

INLAND FISHERIES COMMISSION NEWSLETTER

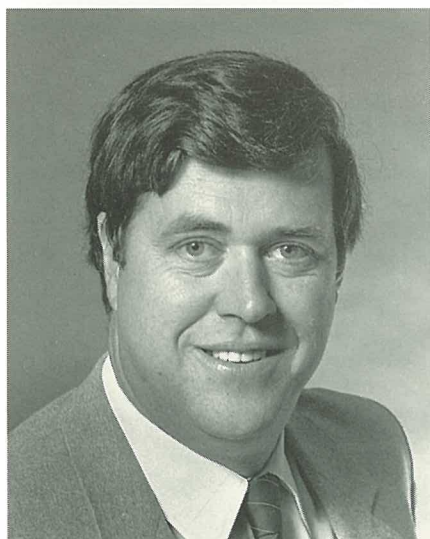
VOLUME 21 NUMBER 1 – MARCH 1992



New Minister

It was a great privilege for me to accept the portfolio of Inland Fisheries. Indeed as a trout fisherman for the past 38 years I look forward with great enthusiasm to the next four years.

*The Minister for Parks, Wildlife and Heritage
Mr John Cleary*



Having recently travelled to a number of other countries I fully realise and appreciate the value of Tasmania's wild trout fishery. Indeed I would claim that Tasmania's fishery rates amongst the world's best.

It is now my objective to build on the very fine job done by the Inland Fisheries Commission so that our wild trout fishery continues to improve.

The Government has included the Inland Fisheries Commission within the portfolio of the Department of Parks, Wildlife and Heritage. This move will be of great benefit to the Commission and to Parks, Wildlife and Heritage as the expertise and resources within both agencies will be available to each other. It will enable matters such as the maintenance and restoration of the Salmon Ponds or the resolution of many of the issues of land management to be more effectively dealt with.

The Commission will continue to operate with its own identity as an important part of our national parks, our wildlife and our heritage.

My only hope is that I have sufficient time to be able to visit as many of our fine trout fishing waters; that I can catch my share and that I can meet as many anglers as possible during the years ahead.

John Cleary
Minister for Parks, Wildlife and Heritage

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Special Constables

In 1984 six Inland Fisheries Commission inspectors were granted Special Constable status by the then Commissioner for Police, Mr Max Robinson.

This status gives fisheries officers the same powers as officers in Tasmania Police. Such authority does not mean that fisheries officers are expected to perform all the duties of a police officer. However, it does give them the authority to do so should the need arise. Fisheries vehicles are fitted with police radio crystals and Commission officers work closely with the police, especially in the highlands.

This status is a source of added security for Commission staff who frequently work in isolated areas and often at night where firearms may be present and alcohol is frequently in use. The added authority has been sufficient to diffuse a potentially difficult situation on several occasions.

On 8 October 1991, three further fisheries officers were given Special Constable status by Tasmania Police Deputy Commissioner Allan Swinton. All inspectors presently employed by the Commission are now Special Constables.



From left to right (Senior Inspector Viv Spencer), Special Constables Phil Potter, Chris Wisniewski, (Police Deputy Commissioner Alan Swinton), Gary Teelow, (Inland Fisheries Commissioner Wayne Fulton).

Inset: Appointment of Special Constables by Max Robinson in 1984.

Hector Vincent Jones

1907 – 1991

Hector Jones died on 31 October 1991. Tasmanian anglers lost an influential and highly respected friend.

Hector was born at the Salmon Ponds on 8 May 1907 and was the third generation to live and work at the Ponds. So intimately was Hector associated with inland fishing that a comment on his life and times is in itself one on the Tasmanian trout fishery. He knew most of the inland waters in this State from a practical viewpoint and his knowledge of the way of trout and his prowess as an angler was passed onto and shared with all.

As a child at Salmon Ponds Hector shared tasks with his mother and brothers in the hatching house and in the extensive gardens while his father was away for up to a month at a time. Later, as a teenager, he helped distribute the young fish to rivers and lakes. Indeed, he was assisting his father when the latter was killed in an accident on the Lake Highway.

As late as the nineteen forties the Salmon and Freshwater Fisheries Commissioners and their clients, the trout anglers, held the view that inland waters needed not only initial stocking but regular restocking with hatchery raised trout, so fish culture was the major activity of the Commissioners.

By contemporary standards hatchery practice was primitive in Hector's time. The telephone and electricity did not reach the Ponds until the mid thirties. Without refrigeration, fresh supplies of bullock liver had to be collected from New Norfolk to supply the hatcheries at Miena and Salmon Ponds. The liver had to be cooked and minced, to meet the needs of fish, ranging in size from fry to brood stock. This task, and the work of keeping screens clean and the removal of dead eggs was not only repetitive but exhausting.

As a result of anglers requests, the number of hatcheries throughout the State rose to 26. The Salmon Ponds was the supply and administrative headquarters. Here some eggs were collected from broodstock although most were taken from spawners elsewhere. At the eyed stage the eggs were sent to hatcheries throughout the State as well as sometimes to the Australian mainland and New Zealand. Staff enjoyed a fine reputation for supplying high quality trout eggs.

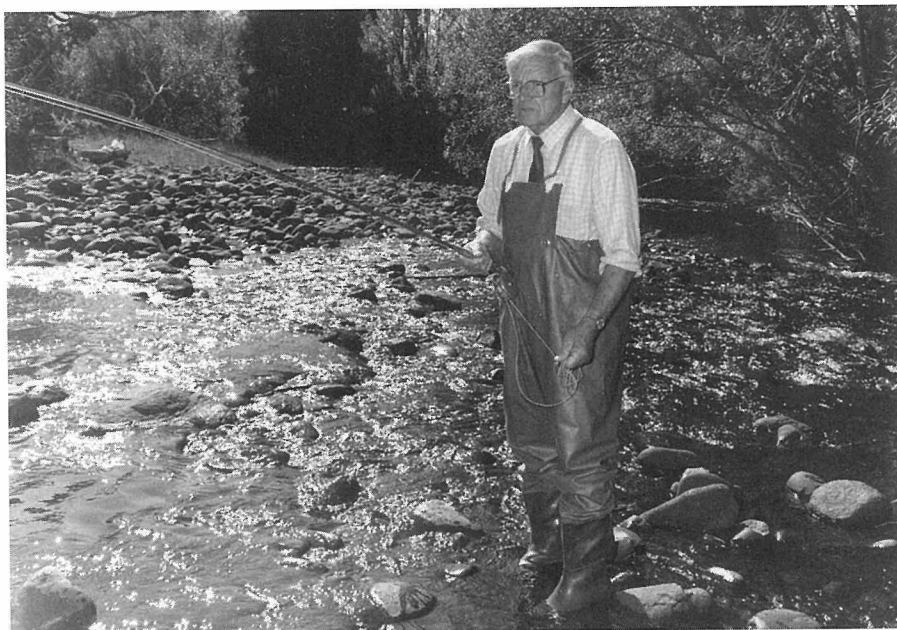
The spawning runs at Mountain Creek were the main source of wild trout eggs even though the difficulties and hardships were daunting. The weather at Interlaken could be so adverse that crossing Lake Sorell in the *Fat Ada* was impossible. Many a cold night Hector had to camp in the boatshed awaiting an improvement in the weather before making the crossing. Later, a cottage and hatching house at Mountain Creek made the project more comfortable, although collecting eggs in mid-winter here was still only for the strong and dedicated.

Getting the eggs back to Salmon Ponds was an involved and tedious operation. First there was the boat crossing, then by horse drawn vehicle to Tunbridge to catch the train to Plenty Station where another horse drawn vehicle took the eggs to Salmon Ponds.

Later Liawenee became the main egg collecting centre. Hector well remembered his first visit by boat from Miena to Liawenee with Inspector Tom Challenger, and many times he rode a horse between the two places. No wonder Hector never lost his

love for horses. The Liawenee camp was primitive by today's standards and egg collecting, where the icy westerly wind took its toll on exposed limbs, was even more severe than at Mountain Creek. When the lake froze in parts it was common to be snow bound at Liawenee for several weeks. There was relief at Miena with comfortable facilities but only until 1965 when these were lost due to the raising of the water level of Great Lake.

Hector became chief of field staff to the various CSIR scientific officers in the 1940's. Doubts had arisen about the success



Hector on his favourite stream, the Plenty. (Photo: The Mercury)

of the practice whereby hatchery raised fish were liberated on a regular schedule to rivers and lakes. This led to scientific investigations of the populations of trout in various waters. Hector was in his element and entered with enthusiasm into his new role. His skills in the field of construction and electrofishing contributed to the success of these studies.

Hector saw many changes take place within the trout fishery over his lifetime. First perhaps was the composition of the angling community itself from a predominantly rural based group plus a small number of urban enthusiasts to a more egalitarian society. Second was the technical advance in fishing gear, particularly rods, reels and lines. Hector always kept abreast of new ideas and was not against these innovations.

Like many of his time, Hector fished the Shannon Rise and, after its demise, speculated on how it could be managed if it took place now given the present easy access to the site and the consequent greater number of participants that it would attract.

The concept of transferring unthrifty adult brown trout from the highlands to lowland waters started in the sixties. Hector was well aware of the hazards associated with transporting tons of live fish over ice covered roads and made plans to make the operation safe.

Although the motivation for the introduction of salmon and trout to the State was in part

to provide food, the commercialisation of salmonids did not occur here until the sixties. It caused heated controversy. Hector assisted in allaying fears that angling would be ruined by fish farms.

With the introduction of the new Fisheries Act in 1959 which included a new full-time Commissioner. Hector began the final phase of his career with the trout fishery when he was appointed Secretary to the Inland Fisheries Commission. Luckily his talents and previous experience of inland waters were not overlooked and through site inspections and discussions he continued to make a valuable contribution to fisheries management.

Throughout Hector's entire career, funds for salaries, equipment and projects were limited. Consequently, the ability to repair and to improvise was necessary to survive. Hector's

knowledge and skills were invaluable in instructing staff in the field in these aspects.

As an angler Hector was skillful and resourceful. A fishing trip with him was always a memorable occasion. His home spun wit and wisdom were a delight. His preference, if he had any, was for the small stream where light tackle and stream craft were the fun. When the angling day was over, whether the creel was full or empty mattered little on a trip with Hector. On one trip we did not bother to get the rods out of the car but still got home late after an enjoyable day.

The ability to get on well with people of varied backgrounds was an asset which made Hector such a valuable member of Commission staff. He was equally at home escorting an ambassador as when socialising with a reformed trout poacher. To fellow workers he was always considerate and friendly. In his later years it was a revelation to see how senior people greeted their "Uncle" Hec.

In retirement Hector was a frequent visitor to Salmon Ponds and maintained his interest in angling with trips to the Derwent Valley and Lake Sorell. Together with Lodge and his garden he was busy until the end. Trout anglers throughout the whole of Tasmania will remember the long and dedicated work which Hector did for the trout fishery.

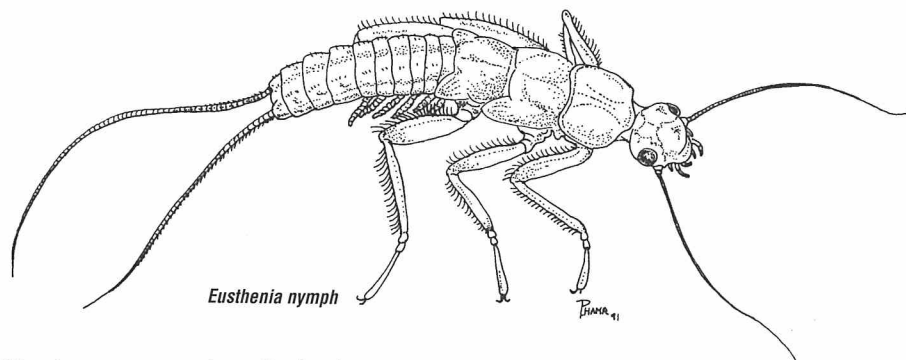
Dan Lynch

OTHER THAN TROUT

A regular article on animals of interest to the angler

LARGE GREEN STONEFLIES

by Stuart Chilcott, Scientific Officer, Inland Fisheries Commission



The large green stonefly is the most easily recognisable stonefly species in Tasmania. However, whilst the larvae may commonly be encountered in most Tasmanian streams by amateur naturalists and interested anglers alike, the adults are seldom observed. This is unfortunate because these stoneflies are particularly impressive insects being large and docile with hues of purple, red and green.

These stoneflies belong to the family Eustheniidae in the insect Order Plecoptera (stoneflies). The Eustheniidae is represented in Tasmania by four species, with fifteen species present in Australia. The distributions of all these species are restricted to cool water habitats in eastern and south-eastern Australia.

The female adult crawls beneath submerged stones to lay a single layer of eggs in a tough gelatinous mass. The eggs of the most common Tasmanian species are light to dark brown and spherical with a diameter of approximately 0.5mm. The newly emerged hatchlings are about 1.6mm in length and, apart from the gills appearing disproportionately large, the form of the hatchlings resembles later larval stages.

Larval Stage

The larvae vary in colour from pale green to dark jade green with a pair of purple 'rope like' gills arising from each abdominal segment. The large strong legs and two tail filaments are sometimes densely covered with fringes of hair. The larvae have several stages or 'instars' during their development and a characteristic red marking becomes evident on the fore wings during the later instars. Mature larvae can be from 20 to 32mm in body length. For some species the larval stage lives for at least three years.

The larvae are carnivorous, consuming small mayflies, chironomids and a variety of other small aquatic invertebrates in addition to rotting wood. They are clumsy predators,

usually encountering prey at the extremities of the long sensory antennae. Once sensed, prey frequently escape because the stoneflies lack the visual abilities needed to ensure efficient and successful capture.

Adult Stage

The adults are also known to feed although little detail is known of such habits. In the adult stage two pairs of wings are present with the fore wings mainly black with purple and red shades, depending upon the species. Unfortunately the colour is only apparent when the wings are expanded. A pale transverse band is present along two thirds of the length of the wing. The wing venation is prominent appearing pale and contrasting distinctly with the darker wing membrane. The wings vary in length from 16 to 32mm, depending upon sex and species.

Seasonal emergence begins towards the end of October throughout the Spring and

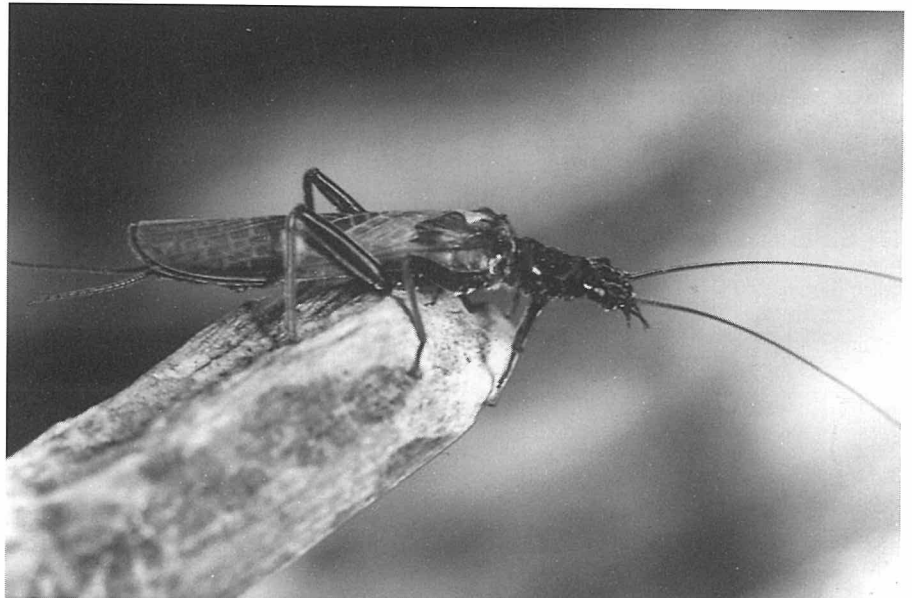
Summer months until as late as April, depending on the species. The adults generally emerge after dusk, climbing from the waters edge onto stones or streamside vegetation. Specific rises are not often encountered although trout stuffed full of large Eusthenids have been reported in the Tarraleah area in particular.

The Species

The four Tasmanian species are contained in the single genus *Eusthenia*. The most common and widely distributed of the four species is *Eusthenia spectabilis*. The larvae of this species inhabit both streams and lakes generally on the under sides of stones. *E. costalis* is also common and locally abundant when present. It is found at most altitudes but is generally confined to stream habitats. The rarest species, *E. reticulata*, has only been recorded from two locations in the western half of the State since the adult was described in 1921. The remaining species, *E. lacustris*, is generally restricted to lakes or other still water habitats but has also been collected from streams.

The adults of the mainland species are flightless but utilise the brightly coloured wings for courtship behaviour. The Tasmanian species are clumsy fliers and are generally observed undertaking short flights only. Females are larger than males in respect to body size and wing length in the adult stage.

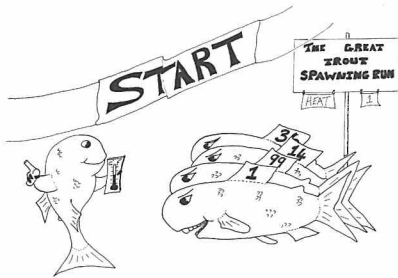
Eusthenia adult. (Photo: Ron Mawbey)



Instream flow needs for Tasmanian Rivers

by Paul Humphries, Inland Fisheries Commission

The animals and plants which inhabit rivers have, over thousands of years, evolved to cope with variable but, on an annual basis, relatively predictable conditions. These organisms respond to and in fact depend on the seasonal changes which occur in rivers. For example, trout begin their spawning run in response to rising flows and decreasing temperatures in late autumn to early winter.

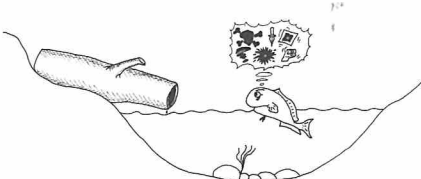


If for some reason the 'natural' order in a river is altered, the conditions may no longer exist which allow fish such as trout to carry out their normal cycle. Of course, conditions can and do change naturally, such as the occurrence of unseasonal floods. But it is the intervention of man over sustained periods that can have the most dramatic and lasting effects on the flow regime (also known as hydrology) and the biology of rivers.

Tasmanian Rivers and River Regulation

In Tasmania, the amount of water entering many rivers is regulated in some way by dams. These reduce the frequency and severity of floods and may release water at times when this would not normally occur. In addition, the water from many rivers is also used for a variety of offstream purposes, such as for electricity generation, irrigation, mining, paper mills, domestic and stock water supplies etc. Offstream uses reduce the amount of water in rivers, often when flows are at their lowest levels. Therefore, in a vast number of rivers around the State, natural flow conditions no longer exist.

Often the effects of alterations in the natural flow pattern of a river have lasted for some decades, so there is now no easy way to assess the changes that may have occurred. However, altering the hydrology can cause some obvious problems. Low flows over summer may be made even lower by water extractions and this may reduce the available habitat for animals and plants which require specific conditions in which to live and breed. An example is that of the river blackfish, which lives and spawns in



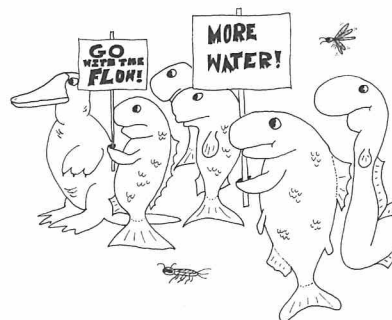
hollow logs in late spring/early summer. If the flow drops out such that the hollow logs are all exposed, then these fish may not breed and the populations may suffer.

Since the blackfish lives for several years, a non-spawning year may not be devastating, however, if the species lived for only one or two years, as some of our native galaxias do, then one year without spawning may decimate a population. A less dramatic example of how low flows may affect a fish is if the habitat normally occupied by the fish's favourite food is reduced, then there may be less food and the fish may not grow as fast as if there were a plentiful food supply.

The quantity of water in a river does not just affect the amount of a particular habitat, it can also affect the quality of water in that river. Floods serve a useful purpose in a river system by flushing the excess nutrients that have built up over summer. They also rearrange the substrate, creating new habitat and bringing in organic material from the terrestrial environment. If flushing flows have not occurred, and low flows have combined with the input of large quantities of nutrients from sources such as fertilisers or sewage, blooms of algae can occur. These may be a mere slimy and smelly nuisance or, in the worst case, a toxic soup lethal to all those who rely on the river's water. A graphic example of this is the recent toxic blue-green algal bloom in the Darling River, which stretched from Queensland to southern New South Wales.

Water Allocation in Tasmania and the Instream Flow Study

In Tasmania, there is no legislation to allocate water for environmental or fisheries requirements. By contrast, the legislation for allocating water for offstream uses is well developed. What this means in theory is that a river could be drained completely without any law being broken. Obviously a dry river does not provide a good environment for its inhabitants.



In practice, however, the Department of Primary Industry - Water Resources Division monitors water levels and restricts water off-takes if rivers fall to unacceptably low levels. However, there is almost no information existing which tells us how low a river must get before it causes real problems for the animals that live in it.

Understandably, those of us who have a vested interest in the maintenance of good

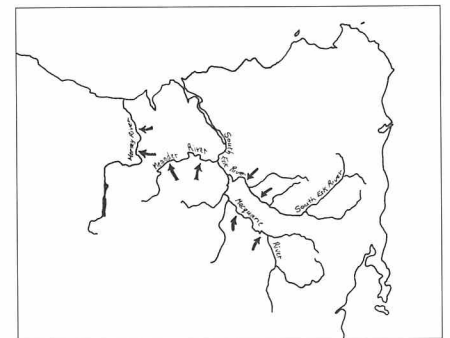
quality water have become increasingly concerned about the state of our rivers.

It is with these types of issues in mind that the Inland Fisheries Commission is currently undertaking a study of the relationship between habitat and flow in four northern Tasmanian rivers, namely the South Esk, Macquarie, Meander and Mersey rivers. This study forms part of a wider review of water management in the South Esk basin being conducted by the Water Resources Division.

The aim of the three-year project is to investigate the habitat requirements of fish and invertebrates in the four rivers at different times of the year and at different stages of their life cycles. These requirements will then be related to what types and amounts of the appropriate habitats are available to the animals during different flows. Our main concern will be at times of low flow over summer, since this is the time when water is most in demand. We will concentrate on the sections of the rivers most commonly fished and those which are subject to intense irrigation pressure. The final objective will be to make recommendations as to what flows are needed to maintain the ecology, water quality and fisheries within the four rivers.

How do we go about such a study?

The first stage of the practical side of the study is to determine what range of habitats are available to the animals in the river. The second is to determine which of these habitats they actually use. These two components are then amalgamated so that the



Location of study reaches

amount of 'preferred' habitat at a range of flows can be calculated.

Two representative reaches in each of the four rivers have been chosen and several pegs have been placed along each reach to designate where measurements are to be made.

At each peg, several variables which we consider to be important to the fish or invertebrates are recorded at intervals across the stream. These variables are usually water velocity, depth, type of substrate (e.g. sand, gravel, boulder) and the presence/absence and type of cover. This gives a map of the combination of habitats present in the river at a particular flow. The measurements are repeated at several different flows, which allows for the assessment of the effects of different flows on the amount of particular habitats. As part of the second stage, fish and invertebrates are sampled from the major habitats (i.e. riffle, run and pool) and within these the same variables as measured before (i.e. velocity, depth, substrate type and cover) are assessed.

Example

As one simplified example, we might take a series of measurements across a 3m deep pool. We find that the flow is greatest in the middle of the pool and that there is cover in the form of hollow logs along the margins. When we sample for fish at this site we find that they are all associated with the hollow logs. Therefore, the conclusion is that while the available habitats may be several combinations of depth, velocity, cover etc., only a shallow, still area with cover is used by the fish. In this case it would be most important to conserve this particular type of habitat.

Progress So Far

The project is at a stage where a series of velocity and depth measurements have been taken at all eight study reaches and the first series of fish and invertebrate samples from the Macquarie and Mersey rivers



Setting levels for the hydrological survey.

have been collected. These are being processed at the moment. By the end of this summer basic information on the habitat characteristics of the reaches being studied and how they are affected by different flows will be obtained. In addition, what species of fish and invertebrates occur in which habitats will be known and the habitats which are most important to these animals in the rivers can be identified.

At the end of the three year study the Commission will provide a set of river flow levels necessary to maintain specific types of important habitat in the rivers. Water Resources can then be requested to maintain the flows at certain times of the year so that sufficient habitat is available for the animals to complete their life cycles successfully. This will be a first step in the maintenance of the health of our rivers so that they can continue to support good fisheries and native fauna and flora, and supply clean fresh water as well.

Trout Stocking 1991

In recent years the Commission has attained the capacity to rear fish to a more advanced stage prior to release due to several factors, including:

- improved summer water supply and rearing facilities at Salmon Ponds;
- modern developments in husbandry techniques;
- ready availability of commercial rainbow stock;
- contributions made by fish rearing units.

This has reduced the total number of fish stocked in favour of fewer, more advanced fish. The result is better survival and a more rapid return from a fish release.

North West Rearing Units

The Commission provides both brown and rainbow fry to a number of fish rearing units on the north west coast. Fish are reared with tender loving care by volunteers to a more advanced stage prior to release, mainly to farm dams.

A full list of all waters stocked from these sources is too long to include here but may be obtained from the Commission or the Secretary of the North Western Fisheries Association.

BROWN TROUT FRY			
WATER STOCKED	LOCALITY	STAGE	NUMBER
Tooms Lake	East Coast	Fry	30 000
D D & A J Brooks	Bishopsbourne	Fry	2 000
M J & L J Goss	Bishopsbourne	Fry	1 000
M McGee	Westbury	Fry	5 000
R Mitchelson	Westbury	Fry	10 000
L Plunket	Westbury	Fry	5 000
Ulverstone Branch – North Motton			
Leven River	Purtons Flats	Advanced Fry	8 000
Ollington	Forest	Advanced Fry	6 830
Farms Dams (42)	North West Coast	Advanced Fry	33 200
Gunns Plains Branch – Preston Ponds			
Lake Isandula		Advanced Fry	626
Burnie Branch			
Pet Dam		Advanced Fry	16 000
Penguin Branch			
Farm Dams (14)	North West Coast	Advanced Fry	3 700
Circular Head Branch – Forest			
Farm Dams (88)	Circular Head	Advanced Fry	4 375
Devonport Branch – Sassafras			
Lake No Where Else		Advanced Fry	4 000
Farm Dams (28)	North West Coast	Advanced Fry	32 950
Total			171 681

BROWN TROUT YEARLINGS

DATE	WATER STOCKED	ORIGIN	STAGE	NUMBER
10.07.91	Curries River Dam	Salmon Ponds	Yearling	2 740
10.07.91	Curries River Dam	Salmon Ponds	Yearling	2 350
16.07.91	Lake Botsford	Salmon Ponds	Yearling /Tripliod	600
05.08.91	Blackmans Lagoon	Salmon Ponds	Yearling	2 000
05.08.91	Blackmans Lagoon	Salmon Ponds	Yearling /Tripliod	1 000
Total				8 690

BROWN TROUT ADULTS

DATE	WATER STOCKED	ORIGIN	STAGE	NUMBER
06.05.91	Carter Lakes	Great Lake	Adult	150
06.05.91	Rocky Lagoon	Great Lake	Adult	50
06.05.91	Lake Botsford	Great Lake	Adult	200
07.05.91	Bruisers Lagoon	Great Lake	Adult	50
07.05.91	Lake Duncan	Great Lake	Adult	20
07.05.91	Lake Lynch	Great Lake	Adult	20
28.05.91	Bruisers Lagoon	Tods Corner	Adult	72
31.05.91	Lake Kara	Great Lake	Adult	200
02.06.91	Mersey River	Great Lake	Adult	200
05.08.91	Camerons Lagoon	Great Lake	Adult	22
Total				984

TIGER TROUT

DATE	WATER STOCKED	ORIGIN	NUMBER
16.07.91	Pet River Dam	Salmon Ponds	700
Total			700

RAINBOW TROUT STOCKING (various sizes from fingerlings to yearlings)

DATE	WATER STOCKED	ORIGIN	NUMBER
14.04.91	Lake Skinner	Salmon Ponds	1 300
09.05.91	Lake Waverley	TSIT	400
09.05.91	Brushy Lagoon	TSIT	2 400
16.06.91	Craigbourne Dam	Salmon Ponds	6 000
04.07.91	Brushy Lagoon	Salmon Ponds	6 000
05.07.91	Lake Leake	Salmon Ponds	2 500
05.07.91	Tooms Lake	Salmon Ponds	2 500
06.07.91	Lake Crescent	Salmon Ponds	3 000
11.07.91	Dee Lagoon	Salmon Ponds	2 000
14.07.91	Lake Crescent	Salmon Ponds	1 000
16.07.91	Leven River	Salmon Ponds	2 000
16.07.91	Waratah Dams	Salmon Ponds	1 000
16.07.91	Lake Kara	Salmon Ponds	1 000
16.07.91	Guide Dam	Salmon Ponds	500
31.07.91	Craigbourne Dam	Salmon Ponds	3 000
31.07.91	Craigbourne Dam	Salmon Ponds	1 000
05.08.91	Little Waterhouse Lagoon	Salmon Ponds	2 000
10.08.91	Lake Leake	Salmon Ponds	500
22.10.91	Craigbourne Dam	TSIT	1 100
23.10.91	Lake Rosebery	Sevrup Fisheries	9 000
24.10.91	Lake Rosebery	Sevrup Fisheries	5 600
27.11.91	Craigbourne Dam	Salmon Ponds	2 000
	Leven River	Ulverstone Branch, NWFA	2 100
	Farm Dams (20)	Ulverstone Branch, NWFA	5 910
	Farm Dams (11)	Devonport Branch, NWFA	4 300
	Farm Dams (13)	Latrobe Branch, NWFA	8 550
Total			76 660

Tasmania's recreational fisheries can no longer be considered in isolation. There are now many users that depend on, or impact upon, our water storages. This article on Lake Sorell takes a brief look at the many varied issues that directly affect, or have the potential to affect, the Lake Sorell trout fishery.

Fishery Facts

Brown trout were first released in Lake Sorell as part of the earliest stocking programs in the period 1867 to 1870. This stocking continued intensively for many years and rainbow trout were also released in about 1902. A number of releases of brook trout have also been made but the last recorded capture of these was in 1907. Intense stocking remained the norm until the 1960's.

Lake Sorell was slow to gain popularity with anglers and did not really catch on at all until the 1930's. In the 1950's only a few hundred people were fishing the lake for an average of around three days per season each. This is in marked contrast to the thousands of today who have more leisure time, spending an average of six to eight days a year fishing this water.

Lake Sorell today vies strongly with Arthurs Lake as being Tasmania's most popular fishery. Over the past six years, anglers have expended an average of 42 500 days' effort fishing this water to catch an annual harvest of around 62 000 brown trout and 6 000 rainbow trout. An average catch rate of 1.7 fish per day has been experienced at this water over the past six seasons, with only 1986-87 showing a lower than average catch rate of 1.3 fish per day. However, the catch success has not changed markedly in the last 40 years despite the increase in fishing pressure, with catch rates in the 50's being typically around two fish per angler day.

About 8 000 anglers now fish the lake every year; 80% of them being full season anglers. 75% of anglers fish Sorell with artificial lures and 25% fish by the fly. Interviews on Lake Sorell in 1990-91 indicated that the majority (76%) of people fishing with artificial lures did so when trolling. This means that around 4-5 000 people go out on the lake in a boat each year while the remainder fish from the shore.

Lake Sorell

The Premier Fishery

by Wayne Fulton and Peter Davies,
Inland Fisheries Commission

Unlike Great Lake or Arthurs Lake which are predominantly fished by northerners or coasters, Lake Sorell is predominantly a southerners lake, with 70% of anglers coming from the south - 40% come from Hobart alone. Only 13% of Lake Sorell anglers come from the north and north west coasts, compared to 52% at Great Lake.

In a recent survey (see article in this Newsletter) we estimated the average daily expenditure by anglers on fishing to be around \$40 per day's fishing. This means that in terms of financial value, the lakes Sorell/Crescent fishery is responsible for \$2.15 million expenditure by anglers per year. This means that each fish caught at Sorell is worth around \$25 a head! It would certainly be cheaper, but not nearly as enjoyable, to go to the fish shop.

Physical Details

The following table sets out the most important details for Lake Sorell.

Maximum depth	3.98m
Mean depth	2.38m
Length	10.06km
Mean breadth	4.7km
Area	4770ha

The maximum depth of around 12 feet and average depth of only 6-7 feet is most important. Most of the bottom is fine silt and it is therefore little wonder that the lake becomes quite turbid or muddy after strong winds. Lake Sorell has historically always been turbid with the very clear conditions of the 1990-91 summer being exceptional.

Trout and the Spawning Habitat

Trout in Lake Sorell spawn in great numbers; around 100 000 per year in Mountain Creek. This stream is the single most

important source of young fish for the fishery and the trout population is dependent on the quality of its spawning grounds to produce fish. In days gone by there was a hatchery at Mountain Creek but in recent years there has been a realisation that this water can support itself in terms of its trout population. Management of the spawning runs has therefore focussed on improving the lower section of the stream for spawning by clearing obstructions and making an even series of spawning beds. The natural substrate of the stream is not ideally suited to trout spawning due to the large coarse nature of the cobbles and the very high flow rate in some years. This tends to change the nature of the creek thus reducing the effective spawning area.

The Commission maintains a weir on Mountain Creek which limits the available spawning area to the bottom section of the creek. This is done for two reasons:

- to prevent fish moving large distances upstream and becoming vulnerable to poaching and stranding;
- to prevent over-population of the lake through over-recruitment.

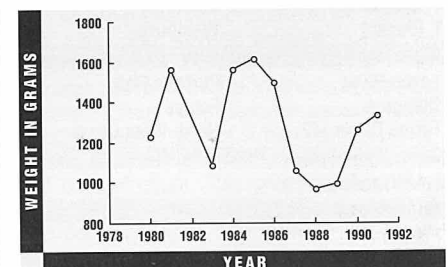
If all the 100 000 or so fish spawned successfully there is the potential for about 100 million fry to be produced in a season. This could well result in serious overstocking.

Limiting the spawning area does have its drawbacks as the spawning beds are often crowded with fish. In years in which the flows are low and fish stay in the creek for long periods, the stress of spawning can prove too much, particularly for male fish, and infections can break out. In some years several hundred to a few thousand fish may die from this natural stress and fisheries officers are called in to remove dead and dying fish.

Whilst this loss often causes concern to anglers, in the balance of things, the number that die from this cause is very small when compared to the overall population in the lake which is estimated to be in excess of a million fish of catchable size. With the addition of a further one million young fish entering the fishery each year, the population balance is well maintained.

Every year the spawning run is monitored with a sample of fish being measured, weighed and aged. This enables us to keep a check on the condition of the spawning fish from year to year. There are also regular visits by inspectors who check and count the runs and keep a watch for the odd poacher. Thus the fishery is being closely watched both in terms of the fish present and the catch returns and adjustments can be made should any problems be detected in this area.

The way it was. Accommodation House, Interlaken. (Photo: Archives Office, Tas)



Weight of spawning female brown trout in Lake Sorell

Native Fauna

The golden galaxias, *Galaxias auratus*, is native to both lakes Sorell and Crescent although it is not as abundant in Lake Sorell. This small fish can be quite prolific in some



Spawning channel maintenance – Mountain Creek.

years and trout often take large numbers of small juveniles around December/January or they may concentrate on adults along rocky shores early in the season.

The invertebrate fauna of the lake has received some study with at least 50 species known to be present. The common elements of this fauna include several snail species, a diverse midge and worm fauna, several caddis species and abundant amphipods and phreatoicid crustaceans. The large shrimp *Paratya australiensis* is also conspicuous but more in terms of size rather than numbers.

The survival of the native fauna is largely dependent on the maintenance of good water quality and water levels consistent with a natural cycle. The extensive macrophyte (aquatic plant) beds are also crucial for the survival of many species.

Issues That Affect The Fishery

There are a number of inter-related management issues independent of the fish stocks that affect, or have the potential to affect, the continued 'health' of the Lake Sorell system. These issues have far greater potential impact on the fish stocks than anglers catches.

Water quality

Lake Sorell is one of the rare lakes in the central-eastern Highlands still in a relatively unmodified state. It is characterised by a moderately rich plankton which is the community of microscopic organisms which lives suspended in the water and which is the food for many invertebrates and the young stages of the Galaxias. The lake also has a reputation for becoming dirty or turbid. This happens after storms, particularly strong westerlies and north-westerlies which stir up material from the open silty bottom of the lake. This can, in the worst case result in fish being killed. Investigation of one such fish kill in which hundreds of trout and galaxiids were washed up on the shore showed that fine silt had eroded the gills of fish to the point where they died from

The relationship between the management of water levels and the health of the marshes is critical to the productivity of the Lake Sorell fishery.

suffocation. Such occurrences are not common but have been seen several times during the last ten years.

Studies by Dr Peter Tyler of the University of Tasmania have shown that despite being so close, lakes Sorell and Crescent are very different in their water quality and the nature of their plankton. This is believed to be due to the naturally higher turbidity of Lake Crescent and the relatively greater input of nutrient rich matter draining from the marshes into Crescent. Nutrients from the marshes around both lakes are a key factor in supporting the food chains that drive these lakes and their fisheries. The relationship between the management of water levels and the health of the marshes is critical to the productivity of the Lake Sorell fishery.

Another factor that affects the water quality of highland lakes and is of special relevance to lakes Sorell and Crescent is the level of nitrogen and phosphorus. These are the key nutrients that limit excessive production of algae and weed in highland waters. The potential problems were clearly demonstrated at Lagoon of Islands where an excess of these nutrients tipped the balance toward an unsightly pea-green soup with a resultant declining fishery. Water level management, negotiated by the IFC and the HEC, has been the key to restoring the balance.

Increased nutrient levels can result from excessive land clearing, stock grazing, fertiliser runoff, sewage input from heavy visitor use of the area and decay of vegetation in the lake. All these things must be watched in order to prevent another Lagoon of Islands algal situation. Out of Tasmania's many inland waters, lakes Sorell and Crescent are the most likely to develop algal problems in the future if good management is not in hand.

Water levels

As Tasmania's larger lakes go, Lake Sorell is in a relatively natural condition in terms of water levels. Whilst there have been alterations to its outlets on a number of occasions since the earliest known works in 1834, these have all been primarily to control the release of water rather than to raise the level.

Water levels in lakes Sorell and Crescent are under the control of the Clyde Water Trust which is set up under the provisions of the Clyde Water Act 1898. The Trust has the power to carry out works on Lake Crescent of its own accord but may only alter physical structures on Lake Sorell with the permission of the Minister.

The proposal to raise the level of Lake Crescent by 500mm has implications for the fishery in that lake in itself. These were considered in a report by the Lake Crescent Working Party in 1987. However, this proposal would also have implications for water level management in Lake Sorell in that the reduced level difference between the two lakes would mean that the marshes around Lake Sorell may stay underwater for longer periods in spring and early summer in some years.

This is not necessarily a good thing from a fisheries perspective as continued prolonged water coverage could change the character and nature of these marsh areas. It is not only low water levels that cause problems. As was the case in Lagoon of Islands, prolonged high water levels also kill off some of the macrophyte areas resulting in excess nutrients being released to the lake.

The boundaries of the Interlaken property extend to the low water level of Lake Sorell and therefore much of the land flooded in winter and spring is private property. The property owners therefore also have an interest in maintaining a 'natural' water level cycle.

The whole question of water level management, both high and low, requires further consideration in this catchment. It is time to consider whether there is more value to the State in maintaining one of the best trout fisheries in the country with its consequent employment generation or whether the use of this water for irrigation may be more valuable to the State.

Land management

A good deal of the Lake Sorell catchment is in a relatively natural state. Some forestry activities have been undertaken in the northern area but with no detectable effect on the lake. Some logging has also been undertaken on 'Interlaken'. This has not been extensive and one of the property owners, Mr Alan Jarvis, indicated his intentions in this regard in a letter in the 1987 Tasmanian Angling Report as thus:-

"...a programme of taking mature mill logs is underway. No clear felling will take place. Logs will be taken to encourage regrowth but will not be taken from lake edges."

Due to the close proximity of the Interlaken property to Lake Sorell and the fact that there have been some obvious land developments on this property, considerable attention is focused on it.

What should firstly be appreciated by all anglers is that the property owners must be allowed to manage their property as they see fit, provided of course such management practices do not affect water quality off their property.

The dangers of farming next to such a large expanse of fresh water are that run off

(continued next page...)

from pastures can carry excess nutrients from stock or fertilisers to the lake. Siltation can also arise from freshly disturbed ground. The owners of Interlaken are well aware of the potential problems and have expressed a commitment to ensuring that their operations do not result in any damage to lakes Sorell or Crescent. For instance, the Commission recently approached Mr Jarvis with a request not to plough within 100m of Lake Crescent to provide a filter strip for run-off to this lake. The request was immediately agreed to and put in place.

It is the Commission's intention to continue discussions with the owners of Interlaken so that matters of concern may be aired by both parties. In the meantime, anglers should respect the owners rights to occupy their land and remember that they have not denied reasonable access.

People management

The sheer weight of numbers of people visiting Lake Sorell is a threat to the ecosystem in itself if they are not properly managed. The days of simply pitching a tent by the edge of the lake are gone.

There is an urgent need for the development of proper visitor facilities at Silver Plains before the area is compulsorily closed for health reasons. The Commission supports such a development rather than an expansion at Dago Point for many reasons. It would not be appropriate to concentrate all anglers at Dago Point for reasons outlined below.

- Angler safety would be compromised:
 - travel to the western section of the lake would be long, hence dangerous for small craft;
 - Silver Plains offers sheltered access from prevailing winds.
- Fishing effort on the lake would be uneven, perhaps leading to:
 - poor catches;

- user conflict through crowding on the water.

- Concentrating people into one area is not appropriate as conflicts and loss of enjoyment through crowded camping could arise.
- Would need extra facilities at Dago Point to cater for any significant increase in numbers:
 - toilets;
 - boat ramps due to crowding at peak times;
 - parking problems with increased use.
- It is also not desirable to extend Dago Point in any case.
- Loss of Silver Plains in particular would result in:
 - loss of enjoyment as it is a very pleasant area;
 - loss of tradition for some.

Development of facilities at Silver Plains is presently being pursued by the Department of Parks, Wildlife and Heritage and hopefully some positive result should be known in the near future.

Such a development also has its downside as the property owners have rightly pointed out in opposition to the Silver Plains proposal. Their problems include:

- open gates, fence cutting and trespass;
- fires and firewood stealing;
- chainsaw damage to growing trees;
- stock losses and disturbance through shooting and dogs;
- drunken and belligerent behaviour;
- rubbish and broken glass;

None of these occurrences are excusable and can only lead to the property owners taking greater measures to isolate their property from the offenders. All anglers would be the losers if this happens and all anglers therefore have a duty to see that none of these problems occur.

In summary, the authorities can only provide facilities and make regulations that set

the guidelines for the area. It is up to the individual as to how well the aims are achieved. Each and every person must be conscious of the fact that whilst their own actions may seem insignificant - "that small petrol spill won't hurt" - when multiplied by several thousand they could severely damage the whole lake system.

Conclusion

The IFC has instigated a detailed monitoring of the nutrient and algal levels in both lakes Sorell and Crescent. This has already indicated that both lakes are close to the edge in terms of their susceptibility to an excessive algal bloom. The monitoring will continue into the foreseeable future, but already there is cause for care to be taken over the management of land, water and visitors in the Lake Sorell catchment so that we can continue to enjoy the productivity of these lakes without damaging them.

None of the threats to this fishery are unavoidable. With careful management and cooperation from all concerned there is no reason why this beautiful area cannot remain one of Tasmania's premier fisheries.

The effort is worth it; Robinsons Marsh, Lake Sorell.



Lagoon of Islands revival

by Andrew Sanger & Chris Bobbi, Inland Fisheries Commission

The newsletter of March 1991 contained an article outlining the cause of the deteriorating water quality which has brought about a downturn in this once great trout water.

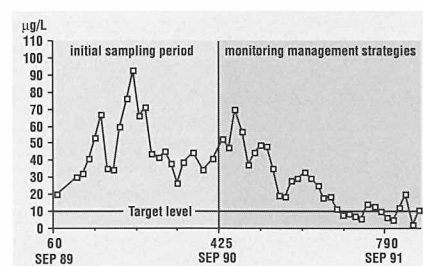
In that article it was explained that a severe algal bloom in the lagoon was due to an excess of nutrients and that several management strategies had been proposed by the IFC and adopted by the HEC in an effort to reduce the concentrations of nutrients entering the lagoon. These included using the Ripple Creek diversion only after nutrient levels in the catchment had reduced, and encouraging the regrowth of strapweed by limiting the depth of the lagoon to about 1.7m.

Improved Water Quality

The management options have been in place for about 17 months and it now appears that they have had some positive effect in restoring some balance to the ecosystem of the lagoon. Most obvious has been the significant improvement in the water quality, with a dramatic improvement in water clarity. For the first time since monitoring began, natural zooplankton blooms have occurred. In addition, the algal bloom which in the spring of 1990 reached peaks of

70µg/L, has fallen this summer to about 1µg/L - well below the target level of 10µg/L set at the commencement of the study in 1989.

The abundance of strapweed in the lagoon has also increased this summer due to the more favourable lake levels, and this has probably contributed most to the improved water quality through stabilisation of the lagoon sediments.

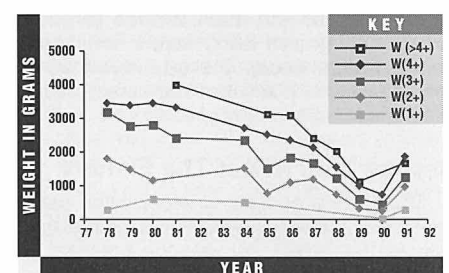


Chlorophyll levels in Lagoon of Islands

Fish Condition

With the re-appearance of zooplankton in the lake and the low chlorophyll levels, a test netting of the lagoon was carried out in late November of 1991. The results showed that a dramatic improvement had occurred in the condition of both brown and rainbow trout over the last 12 months.

The data shows that the average weight of fish from all age classes has increased by up to 200% over fish surveyed in 1990, with fish weight returning to around the 1988



Av. weight of male rainbow trout from Lagoon of Islands

levels. The trout population is presently dominated by older fish with most being between three and five years old and having an average weight of about 1.6kg. The oldest of these showed the least ability to recover lost weight, so anglers may need to wait a year or two for younger fish to achieve full potential. The largest fish caught was a male brown trout weighing 2.3kg. The fish present are already providing good sport for those anglers returning to the lagoon as are the redfin perch which have also picked up condition.

Diet

Preliminary examination of stomach contents from both rainbow and brown trout show them to be eating mainly stick caddis, mudeyes, large midges and amphipods. However, their diet also includes mayflies, beetles and the odd damselfly nymph indicating that a full range of invertebrate is also returning to the lagoon.

The 1991 Whitebait season

A recreational season for the taking of whitebait was again opened in 1991 following the trial season in 1990. Minor changes were made to the season in that its duration was extended by a week over the previous year and the Don River was added to the list of open waters.

The same general regulations as for the 1990 season applied to the taking of whitebait in 1991 as the fishery still remains very much on trial. Again it is repeated that the Commission makes no apology for the strict rules, for example:

- an early, short season timed to avoid the major migration peak;
- only a few rivers open;
- small daily and seasonal bag limits;
- restricted gear size.

These restrictions will remain part of the routine management until we are certain that the fishery can sustain even limited catch levels.

Licence Sales

A total of 564 licences was sold during the season. Again the majority of these were purchased in the north-north west region. A summary of sales is as follows:

Region	Licences Sold
Queenstown-Savage River.....	17
Smithton-Wynyard	254
Burnie-Latrobe.....	175
Launceston.....	11
Scottsdale-Bridport	85
Derwent.....	17
Huon.....	5
Total.....	564

The sales figures are essentially similar to those of the previous year with almost iden-



A hopeful whitebaiter. (Photo: Advocate)

tical numbers sold in the north and north west of the State but a few less in the south.

Questionnaire Results

The information sheet handed out with the licence again included a survey form that could be completed and returned. The response was not as good as hoped with only about 6% of licence holders responding.

The comments on these survey forms were very similar to the previous year and,

as indicated above, confirmed the Commission's deliberate objectives which were to ensure that there was no possibility of over-exploitation in the early stages of evaluation of the recreational season.

The catch returns in the following table were obtained from the survey forms although the reliability of the information is reduced by the low number of responses. The waters listed are the only ones for which the data are reasonable.

WATER	NO FISHERS	AV NO DAYS FISHED	AV HRS/DAY	AV CATCH/PERSON KG	TOTAL HARVEST KG
Duck River	80	13	3.0	2.0	160
Black Creek	80	2	3.4	0.8	65
Deep Creek	110	5	4.5	1.3	140
Inglis River	160	9	4.0	2.3	370
Franklin Rivulet	110	9	3.2	1.9	200
Great Forester River	190	10	3.2	6.7	1 300

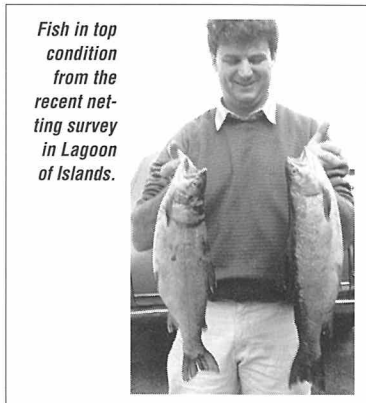
These catch figures show a decline over the previous season. This decline was evident during the season and brought on requests to extend the season or open it again later in the year. To do so would have been highly irresponsible on the part of the Commission because, at the time, there was no way of knowing for sure why the runs had been so poor. It could have simply been that the whitebait were delayed by the high flows in north western rivers in September or, more importantly, that the runs may not turn up at all for whatever reason.

The Commission is approaching the task of managing the whitebait fishery with great caution and will continue to do so. It must be clearly understood that the purchase of a licence is not an automatic purchase of 10kg of whitebait. It is certainly our long term objective to be able to relax the regulations, but this will not be done until we are sure the whitebait stocks are able to handle the exploitation.

Prospects

The Commission will have to supplement stocks in this water and will most likely add some rainbow fingerlings this year. Contrary to some reports we have not added any brown trout.

In the meantime, the number of anglers returning to fish the lagoon is already rising



Fish in top condition from the recent netting survey in Lagoon in Islands.

in response to the improvement in water quality, and the word is that fish are being taken both on the dry fly and spinning in the clear areas offshore. The Commission's work on this water has not finished yet and monitoring will be ongoing. It is hoped that the lagoon will continue to improve and once again provide anglers with fish equal to their memories.

Recreational fishing working party

Anglers may have heard various reports regarding the purpose of recent discussions at the Federal level regarding recreational fishing. Rest assured, it is not an attempted Canberra takeover of sport fishing.

The intention is to gain some long overdue recognition of the extent and importance of the recreational fishing industry in this country. This initiative arose from the last meeting of the Australian Fisheries Council where the instruction was given for the Working Party to be set up under the chairmanship of Peter Rogers, Director of Fisheries, Western Australia.

The terms of reference of the Working Party are as follows:

1. To develop a draft national strategy for the management of recreational fishing in Australia.
2. To summarise available data on the significance and extent of recreational fishing in Australia.
3. To define the respective role of the States, Territories and Commonwealth

in the management of recreational fishing.

4. To identify funding options for recreational fisheries management and examine the case for Commonwealth funding assistance for the States and Territories.
5. To report on information needs and survey options for recreational fishing.

A National Strategy for recreational fishing is being prepared encompassing these terms of reference for submission to Australian Fisheries Council later this year. Tasmania's freshwater anglers are represented on this Working Party by the Commissioner of Inland Fisheries.

Perhaps of relevance to this issue would be recent media coverage of the Industry Commission report to the Federal Government which recommended a \$20 general fishing licence. It is considered most unlikely that this recommendation would be imposed on Tasmanian trout anglers even if the Federal Government did have any jurisdiction in our freshwater fisheries.

The value of angling to Tasmania

(Part 2)

In the last issue of this Newsletter details of surveys of the angling related expenditure of interstate visitors were given. The results of a similar survey of local anglers were obtained in a separate survey.

Questionnaires were sent to 2 000 local anglers who had taken out a full season licence. Replies were received from 661 of these. The total expenditure was then calculated from their replies.

To estimate total expenditure several categories were used:

- expenditure on new gear in the 1990-91 season;
- depreciation on existing gear;
- depreciation on specific angling dwellings;
- accommodation expenditure;
- equipment hire;
- travel costs.

How much was spent on new gear?

The average angler spent about \$343 on new fishing gear with the major cost being related to boats (\$139), followed by camping gear (\$49), rods and reels (\$42), and tackle (\$41) as the next major items. Obviously \$139 would not buy much of a boat but this is the average cost shared amongst all anglers.

How much gear does the average angler own?

Excluding vehicles, the average angler has about \$1 822 worth of fishing gear consisting of such things as boats (\$878), camping gear (\$345), rod and reels (\$229), tackle (\$145) and fishing clothing (\$131).

The value of vehicles was not included in this category as the percentage of use for fishing was too variable to assess.

Vehicle and other costs

The expenditure on travel was estimated from figures for fuel purchases plus a vehicle depreciation figure based on the amount of travel for fishing.

The costs of fishing travel were therefore estimated to be about \$275 per angler with a total expenditure in the region of \$6.4 million for the season.

What is the total expenditure?

All the various elements can be summarised as follows.

	AVERAGE ANGLER (\$)	TOTAL (\$)
New equipment	343	7 937 000
Depreciation on existing equipment	273	6 322 000
Depreciation on shacks		2 770 000
Accommodation		256 000
Equipment hire		34 000
Travel costs	275	6 352 000
		\$23 671 000

The estimates show that each full season angler spends in excess of \$1 000 over a season. This does not include any estimate for the short term anglers and the \$23.6 million annual expenditure by local anglers is therefore a conservative figure.

When the number of days fished is totalled, a figure of \$40 per angler is obtained as the daily expenditure. A Victorian study done in 1984 estimated expenditure for anglers at \$30 per day for shore anglers and \$40 per day for boat anglers. Consequently, our estimates are believed to be in the right ball park.

When added to the visiting angler expenditure Tasmania has an industry worth at least \$28 million per year.

Salmon Ponds developments

The new kiosk at the Salmon Ponds is now open for business. This building is a vast improvement on the old one which has already been removed thanks to some volunteer wreckers from the New Norfolk Licenced Anglers' Association.

New kiosk operators Sandra Clark and Marlene Menzie from New Norfolk have

injected a great deal of enthusiasm into the new business and this in itself is attracting more visitors to the Ponds.

The grounds and the display fish are in better shape than they have ever been thanks largely to the efforts over the past few years of the hatchery manager, Kevin Lange.

The Salmon Ponds has a great deal of history as it is the site of the first introduction of trout to Australia in 1864. Some of the buildings date back to that time as do the ponds and many of the trees and shrubs. The Commission has an obligation to preserve that history on behalf of all Tasmanians.

The Future

Certain restoration works have already been undertaken on the hatchery building and it is also intended that the main cottage and the smaller 'room' beside it should be restored. Considering the wealth of historical material related to the Salmon Ponds, the Inland Fisheries Commission and its predecessor the Salmon and Freshwater Fisheries Commission as well as to angling in general, these buildings provide an ideal setting for a museum.

The Commission has received enthusiastic expressions of interest and offers of assistance from angling clubs and the newly appointed Southern Tasmanian Licensed Anglers' Association honorary historian Mr Harvey Taylor. It is now a matter of finding the funds for the work.

The Commission has applied, without success, to the Australian Heritage Commission for some funds under the National Estate Grants Program. This was not successful. It is now intended that funds be requested from the State Government in the next financial year. Support from the Government to build the new kiosk is gratefully acknowledged and those present at the opening will recall the support expressed by the Minister for the restoration and museum project.

One way or another, this project will go ahead.

Salmon Ponds, April 1869 - the hatchery had not been built. (Photo: Allport Library)



IN BRIEF

Open Day

The Commission will be holding its annual Open Day on Sunday 3 March 1992 at Liawenee Field Station, Great Lake. All IFC staff will be present to entertain the crowd.

Stripping of eggs from brown trout will again be demonstrated and this year fish will also be scale-sampled and tagged. Displays of the Commission's management and research operations will also be presented in the laboratory. Other displays and attractions are presently being organised.

A hot food stall will be present so get a few friends together, they don't have to be anglers, and come along for an enjoyable and interesting day.

IFC Purchases 125 Davey Street

The long awaited opportunity to purchase the building at 125 Davey Street recently arose. The Commission purchased the building out of funds held in reserve for staff superannuation entitlements. As such, these funds could not have been used for general operations.

This building is most convenient to the Commission as it is the corner block which borders our existing properties at 127 Davey Street and 14 Molle Street. All three buildings share a common car parking area.

The extra space will provide welcome relief to present crowded staff conditions. More storage space will also be available. A large room in the new building will also provide an opportunity for the Commission to run some public education courses and programs, similar to those previously conducted at Liawenee/Bernacchi.

Tasmanian Trout Fishing Championships

The competition held over the weekend 9-10 November 1991 was the most successful yet and is a credit to the untiring efforts of the organisers.

A total of 681 entries were received for the competition and 867 fish were checked in over the weekend. The major prize of a return fishing trip to New Zealand was won by Mr G Howe of Mole Creek. The heaviest fish was taken from Lagoon of Islands by Mr K Middap of Perth.

World Fly Fishing Championship

The World Fly Fishing Championship was

held in November 1991 on the Rangitaiki River, Lake Aniwhenua and Whaeo Canal, New Zealand.

The final team placings were New Zealand, Poland and England with Australia in ninth position. Jason Garrett and Malcom Crosse were the highest placed Australians in the competition in 25th and 27th place respectively.

The Commonwealth Championship was held following the World event with Scotland first, England second, Wales third and Australia fourth. Ken Orr (Tasmania) and Ross Levis (New South Wales) were the highest ranked Australians in 11th place.

The next World Fly Fishing and Commonwealth championships are scheduled to be held in Italy in June 1992.

Lake Water Levels

Through the IFC/HEC consultancy agreement, progress is at last being made in trying to achieve more sympathetic (to anglers) management of water levels in prime trout waters such as Bronte and Little Pine lagoons in particular.

It is mainly through water level management that the improvements have occurred in Lagoon of Islands (see separate article) and a management program is to be trialled in Shannon Lagoon as well.

Further details of the water level proposals will be given in a future newsletter.

Water Sampling Program Begins

It is all too apparent that the increasing multiple uses that many of our water bodies are being subjected to have the potential to cause deterioration in water quality and consequent problems for some fisheries. In investigating such problems the Commission is hampered by a lack of background information, particularly on nutrient levels, across the wide spectrum of lakes present in the State.

In an attempt to set up an early warning system the Commission, in conjunction with the HEC, has initiated a regular water sampling program in some 20 or so lakes around the State. These range from relatively pristine waters, such as Naomi and Nameless, to waters under far greater threat, such as Lake Sorell.

Spawning Channel at Brushy Lagoon

A channel has recently been constructed at Brushy Lagoon which should enable fish to spawn naturally in this excellent small fishery.

About 80m of the bottom end of the inflowing creek has been excavated and terraced to provide good spawning sites. Gravel from the Great Lake area has been placed in the channel. A weir has been built which should prevent fish from moving upstream and becoming stranded as the water levels drop.

Tremendous assistance in terms of machinery and staff has been given by the Forestry Commission.

Brook trout on the West Coast

The presence of brook trout in Clarence Lagoon is known to most anglers. This species of fish (more correctly known as brook char to indicate its close relationship to the other North American chars), does not do well in competition with the more aggressive brown and rainbow trout. Despite its widespread and repeated release to many of Tasmania's lakes since its original introduction in 1883, it has not established major self maintaining populations in any other waters.

The population in Clarence Lagoon has always been in a tenuous state with continual stocking from Plenty supplementing small levels of natural recruitment. In 1987 the Commission decided to attempt to establish brook trout in new waters on the west coast. This was done with the aim of securing the future of brook trout in the State, whilst also offering alternative fishing experiences for Tasmanian anglers.

The lakes of the Anthony Power Development offered such an opportunity as no other trout were present in this system. However, the water type, being on the acid side, is not entirely optimal, and the

A brook trout from the netting survey.



success of this venture is therefore not absolutely assured.

In December 1986, 250 yearling and 5 060 fingerling brook trout were released in the Anthony system. Further releases were made in 1987 (20 000 fry) and 1989 (27 100 fry, 1 300 fingerlings). These were released into lakes and streams that will either form part of the new storages, or will be so closely linked that fish would migrate to them naturally. It then remained to be seen whether these stockings would be successful.

Since the initial releases in these waters some catches have been reported and the Commission decided to survey the area to determine whether there had been any natural recruitment. Test netting was undertaken in November 1991 and further surveys were done in January 1992.

Fish ranging in size from 255 to 1 250g were captured in Lake Selina whilst those netted in Lake Rolleston were from 375 to 2 250g. The ages of these fish, as determined from scale samples, showed that natural recruitment had occurred in both these lakes. Whilst the populations are not large at present, the future of brook trout in the area looks promising.

Neither Lake Rolleston nor Lake Selina have particularly good spawning streams flowing into them. However, the Anthony River downstream of Lake Rolleston should provide excellent spawning habitat. This river flows into Lake Anthony, which is presently under construction downstream of Selina and Rolleston. Lake Anthony may well prove to be a good fishery as it appears to have suitable topography with quite broad flat areas which should provide a good food supply, especially in its early years.

This area will be well worth watching.

PROSECUTIONS

Details of offences finalised during the period 1 July 1991 to 31 December 1991 are given below.

Netters Caught in Gordon River

Three persons, Alan Ronald Board, Peter Gerard Grist and Andrew McNeil Inglis, appeared before Mr Bryan at Queenstown on 9 December 1991 on charges relating to the use of gill-nets in the Gordon River about 2km upstream from Macquarie Harbour. All three were convicted and were given fines (including costs) of \$431, \$231 and \$131 respectively. The Magistrate also ordered the return of the boat used in conjunction with the offences. This had been confiscated by the Commission.

In view of the fines awarded, it is fortunate that the Magistrate had erred in ordering the return of the boat as was subsequently determined by the Supreme Court on 4 February 1992 after an appeal by the Commission.

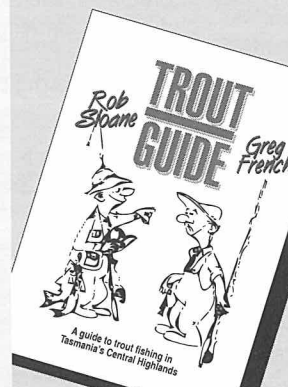
This type of offence is viewed as most serious by the Commission and all equipment used in a deliberate breach of this type can and will be seized. Such equipment automatically becomes the property of the Commission upon conviction of the offender.

Infringement Notices

During 1991 Infringement Notices were issued for 243 offences (237 in 1990) with total fines of \$26 100 imposed. The following notices were issued for the six months from July to December 1991. A list for the previous six months appeared in the last Newsletter.

OFFENCE	NUMBER
Fishing without licence	33
Use more than one rod and line	15
Use bottle or can as strike indicator	43
Unattended set rod	49
Possession of assembled rod when unlicensed	1
Use more than two lures or baits	1
Use natural bait in artificial waters	4
Possession of natural bait in artificial waters	2
Fishing in closed waters	3
Possess or use a net	6
Take whitebait	10
Possession of whitebait	2

TROUT GUIDE



This book, written by two of Tasmania's better known fishing authors, is a most comprehensive coverage of trout fishing in Tasmania's Central Highlands.

It treats all the major lakes individually with maps and details of how to get there followed by information on accommodation, camping, launching facilities and regulations.

Information on the history of each water including stocking records and angling statistics are given and the coverage of each water concludes with unbiased details of the most productive fishing areas and methods.

There is a great deal of information in this book presented in a manner that is easy to find and read. It is well worth having in your angling library and it is great to see that it is wholly produced in Tasmania.

Whitebait Offences Proven

In the Burnie Court of Petty Sessions on Thursday 19 December 1991 Magistrate Arnold Shott found all ten whitebait charges proven against Peter Warren Lambert. The offences were committed on various days between 24 October and 18 November 1990 and Lambert was fined a total of \$4 100 and 203 hours community service.

After taking all the circumstances into consideration, Mr Shott decided to suspend the monetary fine on the condition that Lambert commit no further offences for two years.

Court Procedures

Offences that were proceeded with by summons are listed below.

Offender	Offences Summary	Total fine + costs (\$)
Richard SMITH, Devonport	Other than rod and line/Take trout from closed waters/Disturb spawning fish	381
Gene Lawrence MAWER, Deloraine	Other than rod and line/Take trout from closed waters/Disturb spawning fish	381
Scott Vernon HARVEY, Sheffield	Use stone to kill fish/Disturb spawning fish	150, Susp for 6 mths
Peter Kenneth HOWE, East Devonport	Use stone to kill fish/Disturb spawning fish	150, Susp for 6 mths
Denis Reynold BLYTH, Wynyard	Take whitebait/Possess whitebait	431
Cyril John RICHARDSON, Wynyard	Take whitebait/Possess whitebait	731
Jason PLUNKETT, New Norfolk	False name and address/Falsely represent to be licensed/Unlicensed/ Possess assembled rod	381
Allan David WOULLEMAN, Gagebrook	False name/Produce licence of another person/ Unlicensed/Possess assembled rod	540
Raymond Thomas PLAPP, Burnie	Take trout from closed waters/Use strike indicator/Unattended set rod	131
Brett Leigh WHITEROAD, Burnie	Take trout from closed waters	131
Barbara Kaye CORDWELL, Lenah Valley	More than one rod & line/Use strike indicator	431
Scott Andrew SMITH, Devonport	Take whitebait/Possess net	431
Anthony Stephen RANDALL, Smithton	Possess whitebait	731
Selwyn Robert BARNARD, Irishtown	Possess whitebait	231
Peter Warren LAMBERT, Montague	Take whitebait/Possess whitebait/Possess net	1 200 Susp 2 yrs – 63 hrs comm serv
Peter Warren LAMBERT, Montague	Take whitebait/Possess whitebait/Possess net	500 Susp 2 yrs – 14 hrs comm serv
Peter Warren LAMBERT, Montague	Take whitebait/Possess whitebait/Possess net	1 200 Susp 2 yrs – 63 hrs comm serv
Peter Warren LAMBERT, Montague	Take whitebait/Possess whitebait/Possess net	1 200 Susp 2 yrs – 63 hrs comm serv
Dale Lester LAMBERT, Smithton	Possess whitebait	631
Allan Ronald BOARD, Strahan	Possess net/Possess acclimatised fish while unlicensed	431
Peter Gerard GRIST, Strahan	Possess net/Possess acclimatised fish while unlicensed	231
Andrew McNeil INGLIS, Waratah	Possess net	131