Status by 2015. In 2011 the Loughs Agency monitored no surveillance stations within the Burdennet catchment or Glenmornan catchment. There are two surveillance stations in the Burdennet catchment and one in the Glenmornan catchment. One station will be surveyed in each catchment in 2012.

5.0 WATER QUALITY SUMMARY

- 94 sites were monitored in the Foyle and Carlingford areas for water quality parameters during the summer of 2011.
- 4 sites were monitored in the Burdennett catchment and two in the Glenmornan catchment.
- Ammonia results were classified as very good for all sites monitored in the Burdennett and Glenmornan catchments.
- All 4 sites on the Burdennett were classified as very good for BOD. The 2 sites on the Glenmornan were both classified as good.
- Phosphorous results were classified as favourable for all sites on the Burdennett. On the Glenmornan 1 site produced favourable phosphorous results while the other unfavourable.
- Suspended solids were classified as favourable for nursery conditions for 3 sites on the Burdennett and 1 on the Glenmornan. Both catchments had 1 site with only acceptable conditions.
- Macro invertebrates were monitored in the Burdennett catchment only with a BMWP classification of fair quality at 2 out of 4 sites and poor quality at the remaining 2 sites. BMWP monitoring was conducted during the summer only

The Importance of Monitoring Water Quality

The Loughs Agency conducts proactive and reactive pollution investigations within the Foyle and Carlingford areas. As part of this approach the Loughs Agency conducts a seasonal water quality monitoring programme. All results are collected and analysed by Loughs Agency staff at Loughs Agency facilities.

Key chemical and biological parameters including macro invertebrate monitoring, Biological Oxygen Demand (BOD), suspended solids, ammonia and phosphorous are monitored on a monthly basis during summer.

Results are available for all parameters monitored within 5 days and any follow up action can be conducted immediately.

Rivers and lakes are important habitats for varied biodiversity including fish. The Loughs Agency monitors water quality during the sensitive summer period to inform investigations



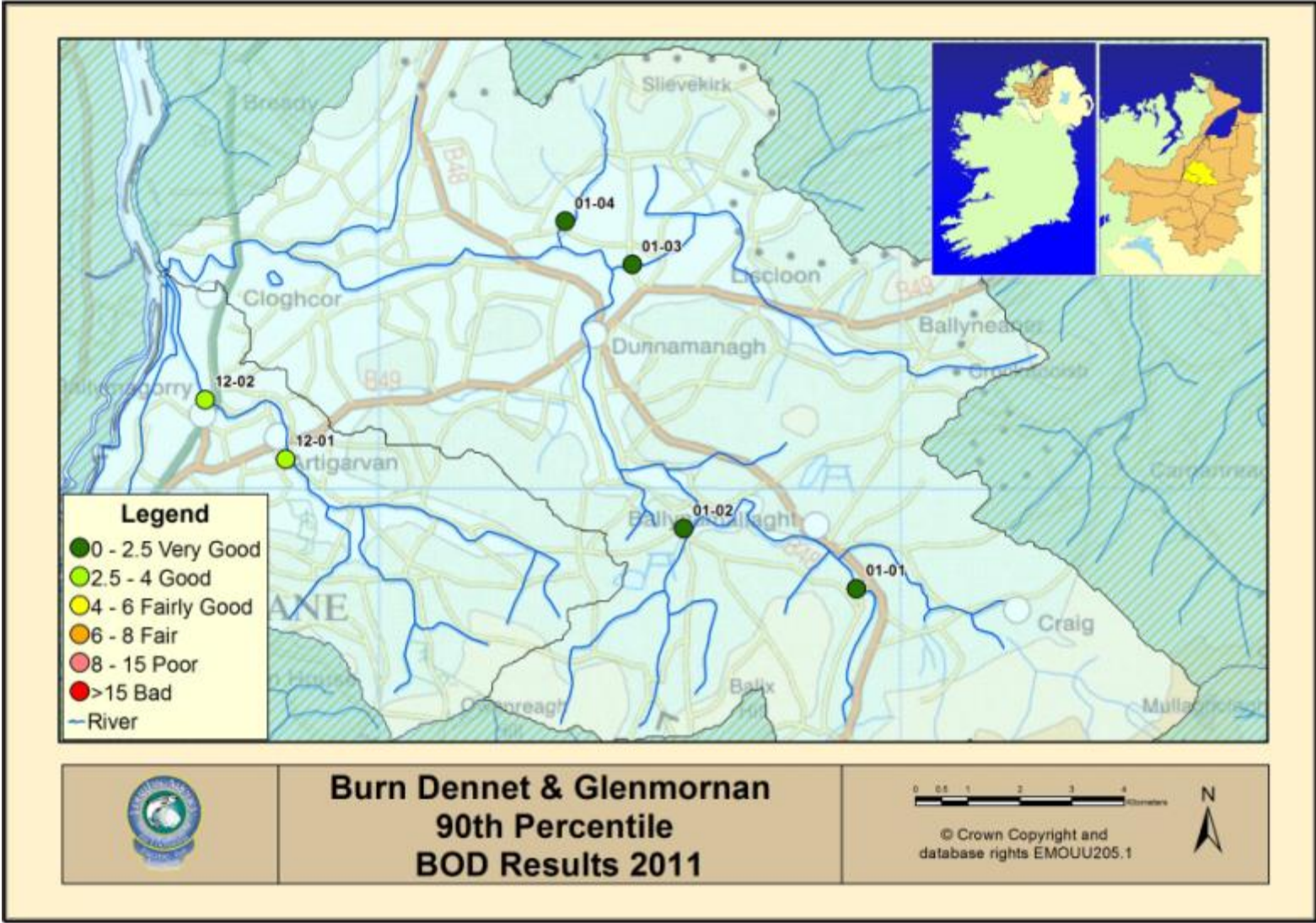


Fig 21. 2011 BOD classifications

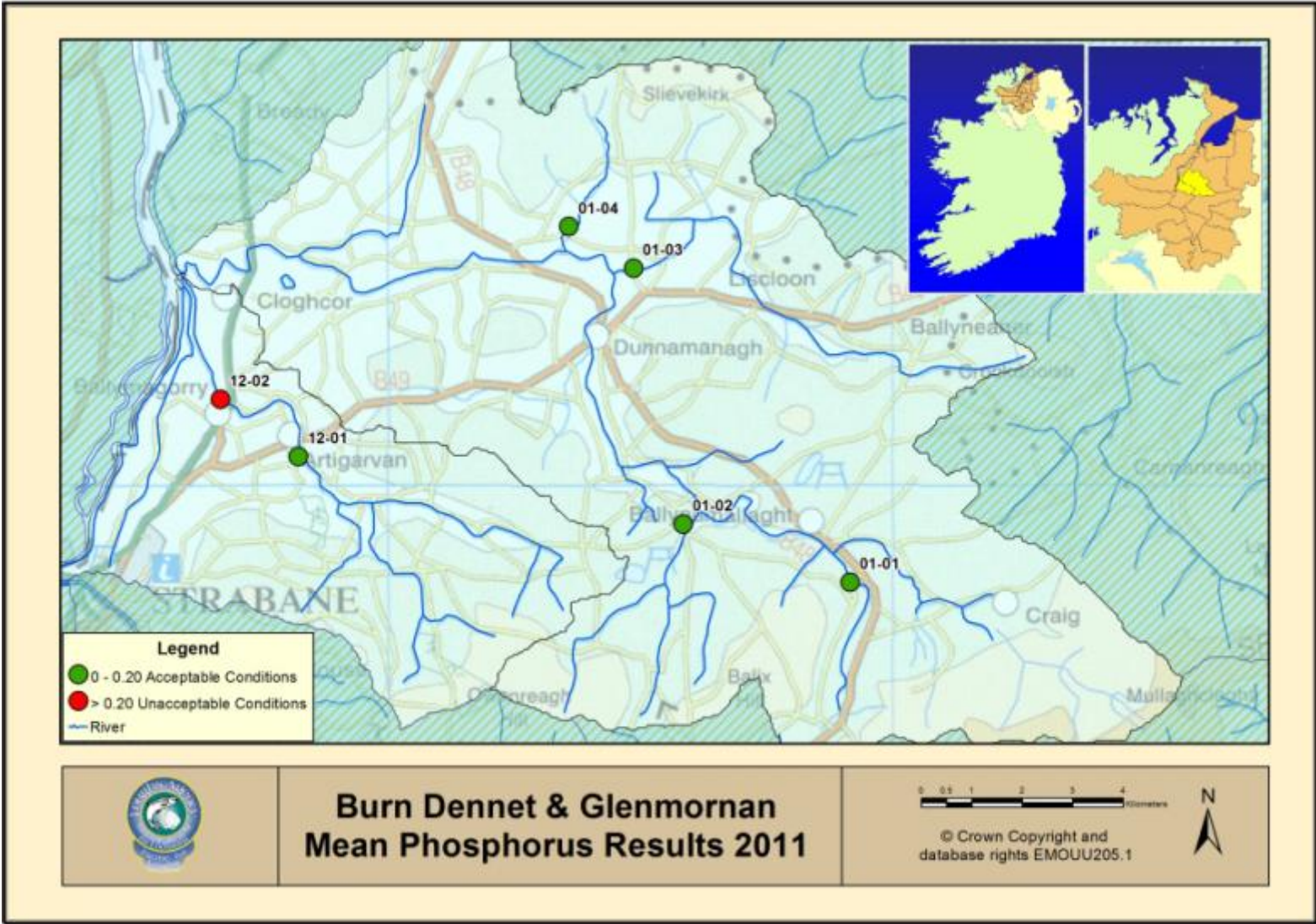


Fig 22. 2011 Phosphorous classifications

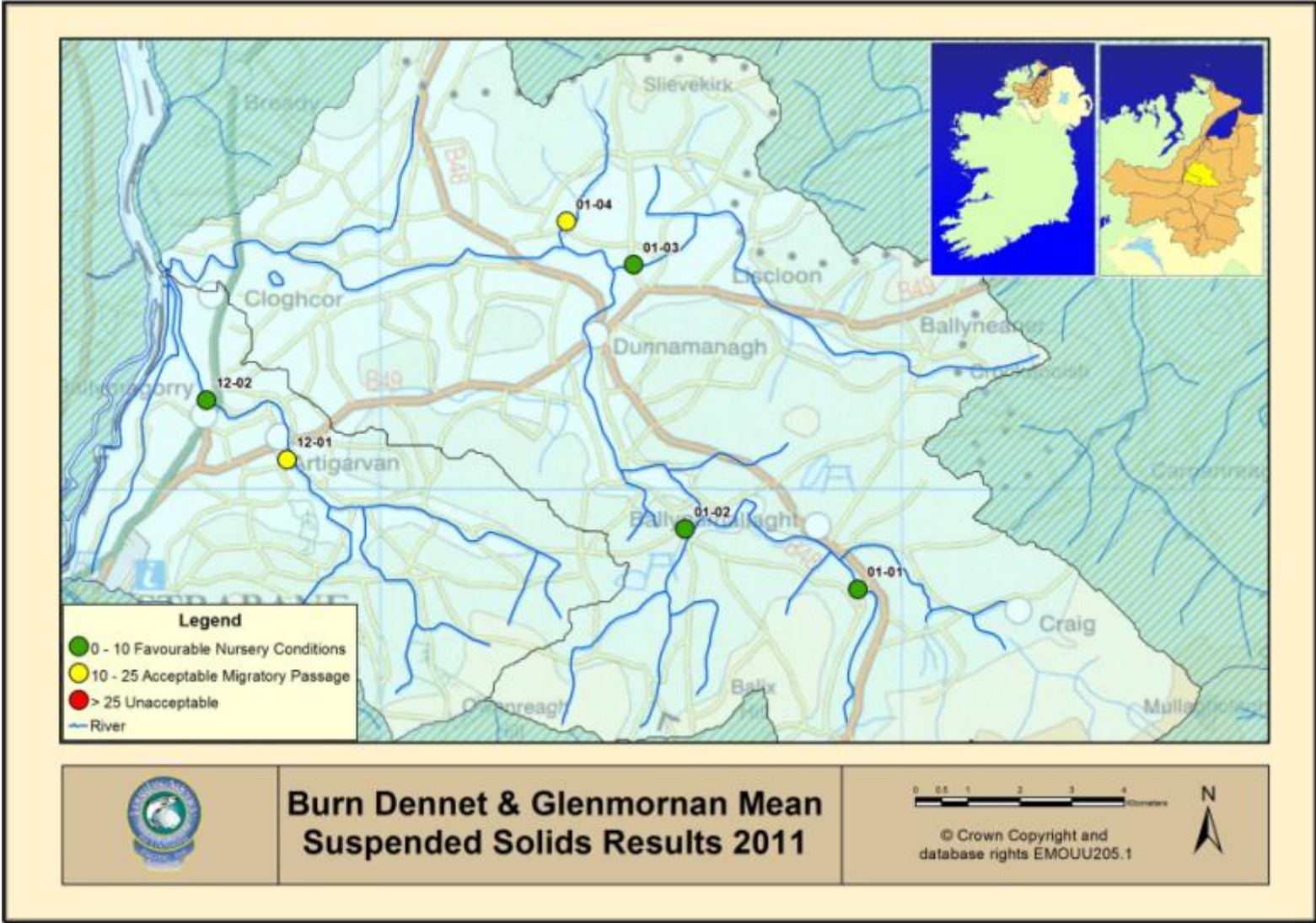


Fig 23. 2011 suspended solids classifications

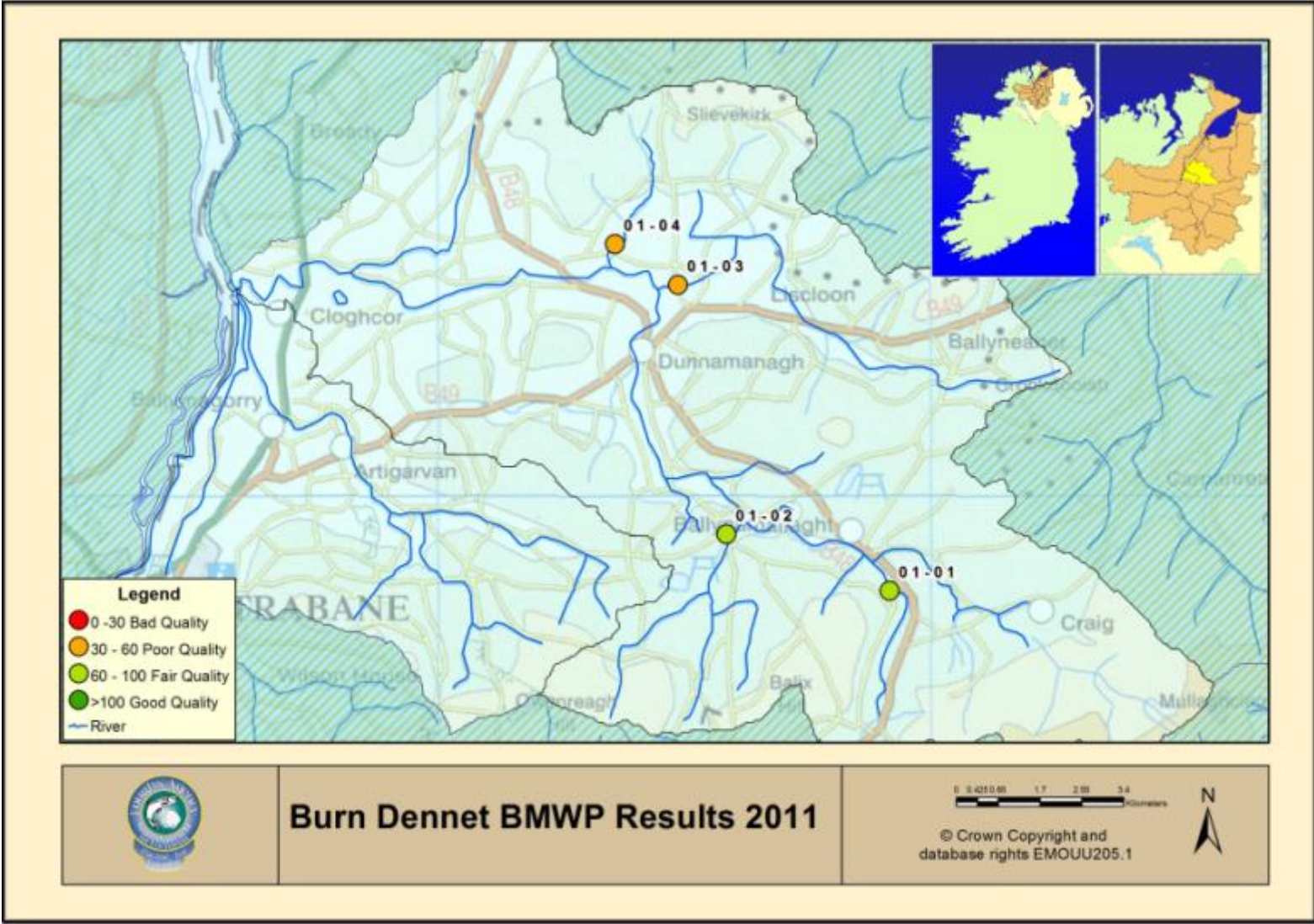


Fig 24. 2011 BMWP macro invertebrate classifications

6.0 CONSERVATION AND PROTECTION

SUMMARY

- In 2011 within the Burndennet catchment there were 28 patrols
- There were 17 angling license checks within the Burndennet catchment in 2011. No significant angling takes place within the Glenmornan catchment.
- There was 1 joint patrol in the Burndennet catchment in 2011 with local angling association personnel.
- There were 10 site/premise visits within the Burndennet catchment in 2011.
- A programme of in-stream improvement works was conducted on the Ballylaw Burn in response to a flooding event. This was in partnership with Rivers Agency. Improvement works were also conducted on the Altnaghree Burn.
- 0 rods were seized and 1 net was seized in the Burndennet catchment in 2011.
- The Eastern crew commented in their annual report that the summer of 2011 was unsettled with high water levels persisting.
- This may have led to fewer optimal opportunities for angling.

Conservation and Protection

The Burndennet and Glenmornan catchments are within the Loughs Agency Eastern zone. The Eastern crew is responsible for the conservation and protection of their zone in addition to other duties throughout the Foyle area.

The Eastern crew is composed of 1 senior fishery officer and 3 fishery officers.

Each crew is responsible for amongst other tasks conducting a wide variety of conservation and protection duties including direct fishery protection, anti poaching patrols, license checks, pollution monitoring, redd counting, electrofishing and assisting with other stock assessments.

Crews will liaise with staff and volunteers from relevant government departments and angling associations to ensure water quality is maintained and to monitor all potential impacts on the fishery and aquatic resources.

6.1 CREW REPORT ON 2011

2011 saw the Eastern crew continue to patrol the catchment of the River Dennet with a mix of both routine and specialised patrols. Potential threats to the fishery were identified and all annual survey and audit measure completed. The River Dennet once again experienced a severe period of winter weather during the month of January with record low temperatures recorded into minus double figures. This presented the Eastern crew with a rather difficult redd counting survey. However a full walk through of the catchment was achieved with a healthy number of redds recorded and found to be well distributed along the main stem of the River Dennet. Moreover, a period of settled weather in the early spring and into the early summer led to successful egg hatching, testimony to this being recorded by a very successful electrofishing survey of the catchment.

A full electrofishing field season was completed throughout the River Dennet catchment with healthy populations of both Salmon and Trout recorded. However, the rather unsettled summer weather did present the Eastern crew with a frustrating field season and at times electrofishing was carried out in less than ideal conditions.

From an angling perspective an unsettled summer and early autumn provided the angling community with perfect angling conditions and reports of both Salmon and Sea trout grassed throughout the system. In addition, it is worthy of note that many of the anglers of the River Dennet were practicing voluntary catch and release. This is a most encouraging and welcome mindset from a progressive and positive angling club.

Reports of any breeches of angling legislation and incidents of illegal netting activity were reduced from 2010 figures. Once again a good working relationship was maintained with the River Dennet Angling Association and all reported incidents were investigated with a mix of both foot and boat patrols.

As stated earlier, a wet and unsettled summer during 2011 which continued into the autumn and winter presented a number of additional environmental pressures and threats for the River Dennet Catchment. The winter frosts that penetrated the sand laden valleys of the catchment during the winter

presented risks for bank side erosion during the floods of autumn and early winter posing potential threats to both in-stream habitat and water quality.

Reports of water pollution received during 2011 were reduced from 2010 levels and the Eastern crew continued to monitor the water courses of the River Dennet catchment with a mix of both reactive and proactive site visits. The Eastern crew again maintained a close working relationship with the N.I.E.A Water Quality team. In addition to routine inspections, the Eastern crew carried out a summer programme of water quality sampling with the analysis of these samples carried out at the Loughs Agency in-house laboratory.

2011 saw a number of enhancement schemes carried out with a complete programme of in-stream works on the Ballylaw Burn. Bush trimming, bank protection and habitat unit creation was conducted on the Altnaghree Burn, a locally significant Sea trout spawning tributary. In addition to this the Glenagorland Burn saw an extensive programme of tunnelling removal. There exists scope for further enhancement schemes to be rolled out throughout the River Dennet catchments.

For 2012, the Eastern crew aim to continue with a mix of both patrols and extensive field surveys in order to meet the business targets and objectives of the 2012 Loughs Agency Business Plan.



6.2 PROPOSED HABITAT IMPROVEMENT SCHEMES FOR 2012/13

The Eastern crew have identified several areas for habitat enhancement and it is hoped that if funding is available that the following areas should be made a priority:

- Bank stabilisation and protection measures between Pattersons Dam and the Presbyterian Bridge
- A programmes of sensitive branch trimming/tunnelling removal throughout many of the catchments smaller tributaries , most notably the Dunnyboe and Altnaghree to promote greater levels of light penetration and salmonid production.
- Series of groyne/large boulder placements upstream of Brosney Bridge to create improved parr habitat.
- Alternating “D” deflector creation upstream from Glencush Bridge
- Maintenance and continuation of the Camus Burn scheme

7.0 CATCHMENT INITIATIVES

Integrated catchment management planning can only be delivered through the development of true partnerships between statutory and non statutory partners. An understanding of desired outcomes and methods of delivery is essential in matching requirements and expectations to actions.

Exemplar catchment management planning is an iterative process developed and refined over time between parties who have fostered and developed productive working relationships.

Environmental legislation in tandem with societal requirements dictates that steps are taken to improve our natural habitats. From an aquatic perspective the Water Framework Directive is the key driver towards integrated management of our aquatic environments. The Loughs Agency acknowledges

this and is eager to encourage participatory approaches as a way to effectively and efficiently meet challenging objectives.

In 2012/13 and beyond the Loughs Agency will aim to engage local stakeholders in participating in river corridor litter picks, the development of habitat improvement works and Sea trout monitoring programmes. We will also facilitate wider stakeholder engagement through encouraging participation in Sea trout monitoring and invasive species control projects. If you are a member of an organisation which may be interested in working on collaborative conservation and protection projects within the Burndennet and Glenmornan catchments please contact art.niven@loughs-agency.org to discuss potential projects.



8.0 ACTIONS FOR 2012/2013

- Implement actions from the Trout Strategy once fully adopted, including
 - Continue to monitor the Altnaghree Sea trout index tributary

- Encourage club participation in the Altnaghree Sea trout monitoring project
- Encourage the club and community organisations to instigate litter picks/river clean ups within the catchments of the Burdennet and Glenmornan
- Conduct annual audit point monitoring programme
- Conduct habitat improvement projects as outlined above
- Conduct water quality monitoring programme
- Continue to screen all planning applications within the Burdennet and Glenmornan catchments for potential impacts to the fishery and aquatic resources
- Continue to maintain the high standards of conservation and protection within the Burdennet and Glenmornan catchments
- Target all areas/individuals brought to Loughs Agency attention
- Conduct annual fish population surveys and spawning surveys
- Conduct ongoing pollution monitoring and investigate areas highlighted as being of concern
- Develop potential habitat improvement projects including riparian buffer zone creation, fencing, native species planting and in-channel habitat improvements including spawning bed and nursery habitat improvement
- Monitor forestry operations adjacent to watercourses or areas likely to impact on watercourse

- Assist with Water Framework Directive fish monitoring programme
- Monitor all sand and gravel extraction sites and onsite water management practices
- Ensure all fish passes, dams and mill races meet required standards

