

Current Fish and Game Research

Mallard research:

To understand the dynamics of mallard populations which are currently perceived to be undergoing a decline in abundance, especially in large areas of the North Island and some parts of the South Island.

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Specific Projects

1. Mallard survival and behaviour in specific New Zealand habitats.

Objectives:

- a. To measure the survival of mallards at different times of their life cycle in different habitats they currently live. – Waikato, Bay of Plenty, Manawatu, Eastern North Island, Eastern South Island, West Otago/Southland.
- b. To develop techniques for enhancing survival where it is shown to be limiting the population and where this is practical.

The research will determine through the study of mallard survival, including the further analysis of recent and current mallard banding studies, and new methods of monitoring survival (e.g. radio tracking, brood survival) appropriate harvest levels for mallards in each biogeographic region of New Zealand.

2. Mallard Habitat Monitoring

- a. To develop techniques for monitoring mallard habitat change and the responses of mallard populations to these changes.
- b. To determine the relative importance and respective uses of components of mallard habitat.

3. Modelling Harvest regulation effectiveness

- a. To publish a Master's of Science thesis on this topic in a peer reviewed journal.

4. Mallard Habitat Manipulation and Creation

- a. To identify techniques for increasing carrying capacity.
- b. To build on existing knowledge of habitat requirements of mallards.
- c. To determine most effective methods of causing land occupiers, owners or managers to protect, maintain and create mallard habitat.

The research will identify what habitat is most valuable for mallards and provide recommendations for enhancing this.

5. Citizen Science to obtain habitat use data on mallards

- a. To use interested landowners and hunters to provide information on mallard brood survival and use of different kinds of habitat.

Characterising NZ river fisheries.

Martin Unwin

In 2008 Fish & Game New Zealand (FGNZ) engaged NIWA to help design and analyse a pilot survey of anglers in the Otago and Nelson/Marlborough regions, as a precursor to a possible national survey updating the 30 year old data set collected by the 1979/81 National Angling Survey. Like its predecessor, the pilot survey was concerned with qualitative rather than quantitative attributes of each individual fishery and the values associated with them, and hence the reasons why anglers choose to fish one water in preference to another. The main objectives were to remedy some of the flaws in the 1979/81 survey, to trial the feasibility of administering the survey via telephone, to contrast the effects of differing sampling strategies, to assess the utility of the resulting data, and to consider appropriate strategies for analysing and reporting the survey results. The survey was successful in meeting these objectives, and the findings have already proven to be of value to FGNZ managers in the two participating regions. In preparing this proposal, we have assumed that the reader is familiar with the 2008 Pilot Survey, and the associated report.

Integrated catchment management for maintaining riverine brown trout fisheries

Corina Jordan

The work comprises:

Literature review on the environmental drivers of recreational trout populations

Quantifying relationships between environmental variables (land use, water quality, hydrology, instream and riparian habitat, and sedimentation), and the health of brown trout fisheries.

Quantifying relationships between environmental variables in relation to trout spawning/recruitment habitats and the health of brown trout fisheries.

Developing a Habitat Quality Index for recreational trout fisheries

Intragravel nitrate study.

Mark Taylor

To determine the *in situ* relationship between brown trout egg mortality, Intra gravel dissolved oxygen, biological oxygen demand and nitrate levels in a number of lowland streams where trout spawn, or were known to spawn in the past.

This work will be used to assist with the setting of standards in the ECan Water Plan.

Game Harvest Survey web site running and data analysis.

A continuation of the previous years' programmes to maintain a database of hunter harvest and effort across New Zealand.