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Around the Jetties 28

Here lies poor Thompson all alone,
As dead and cold as any stone,
In wading in the river Nith,
He took a cold, which stopped his breath,
He fish'd the stream for ten years past,
Death caught him in his net at last

Written on a tombstone in Dumphries ,England

Editorial

In 1998 I wrote a book on black bream entitled “Black Bream in the Gippsland Lakes. In Crisis - Fact or Fallacy.” At the time of publication there were many who could not accept the premier black bream fishery of the Gippsland Lakes was in decline and the word “crisis” was not a fair description. Today I think most recreational anglers would agree that black bream stocks are at a crisis level. In the introduction to the book I stated that “you may not agree with some of the views advanced, but perhaps in discussing the issue of black bream, we may develop a long term plan for the development of a quality recreational fishery based on this superb sporting fish.” I hope that may still be the case and we as recreational anglers can discuss the changing issues affecting the black bream fishery of the Gippsland Lakes. Attached to this publication is a summary of a research paper on black bream movement that should be carefully examined, for it would seem the change taking place is currently far more rapid than most would have expected. This is an important paper for recreational anglers and as a result this issue of “Around the Jetties” concentrates on some aspects of the black bream recreational fishery.

Some Thoughts on Black Bream

For many years it was thought that black bream would spawn in the Gippsland Lakes and the salinity level would determine where that spawning would actually take place and “these areas probably vary from year to year depending on salinity conditions.” This was quoted in Black Bream 1998 a Victorian Fisheries publication. This publication also suggested the main spawning takes place in October and November. The attached research summary on the movement of black bream would seem to indicate that spawning takes place from July to November in the upper areas of the major rivers of the Gippsland Lakes. It would seem that with the increasing salinity of the Gippsland lakes the spawning area has become localised in the upper reaches of the rivers. It is a possibility that black bream may not have the salinity level to spawn in the actual lakes in the future given the predicted further decline in river flows.

The Fisheries Victoria publication quoted also suggested that small bream relied on seagrass for protection, and small prey for food. Today we see little sea grass in the Gippsland Lakes and certainly if spawning is taking place in the rivers as suggested in the attached research paper there would be no seagrass in the upper reaches of the rivers. A Gippsland Lakes Taskforce report on seagrass in 2008 showed seagrass had declined in 23 of 30 sites as compared with a seagrass study conducted in 1997. (The latest findings of Jeremy Hindell for the Gippsland lakes Taskforce on seagrass and fish numbers will be discussed in the next issue of this

publication.) We have published in “Around the Jetties” a summary of the Gippsland Lakes Taskforce report of 2008 indicating fish numbers were generally low throughout the lakes, and results from the Angler Diaries program and anecdotal information as well as recent commercial statistics, support the view that black bream stocks are at a very low level. It is generally acknowledged that the last substantial spawning of black bream was in 1989 with another somewhat lower recruitment in 1995. Since that time recruitment has been low and this continues to be the case. .

All of us who love the special challenges of black bream fishing will need to face the fact that black bream numbers will never be the same in the Gippsland Lakes, and perhaps all associated with this fishery may need to consider what can be done to safeguard the remaining black bream stocks and ensure that in the words of John Harrison in his report on the Black Bream Stock Assessment (last issue) that “there is a need to determine the point at which the survival of black bream stocks is problematic.” It seems to me that when we start talking of the possibility that there is a point where the survival of black bream stocks is, uncertain we are facing a completely new challenge. With the change in the lake system due to low river flows and the increased saltwater flow into the lake and the resulting greater salinity of the system, the bream fishery of the Gippsland Lakes would seem to be facing difficulties never before experienced.

Closed Season for Bream

“The hooking of bream was prohibited from the 1st of September to the 31st of October each year. Angling for bream is thus made illegal in the two months immediately prior to spawning.” This became law in the Gippsland Lakes in 1947.

Taken from

The Status of the East Gippsland Bream Fishery
John K. Ling Fisheries and Game Department 1958

The above historical note signifies that concerns for bream stocks, is not entirely new and sixty years ago (1947) steps were being taken to protect the spawning bream. Perhaps this may be a consideration in years to come.

Fishing Costs

A survey undertaken nationally in 2001 showed that in “Victoria 2,980 tonnes of marine and freshwater animals were estimated to have been captured by recreational fishers, spending \$396.7m in the process. This is the equivalent of an associated expenditure of \$133 per kilo by recreational anglers in Victoria.” Now this is thought provoking when one thinks of the cost to a recreational angler of each kilo of fish caught.

On the other hand “ the commercial catch of scalefish in Victoria was 3,806 tonnes and had a value of \$13.1m had an average price at first sale of \$3.33 in 2003/4.” These figures were in a paper by Pepperell Research in 2004 and make the case for a greater share of the fish resource being made available to recreational anglers by comparing the return if fish are caught by recreational anglers \$133 per kg against those taken by commercial catch \$3.33. In short the community would have a far greater return if the small catch of the commercial sector in the Gippsland Lakes were made available to the recreational sector by instituting an offer of a further buyback of commercial licences. This might also take some pressure off the declining black bream stock.

“The Good Old Days”



Probably no photos describes “the good old days” better than those shown. These photos hang on the walls of the Marlo Hotel and provide an indication of the fishing available almost 100 years ago. The first photo shows 214 fish that appear to be bream caught by five rods and weighing 338lbs in 1911. The second photo shows 54 bream caught by two rods on the 29th of October 1927. These fish weighed 135lbs. In those days with the numbers of fish available, it was probably accepted that anglers would have similar fishing into the future, and there was no thought that fish stocks would ever decline. It is probably worthwhile recreational anglers considering “the good old days,” and just how our recreational fishing has declined. I think of the fishing in the Tambo twenty years ago, and certainly there has been most marked decline in that time. It is obvious that if we want this wonderful bream fishery to survive then the actions taken in the next five years will be critical, and we might also need quite a bit of luck with water flows.

Marlo Islands Fish Habitat

A Marlo reader of this publication raised two interesting observations of the program to place logs around the Marlo Islands, to create fish habitat, previously reported on in *Around the Jetties*. Firstly he indicated that some of the logs attached to the islands were out of the water at low tide and he wondered how this would add to fish habitat. The answer from the East Gippsland Catchment Management was that the logs would get all types of crustaceans attach to them and like jetty pylons, and when they submerge with the tide the fish would feed off the material attached and growing on the logs. A prime example of this occurring is with green weed, which is a great attractor of luderick. The other question asked was why the logs were not tied together to form a raft similar to those used in the Tambo and Mitchell Rivers. The answer was that to place raft into the rivers, a 60 tonne crane was necessary, and in the circumstances of creating habitat around the islands this would have been physically very difficult and extremely expensive. It is believed by using single logs areas, between them may become scoured and this would create additional areas of habitat. The Catchment Management spokesperson indicated that almost 100 logs had been placed around the islands and they would expect this will provide a major addition to fish habitat.

Editor-I would be interested in any reports of fish around the log areas and a local assessment of any change in the fishing in these areas. I also thank the East Gippsland Catchment Management spokesperson for his detailed answers to the concerns raised.

Fishing Competitions

On the weekend of the 18th and 19th the Twin Rivers Bream Classic was held although this year the competition was extended to cover basically all local waters. Of particular interest was the increase in catch and release and Fishcare co-coordinator Jennifer Allitt said the number of fish released was up 80% on last year. Given the information enclosed in this publication this indicates many more fishermen are concerned with the status of bream stocks. Eight Fishcare volunteers operated the catch and release at the Nicholson River jetty and on the Tambo River at the Johnsonville jetty.

Over the two days sixty fish were weighed, measured and released in the Nicholson River and 164 fish in the Tambo River. The biggest fish released at Nicholson was 1.83kgs and the biggest fish at Johnsonville was 1.7kgs. The Fishcare co-coordinator Jennifer Allitt acknowledged the excellent work undertaken by the

volunteers who manned the weighing stations for the full two days, she also said it was pleasing to see an increasing number of boats equipped with live fish tanks, so that catch and release could be practiced. Kevin Powell convenor of the event stated 178 dead bream fish were weighed in at Nicholson on the Saturday and 132 on the Sunday. There were no figures available for the fish caught in Lake Tyers and any fish caught in these waters were included in the total of 310 dead fish. This meant with the fish caught and released 534 bream were caught over the weekend. It is significant that many undersize fish were caught and released, and a number of anglers I spoke to talked of great numbers of undersize fish.

Whilst the catch seems substantial, when you consider that 680 anglers were registered in the competition, and many fishing parties camped on the riverbank and fished night and day, then the overall catch rate is low. A simple analysis by allocating a conservative figure of 10 hours fishing to each angler and remembering some had lines in the water for over 24 hours the catch rate is over 12 hours angling for each size fish caught. This low catch rate is very similar to previous years.



Camping on the Banks of the Tambo River on the weekend of the Bream Classic.

A question that must be looked at is that of fires when they are deemed illegal on the river banks and toilet facilities when there are two, one at Johnsonville ramp and one at Rough Rd

The Spawning of Black Bream

It is generally thought that female black bream reach sexual maturity at 24cms whilst the male fish reaches maturity at 20cms. The eggs of the black bream are small and are probably less than 1mm in diameter. It is suggested that a mature female black bream may release between 300,000 and 3 million eggs in one season. This means that with a good stock of mature black bream and good breeding conditions the black bream can very quickly recover from a low stock base, however in the last decade there has been no evidence of any such recovery. Part of the reason for this low level of spawning is the requirement of salinity between 11 and 18 parts per thousand for bream to spawn, and with the increasing salinity levels in the lake it seems there is evidence to suggest bream are moving into the rivers to obtain a suitable salinity level to spawn. It should be noted the growth rates of black bream are variable as is the size of fish at sexual maturity. The other factor to consider is that juvenile black bream rely on seagrass for shelter and food, and the current levels of seagrass in the Gippsland Lakes is of continuing concern.

Carp in the Gippsland Lakes

In an interesting discussion with Keith Bell of K & C Fisheries Global Pty Ltd of Cobains, Vic, the largest commercial carp company in Australia I was provided with some interesting facts.

The discussion started in regard to the fact that there appeared to be only 65 ton of Carp caught in 2007/08 down from a peak of 658tonnes taken by commercial fishermen in 1998/9.

I had trouble in collecting carp harvesting figures and Keith explained why this is. The figures are supplied by the DPI compiled from the commercial fisher's monthly catch data returns. Under the privacy act if less than 5 fishers catch a species of fish then the figures cannot be published.

The cause of this situation has been bought about by the dryer times that we are now experiencing. In the wetter years with a lot more fresh water entering the Gippsland Lakes there was a greater abundance of Carp because the fresh water environment that they require was much more widespread through the lakes system. This made them more available to commercial fishers and therefore greater catches.

As we go back into the normal drier times the salt water wedge drives further into the lakes system including the rivers and an example, 3 km upstream from the mouth of the Avon River at a depth of 1.5 metres the saltwater content was 22 parts/thousand. (19-7-2009) The ocean is 32 parts/ thousand). Remember that the Mitchell River barrier was put in place to prevent the salt water from contaminating the Bairnsdale town drinking water supply.

This salt-water incursion has pushed the biomasses of Carp and some other estuarine fish further upstream and reduced their preferred habitat immensely.

As the land and Morasses have dried the Carp breeding grounds have not been so readily available. This has greatly lowered the biomass of Carp and also taken them out of the areas that the Gippsland lakes fishers are licensed to fish. This makes it much more difficult for commercial fishers to make it viable or possible to catch Carp.

Keith says to remember that 50 years is a very short time in evolution especially taking into account the technical changes man has made in this period and Keith quotes changes to cars, boats, fisheries and agriculture as an example of technical change. Since the inland commercial fishery has ceased in recent years, the only way to commercially harvest Carp is by a special noxious fish permit. This is the Permit which Keith's business operates under and which allows him to harvest only Carp and no native fish at all. This makes it a very specialist operation.

A couple of higher rain events followed by higher river flows in 2007 flushed a greater number of fish back into the lakes system from the rivers.

Part of the 65 tons harvested were basically a by product to the bream and other table fish harvested for the public by the Gippsland Lakes fishers at this short opportune time

Keith explained that there is enough evidence to show that the 50-year period from 1950 to 2000 was the wettest 50-year block we have experience in the last 4000 years. There have been spikes of 10-year periods but not long periods.

Keith concluded by saying "we must remember to look at the big picture. The Gippsland Lakes system has many complex small living environments within it, but the Gippsland Lakes is only a small part of a more complex larger living environment."

Editors Comment

The interesting discussion with Keith Bell summarized above provides a graphic indication of the change that is taking place in the Gippsland Lakes, and the continuing development of a marine environment. This will pose difficulties for estuarine fish such as black bream and evidence of a decline in abundance of this species comes from a number of sources.

Commercial Carp Catches in the Gippsland Lakes from a peak of 658tonnes in 1998/9 the catch have dropped to 64tonnes in 2007/8, and this may have been even lower without the 2007 flood bringing carp from the rivers into the lake system. These figures are important for in the future, it would seem doubtful that the commercial catch figures for carp would be published. It also seems possible that in the future that no carp will be caught in the Gippsland Lakes unless a flood occurs providing for freshwater to enter the lake system.

The largest catch of carp in Victoria was in 1999 when 1,117tonnes were caught of which 494 tonnes came from the Gippsland Lakes.

Another View

Talking to a fisheries scientist I was interested in his comment that it is not inconceivable that the Gippsland Lakes in a few years may end up like Westernport Bay, namely a marine environment with recreational anglers seeking marine fish like whiting and snapper. The following description of fishing in the early 1900's is significant given the scientists comments.

"Catches of fish were not uncommon in the waters around Metung with catches of up to 100 boxes of mullet at a time, 20-30 boxes of bream, 20-30 dozen flounder. An 82lb kingfish was caught at Metung, and 52 boxes of snapper were netted at Harpers Bight. (Nyerimilang)

Written by Rudolph Kreyborg's son (early 1900's) The Story of Metung – G Halstead



Acting Executive Director,
Anthony Hurst with his first Murray
Cod caught in Lake Mulwala which
he later released.

Meeting with Acting Executive Director of Fisheries Victoria

On the 14th of July I was a member of a small group of recreational anglers who were invited to meet with Anthony Hurst at an 8.00am meeting at the Lakes Entrance office of Fisheries Victoria. This meeting was to informally meet with Anthony Hurst who is currently the Acting Executive Officer of Fisheries Victoria and to discuss any matters of concern and possible issues for the future. The previous evening the Acting Director met with the commercial fishing sector. This approach seems to be a very welcome change, and the importance of communication was emphasised by Anthony. Anthony came from the NSW Fisheries Department after a long experience in water resources, rivers and irrigation prior to his years in fisheries. I and the other five recreational anglers were most impressed with the openness of the discussion, and to be honest it almost seemed like a breath of fresh air had entered Fisheries Victoria. The discussion was wide ranging, and the following are a few of the responses to matters raised.

On the issue of fish sizes and the recent fisheries regulations the Director indicated there were a number of matters of concern including size limits for dusky flathead and that he expected the issue of size and bag limits would be revisited in the future. He indicated that he saw value in having a size limit that allowed the fish to spawn before reaching legal size, and this was a matter canvassed by many recreational anglers in submissions.

The issue of bait and the 100 shrimp limit on those catching shrimp was raised and Anthony indicated he saw the problem and this will be looked into. It was suggested that shrimp should not be assessed on numbers but by volume and that a 250-300mls container of shrimp would be more appropriate than a number of shrimp given their variation in size.

The Acting Director acknowledged that delays in releasing reports and material such as the Commercial Catch Statistics was unsatisfactory and he hoped that in the coming months a number of reports would be released, and a procedure developed to ensure future reports are released quickly.

A future priority for the Acting Director will be a number of meetings with recreational anglers around the state to gain input from recreational anglers. He said that in the future based on assessment of the NSW artificial reefs, and also the recently installed three reefs in Victoria more artificial reefs could be introduced and this could include the Gippsland Lakes if community demand was present. Anthony was interested in introducing a primary school fishing education program, which would assist in educating anglers of the future.

Anthony indicated that the new Recreational Fishing Grants Group (details in issue 27) was a most important development for recreational anglers, and anglers should be supporting this development by encouraging people with fishing experience to express interest.

This is only a skeleton of an outline of the discussion but the major result for all of us was the emphasis on open discussion and ensuring all parties affected by a decision are included in that discussion. Anthony was also interested in the concept of an explanation for department actions. He indicated that a reason for the size limit of 23cms on tailor was a result of the fact that most tailor when caught quickly die, and so a catch and release policy is almost impossible to introduce for some species tailor included. He agreed that such information should be made available to recreational anglers to explain the actions of the department.

Personally I was delighted to see that when the Acting Director entered the meeting he was clutching a copy of "Around the Jetties." I think recreational anglers around the state will be very impressed with this energetic Acting Director and his emphasis on communicating with the recreational anglers of this state.



Crouch Reels I had a note from Clive Hammet after the last issue of “Around the Jetties” indicating that he had a Crouch reel that was still in its original box and with its instruction sheet. On the basis of the last newsletter Clive has a reel well worth over \$800 today. The Crouch reel company of Dunolly was bought out in 1962, and imported reels largely replaced the Australian Crouch reels. My 50 year old battered Crouch Reel that I wish I had looked after.

Artificial Reefs in Port Phillip Bay

In April a Fisheries notice was gazetted to protect the reef areas from commercial fishing, and research will take place over the next three years to assess the potential of these reefs. As part of this assessment research anglers will keep diaries to determine the catchrate of key species on the reefs. Fishing was assessed in the areas of the reefs prior to the placement of the reefs and this will be compared with the results achieved in the next three years fishing in the areas of the reefs to determine the impact of the reefs on recreational fishing. Readers will be aware that the Acting Executive Director suggested that the Gippsland Lakes could be considered in the future for location of artificial reefs if the community demand and interest was evident. Readers will remember in a previous issue Alex Milledge proposed the introduction of an artificial reef in Bancroft Bay.

Macquarie Perch Fishing

In a VRFish media release in July it was announced that VRFish and Native Fish Australia had been invited to participate in a steering group to assist Fisheries Victoria to explore the establishment of a Macquarie perch fishery in this state.

I found this particularly interesting as I probably saw the sudden demise of Macquarie perch in one of their principal habitats namely the tributaries and waters of Lake Eildon. In 1959 and 1960, substantial publicity was given in Melbourne and local papers of large catches of Macquarie perch in the Jamieson River and one heading was that a tonne of perch had been taken from the Jamieson swimming hole by recreational anglers. These fish were moving up the Jamieson River to spawn and from memory there was no bag limit. Within a couple of years there was no spawning run, and Fisheries Victoria were netting the Jamieson River in a belated attempt to get breeding stock for Snobs Creek from odd fish entering the river. This action at the time caused considerable ill feeling from anglers who over the years had thought of the spawning run as an annual event and to see the river netted for the few remaining fish undertaking the spawning run was difficult to accept. The decline in Macquarie perch was directly attributable to lack of regulation, and protection of the species and the public perception that this annual spawning run would continue forever.



I went to Mansfield in 1962 and fished in Lake Eildon regularly for the next eight years. In that time I caught one Macquarie perch in the actual lake. The decline of this species in Lake Eildon and tributaries was

complete The Macquarie perch is a wonderful fish, and they provided wonderful sport in Lake Dartmouth in its earliest years, however their numbers have declined in these waters and now there is a bag limit of one fish over 35cms. The Yarra River and the Coliban Reservoir have a small population and on these waters the bag limit is 2 fish over 35cms. If the Macquarie Perch can be returned to Victorian waters this will be a major achievement

The Entrance and Fish Access

“Before the days of trawlers, salmon came through the entrance in huge shoals on hot summer nights, the lake used to boil with them right on the surface with their fins showing.’

Written by F. Bury early 1900’s

The above describes the ease of access in the early 1900’s for vast shoals of fish into the Gippsland Lakes, and other early descriptions describe the entrance of yellow tail, tailor and luderick in vast numbers. Of concern as the lakes become more marine is the question raised in Victorian Fisheries Report 14 of 1996 which states,

“There are no longer deep gutters running parallel to the coast in the vicinity of the entrance, where migrating fish used to aggregate before entering the lakes. Sand has accumulated from the beach to the bar on the eastern side of the entrance and this is thought to be impeding migration of prawns, trevally, luderick, mullet and Australian salmon into the lakes.” This probably provides an answer to the question that has puzzled me for some years, namely, why shoals of large fish such as salmon are not seen in the Gippsland Lakes yet they and tailor enter the Marlo estuary and the Bemm River area providing great sport for anglers. The report quoted concludes –“there is a need to maintain channels which run parallel to the shore to ensure the recruitment of fish from Bass Strait.”

Given the changing nature of the Gippsland Lakes this is a matter that perhaps should be examined.

Fishing Jetties

Readers will recall that this publication has been seeking to have fishing jetties constructed on local streams upgraded to cater for the aged and handicapped anglers. This matter was first raised on the 29th April 2008, after being brought to our attention by the late Don Jolley AM a wheelchair angler. The article in the previous issue was provided to Ms Cook, Community Manager East Gippsland Shire before publication. I received a reply indicating that Ms Cook was no longer responsible for this area. The matter of access to fishing platforms is no further advanced after eighteen months of correspondence. Perhaps we need headlines in local papers

Please remember you can recommend a friend to receive “Around the Jetties” in 2009 and we welcome new readers whether individuals or angling clubs.

Personal Note

Much of this issue was written prior to July 30th, as I entered hospital for open heart surgery in Melbourne on that date. In hindsight, I am very glad I took the step of completing most of this issue prior to that surgery. My thanks to those readers who offered support and assistance post operation. I have received a paper prepared for the Gippsland Lakes Taskforce on Fish Assemblages and a Sea Grass update by Jeremy Hindell and Fiona Y. Warry. (Thanks to Paul Barry (Gippsland Lakes Taskforce) for making this paper available. This paper will be discussed in the next issue of Around the Jetties.

Thanks

To those readers who have sent stamps, to defray the costs of producing and posting Around the Jetties. Your generosity is greatly appreciated, particularly with the increase of readers now taking this publication.

We can provide a large print version of “Around the Jetties” to any reader having problems with the size of the print.

Good health and good fishing

Lynton Barr

Opinions expressed in this newsletter are those of the author unless otherwise acknowledged. MATERIAL FROM THIS NEWSLETTER MAY BE REPRODUCED BUT IT WOULD BE APPRECIATED IF THE AUTHOR AND PUBLICATION WERE NOTED

Attachment
Summary of-
Habitat utilization and Movement of black bream in an Australian Estuary.
J. S. Hindell, G. P. Jenkins, B. Wolmersley.

Forty-four black bream caught with the involvement of the Nicholson Angling Club were implanted with transmitters and their movements were monitored over 12 months (November 2005 to October 2006) in the Gippsland Lakes and tributaries through the use of receivers. These fish moved through the Gippsland Lakes at average rates of 8.7kms per day and some of these fish covered distances of up to 2600kms over the 12 months.

Fish frequently moved between the main estuarine rivers, (Tambo, Nicholson, and Mitchell) sometimes moving up to 30kms in a day. The fish use of the rivers, river entrances and lakes varied with the time of the year, with the fish spending more time in the rivers from late autumn through winter, with the fish gradually returning to the lakes in the spring and remaining in the lakes over summer. There were phases when considerable movement from the rivers to the lakes and vice versa took place.

The freshwater flow of rivers influences salinity, and this may also influence fish movement into the rivers to spawn in areas of their salinity preference where *haloclines of 17 and 20 support productive zones for the survival of eggs and larvae. Because of low water flows during the research period due to drought, the appropriate spawning conditions “were restricted to the uppermost regions of the major tributaries.”

*(See below for explanation)

Bream spent similar periods of time in September and October in the lakes and river mouths, whilst fish use of the lakes peaked in February and March and this coincided with the lowest river flow, while fish residency peaked in the rivers in mid winter, and at that time black bream begin to spawn (July-November.) Generally fish use of rivers increased with increasing river flows, and this even occurred in summer if localised heavy rain meant an increase in river flow. The reason for this summer movement is unclear, but it may involve fish cleaning themselves of parasites or to feed but this is speculative. The study found no clear difference between black bream movement during the day and night although previous research suggested black bream moved out of the estuarine rivers at night to forage in the lake system and returning to the rivers in the day to shelter in large wooden debris. Whilst most bream (54%) moved vast distances there was little evidence of residency of a bream in a single river.

An important finding was that on average black bream spent twice as much time in the rivers as they did in the lakes with some time spent around the river mouths.

An independent survey of black bream across the Gippsland Lakes using a haul seine net and the returns from recreational diaries both suggest a decline in the numbers of black bream may be as a result of spawning failure or perhaps related to the drought conditions being experienced.

*(halocline-is a region below a body of water where there is an increase in density due to salinity. In the case above a halocline of 17-20 parts per thousand creates the correct salinity for successful spawning of black bream.)

Editors Comments.

The above summary is a compilation of the ten-page report published in a scientific paper in August 1998, and the Department of Primary Industry Report is still to publish. I thank Dr James Andrews Program Leader Fisheries and Aquaculture for making this report available.

I found this research paper providing material that raised a number of issues for consideration from a recreational viewpoint.

1. The documentation of the extent of the movement of black bream between the rivers and the lake system is very important, for it raises the issue of commercial netting within 400 metres of the river mouths. This surely needs investigation to assess whether such netting impedes the movement of black bream to the rivers for spawning, and whether the natural movement of bream is contributing to their own decline given the extent of movement between rivers and lakes, and the commercial netting based on this movement.

2. The assessment that black bream move into rivers to spawn in the period July to November with a peak in October, and the fact that these bream are moving into the upper reaches of the rivers because of salinity, raises the issue of whether a closed season for these breeding fish should be considered. Previously it was thought a closed season would be impossible to implement when it was believed black bream spawned in the lakes or rivers where the salinity was between 11 and 18 parts per thousand. The 1996 Fisheries Victoria Report 14 on black bream stated “there are no fixed areas for bream spawning within the Gippsland Lakes” It would seem likely that this has now changed, and black bream may only spawn in the rivers because of the progressive change of the lakes to a marine environment. This will probably mean conditions for the successful spawning of black bream are unlikely to be available in the Gippsland Lakes in the future and it would seem the rivers provide the only alternative. I would think this is a substantial change to previous consideration of this issue.
3. Dunbavin Butcher a former Director of Fisheries Victoria, and the author of a 1945 paper on black bream made the point that because of salinity, water temperature, and seagrass requirements it was impossible to tell where and when black bream will spawn in the Gippsland Lakes. Given the above report this view might have changed, and this in turn may mean closed seasons become part of the current debate on the survival of black bream.