

LOUGHS AGENCY OF THE FOYLE CARLINGFORD AND IRISH LIGHTS COMMISSION



Stillwater Status Report: Lough Ash, County Tyrone

Stillwater Fish Stock Survey

Loughs Agency of the Foyle Carlingford and Irish Lights Commission

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A lake fish stock assessment was conducted to record indicative species composition and abundance of Lough Ash, County Tyrone during early November 2011.

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Report Reference LA/Lake/01/11

**CITATION: Niven, A.J. & McCauley, M. (2015) Stillwater Status Report:
Lough Ash, County Tyrone. Loughs Agency, 22, Victoria Road,
Derry~Londonderry**

DOCUMENT CONTROL

Name of Document	Stillwater Status Report: Lough Ash, County Tyrone				
Author (s):	Art Niven & Mark McCauley				
Authorised Officer:	John McCartney				
Description of Content:	Stillwater Fish Stock Assessment				
Approved by:	John Pollock				
Date of Approval:	June 2015				
Assigned review period:	5 years				
Date of next review:	June 2015				
Document Code	LA/LAKE/01/11				
This documents comprises	TOC	Text	List of tables	Table of Figures	No. Appendices
	X	X	X	X	

Version Control Table

Version No.	Status	Author (s)	Reviewed by	Approved by	Date of issue
Version 1	Draft	Art Niven	John McCartney	John Pollock	30/06/2015
Revision 2					
Revision 3					
Version 3					

TABLE OF CONTENTS

TABLE OF CONTENTS	4
ACKNOWLEDGEMENTS	6
PROJECT STAFF 2011.....	6
EXECUTIVE SUMMARY	7
1.0 INTRODUCTION	8
Fig 1. Lough Ash	8
2.0 METHODS	9
Fig 2. Details of survey nets deployed	9
Fig 3. Recovery of nets on Lough Ash, 2011	10
Fig 4. Lough Ash net locations	11
Fig 5. Lough Mourne 50 metre grids	12
3.0 RESULTS	13
3.1 SPECIES RICHNESS	13
Fig 6. Number of each fish species captured by each gear type during the survey of Lough Ash, 2011	13
Fig 7. Stocked Brown trout from Lough Ash, Co Tyrone.	13
3.2 FISH ABUNDANCE.....	14
Fig 8. Mean (\pm S.E.) CPUE and BPUE for all fish species recorded on Lough Ash, 2011	14
Fig 9. Fish species captured from Lough Ash, Co Tyrone in 2011.....	14
Fig 10. Mean (\pm S.E.) CPUE for all fish species captured in Lough Ash, 2011.	15
3.3 LENGTH FREQUENCY DISTRIBUTION	17
Fig 14. Length frequency Trout, Lough Ash 2011 (N=25)	17
Fig 15. Survey in progress on Lough Ash	17
3.4 FISH AGE AND GROWTH.....	18

4.0 DISCUSSION	18
5.0 RECOMMENDATIONS	18

ACKNOWLEDGEMENTS

The Loughs Agency sponsoring departments, board and staff are gratefully acknowledged for the funding, support and assistance provided to conduct stillwater fish stock assessments and status reporting in the Foyle and Carlingford areas.

Land owners and angling associations are also gratefully acknowledged for their co-operation.

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EXECUTIVE SUMMARY

A Water Framework Directive compliant stillwater fish stock assessment was carried out on Lough Ash, Co Tyrone in November 2011. The Loughs Agency commenced a small rolling programme of lake fish surveys in 2010 to gain a better understanding of fish composition and abundance of the standing waterbodies within the Foyle and Carlingford areas. The information collected can be used for many purposes ranging from formal Water Framework Directive classification, baseline survey for use in the scrutiny of any future proposals and for contributing towards the sustainable development of the angling amenity.

Initially selected as one of four surveillance lakes within the Foyle and Carlingford areas requiring a Water Framework Directive compliant fish survey Lough Ash, Co Tyrone was subsequently dropped from the list of surveillance lakes by the Northern Ireland Environment Agency when lakes under 50 hectares were later deselected as surveillance sites.

The 2011 fish stock assessment noted the presence of two fish species in Lough Ash, stocked Brown trout and three spined Stickleback with a total of 35 individual fish captured during the survey. Stocked Brown trout were the most common fish species encountered.

It is anticipated that this survey report could significantly contribute towards the future sustainable development of angling initiatives, infrastructure and development plans for Lough Ash, Co Tyrone through highlighting the species and their relative abundance to fishery managers. Potential exists for a well-managed stocked fishery to be maintained by the owner of the fishing rights.

If access to the Fish in Lakes 2 Water Framework Directive classification tool was available a WFD compliant classification could also be derived for Lough Mourne and provided to the Northern Ireland Environment Agency for national reporting purposes.

1.0 INTRODUCTION

Lough Ash is located approximately 5km south-east of Donemana, Co. Tyrone along the B48 road between Donemana and Ballynamallaght in the Burn Dennett catchment. The lake is located at an altitude of 160 metres above sea level and its principal dimensions are;

- Length: 750m long, maximum width 280 metres
- Surface area: 15.95 hectares
- Mean depth: 3.2 metres, maximum depth: 11.5 metres



Fig 1. Lough Ash

2.0 METHODS

Lough Ash was surveyed over one night on the 9th of November 2011 according to the methodology described in the Water Framework Directive compliant NS Share Methods Manual for systematic surveying of lakes for fish (NSSHARE, 2008). Prior to the commencement of the fish survey bathymetric data was sourced from the Northern Ireland Environment Agency to ensure the survey methodology could be followed. A total of 9 nets were set as summarised in Figure 2.

Net Type	No. Deployed	Water depth (m)
Dutch fyke nets (chain of 3)	3	0 – 2.9
Multi-mesh gill nets	2	0 – 2.9
Multi-mesh gill nets	2	3 – 5.9
Multi-mesh gill nets	2	6 – 11.9

Fig 2. Details of survey nets deployed

Survey locations were chosen within randomly selected 50m X 50m grid squares overlaid on a bathymetric map of the lough. A handheld Trimble Geo HT GPS was used to record the precise location of each net. The location and depth of each net is shown in Figure 4.

Any fish which were alive and in good condition were measured and released live after removal from the nets. All other fish were removed from the nets and identified and measured on site.





Fig 3. Recovery of nets on Lough Ash, 2011

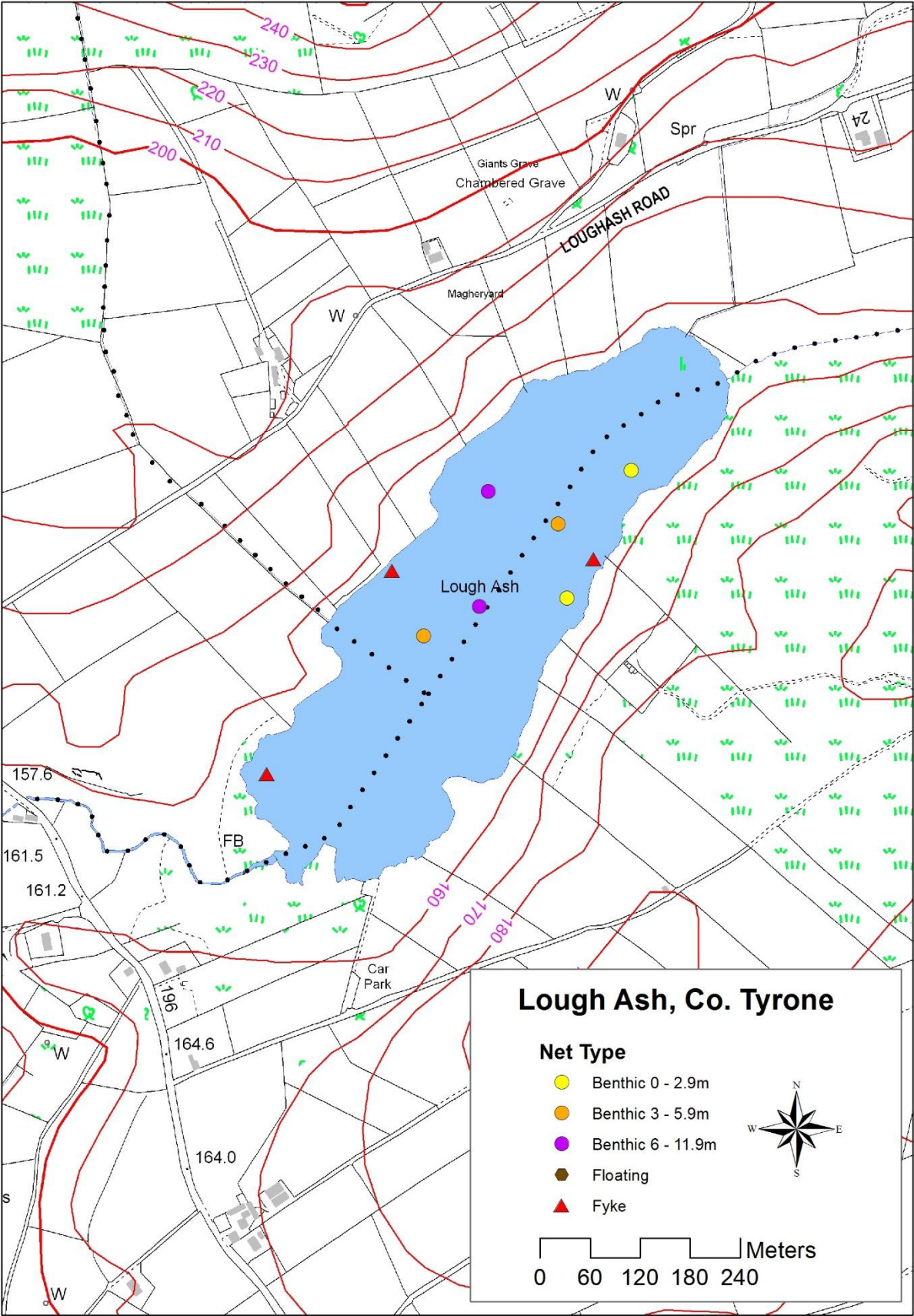


Fig 4. Lough Ash net locations

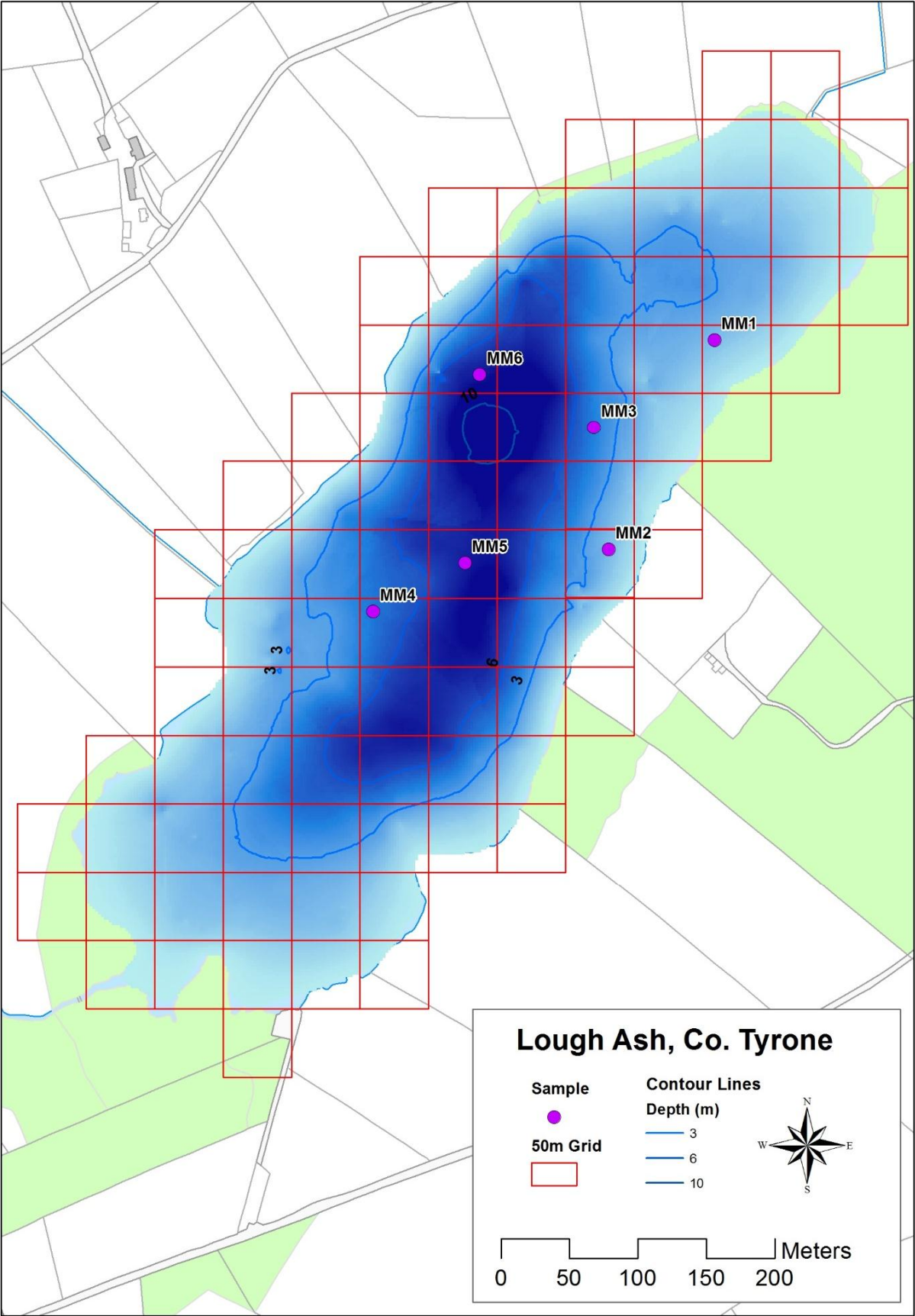


Fig 5. Lough Mourne 50 metre grids

3.0 RESULTS

3.1 SPECIES RICHNESS

Two fish species were recorded on Lough Ash in November 2011 with a total of 35 fish captured during the survey. A list of species encountered and captured by each gear type is compiled in Figure 6. Brown trout were the most common fish species encountered during the survey.

Common name	Scientific name	Benthic gill nets	Surface gill nets	Fyke nets	Total
Brown trout	<i>Salmo trutta</i>	25	0	0	25
Stickleback	<i>Gasterosteus aculeatus</i>	10	0	0	10

Fig 6. Number of each fish species captured by each gear type during the survey of Lough Ash, 2011

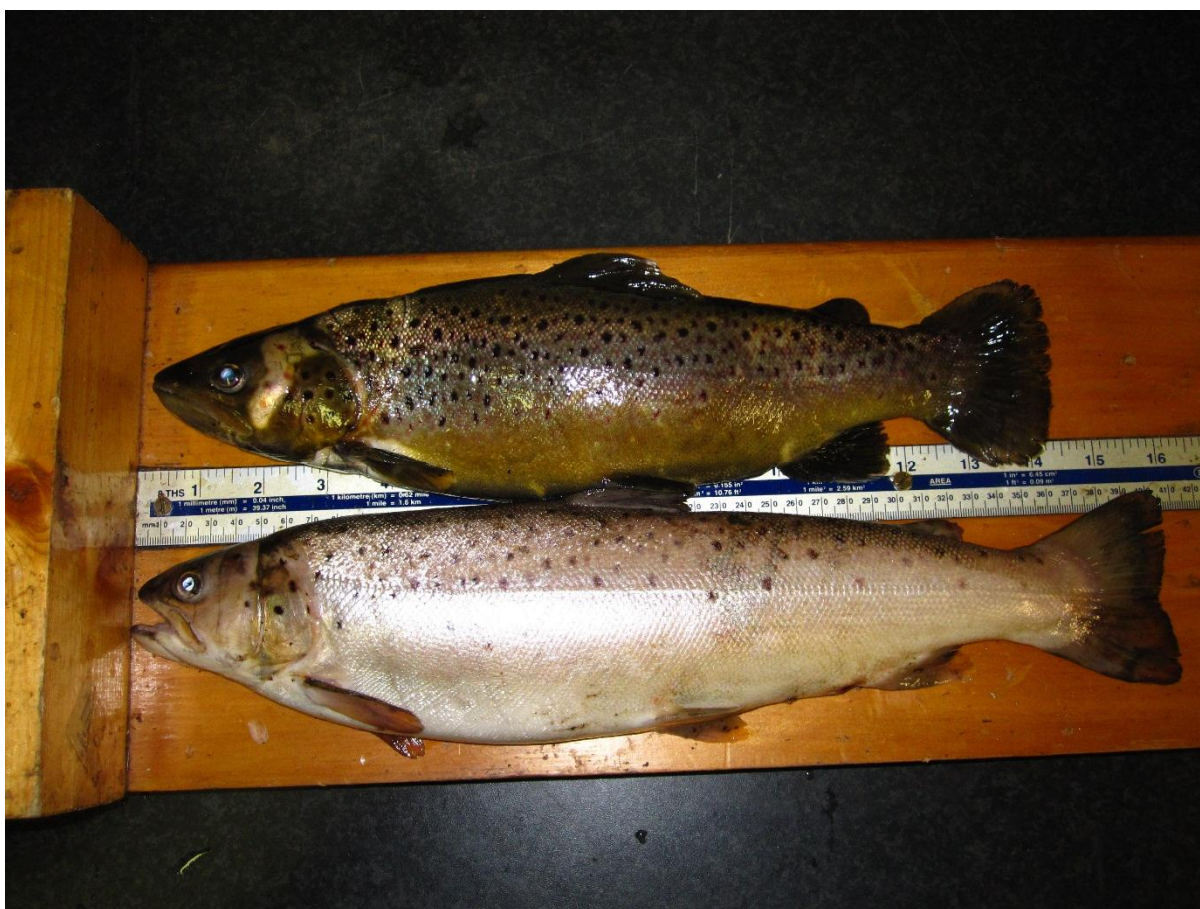


Fig 7. Stocked Brown trout from Lough Ash, Co Tyrone.

3.2 FISH ABUNDANCE

Fish abundance, mean catch per unit effort (CPUE) was calculated as the mean number of fish caught per metre of net. Fish biomass, mean biomass per unit effort (BPUE) was calculated as the mean weight of fish caught per metre of net. For all fish species except eel, CPUE/BPUE is based on all nets including fyke nets, whereas eel CPUE/BPUE is based on fyke nets only. Weights were not available from those fish which were released alive. In such cases, weights were calculated from the length weight relationship of recorded fish. A summary of CPUE and BPUE data for each species is shown in Figure 8.

Brown trout were the dominant fish species in terms of abundance.

Scientific name	Common name	2011 CPUE	2011 BPUE
Salmo trutta	Brown trout	0.092 (0.041)	45.925 (21.096)
Gasterosteus aculeatus	Stickleback	0.037 (0.014)	

Fig 8. Mean (\pm S.E.) CPUE and BPUE for all fish species recorded on Lough Ash, 2011

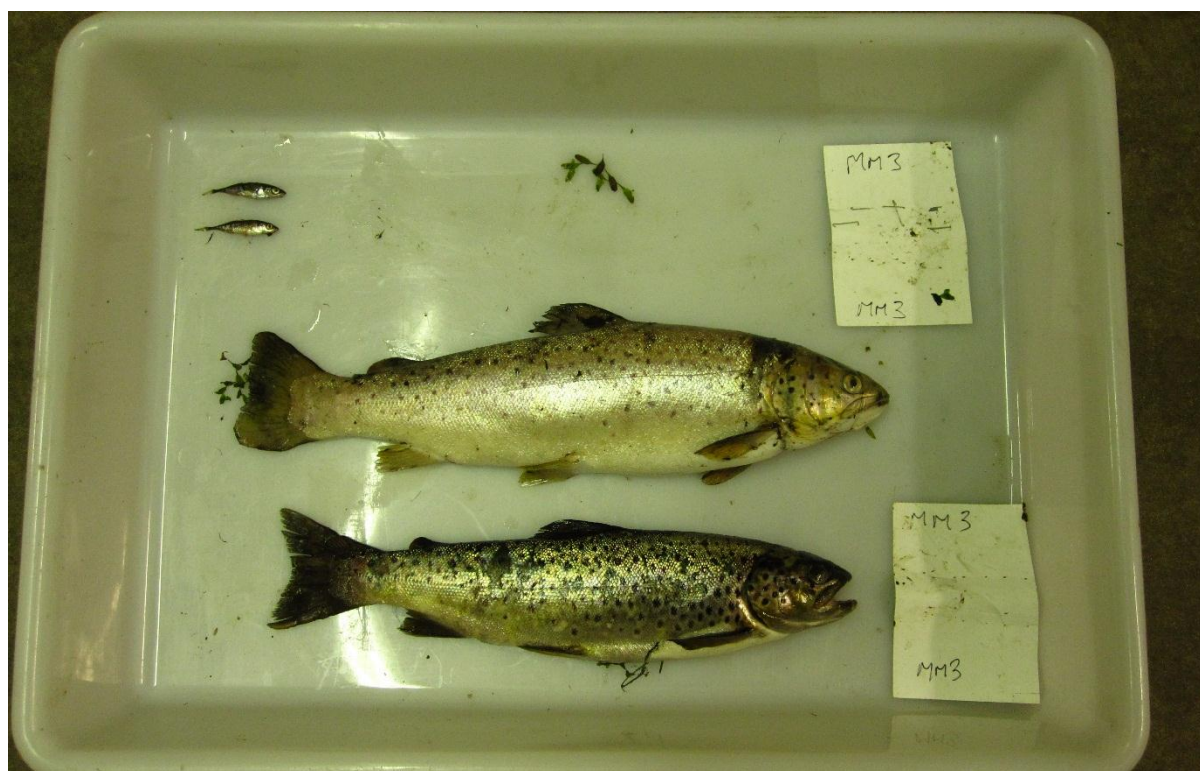


Fig 9. Fish species captured from Lough Ash, Co Tyrone in 2011

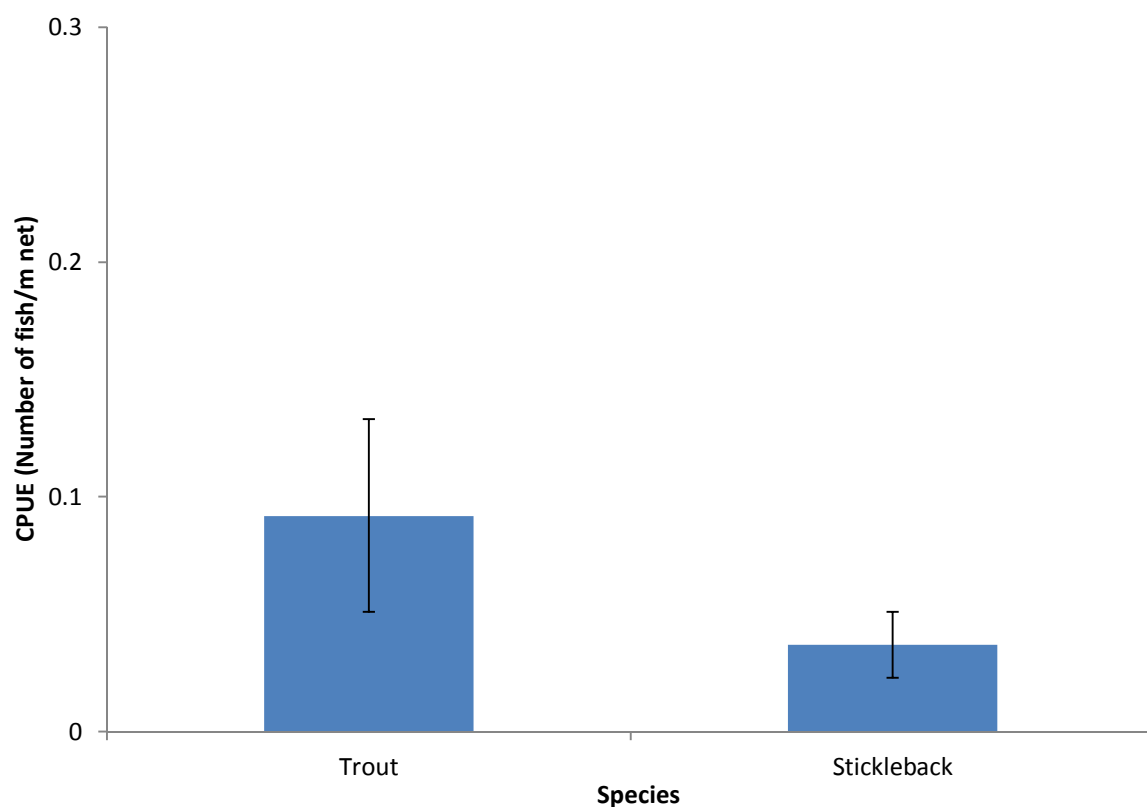


Fig 10. Mean (\pm S.E.) CPUE for all fish species captured in Lough Ash, 2011.

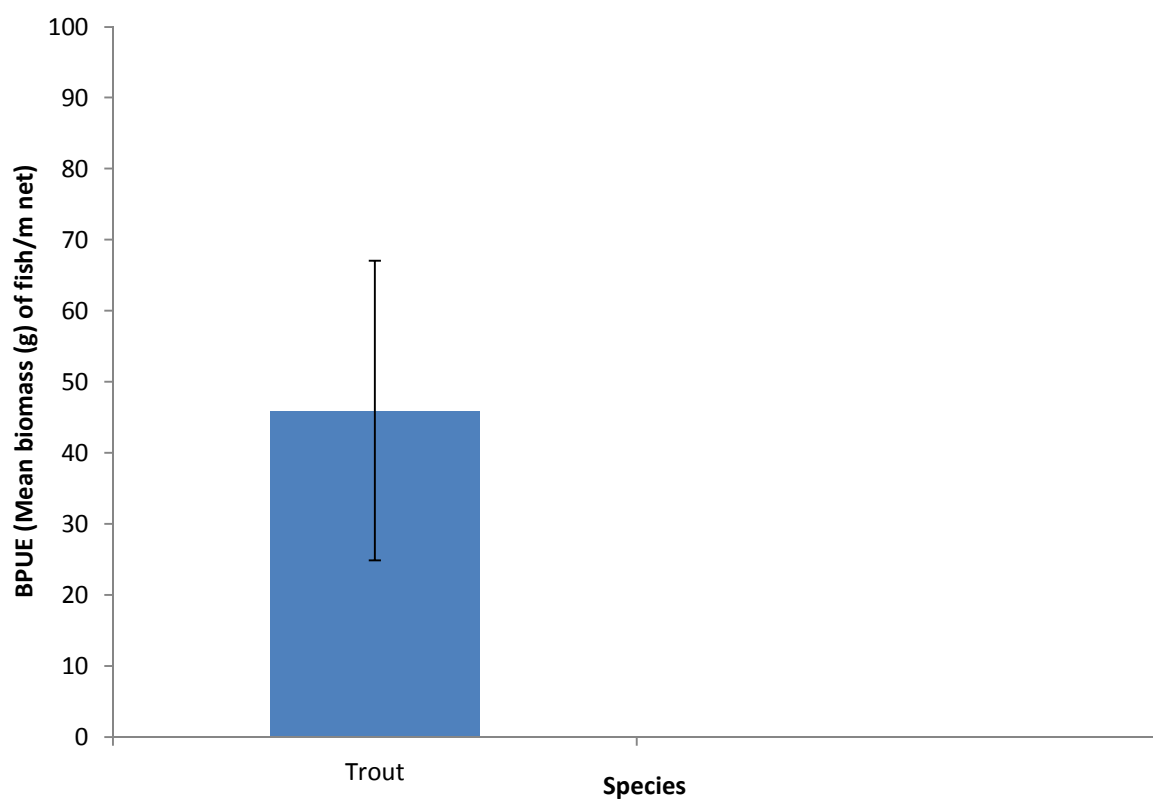


Fig 11 Mean (\pm S.E.) BPUE for all Brown trout captured in Lough Ash, 2011.

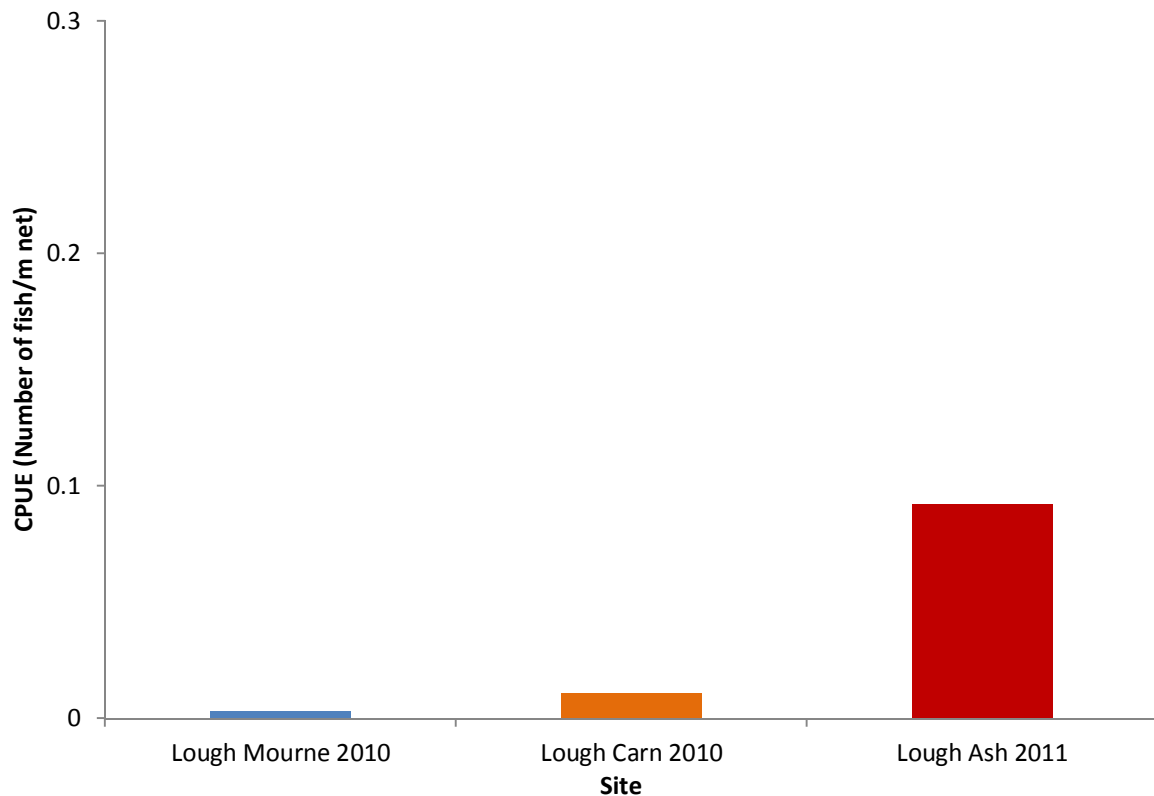


Fig 12. Mean CPUE for all Brown trout captured in Lough Mourne 2010, Lough Carn 2010 & Lough Ash 2011.

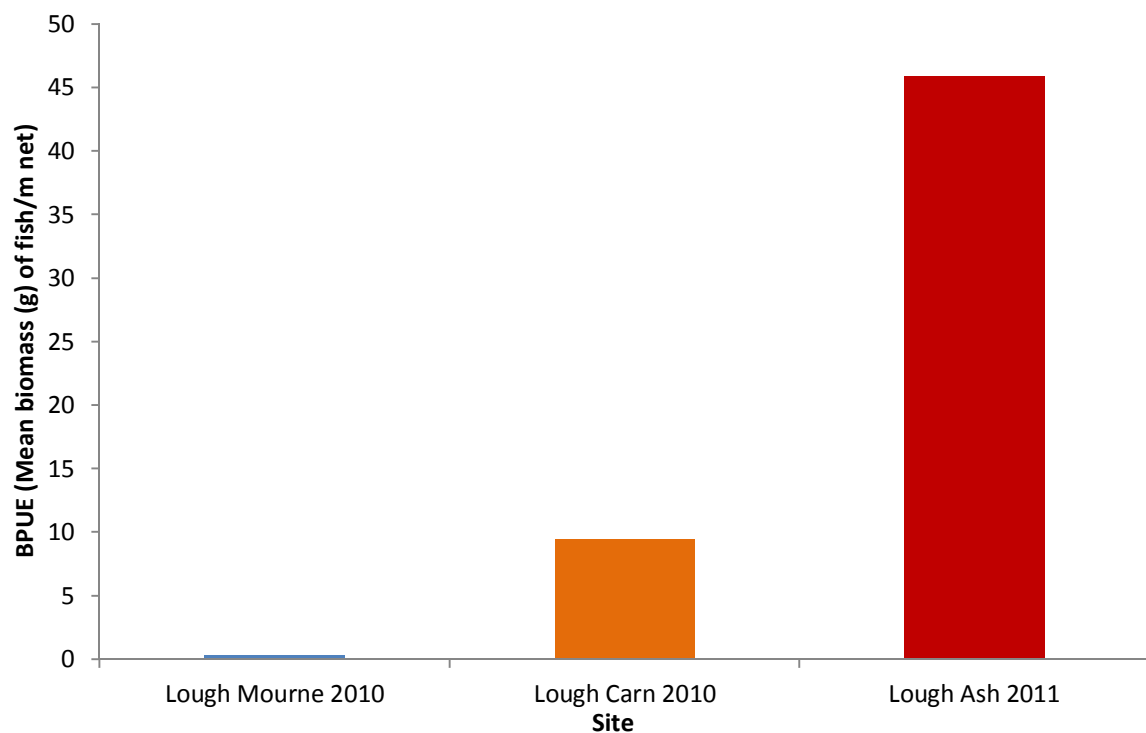


Fig 13. Mean BPUE for all Brown trout captured in Lough Mourne 2010, Lough Carn 2010 & Lough Ash 2011.

3.3 LENGTH FREQUENCY DISTRIBUTION

A total of 25 Brown trout were captured during the 2011 survey. The trout lengths ranged from 29.7cm to 42.1cm (mean length = 34.3cm). A total of 10 Stickleback were captured during the survey, however no lengths or weights were recorded.

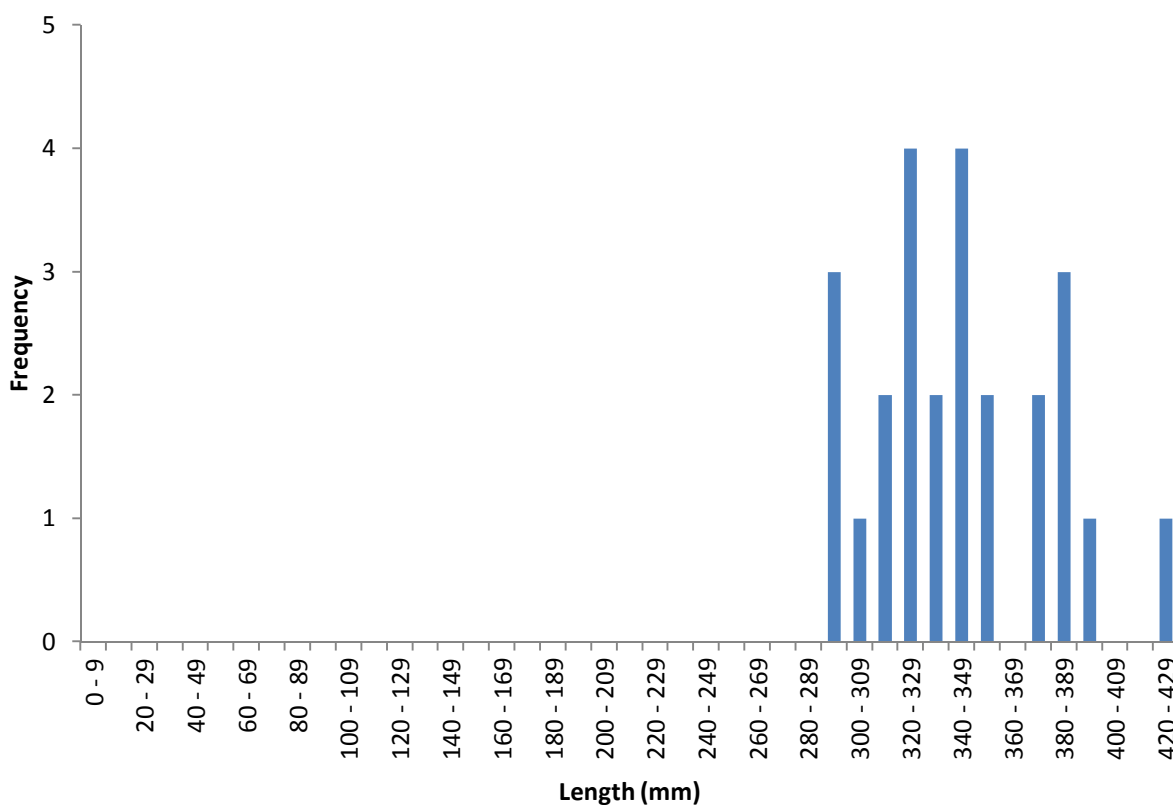


Fig 14. Length frequency Trout, Lough Ash 2011 (N=25)



Fig 15. Survey in progress on Lough Ash

3.4 FISH AGE AND GROWTH

Lough Ash is a stocked Brown trout fishery, it was decided not to take scales for age and growth analysis. Due to the origin of the fish, hatchery fish will display more even growth patterns making seasonal growth pattern identification very difficult. From looking at the length frequency distribution the fish are all larger in length with no fish under 29cm recorded. If smaller fish had been encountered there may have been a remnant reproducing population of wild Brown trout present. Lough Ash forms part of the public angling estate and is managed as a public access fishery by the Department of Culture Arts and Leisure, Inland Fisheries section. The fish are sourced from DCAL's hatchery and fish farm at Movinagher on the River Bann.

4.0 DISCUSSION

Stocked Brown trout were the dominant fish species present in Lough Ash with Three spined stickleback also present. At the time of establishment of the public angling estate Lough Ash and other waters were subject to a programme of fish removal. A barrier to the outflow was also installed to prevent any escape of stocked fish to the wild. At the time of this current study the outflow was inspected and a barrier was observed at the outflow but was not acting as a full barrier to fish migration. The inflowing tributary was not inspected as part of this survey but it would be interesting to know if juvenile trout are present within it.

At the time of survey both male and female trout were in an advanced state of reproductive maturity with eggs and milt running from fish. The potential for viable offspring to be produced should be investigated further as it may have ramifications for potential genetic introgression into the local wild brown trout population.

5.0 RECOMMENDATIONS

- Conduct an electrofishing survey of the inflowing stream to see if any juvenile trout are present.

- Investigate the potential for offspring to be successfully produced by the stocked trout.
- Investigate the suitability of the current fish screening arrangements.
- Communicate findings internally to colleagues and externally to stakeholders
- Continue to conduct stillwater fish surveys temporally and spatially within the Foyle and Carlingford areas.

7.0 REFERENCES

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