

SPANISH MACKEREL

fishers input sought for new research!

Fishers who target spanish mackerel along the East Coast of Queensland are being urged to help F&F researchers with an important new research project. Funded by the Fisheries Research and Development Corporation (FRDC), this project aims to identify some basic biological characteristics of spanish mackerel as well as documenting how those fish are harvested.



By Andrew Tobin & Amos Mapleston

Researchers also will assess how these characteristics differ between each of the main fishing sectors (commercial, recreational and charter) and from numerous regional centres along the East Coast. By identifying how the resource is used by the different fishery sectors, resource managers and fishery stakeholder groups will be better equipped to ensure future sustainable harvest of this valuable resource.

Research into the East Coast spanish mackerel resource began in the late 70's and early 80's when Queensland Department of Primary Industries (QDPI) biologist, Geoff McPherson, identified important characteristics including feeding, growth, reproduction and migration. In more recent years, QDPI researchers have initiated a Long Term Monitoring Program to assess the ages and spawning potential of spanish mackerel on two major East Coast spawning areas (reefs off the Cardwell and Townsville regions), as well as one at Bramble Cay (in North Eastern Torres Strait). Though the full value of this monitoring will only become evident in the long term (5-10 years), some interesting

preliminary findings showed the Torres Strait spanish mackerel to be in the 90 to 95cm length range or 6 to 7 kilograms in weight. The East Coast fish, however, were a little larger on average. Mr McPherson has also stated that spanish mackerel appear to have an extended spawning period.

The recently started F&F project will build on the QDPI research to fill in some of the gaps in the knowledge of the East Coast spanish mackerel resource. Prior research has focused on the commercial sector that operates for short periods on the well-recognised spawning areas off the Cardwell-Townsville region and in the Torres Strait. There is very little information about the commercial effort in other areas along the East Coast, nor for either the recreational or charter fishery sectors that also regard spanish mackerel as a highly desirable catch.

Anecdotal information from various sources within the fishing community indicate biological characteristics of spanish mackerel may vary between regions along the East Coast of Queensland and between fishing sectors. Some fishers have reported the average size of spanish mackerel is bigger in the southern areas of the state. Other fishers have reported large "homer" mackerel can be found around inshore rocky headlands with some reliability during certain seasons. Also of interest are reports from some fishers of capturing mackerel in spawning condition as far south as Break Sea Spit (north Fraser Island). Townsville and Cardwell are recognised as the "hot spawning spots" with large numbers of spanish mackerel schooling in the region every October and November, however secondary spawning sites may well exist further south along the East Coast of Queensland.

Some fishers have also reported that by altering fishing gears and techniques, smaller or larger mackerel can be selectively targeted. One of the preferred large mackerel baits is the wolf herring or

[Continued page two](#)

Spanish mackerel is a prime target for recreational and commercial fishers alike. While there is some information on the biological and catch characteristics of this species, this is limited to only a few areas of the GBR. New F&F research aims to extend this information to other areas of the state and to the recreational and charter fishing sectors.



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inside
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Eastern Torres Strait
research

Charter fishing
research update

Queensland's cods

Estuary fishing
research update

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PROJECT UPDATE

a word from the project leader

Bruce Mapstone



This circulation of the F&F Newsletter is special: You get two for the price of one and you get to read about some of the leading research being done by graduate students in the ELF Project. In March this year, CRC Reef funded students in the ELF Project organised a workshop with stakeholders to discuss their research and its relevance to the reef line fishery. The accompanying special edition of the F&F Newsletter reporting on the student-stakeholder workshop is significant for a number of reasons. First, it signals the culmination of years of research by several young researchers who have made significant contributions to the ELF Project and to the understanding of the reef line fishery. Second, it reflects the commitment of those students to engaging with stakeholders and doing their level best to get their research into the hands of the managers, fishers, and other stakeholders who can apply it to the management of the fishery. Third, the special edition represents another step in what has been a very successful team effort by the students in organising, running, and documenting a major workshop with 40 stakeholder representatives with diverse interests. Organising workshops of any sort is difficult. Getting a range of stakeholders together in one place and creating an environment in which they can all participate in discussions about research and fisheries management is particularly difficult. The CRC / ELF students did an outstanding job in doing

just this in March, 2001, and have done a similarly outstanding job in carrying through with this initiative to deliver, with some important help from our liaison officer, Annabel Jones, the summary you will read here.

Elsewhere in this newsletter you will see some more information about new research on spanish mackerel stocks along the East Coast, illustrating that Andrew Tobin and Amos Mapleston are getting that work under way. You will also see that we have been looking at the reef line fishery in the Eastern Torres Strait, which is important as a reef fishery on the margin of the GBR World Heritage Area. Rachael Pears has been working away to find out more about some of those many species of small brown cods that show up in catches from time to time. Judging from some preliminary results in the ELF Project, there may be some surprises to come from her work down the track.

Finally, I would like to thank all those charter operators who have been diligently filling out logbooks for us over the last couple of years. We are wrapping up that task for the time being, and really appreciate the willingness of operators to put in the extra time each day to help us better understand how the charter fishing industry works.

CHARTER FISHING

research update

Mikaela and Bridget are wrapping up the data collection of the charter fishing project. They would like to thank all charter boat fishers for their cooperation over the years, for keeping logbooks and for providing advice and input about how charter fishing operates on the Great Barrier Reef. Please send any logbooks with fishing days back to them in the reply paid envelope provided so they can include those data in a final report.

The main report from the project will cover the two and a half years of fishing data collected from the log books. If you have any queries about the logbooks or need an envelope to return the book then Mikaela or Bridget can be contacted on (07) 47 814508.

from page one - Spanish Mackerel

ribbon fish, accounting for many large mackerel but few small fish. Similarly large live-baits seem to entice bites from mainly large mackerel. If smaller spanish mackerel are preferred, the use of berley and floating pilchards has been recorded as a suitable technique. The new F&F project is now providing the opportunity to formally document these trends and patterns identified from anecdotal sources.

F&F researchers will focus their efforts on the major East Coast areas off Cairns, Townsville, Mackay, Rockhampton, Gladstone and Brisbane. Relying on the voluntary participation of fishers from each of the fishing sectors, researchers will be collecting spanish mackerel frames (guts in and head attached) that will be processed in the laboratory at a later date. Researchers will record the length of each fish, determine sex and reproductive condition (using the gonads) and ages (from the otoliths or ear bones). By collecting large numbers of fish frames from each fishing sector in each of the regions, project staff will be able to describe the biological characteristics of the catches of spanish mackerel as related to both region and fishing sector.

The documenting of these types of information is vitally important to ensure the future sustainable use of this important fisheries resource. Without knowing how the important East Coast spanish mackerel resource is targeted and harvested, sustainability of use will be uncertain and decision-making on its management difficult.

To help researchers, fishers from all fishing sectors and from all coastal regions who target spanish mackerel are being asked for assistance. Researchers will be collecting either frames (guts in) of fish if filleted, or heads, guts and lengths of trunked fish. Each fisher providing mackerel samples will be informed of the age and sexual status of each of those samples he or she provides. If you'd like to find more about the spanish mackerel you catch, while helping out an important new research project, please contact either Andrew Tobin (4781 5114) or Amos Mapleston (4781 5247) at the CRC Reef Research Centre, James Cook University, Townsville, 4811.



ELF research heads north

EASTERN TORRES STRAIT

Despite reef line fishing being a vital part of islander life in the Eastern Torres Strait, as well as an important commercial venture for islander and non-islander fishers alike in more recent times, there is presently very little documented information about the industry in this remote area.

In response to questions raised about the current status of reef fish stocks in the Torres Strait the Australian Fisheries Management Authority (AFMA) have recently focussed their attention on reef line fishing in the Eastern Torres Strait and turned to the ELF team to help. The ELF team was engaged to investigate what information was available on the Eastern Torres Strait line fishery as a first step in a process to improve knowledge about the fishery and assist with fisheries management in the area.

"We initially visited each of the main fishing communities in the Eastern Torres Strait back in May to get a local perspective of the fishery. We also met with several active non-islander commercial fishers working in the area and with managers", said project leader Bruce Mapstone. "This has provided us with a good initial picture on where the fishery is currently and what documented data are likely to be available from the fishery at the moment. From here we are in a good position to suggest what information will be most useful to managers and stakeholders in the future."

Initial results from this research were presented to delegates from the main fishing communities, non-islander commercial line fishers and managers at a meeting held at Thursday Island in August. "The main aim of the meeting was to put what information we had gathered so far up for discussion with the stakeholders, before compiling a final report".

The meeting was a real success for all involved, with participants contributing freely to the discussions and providing useful feedback to the researchers. "By far the most pleasing aspect of the meeting was seeing the commitment of all those present to working together towards developing stronger relationships and the recognition of common goals. This is an important part in ensuring future sustainability of the Eastern Torres Strait reef



Eastern Torres Strait stakeholders met at Thursday Island to discuss new ELF Research on line fishing in the region.

line fishery" Bruce said.

This research has identified some important data sources in existence, from both the island community freezers and from non-islander commercial fishing, and this information could be made available for further analysis. "This is the next step we are suggesting" Bruce said.

For more information on this research contact Bruce Mapstone from CRC Reef Research Centre on 07 47815113, Douglas Jacobs from the Torres Strait Regional Authority on (07) 4069 0700; or Tony Kingston from AFMA on 07 40 691307.

ELF welcomes Gavin Begg



The ELF team is continuing to expand its focus and expertise with the inclusion of new staff member Dr Gavin Begg. Gavin began his marine science career in Queensland working on small mackerels. He then went on to the United States and Iceland, gaining invaluable experience in world fisheries assessments and multi-national management processes.

Gavin is now bringing this international experience to the ELF team and will be mainly concentrating on the work the team is conducting on multi-fleet and multi-species aspects of the GBR line fishery.

He has already wet his appetite for our

northern climes, getting involved in ELF research being done in the Eastern Torres Strait (see above for more details).

The ELF team welcomes Gavin to the team and we look forward to his valuable involvement. We hope you will give him your valued support.

STAFF MOVEMENTS

ELF farewell to Kyi

It is with much sadness that the ELF team bids a fond farewell to one of our most active team members, Kyi Bean. Kyi has been tirelessly working in the gonad lab, for the past two years or so, and in that time has been responsible for sorting, preparing and analysing thousands of samples. She has also had a huge contribution to an on-going program to verify ELF data from the ELF Experiment and elsewhere.

Kyi is leaving us to take up a PhD Scholarship at Cambridge University and St Andrews University as the next step in her marine science career. We wish Kyi all the best in her endeavours and will miss her greatly.





By Rachel Pears

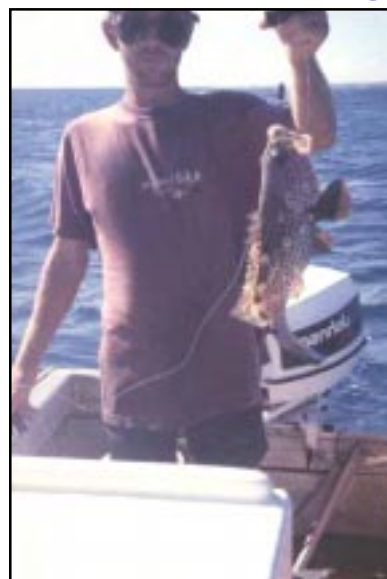
!An important part of CODS !Queensland's reef line fishery

Cod, groper and coral trout belong to the grouper family which is one of the most recognisable families of reef fish to the general public. Many species of groupers are common on coral reefs but have not been a major target for Queensland fishers in the past. However, they are in growing demand to satisfy the Indo-Pacific live reef fish trade. As a result, some cod species are now becoming more marketable for commercial fishers.

For most species of the grouper family (other than coral trout) very little information is available on such basic biological characteristics as how old they get, how quickly they grow and at what age and size they reach maturity. This fundamental information is crucial for informed management of these fish and has been identified as a priority by the Reef Line Fishery Management Advisory Committee (ReefMAC). These gaps in our knowledge are the focus of a research project by ELF student Rachel Pears, a PhD student at James Cook University.

Rachel is studying the abundance, age and growth, and reproductive biology of eight species of cod on the Great Barrier Reef (GBR). These include the flowery cod (*Epinephelus fuscoguttatus*), wire netting cod (*E. quoyanus*) and peacock rockcod (*Cephalopholis argus*). As a first step, Rachel has undertaken diver-surveys on the northern GBR to estimate the abundance of these fishes. She will soon extend her surveys to other regions in the central and southern sections of the GBR. Rachel is also collecting otoliths (ear bones) and gonads (sex organs) from these species to find out the fishes maximum age, growth patterns, and their age and size at sexual maturity. She is also using these samples to check if, like other members of the grouper family, these cods change sex from female to male as they get older.

Commercial and recreational fishers, and others in the fishing industry are helping to provide samples for Rachel's study and



A fisherman lands one of the many cod species found on the GBR. Very little is known about many of the tropical cod species, however, interest in these fish in the Queensland reef line fishery is increasing.

she wants to thank them for their assistance. Rachel will be seeking further samples throughout the next year. If anyone is interested to find out more about the project and how you can help, contact Rachel by phone on (07) 4781 4143, or email rachel.pears@jcu.edu.au.

Stay tuned to future newsletters for some of Rachel's results.



ESTUARY FISHING Research Report !



As many of you may have read in previous newsletters, Masters student, Renae Partridge, has begun a project looking at the quality of recreational line fishing in estuaries that are open and closed to commercial net fishing in the area between Hinchinbrook and Cape Upstart (south of Ayr). The main method of data collection is via voluntary catch logbooks kept by recreational fishers themselves.

Renae would like to thank all those who have made inquiries about the research, and to those who are now diligently completing logbooks whenever they go estuary fishing.

The response overall has been very encouraging, but more people are still needed. The more people that participate in the project, the more accurate the data will be. So, if you know anyone that may be interested, please pass on Renae's details and ask them to contact her for more information.

Renae is also interested in information from days when fishers are not targeting barramundi, so please keep recording that valuable information throughout the barra closed season, as there are plenty of other fish in the creeks!

Thanks again for your help. If you have any questions about the project, or would like more information, please contact Renae by phone on (07) 4781 5196, or e-mail renae.partridge@jcu.edu.au

