INLAND FISHERIES COMMISSION NEWSLETTER

On the Rise

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Migrating elvers climb ladder to survival

Many thousands of young eels will survive their migration up the South Esk River this summer without constant human intervention, thanks to initiatives by the Inland Fisheries Commission (IFC) and the Hydro-Electric Corporation – and that's good news for Tasmania's native eel fishery.

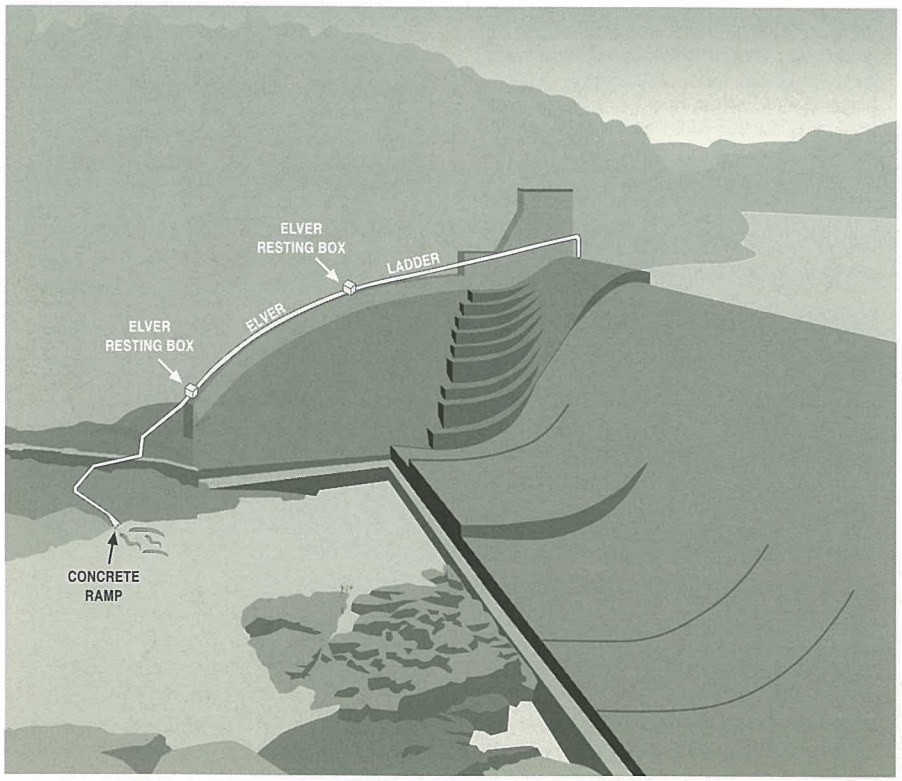
In the past, many juvenile eels (called *elvers*) died when dams impeded their upstream progress. Now they'll survive because of the combined efforts of the IFC and the Hydro to design and build Australia's first elver ladder to help the young eels over Trevallyn Dam.

The Derwent and South Esk rivers have Australia's largest known elver migrations. In one of the most remarkable migratory feats by any animal, juvenile eels make their way to Tasmania from where they're spawned in the Coral Sea, some 3500km away. They leave the spawning grounds as larvae, enter the State's coastal estuaries as tiny glass eels, and migrate upstream into freshwater river systems as brown elvers, a journey that takes from three to five years in all.

In the Derwent River system, several dams prevent their progress, so the IFC has undertaken an extensive program to catch and relocate elvers from below dam barriers, ensuring the long-term viability of the fishery. In the South Esk River, however, there is only one dam to impede their migration, the Trevallyn Dam. The IFC reasoned that if it could find a way to help elvers get over it by themselves, there would be no need for the labour-intensive intervention necessary in the Derwent system, and the elver ladder grew out of that idea.

Built by the Hydro, the just-completed ladder will enable elvers to make their own way into the dam's waters and continue their migration into the upper reaches of the river. The ladder is a 90m long, 150mm diameter galvanised iron pipeline lined with a mixture of sand and gravel. Resembling a natural creek bed, it has a constant trickle of water coming down it from the top of the dam. A spray of water on the concrete ramp at the bottom of the pipe entices the elvers into beginning their uphill journey.

Once they get inside the pipe, the elvers follow their natural instincts and swim upstream. Two boxes have been built into the ladder so they can rest along the way, and there is a small jet of water at the top of the ladder to help the elvers on their way into Lake Trevallyn.



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Commission on the move

The Commission recently bought the Works Tasmania buildings at Lampton Avenue, Derwent Park, for its new base. The site, consisting of approximately 1100m² of office and laboratory accommodation on 6000m² of flat land, will be a vast improvement on our present premises.

In 1967 the Commission purchased a house at 127 Davey Street to use as an office. A second house at 14 Molle Street, which shared a common backyard with the original property, was acquired in 1979. The third house at 125 Davey Street was purchased in 1992.

Having outgrown these properties, the Commission is restricted in many ways – a situation that will be redressed by our moving to the new premises. The outright purchase of Lampton Avenue was made possible by the Commission's sound financial management in the past and the move is eagerly awaited by all staff.

Right *The old building – home to the IFC since 1967 but now inadequate, this building is being superseded...*

Below *...by the new building in mid-1997.*

IN BRIEF

Melbourne Fishing Show report

As usual, the IFC had a stand at the Melbourne Fishing Show, held from 17-20 October 1996. IFC staff report that public response to it and to the Tasmanian stand was pleasing and positive. According to IFC technical officer Brett Mawbey, "Most people who were attracted to the Tasmania stand or the Inland Fisheries Commission display had already booked a fishing trip to the State or were planning to come, having been previously or having heard about the fishing and wanting to know more. Most people were eager for information on best waters to fish, travelling time, and diversity of fishing."

Fisheries Lane repaired

Heavy rains last spring made Fisheries Lane to Brumbys Creek impassable for all motor traffic except large 4WD vehicles, so in October the IFC hired a local contractor to repair the road. Three ten-yard loads of coarse gravel were used to fill the main bog-holes, after which the road was potholed and graded. Further work is to be carried out soon.

A local contractor makes Fisheries Lane passable again

New threatened-species posters

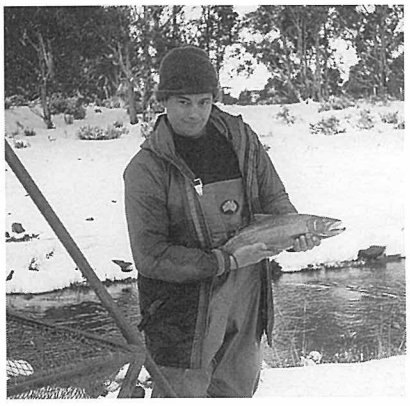
The IFC has begun production of a new series of posters about freshwater fish. The first, featuring the Pedder galaxias, was created by noted Hobart designer Lynda Warner and is expected to be available to schools, libraries, community groups, and angling clubs early in 1997.

Free fishing day

Australia Day, 26 January 1997, was again be a free fishing day throughout Tasmania's inland waters, except those where fishing is normally restricted or prohibited. It's an excellent opportunity for would-be anglers to try their hands at freshwater fishing without needing a licence, and local anglers took full advantage of it.

Rainbow Trout ◆ *Spawning Runs 1996*

As part of the IFC's trout-management activities, the rainbow trout spawning runs at Great Lake, Penstock Lagoon, Lagoon of Islands, and Lake Sorell were sampled during 1996 and a representative sample of trout from each run was weighed and measured. The length and weight data is summarised below. The spawning run at Mountain Creek, Lake Sorell, was very poor due to low flows preventing fish from entering the stream.



IFC technical officer Tim Farrell with a rainbow trout spawner on a snowy spring day at Penstock Lagoon

PENSTOCK LAGOON

93 fish sampled, combined sexes

Average length	481mm
Range of length	325-570mm
Average weight	1390g
Range of weight	450-1850g

GREAT LAKE

200 fish sampled, combined sexes

Average length	459mm
Range of length	387-535mm
Average weight	1165g
Range of weight	675-1800g

LAGOON OF ISLANDS

43 fish sampled, combined sexes

Average length	598mm
Range of length	499-677mm
Average weight	2953g
Range of weight	1750-4100g

LAKE SORELL

96 fish sampled, combined sexes

Average length	461mm
Range of length	325-510mm
Average weight	1075g
Range of weight	625-1600g

Lampreys

by Wayne Fulton, Commissioner of Inland Fisheries

Lampreys are a very primitive group of animals that are not true fishes as they lack the jaws and paired fins normally found in that group. However, they superficially resemble eels in appearance and are found in water, so for convenience they are usually grouped with fishes.

Adult lampreys have a short head that has a round sucking disc on the underside. This disc has rows of small horny teeth surrounding a central mouth. The eyes are small and placed on the side of the head and there is a single nostril on top of the head. Seven pairs of gill openings may be found on each side starting just behind the eyes.

Lampreys are found worldwide in cool and cold water areas. Several species are found in the Southern Hemisphere; two are native to Tasmania.

Life cycle

Lampreys have several distinct phases in their life history, starting with a small freshwater stage (ammocoete), followed by a downstream migratory stage, a marine parasitic stage, and then a reproductive adult stage.

The life of a lamprey begins in freshwater with the wormlike ammocoete stage, in which it is usually brown in colour with no eyes and a single low dorsal fin along the rear half. Ammocoetes may be found in the mud and debris in quiet backwaters of streams where they feed by pumping water through the gills and filtering out microorganisms. This stage may last several years before transformation to the next stage.

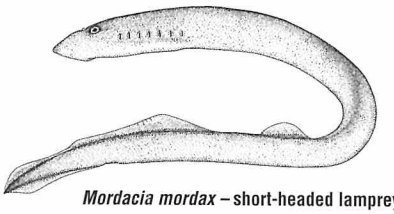
Ammocoetes undergo a transformation in shape, and in some cases colour, to a young adult form before making their way downstream to the sea. They develop eyes and the single dorsal fin divides to form two distinct fins.

On reaching the sea they assume a parasitic life stage by attaching themselves to fish using the sucking disc around the mouth. The teeth are then used to rasp a hole in the host through which blood and muscle tissue can be extracted. During this parasitic phase the lamprey grows quite rapidly and to a large size compared to the ammocoete stage.

Feeding eventually stops and the adult lampreys migrate into streams to spawn and die. Spawning does not appear to take place immediately and the adults may spend up to a year in freshwater buried in the substrate. They do not feed during this period.

Tasmanian species

Two species of lamprey are known from Tasmania, the short-headed lamprey *Mordacia mordax* and the pouched lamprey *Geotria australis*.



***Mordacia mordax* – short-headed lamprey**

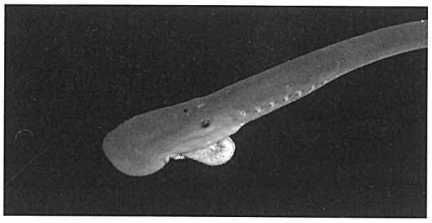
This species is found on the southeastern Australian mainland as well as in coastal streams all around Tasmania.

Colour

The ammocoete stage of this species is usually light brown, with some pink colouration around the head. The downstream migratory stage is brown all over but the returning adults are blue.

Natural history

The ammocoete stage probably lasts about three years and transformation occurs at around 150mm length. Downstream migration takes place mainly in autumn. The parasitic marine stage probably lasts about one year and the adult short-headed lamprey is about 330mm long when it returns to freshwater in spring or early summer.



***Geotria australis* – pouched lamprey**

This species is found in coastal streams all around Tasmania and also occurs in the southeast and southwest of the Australian mainland, New Zealand, and South America.

Colour

The ammocoete of the pouched lamprey is predominantly brown with pink colouration around the head. This transforms into a brilliantly coloured downstream migratory stage which is silver along the belly and iridescent blue along the back with a prominent lateral eye. On its return to freshwater the adult is blue with a brighter blue stripe down each side of the back. After some time in freshwater the adults become dull brown all over.

Natural history

The duration of the ammocoete stage of this species is probably less than for the short-headed species as it changes to the downstream migratory stage at about 100mm in length (c.f. 150mm). Downstream migration occurs in autumn and the adults return to Tasmanian streams predominantly in spring. The adults are about 600mm in length at this stage and have spent probably about two years at sea.

A peculiar feature of this species is the enlargement of the sucker and the development of a sac or pouch-like structure under the throat of the adult after some time in freshwater. The function of the sac is not known.

General notes

The migrations of lampreys into freshwater may be quite extensive and they often fall prey to birds and larger estuarine trout. While the main part of the active migration takes place at night, they may sometimes be seen congregating below weirs and dams. Large numbers of them often do not survive this migration and reports of dead 'sucking eels' are routinely received. This is a natural occurrence.

Although they do not feed in freshwater, they use their sucking disc to negotiate stream barriers and may attach quite firmly to an arm or leg if available. Their strong teeth can still leave their mark even if no malice was intended.

Stocking with local wild browns in the North-East

Blackmans Lagoon and Little Waterhouse Lagoon are popular fisheries in North-East Tasmania where trophy fish up to 5kg may be caught. Their waters have normally been stocked with rainbows, salmon, brown/salmon crosses, and brown trout from the IFC hatchery at Salmon Ponds.

Recently, however, the Scottsdale branch of the Northern Tasmanian Fisheries Association asked that future stockings be of brown trout fingerlings or yearlings because rainbows tend to be caught out too quickly and fail to reach the same large size as browns. Since the hatchery can produce only limited numbers of advanced brown trout, an alternative supplier would have to be found if the Association's request was to be met.

Accordingly, it was decided to collect enough suitable browns by electrofishing some of the local river tributaries, where small brown trout abound. Chosen for this part of the stocking exercise were the upper Brid River and a tributary of the Great Forester, both near Springfield, where in April 1996 a large group of enthusiastic volunteers from the Scottsdale branch of the Association assisted an IFC electrofishing team to collect more than 1000 brown trout about 180mm in length. The volunteers provided welcome practical support, ferrying fish to holding cages and assisting with their transfer to the two lagoons.

The hardy wild browns collected are expected to prove superior to hatchery fish, so good fishing should be available at Blackmans Lagoon and Little Waterhouse Lagoon during the next couple of seasons. Good Luck!

What browns are biting on at Lake Sorell

by Stuart Chilcott, Scientific Officer, Inland Fisheries Commission

During the 1992-93 angling season many anglers from several troutfishing clubs participated in a study of the diet of brown trout at Lake Sorell. These anglers kept and stored the stomachs of trout they caught for subsequent examination and analysis by Commission staff. This has provided some basic information on the major food items taken by trout during the fishing season.

A total of 176 stomachs were examined and the contents identified and counted. The samples have been grouped according to season; three seasons (spring, summer, and autumn) are represented.

Several terms with specific meanings are used throughout this article.

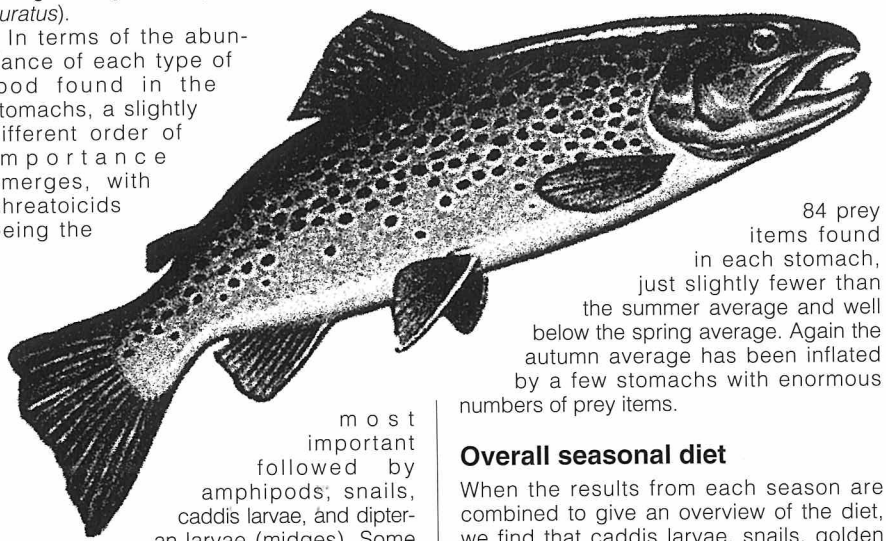
- *Occurrence* –
  The number of times a prey item is found in all stomachs – usually expressed as a percentage.
- *Abundance* –
  The total number of a specific prey item.
- *Ranking* –
  An ordering of the most important prey item to the least important.

Spring diet

Inland Fisheries Commission research staff examined 34 trout stomachs, all of which contained some prey items. On average there were about four different types of prey found in the stomachs – although the number varied between one and six different items for individual fish – and 182 prey items found in each stomach.

The spring diet almost exclusively comprised aquatic animals; only a single terrestrial leaf-hopper was found in one stomach. The most commonly occurring food items, ranked in order of importance, were caddis larvae (mainly stick caddis – Leptoceridae – and tubular stone cased caddis – Philorheithridae), snails (mainly *Physastra*), phreatoicids (Phreatoicidea), amphipods, and golden galaxias (*Galaxias auratus*).

In terms of the abundance of each type of food found in the stomachs, a slightly different order of importance emerges, with phreatoicids being the most important followed by amphipods, snails, caddis larvae, and dipteran larvae (midges). Some trout had very large numbers of snails (eg 297), caddis larvae (eg 321), phreatoicids (eg 781), and amphipods (eg 516) in their stomachs.



The lack of terrestrial insects and aerial stages of aquatic insects in the diet is interesting to note but not surprising as this sample was taken from trout caught in early spring.

Summer diet

All the stomachs examined contained some food items. On average there were three different types of prey items found in the 65 trout stomachs. This average was lower than the average numbers of prey types found in the spring diet. There was a greater variety of prey items eaten by trout in summer compared to spring. However, some of these additional items occurred only rarely and were never numerous. The average number of animals found in the stomachs was 86, although this number was inflated because a few stomachs contained enormous numbers of prey. For instance, in one stomach 652 amphipods were counted and in another 1148 larval and pupal midges.

Again the prey items were almost exclusively of aquatic origin, with only a few types of aerial insect stages (eg stonefly, caddisfly, and terrestrial beetles) represented.

Caddis larvae were the highest-ranked prey item in terms of occurrence, followed by golden galaxias, snails, and amphipods. Tied for fifth ranking were phreatoicids and terrestrial beetles. When importance is assessed by abundance, midge larvae and pupae were ranked highest, followed by snails, amphipods, phreatoicids, and caddis larvae.

Autumn diet

The cooler months of autumn did not bring about any significant change in the diet; most of the important prey items of previous seasons were still represented. Caddis larvae occurred most frequently in the stomachs, followed by golden galaxias, snails, amphipods, and phreatoicids. In terms of abundance, amphipods were the most important, then caddis larvae, terrestrial beetles, phreatoicids, and snails. Of 77 stomachs examined, only six were empty. On average there were 84 prey items found in each stomach, just slightly fewer than the summer average and well below the spring average. Again the autumn average has been inflated by a few stomachs with enormous numbers of prey items.

Overall seasonal diet

When the results from each season are combined to give an overview of the diet, we find that caddis larvae, snails, golden galaxias, amphipods, phreatoicids, and midges are all significant prey items. In terms of occurrence, caddis larvae are the most important prey item; they were found in 62% of the stomachs, closely followed by snails (39%), golden galaxias (38%), amphipods (39%), and phreatoicids (27%). In terms of abundance the amphipods were the most important with over 4900 individuals counted from all stomachs. The next important prey items were, with total numbers in parentheses, phreatoicids (3456), snails (3077), caddis larvae (2538), and midges (1663).

Caddis larvae primarily comprised spiral stick-cased caddis with tubular stone-cased caddis and helical stone-cased caddis represented to a lesser degree. The snails comprised two species, *Physastra gibbosa* and an undescribed hydrobiid snail. *Physastra*, the larger snail, is generally light to dark brown in shell colouration. Unlike the undescribed snail mentioned above, which is always found attached to rocks, it appears to be able to float near the water's surface.

Amphipods, another important prey item, are consumed in great numbers by some trout. Presumably these trout were feeding in the marshes and were caught foraging amongst the dense aquatic weedbeds where amphipods occur in high densities.

Phreatoicids, another type of crustacean, are also a significant prey item – the second most numerous prey item found in the stomachs. Indeed, overall the crustaceans (amphipods and phreatoicids) are very important prey items. This is significant as they have different habitat strongholds – generally amphipods are most common in marshes and weedbeds and phreatoicids are most abundant in rocky and sandy substrates. Seldom did any of the trout stomachs studied have significant numbers of both amphipods and phreatoicids; generally there were high numbers of one and only a trace or nothing of the other. One could surmise that either these fish were being extremely selective in their feeding or the numbers in the stomach just reflected the relative abundances of each prey item in the habitat the fish were feeding in.

The five most important prey items are shown in Table 1. The prey is ranked in order of importance of both occurrence and abundance. For example, although the golden galaxias is the third most important prey item when judged by occurrence, it is not in the top five important items when judged according to abundance.

TABLE 1

Combined spring, summer and autumn important prey items

	RANKINGS OF PREY ITEMS	
FOOD ITEM	% OCCURRENCE	ABUNDANCE
caddis (larvae)	1	4
snails	2	3
golden galaxias	3	-
amphipods	4	1
phreatoicids	5	2
midges	-	5

Although the golden galaxias is not one of the top five prey items for abundance, it is still a very important component of the trout's diet. One could say that just as a picture is said to be worth a thousand words, a galaxiid is worth 300 snails or 150 caddis larvae because although galaxiids were never found to be extremely abundant in the stomachs, they provide trout with a great bundle of energy – probably just like a chocolate bar to humans!

Match the meals that browns prefer

What the experts recommend...

I asked a few anglers who assisted in the study to recommend a fly that they would use to imitate a particular prey item. They were also asked where they would fish using this fly and how it should be fished.

■ Frank Zambotti (West Hobart Anglers Club)

Frank, what's your advice for maximising the chance of catching a cruising brownie at Lake Sorell?

I'd use a *Yeti* mid-drift or fishing really slowly. If the water was dirty, I'd fish with a black fly. If clear, I'd fish with a light-coloured fly.

■ Bernard Creed (Bridgewater Angling Club)

Bernard, what would you recommend if the trout were feeding on phreatoicids around the rocky shores off Kermodes?

My preferred fly would be a *Woolley Worm* (hook size 10 or smaller, olive body with brown hackle). If fishing from the above, I'd use a lightly weighted fly with a floating line. If fishing from a boat slightly offshore, I'd use an unweighted fly in conjunction with a sinking line. In both cases I'd retrieve about 100mm of line at a time, pausing after each retrieval – I've found that a fish will often strike during this pause. I've also had success in this situation using a small fur fly tied yeti-style with a bright green body and the fur clipped the same length as the hook to prevent a "tail" developing when the fly's wet.

■ Neil Pinkard (Secretary, Clarence Licensed Anglers Club)

Neil, what fly would you tie to your leader if some brownies were going crazy on stick caddis just off the marsh edges?

If I knew that brown trout in Lake Sorell were feeding on stick caddis near the marshes, I'd tie on a size 10 *Brown Stick Caddis Nymph* (a la Dick Wigram). I'd let the fly sink to the bottom and then retrieve it with very short jerks, just a couple of centimetres at a time, ensuring that it remained close to the bottom. **Body:** brown raffia wrapped around a stripped quill of a large hackle feather, extended past the bend. **Head:** yellow marabou silk. **Legs:** a forward-facing beard of brown hackle fibres.

■ Tony Dell (Tasmanian Fly Tyers Club)

Tony, you're having no luck at all but the bloke cleaning his ten fish behind you yells out "they're on galaxia". You slowly start to smile and reach for your fly wallet. What secret pattern do you pull out?

Without a doubt an *Orange-Bodied Green Fur Fly* tied from size 6 down to size 10 depending on the fishing situation. Fishing open water, such as the rocky area at the head of Kermodes Bay, I'd use a size 6 with a floating line. If there's a bit of top, cast across the wind and let the fly wash about in the waves before starting the retrieve – you'd be surprised how many times a fish will come up and take the fly either dead drift or just as you start to retrieve. In clearer water and in amongst the weed I tend to use the smaller sizes, again unweighted and on a floating line. I generally find a slow figure-of-eight retrieve works best with the odd stop and faster pull for variety.

■ Justin Causby (Wigstons Lures)

Justin, what spinner would you recommend for a young lad fishing from one of the Dago Point boat ramps?

Dago Point is generally overlooked by most anglers but I find it one of the most productive areas at Sorell, particularly the middle boat ramp and the reef between the first boat ramp and the old boarding house. If water levels are high and the water is murky, I'd fish with a gold and blue/black (No. 42) *Tasmanian Devil* (13.5g) because the highly reflective gold seems to more readily attract fish. Another highly recommended lure is a green and yellow (No. 23) *Little Tasmanian Devil* (7g). The colour of the lure mimics native galaxia and its action is similar to wounded or startled galaxia. These lures should be retrieved with an occasional flick of the rod tip, while always maintaining line tension, to change the rate of their darting action. I find a slight chop on the water provides the best chances to hook a brownie, but strong winds mean a wasted trip.

■ Craig Little (Trout Guide, Little's Wilderness Trout Tours)

Craig, drawing on your wealth of experience, what's your favourite spinner at Lake Sorell?

I consider a lure's action more important than its colour and for this reason my favourite spinner is a *Johnson's Cobra.* The best time to fish with one is when it's overcast with a gentle 10-knot breeze – just enough puff to drift the boat. I'd then target the weed beds and any dropoffs, drifting the boat and adjusting my retrieval speed to suit the depth: slow in deep water and faster in shallow water. A hot tip is Robinsons Marsh around September and October when galaxia are spawning.

■ Terry Byard (Bridgewater Anglers and President, STLAA)

Terry, suddenly, right in front of you, a few fish start to porpoise through the surface. What fly pattern would you recommend?

The fact that the fish are porpoising would indicate that they're taking something just below the surface. This could be nymphs – mayfly, caddis, etc. – just before the emerger stage, or it could be floating snails migrating from one area to another. First, I'd try a small nymph pattern, trying to float it just under the surface film. If no takes, a snail or beetle pattern, again just under the surface film, might do the trick. If still no action, I'd move to the surface with either pattern floating in the surface film, or even a small red tag might induce a take.

■ Greg Hynes (Lofty Lures)

Greg, what's your secret for successful trolling at Lake Sorell?

In early spring I'd troll over weed beds and generally have success with my number 13G/47 and 48. Both lures are called *Red-Nosed Brown Bombers.* The name describes the colour: bronze-gold with a red nose, one with black spots, the other black bars. In late December-early January I seem to have more success with my number 43 and 54, which are pink, green, and gold. Generally I'd troll with very thin 8lb or 10lb line, steel-grey in colour, using a good cast back from the boat, plus 10-15 metres more. Trolling speed should be around 2mph (3.6 km/h) or less for a nice kicking motion on the rod tip – not too fast though. I like to fish in about 8.6-9.0 feet in Sorell, so a fish-finder with speed and temperature is a handy addition in your boat.

What browns are biting on at Lake Sorell

...continued from previous page

The diet was dominated by non-aerial stages of aquatic fauna. This may indicate that in general a wet fly should be more productive than a dry fly over the course of a fishing season. However, many anglers enjoy great success with dry flies, particularly when the duns of the mayfly, *Atalophlebia superba*, and several types of stick-cased caddis emerge in their adult form.

David Scholes, in his priceless *Fly-fisher in Tasmania*, writes of the fine fishing to be experienced when marsh fish are on tadpoles, and, indeed, some of the most commonly used flies are those tadpole imitations such as the fur fly. So perhaps it is interesting to note the absence of tadpoles or frogs in the diet.

Summary

Because the fish examined were taken predominantly by fly-fishermen, their diet may show some biases due to those anglers' preferred fishing habits – ie time of day, location, weather, fly or lure type, etc. The lack of aerial insects and tadpoles may indeed be a true reflection on the trout diet or again it may just reflect the biases inherent in the manner the data was obtained. Consequently, this information should be used only as a guide, although it does confirm what most inquiring anglers already know about the diets of Lake Sorell brown trout: that for most of the season the fish consume mostly aquatic prey items (stick caddis, crustaceans, snails, and galaxiids) and their opportunities to rise to aerial prey are possibly as short-lived and fleeting as some of the insects I'm sure they hunger for more of!

I have asked some of the anglers who participated in the study to contribute their thoughts on an appropriate fly pattern to match these important prey items. (See next page.) I have also approached some knowledgeable spinner and trolling anglers about their recommendations for lures when successfully fishing at Lake Sorell. The purpose of this section is build on the results obtained from the dietary work to provide some practical and informative advice that anglers could take up.

I would like to thank all those anglers from the following angling clubs for assisting the Commission with this study: Army (Defence Department), Bridgewater Anglers Club, Clarence Anglers, Fly Tyers of Tasmania, and the West Hobart Anglers Club.

Carp update

Water management

The efforts of staff over the winter period have paid off to the extent that there was no uncontrolled spill from Lake Crescent this winter, despite very high water levels at the end of autumn and a reasonably wet winter and spring. All the outflow from the lake was screened through a 5mm square stainless steel mesh installed in the outlet pits and on the spillway.

Lake Sorell is now below full supply level, and flow to Lake Crescent has been shut down for the time being while we attempt to get more water out of Lake Crescent, which is also now just below full supply level. However, it is coming down gradually as more water is released and evaporation begins to have more of an impact. The level of Lake Crescent is still well above the desired level for this time of year, and carp have access to a large area of shallow weedy marshes where the risk of successful spawning is increased.

Because the risk of spawning has increased with warmer weather, the 5mm screens have been replaced with 1.1mm screens in the Lake Crescent outlet pits. These screens are working satisfactorily.

Planning by the HEC and DPIF for water management in the two lakes is close to completion. Initial indications are that it should be possible under almost all circumstances to operate the lakes to supply irrigation and domestic water supplies and the same time almost completely eliminate the chances of spill. Lake Sorell will have to be operated at lower levels than has been typical in recent years to achieve these aims.

Carp removal

A large aggregation of carp was found in Andrews Bay recently (early November). Approximately 380 carp were captured; many were running ripe males and a few were running ripe females. No spent females were found. This aggregation remained in Andrews Bay for several days, apparently staying in a confined area where there was very thick weed growth. It is possible that it was a pre-spawning aggregation rather than a feeding aggregation as seen on a few occasions in Bullys Marsh last year. The schools observed then were very active and did not remain in Bullys Marsh for more than a few hours. Further targeting of these aggregations is planned over the next few months.

Rotenone planning

Prentiss Inc., one of the largest rotenone suppliers in the US, has offered to provide an assessment of the feasibility of rotenone treatment of Lakes Crescent and Sorell, and a logistic plan for it. This service will be provided on a consultancy basis for a very reasonable fee. Dr Jim Fajt will prepare the plan with assistance from IFC staff. This is one of the major requirements of our assessment of the options to control or eradicate carp.

Carp control workshop

In October the IFC's Andrew Sanger and John Diggle attended a scientific workshop aimed at examining the options for control of carp in Australia. No magic cure was identified by the meeting. A number of high-technology solutions were discussed, including viral control, immunocontraceptive control, and genetic control. All these options show promise, but all have significant research and development requirements before their potential can be assessed properly. With John Koehn from Victoria, Andrew Sanger jointly led one session at the workshop that examined the uses of chemicals and poisons in carp control. The general feeling of the workshop was that chemicals would be of limited use for carp control in Australia.

The potential for heavy and sustained fishing pressure to severely disrupt the carp population in Lake Crescent was examined with the assistance of a computer model. This discussion gave us renewed hope that our attempts to target carp and remove as many as possible may be of great benefit in leading to a serious population decline and possible natural extinction. Further assistance with this model will be sought from the CSIRO Division of Fisheries in Hobart.

Future work

A program designed to assess the relative abundance of carp and other species in the lake, as well as an investigation of the potential impact of carp on the trout and native species in Lake Crescent, will begin soon. This program will require quarterly sampling of all of these species in a range of habitats around the lake and an examination of their diets.

Further research into the feasibility of radio tracking carp in Lake Crescent has been undertaken. This technology is considered essential to enable location of the carp schools in the cooler months. Assistance with designing and equipping the radio tracking project may be obtained from Victorian colleagues on a consultancy basis.

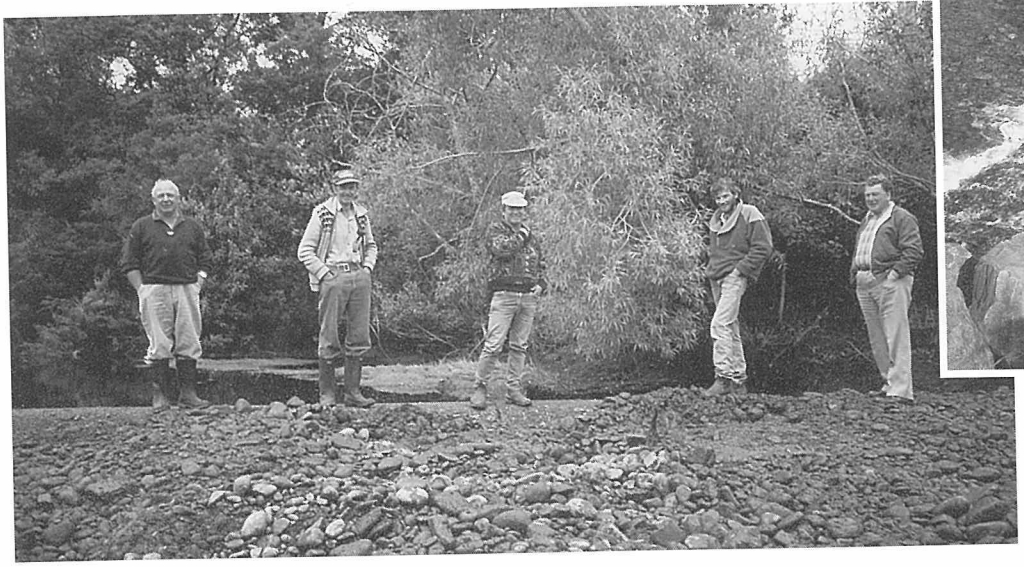
Alterations to Forth River weir

The Inland Fisheries Commission, in conjunction with the North-West Regional Authority and the Hydro-Electric Corporation, recently undertook some work at the Forth River weir intended to minimise mass strandings of whitebait below the weir at times of low water flows.

With the assistance of volunteers from the Ulverstone branch of the North-West Fisheries Association, an excavator was used to dig a drain and channel on the Forth/Wilmot road side of the Forth River.

Further maintenance work is planned for the steel fish pass in the middle of the weir. Intended to allow whitebait to move upstream more easily during low water flows, the work will involve extending the fish pass downstream and upstream.

These works should lessen the chance of whitebait being stranded at the weir. The situation will continue to be monitored by IFC inspectors stationed on the North-West coast.



Above
The Forth River weir, now a safer place for whitebait.

Left
On the job at the weir

Commercial freshwater fisheries and the role of the IFC

The Inland Fisheries Commission fulfils a number of roles including regulating and promoting the development of commercial freshwater fisheries. It recognises that it has a responsibility to the State as a whole to manage Tasmania's freshwater resources in a sustainable manner and in doing so to make sure that the best use is made of these resources while ensuring that our freshwater fauna and its habitat are protected for the benefit of future generations. So although recreational angling remains the primary responsibility of the Commission, it is not the only responsibility.

The structure of the Commission

In the strict sense, the Inland Fisheries Commission consists of three associate commissioners and a commissioner. The latter is a full-time Government contract appointment, while each associate commissioner is appointed for a three-year term. Two of the associates are nominated by the angling associations; the third is a Government nominee who rotates around the angling associations after each three-year term and in practice is also chosen from a list of one or more candidates put forward by the angling associations.

Associate commissioners are required to put forward the views of anglers and as such must endeavour to keep in touch with anglers and angling not only in their own area but throughout the State. However, they are not required to vote in accordance with any of the views expressed to them from any source. In practice there is rarely the need for a vote at all.

The commissioners make full use of all the information put forward by anglers, Commission staff, and other Government agencies. Their role is largely one of policy development and ensuring adherence to these policies rather than day-to-day operations.

Associate commissioners and commercial fisheries

With the considerable expansion in the role of the Commission in recent years, the associate commissioners now have a greater involvement in essentially non-angling decisions, particularly in the area of commercial fisheries and aquaculture. However, in these areas the Commission itself is part of a thorough evaluation process involving a number of agencies. The primary role of the associate commissioners in this process is to ensure that anglers' interests are protected.

Following is a general summary of some of the issues that are considered when evaluating any proposal for commercial operations in freshwater in Tasmania.

Commercial wild fisheries

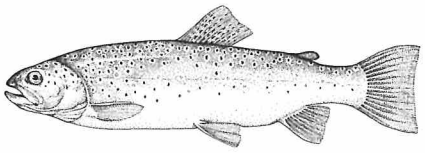
At present the most significant commercial fishery in freshwater is for eels, with an annual catch value of around $250 000 spread among 11 licence holders. There is significant value-adding (mainly smoking) to part of this catch before it leaves the State.

In addition, a commercial licence has also recently been issued to take mudeyes for commercial sale as bait.

Policies for commercial fisheries include:

- exclusive access to a water to encourage responsible self-management;
- restricted or no access to prime troutfishing waters;
- precautions to avoid significant by-catch such as trout or platypus;
- no fishing in reserved waters, such as waters in National Parks;
- accurate and detailed catch reporting;
- significant licence fees commensurate with exclusive access to a State-owned resource.

Other commercial fishing opportunities, perhaps such as harvesting redfin perch, will be investigated on merit.



Aquaculture

The Commission again has a responsibility to facilitate and encourage fish-farming, provided adequate safeguards for the freshwater environment are put in place. The major interest in this area relates to applications to farm salmonids, goldfish, and tropical fish.

Any fish-farming proposal that is put forward nowadays goes through a rigorous assessment procedure involving approvals from the following authorities:

- Local Government
  Land Use Planning and Approvals Act 1995
- Department of Environment and Land Management
  Environmental Management and Pollution Control Act 1994
  Environmental Protection (Water Pollution) Regulations 1974
- Rivers and Water Supply Commission
  Water Act 1957
- Inland Fisheries Commission
  Inland Fisheries Act 1995
- Marine Resources Division, DPIF (Atlantic salmon farming)
  Living Marine Resources Management Act 1995

There is now a coordinated process for reviewing applications that ensures each application meets high and consistent standards in relation to land and water use, discharge levels, chemical usage, environmental impacts, disease control, etc.

In particular, the Commission will assess:

- effects on recreational trout fisheries – including access to these fisheries;
- effects on migratory fish;
- effects on freshwater fauna;
- possibility of fish escaping.

The Commission will oppose any loss of existing trout fisheries and will not permit privatisation of public waters for this purpose. Similarly, grow-out of farmed fish in public-access inland waters will not be permitted. At the same time anglers must recognise that a properly controlled fish farm does not pose a risk to our fisheries. The old bogey of disease risks is of more concern to the fish farm, since in that situation some diseases that are relatively harmless in the wild can cause significant problems if allowed to develop.

Private fisheries

Many anglers frequently express concerns at the development of private fisheries. This concern is not justified as the requirements are as follows:

- the development must not involve any public waters and must be entirely within privately owned property;
- the development must not impinge on any public fisheries;
- fees are charged by the IFC in lieu of licence fees;
- as such, owners are free to develop and regulate the fishery as they wish within certain limits as specified in each operating licence;
- owners may choose which species of fish they want and can purchase them at commercial rates from registered farms. Brown trout may be *purchased* for private fisheries only from the IFC ;
- disease control provisions are the same as for fish farms;
- all necessary planning, environmental, and water requirements also apply.

The policy here is that anglers are not losing anything but the State is gaining in terms of fishing opportunities. If anglers do not want to go to a private fishery to fish, they don't have to – but they can if they wish, and many do! These fisheries should be seen as a bonus for the state's anglers as they in fact take pressure off our public fisheries. They are not a step towards the privatisation of our public waters.

Aquarium industry

This industry has been relatively unregulated for many years. It has been necessary to review policies in this area.

- All importers must be registered with the Inland Fisheries Commission.
- All premises must be registered with the Inland Fisheries Commission.
- Fish that are capable of living and breeding in the natural waters of the State are prohibited imports. The definition of fish is quite wide and includes real fish and freshwater invertebrates.

The objective here is to protect the environment, not to over-regulate the industry. There is, however, a need for an expanded educative and information transfer role in this area.

Any comments, suggestions, contributions, or ideas for articles would be most welcome and should be addressed to:

Inland Fisheries Commission
127 Davey Street
Hobart Tasmania 7000

Phone (03) 6223 6622
Fax (03) 6223 4372

Inland fishing workshop a success

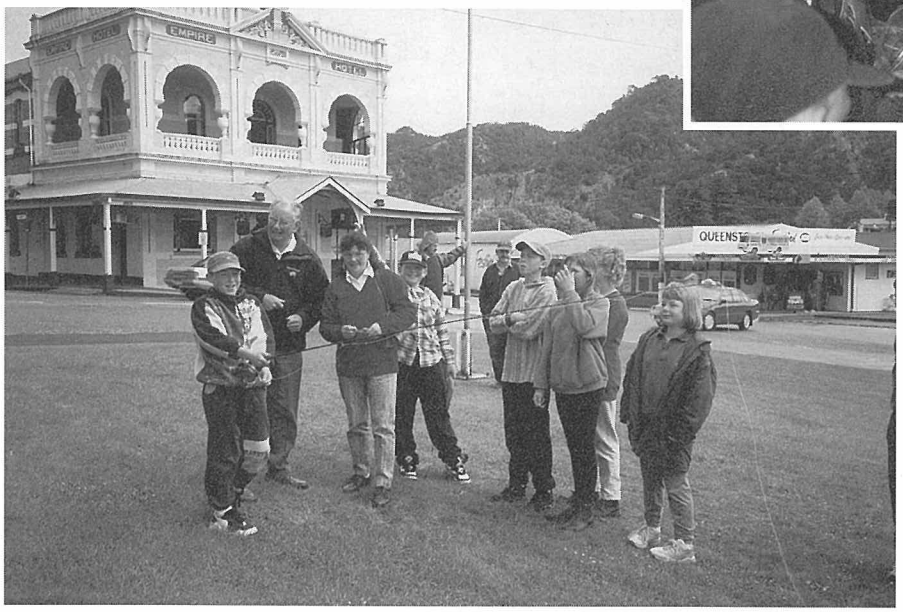
An IFC inland fishing workshop, organised by the Celebrate Tasmania Day Committee, has been hailed by participants as an outstanding success.

Held on Friday 15 November 1996 at the Empire Hotel, Queenstown, the workshop introduced 18 students from Murray High School and Central Primary School to the pleasures of freshwater angling.

IFC senior inspector Viv Spencer spoke on native and introduced fish species, and Jim Ferrier demonstrated fly-tying and fly-casting.

Right
Competition was keen to identify fish species and win a rod and reel

Below
Jim Ferrier instructs the next generation of anglers



After Viv's talk, he and Jim displayed ten species of frozen or preserved freshwater fish and asked students to identify them. First to correctly identify all ten species was Jason Lycett, of Murray High School, who won a fishing rod donated by Terry Charlton and a reel donated by the Queenstown Angling Club.

As well as the talk and the demonstration, students watched a ten-minute Trout Fishing Tasmania videotape. At the conclusion, Joy Marshall presented each student with a Cobra wobbler.

"I was particularly grateful for Jim Ferrier's input", Viv Spencer commented afterwards. "His demonstration was very well received by the students and helped make the day the success it was."

Fishing publications

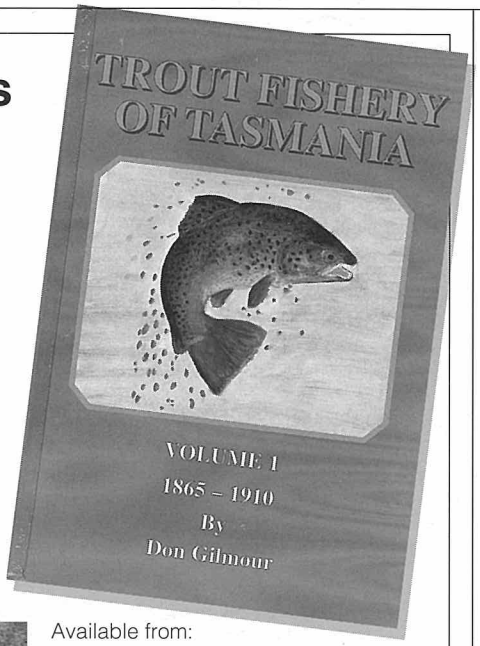
Reviewed by Wayne Fulton,
Commissioner of Inland Fisheries

Trout Fishery of Tasmania

Volume 1 – 1865-1910

Written and published by Don Gilmour

This book is the first of three volumes recording the history of, and historical anecdotes relating to, Tasmania's magnificent trout fisheries. It covers the period from after the first trout arrived until 1910 and provides details of the early stocking of many of our lakes, as well as the unique characters that were involved in this work.



It is very easy to read and includes many previously unpublished old photographs and drawings. A lot of work has gone into this book, which is a must for Tasmanian angling enthusiasts.

Available from:

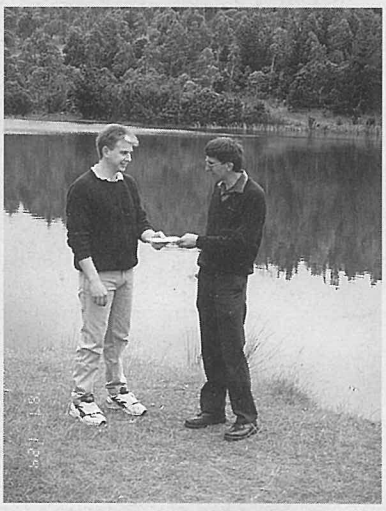
Museum of Trout Fishing
Phone (03) 6261 1076
Fax (03) 6261 4485

$45 – standard edition
$95 – leatherbound signed copy in slip case

Add $3.50 for postage or collect your copy in person.

Tagged fish still at large in Lauriston Dam

In the last issue of *On the Rise* we mentioned that by late October only one of five tagged fish released on 14 August 1996 had been caught. The tally at the time of writing (December 1996) was four, so only one tagged brown is still at large.



Successful angler Thomas Bell accepts his prize from Dr Tony Filmer