The Necessity for Controlling Pike Stocks in <u>Some</u> Quality Irish Wild Brown Trout Managed Lake Fisheries

- Why are there so few lakes in this category ?
- What excludes lakes from this list?
- Is pike management in trout lakes an effective tool?
- What happens when pike management ceases?
- A change in policy in relation to the necessity for pike management in all trout lakes the science behind this policy change.

How have recent major ecological changes in many lakes impacted on different fish populations including pike ?



A Quality wild brown trout lake fishery must have ----

- 1. Extensive recruitment potential of trout from adjacent stream catchments.
- 2. Large fly hatches from April through to September (extensive weeded and shallow marl bed areas)
- 3. Alkaline waters to ensure high productivity levels.







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L. Gowna - also falls short for different reasons

- -Water chemistry is ideal
- -- Lake morphology is perfect (extensive weeded shallows)
- --suitable spawning and nursery streams are grossly inadequate

X





The selectivity of Pike in relation to eating Roach and Trout when given a choice.

Numbers of Roach and trout caught in survey nets.			Numbers of Roach and trout found in pike stomachs.				
Year	Roach	Trout	Roach/Trout	Year	Roach	Trout	Roach / Trout
1	2,361	67	35 / 1	1	9	4	2.25 / 1
2	824	11	75 / 1	2	7	2	3.5 / 1
3	1,495	10	149/ 1	3	5	1	5/1



Why are the Pike so selective at times ?





How many Trout will the Pike eat?



An uncontrolled pike stock in Corrib needs a maintenance ration of 116 tonnes of trout ! - probably circa 50% of the trout stock-

In lakes with poorer trout recruitment rates this % is probably higher.

The pike stock in L. Corrib will never eliminate the trout population. However, it could reduce the standing crop of trout to a level where quality trout angling will not be available.

How effective is pike control and what happens when you stop ?

These data for lower Lough Corrib illustrate both the effectiveness of such a programme and how a pike stock will rebalance itself when control ceases.

- By 1968 adult pike numbers had been controlled. This situation remained unchanged while pike management continued up to 1980.This meant that a majority of the pike which were likely to be eating trout (fish ≥ 55cms.) had been removed from the stock.
- Financial restrictions prevented the continuation of this programme after 1980. A partial recovery of adult pike numbers was evident by 1986 with a full recovery evident by 1996.









The Lough Sheelin data like the information for lower Lough Corrib illustrates that pike control can be effective.

A review of the available data, for all managed trout lakes, in the late 1990's, indicated this trend was not evident in all managed trout lakes. This lead to a change in policy in relation to the management of pike stocks in some lake trout fisheries.



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Lough Derravaragh Survey Data



Lough Ennell Survey Data





Why have Pike stocks expanded in some lakes and not others when more fodder fish became available ?



The Extent of Pike Nursery Area in individual lakes is very variable

Data suggests that the extent of dense weed beds in individual lakes control pike production!



L. Derravaragh – Dense weed beds are confined to one small area of the lake



In summary, there is a bottle-neck in some trout lakes, most notably, in Lough's Ennell and Derravaragh where the limited extent of weed bed area "caps" pike production irrespective of the size of the available food supply. Once this became evident policy changed and pike management programmes ceased on these waters.



L. Sheelin –Almost ¼ of the entire lake bed area has heavy weed cover.



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Depends on the balance of a number of factors ;-

- 1. The extent and quality of pike nursery areas in individual lakes \checkmark
- 2. The degree to which the trout population feeds pelagically in a lake.
- 3. Annual trout recruitment rates relative to lake size.

Without Pike Management

The quality of trout angling will decline to some extent.

Trout stocks may become extinct





Distribution of Adult Pike

---- driven by the availability of fodder fish and the pikes capacity as a hunter.

Lough Inchiquin

Trout Standing Crop – 64 kgs./ha.

A substantial proportion of the trout population in this water feed on plankton for long periods and are not available during these periods as pike fodder.

Pike do not hunt in pelagic areas

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Productive stream area (m²) per km² of lake area



Summary

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Pike Management Requirements in Different Trout Lakes

Essential – Why?	Not Critical – Why ?			
Limited wild Very extensive pike trout nursery areas. Recruitment.	Limited Pike nursery I area relative to lake I size. I	Exceptionally high trout recruitment & pelagic trout stock.		
Arrow Carra Carra Conn Cullin Corrib Mask Sheelin	Derravaragh Ennell Owel	Inchiquin		

Impacts of accommodating angling for specimen pike on managed trout lakes.



A pike management policy on trout lakes which incorporated a non-cull policy for pike ≥ 90.0cm would not significantly impact on trout stocks – Why?

- 1. Very large pike (≥ 90.0cm) only have a 1 to 2 year life expectancy.
- 2. These large fish constitute a very small proportion of the adult pike stock.
- 3. The pike with most potential to eat trout are those from 55 to 90cm. In length



Changes in the Ecology of Irish Lakes over 50 years and The impacts of change on fish and other wildlife





Roach introductions in the 1970's.

Eutrophication in the 1970's











The Ecology of Irish Lakes in the 1970's.

There are two interlinked ecologies in every lake

Pelagic

Demersal



Catchment nutrients (P&N)







The extent of weed bed areas in L. Sheelin in 1972 and 1990.

Discolouration of lakes by dense algal blooms reduced sunlight penetration to lake bed areas and greatly reduced the extent of weed bed areas.







Early to mid 1980's

Demersal





Demersal







To-day - 2011





Substantial change in the ecology of our lakes occurred following eutrophication. The introduction of roach changed the balance again. The presence of zebra mussels has caused further major change – the pelagic ecology has "shrunk" and a recovery in the demersal ecology is evident.



The Resurgence in Mayfly Stocks is astonishing !!!

Similar events have been recorded in U.S. lakes following zebra mussel infestations.

In decades to come one can expect further major changes in the ecology of our lakes because of the on-going introductions of new plant, invertebrate and fish species.

This will necessitate on-going reviews periodically of fishery management strategy.