SHARK NEWS

SHARK NEWS 1 NEWSLETTER OF THE IUCN SHARK SPECIALIST GROUP JUNE 1994

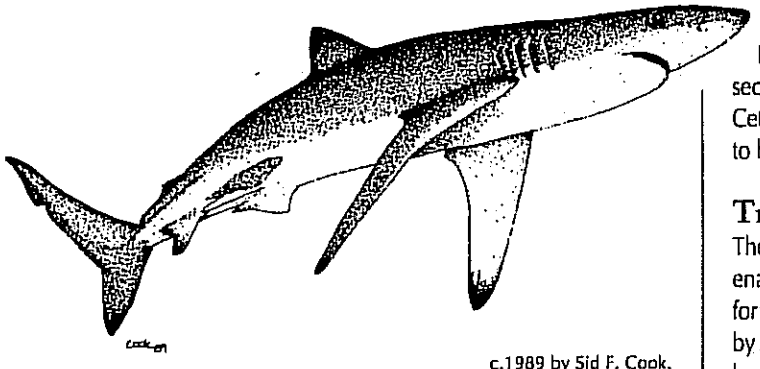
Welcome to the newsletter of the IUCN Shark Specialist Group

The aim of this publication is to provide a forum for exchange of information on all aspects of chondrichthyan conservation matters. It will enable Shark Group members to pass on information on developments in their regions and news of issues which may require consideration by the Group (e.g. developments in fisheries, legislation, and trade), and provide information on these subjects to other readers.

We intend to publish articles dealing with shark, skate, ray and chimaerid fisheries, conservation and population status issues around the world; circulate information on other relevant journals, publications, scientific papers and meetings; and alert readers to current threats to the group.

Since this is our first issue, we would greatly appreciate your comments on its content, suggestions for future issues and letters, articles, *etc.* for inclusion. We hope to produce *SHARK NEWS* on a four-monthly or quarterly basis, dependent upon receiving sufficient material for inclusion and obtaining funding for publication and circulation.

This first issue has generously been sponsored by English Nature, the statutory nature conservation agency for the wildlife and natural features of the whole of the English countryside and seas (see page 8).



Shark Specialist Group News

The last meeting of the Shark Specialist Group was held during the Fourth Indo-Pacific Fish Conference in Bangkok, Thailand, in November/ December 1993. The following items were discussed.

Mission Statement

The Shark Group mission statement was agreed as follows: 'To ensure the healthy and continued diversity of sharks and related species (the skates, rays and chimaeras) through the promotion of sustainable use, wise management and conservation.'

Shark Specialist Group Strategy and Tactics

The Strategy was defined under the following headings:

i Making the case for conservation;
ii Identifying the problems and threats faced by chondrichthyans;
iii Identifying the actions needed to achieve the Shark Specialist Group's mission;
iv Following up these actions.

Tactics include compilation and implementation of the Action Plan, fund-raising, education (particularly through the media), strengthening marine non-governmental organisations and influencing decision-makers.

Action Plan

The Action Plan will be an important tool for the SSG in achieving the first three elements of the above strategy. It will summarise existing data on the need for the conservation of chondrichthyans, identify gaps in knowledge and priorities for action, and publish this information for the first time. It is being compiled and edited by Sarah Fowler, with assistance from Merry Camhi and input from other members of the Shark Group.

The agreed time table for production of the Action Plan was for the first draft to be circulated to contributors by the end of April 1994, second draft by the end of July and final draft by the end of September – dates are already slipping. Provided that agreement on content of each draft can be achieved in time, the publication date should be at the end of 1994.

Many contributors have asked for copies of the Cetacean Action Plan to be made available to them for reference when drafting their sections of the Shark Action Plan. Unfortunately, the first version of the Cetacean Plan is now out of print and the updated version is now not due to be published until the end of 1994.

Trade in shark products

The establishment of a Trade Sub-Group has been agreed to, in order to enable more data on international trade in shark products to be acquired for the Action Plan and other SSG activities. This Group will be coordinated by Sonja Fordham (Center for Marine Conservation – CMC) and chaired by Roger McManus (CMC), with input from Glen Sant (representing TRAFFIC International).

TRAFFIC will be undertaking a study in 1994 of trade in shark products, particularly fins, to enable an assessment of the scale of shark fisheries and international trade to be made. Results will be reported in *SHARK NEWS*, when available.

Customs data recently received from Hong Kong have demonstrated the large scale of the international trade in shark fins to east Asia. In 1991, 4,105 metric tonnes of dried/salted fins and 167 tonnes of boiled fins were imported to Hong Kong. Depending on the conversion figures used, this may represent in the region of 300,000 to 600,000 tonnes of whole shark, or very roughly about 10 million sharks' fin sets. This probably accounts for more than half of the world fin trade.

In this issue ...

The IUCN Red List

The latest issue of the *IUCN Red List of Threatened Animals* was published in early 1994. It comprises a list (inevitably incomplete) of some thousands of taxa considered by IUCN to be threatened with extinction. The aim of the *Red List* is to act as an international bulletin alerting people to the diminishment of biodiversity worldwide. New editions are published on a regular basis, and the list is compiled and updated for IUCN by the World Conservation Monitoring Centre, Cambridge, UK.

The three chondrichthyan fishes first listed in the 1990 issue also appear in the 1994 edition. These are the whale shark (listed as 'Indeterminate' – *known* to be 'Endangered', 'Vulnerable' or 'Rare', but with not enough information to say which category is appropriate), the great white shark and the basking shark (these two were listed as 'Insufficiently known', which indicates that they are *suspected* as belonging to one of the above three categories).

One of the tasks of the Shark Specialist Group will be to attempt to update listings for elasmobranchs. New criteria for listing species on the IUCN Red List have been presented in *Species* **19**, 16-22 (the Newletter of the Species Survival Commission), December 1992, and these are now to be evaluated for their viability for listing elasmobranchs, with suggestions to be sent to IUCN SSC by the end of 1994. The SSC has requested assessments of the status of elasmobranchs by July 1996 for the next Red List publication in November 1996.

CITES

The Group has discussed the possible role of the Convention on International Trade in Endangered Species (CITES) in conserving endangered chondrichthyan species by controlling their international trade . (Appendix 1 of CITES lists those species for which international trade is generally not permitted, while trade in Appendix II species is monitored by countries which are signatories of the Convention, thus enabling the scale of this trade and countries of origin and destination to be recorded. The lists are reviewed at CITES meetings every few years.)

Past efforts by the National Audubon Society (USA) to obtain CITES listings for certain large sharks have been unsuccessful. There are particular problems with listing commercially-fished species, since fishing nations tend to resist vigorously such proposals. It is also important to be able to justify the 'endangered' status of species proposed for listing, which is likely to be very difficult for many elasmobranchs because of lack of population data, and it must be demonstrated that international trade is one of the problems causing the listed species to be endangered. For a CITES listing to have a practical effect, it must be possible for customs officers to be able positively to identify the products of the listed species in transit between countries.

The Shark Group considers that an Appendix II CITES listing could be very valuable in improving the availability of trade data for shark products, and Appendix I listings for species such as the great white shark (whose jaws are a very valuable trophy for sports fishermen) could help to conserve them. Listing of large species of shark (which provide the most valuable fins) would be feasible since they could be identified by customs officers on the basis of fin size alone.

There is, however, insufficient background information currently available to enable a successful CITES application for any shark to be made at the forthcoming meeting in 1994. Rather, the SSG aims to be prepared to make a well-researched application to the following meeting in 1996. The Action Plan will address this issue.

Shark Specialist Group membership

The IUCN Species Survival Commission was reconstituted at the beginning of its latest triennium which began in 1994. All Specialist Groups have had to be re-established, with the appointment of their Chairmen by the SSC. Dr Sonny Gruber has been re-appointed as Chairman of the Shark Group and is now in the process of formally appointing all his Regional Vice-Chairs and other members. Carl Safina (with Merry Camhi a *de facto* co-deputy chair) is Deputy Chairman for the Americas, Australia and Oceania and Sarah Fowler is Deputy Chairman for Eurasia and Africa. These two are the first point of contact for most communications to/from the Vice-Chairmen or others in their respective areas.

Regional Vice-Chairmen and other members will be listed in a later issue of this Newsletter. Some positions are currently empty due to resignations and individuals are still needed to fill these. There are also gaps in membership for areas of some other regions, particularly Northern Africa and South and Central America.

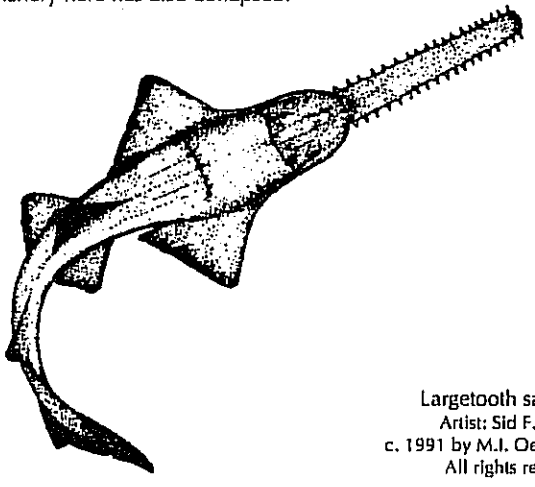
Chairman: Dr Samuel H. Gruber, Bimini Biological Field Station, University of Miami, RSMAS, 9300 SW 99 Street, Miami, Florida 33176-2050, USA. Fax: (+1) 305 274 0628.

Deputy Chair (Eurasia and Africa): Sarah Fowler, The Nature Conservation Bureau, 36 Kingfisher Court, Hambridge Road, Newbury, Berkshire RG14 5SJ, UK. Email: 100347.1526@compuserve.com. Fax: (+44) 635 550230.

Deputy Chair (Americas and Oceania): Dr Carl Safina and Dr Merry Camhi, National Audubon Society, Scully Science Center, 550 South Bay Avenue, Islip, NY 11751, USA. Fax: (+1) 516 581 5268. Email: internet:merry.camhi@audubon-ny.smtcn.langate.sprint.com.

Vanishing sawfishes?

Alarming news is beginning to come in on the status of inshore sawfish populations around the world. Julio Morón reports that there have apparently been no records along the west coast of Sri Lanka for about 40 years, although sawfishes were relatively common some 50-60 years ago. It seems that all four of the species formerly recorded in the area have virtually disappeared. Compagno and Cook (*J. Aquaricult. Aquatic Sci.* in press) note that it is difficult to obtain information on the status of the freshwater population of sawfishes in Lake Nicaragua, but indications are that the fishery here has also collapsed.



Largetooth sawfish
Artist: Sid F. Cook.

We would very much like to receive more information from readers on this group of elasmobranchs. Do you know of any directed or indirect fisheries for sawfishes? Are they used just for food or also for their 'saws', and do the latter get into the international curio trade to any significant extent? Please send any information to Merry Camhi (address on back page).

If there is a significant international trade in sawfish 'noses' and directed fisheries for this purpose, the Shark Specialist Group will consider proposing a CITES listing for the group as a conservation measure. Unfortunately, the deadline for proposals for the forthcoming 1994 CITES meeting was 10 June, and we have been unable to put together a case in time for this. We will therefore aim to submit a proposal to the 1996 meeting.

IICES: The International Initiative for Conservation of White Sharks

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and
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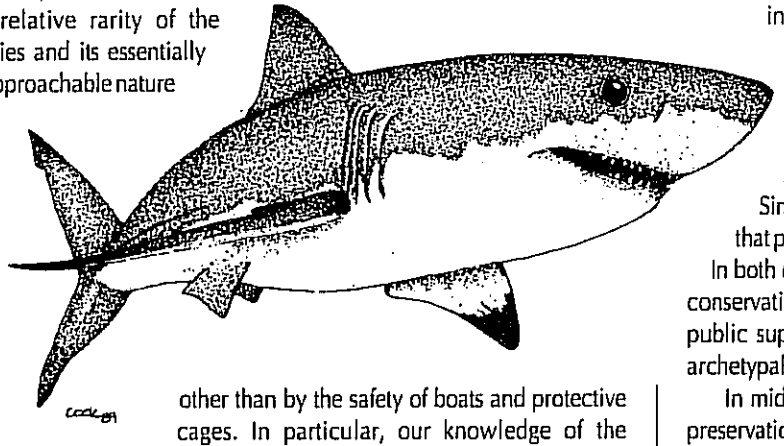
Since ancient times, the great white shark *Carcharodon carcharias* (Lamnidae: Lamniformes) has provided a focus for popular imagery of the neoselachians, an image that has been typically one of a bloodthirsty, essentially unconscious killer of unwary humans who dare to invade its domain. Public opinion towards this spectacular predator has, in no small part, been influenced in contemporary times by the *Jaws* films of the mid and late 1970s, coupled with a commensurate media image of this species that has been almost exclusively negative. This unfortunate formula has all too often indicted the white shark as a living definition of the vociferous man-eater, almost to the exclusion of any other large and potentially-dangerous shark species such as the bull shark, tiger shark or oceanic whitetip. Consequently, white sharks have been regularly and unscrupulously hunted by big-game anglers, entrepreneurs and self-styled vigilantes off many national coastlines, with varying motives: either for sheer bravado, or for expensive jaw-trophies, or as some misguided act of revenge for occasional human fatalities.

Only in more recent years has diligent field-study of white sharks begun to support an image far divorced from those of the Spielberg film. As reported by many participants at the *Biology of the White Shark Symposium* (Bodega Marine Labs, California, March 1993), *Carcharodon* is evidently a complex vertebrate, both in its social interactions with peers and in its more easily perceived role as an apex predator of supreme adaptability. Scant information exists about many facets of its biology, however; a reflection on both the relative rarity of the species and its essentially unapproachable nature other than by the safety of boats and protective cages. In particular, our knowledge of the reproductive biology of white sharks has only been enlightened during the last decade, by means of fortuitous examinations of a handful of pregnant females captured from Japanese, Okinawan and New Zealand waters. Nevertheless, essentially no data exist on fecundity, population size, rates of recruitment or mortality, nor describing courtship, mating and pupping behaviour. Based on capture records of neonate white sharks, pupping occurs in a number of temperate areas worldwide, including off the northeastern USA, southwestern USA, South Africa, South Australia, New Zealand, Japan and the central Mediterranean Sea.



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There is widespread concern that white sharks are particularly vulnerable to over-exploitation in directed and semi-directed fisheries, a major reason being the paucity of much of the baseline biological data (as outlined above), normally required to make assessment of fisheries stocks, which negates the creation of reliable catch-quotas (even in those areas where the species is rather regularly encountered, such as southern Australia). In recognition of these facts, and acting on concerns over the vulnerability of this species to dedicated fisheries, the South African government enacted legislation that has protected white sharks from directed fishery attentions since April 1991. Similarly, the State of California passed an Assembly Bill (AB 522) that protects these animals off the region's coast since January 1994. In both cases, the Precautionary Principle was argued as the basis for conservation measures. These actions were notable in the strength of public support that favoured protecting the very species playing the archetypal villainous role in the annals of shark-eats-man hype.

In mid-1993, the writers discussed a more global approach to the preservation of white shark populations, through the creation of a network of scientists and other individuals with legitimate interest in the species. We aspire towards the creation of a centralised database, through which direct or incidental captures of *Carcharodon* may be recorded annually on the basis of information relayed back by contributing parties. Our intention is to collate sufficient data to complement, on a wider scale, the more unilateral efforts of others and thereby formulate an action plan to present to CITES in favour of outlawing worldwide existing or future directed fisheries for this species. South Australia remains a problematic region in this respect, and we believe that multi-state action on that continent is imperative. Response from our colleagues there has been most encouraging. We would urge any interested individuals or institutes, whatever their nationality, to participate in the Initiative and return any early comments or ideas to us.

Correspondence may be forwarded to either author.

Publications

Chondros

IUCN newsletter readers interested in a broad-based coverage of sharks, skates, rays, sawfishes and chimaeras may wish to subscribe to *Chondros*, an international publication focusing on general and captive biology, ecology, fisheries, management, conservation issues and human interactions through technical articles, reviews, commentaries, editorials, book and conference reviews, field research progress reports and news. The current volume year, Vol. 5 (1994), will include articles on food habits of rays at Pohnpei (Ponape) Island in the central Pacific, captive biology of chimaeras, a review of white shark activity in the US Pacific Northwest, telemetry of whale sharks in Western Australia, an overview of elasmobranch field work by the editors and colleagues in Thailand in 1993 and the first in a two-part review of the batoid fishes of California.

In 1994 *Chondros* became a quarterly publication (it was formerly seven slim issues per year), in response to subscriber interest in a broader article base. New additions in Vol. 5 will include a twice-yearly bibliography of recent chondrichthyan articles, books and proceedings; a coastal and insular report section covering topics related to nearshore, bay and estuarine environments; and expanded notations of new publications available with ordering sources and price quotes.

Editorial staff assignments for Vol. 5 (1994) are: Managing Editor: Madeline Oetinger (Kentucky Wesleyan College); Senior Editors: Sid Cook (Argus-Mariner Consulting Scientists), Leonard Compagno (South African Museum), John Stevens (CSIRO Marine Labs, Australia), and Dominique Didier (The Academy of Natural Sciences, Philadelphia).

Subscription rates in US$: $22 domestic (US, Canada and Mexico); $26 in all other countries. Student Rates: $17 domestic (US, Canada, and Mexico); $21 all other countries. Terms and quotes for college and research institution technical library rates are available on request. To subscribe and for sample issues from back volumes, contact: Madeline Oetinger, *Chondros*, 1003 Hermitage Drive, Owensboro, KY (USA) 42301-6004. Phone: (+1) 502 683-7681; Fax: (+1) 502 926-3196.

Discovering Sharks

This volume is published by the American Littoral Society and edited by S.H.Gruber (1991). It contains more than 20 papers on the life history characteristics, origins, anatomy, reproduction, feeding biology, movement, behaviour and management of sharks and is an extremely good read and useful source of information. Published by the American Littoral Society, Sandy Hook, Highlands, New Jersey 07732, USA.

Elasmoscope

Elasmoscope, a newsletter for shark and ray enthusiasts based in Europe, is being compiled and distributed by the Sea Life Centres. Contact Rod Haynes, Sea Life Centre, Strandweg 13, 2586 JK, Den Haag, Netherlands.

Sharks: Biology and Fisheries

The papers from the International Sharks Down Under Conference, originally published in the *Australian J. Marine and Freshwater Research*, Volume 43(1) have been compiled into the above hardback volume. $A60 in Australia and $US70 elsewhere. It is available from CSIRO Publications, P.O. Box 89, East Melbourne, Victoria 3002, Australia. Fax: +61 3 419 0459.

Shark Conservation

The volume of the Proceedings of the International Workshop on the Conservation of Elasmobranchs (edited by J. Pepperell, J. West and P. Woon) held on February 24 1991 in Sydney, Australia, is now available. It includes papers from sessions on conservation and fisheries, and protective beach meshing in Australia and South Africa. Soft-back. $A35 in Australia and New Zealand and $US30 (all other countries); credit cards accepted. Contact John West, Taronga Zoo, P.O. Box 20, Mossman, NSW 2088, Australia. Fax: +61 2 969 7515.

Bibliography: technical reports

This section is intended to present brief notes on specialist publications which may not otherwise come to the notice of many. Readers are invited to send details of such reports to the Editors for inclusion in future issues. Please include information on how the publication may be obtained.

Several of the following are summaries of unpublished reports produced by regional sub-groups of the Shark Specialist Group. Copies of these are available from Merry Camhi at the address on page 8.

Conservation Biology of Elasmobranchs

S. Branstetter, Editor, 1993. NOAA Technical Report NMFS 115. 99 pp.

This volume features the proceedings of the 1991 AES symposium "Conservation Biology of Elasmobranchs". It contains nine articles covering a variety of topics concerning biology, fisheries and public education, including the following:

Applegate, S.P., F. Soltelo-Macias, and L. Espinosa-Arrubarrena. 1993. An overview of Mexican shark fisheries, with suggestions for shark conservation in Mexico.

Martin, L. 1993. Shark conservation - educating the public.

Musick, Branstetter and Colvocoresses. Trends in shark abundance, 1974-1990, for the Chesapeake Bight region of the US mid-Atlantic coast.

Shark fisheries in the Maldives

A review by R.C. Anderson and Hudha Ahmed. Ministry of Fisheries and Agriculture, Malé, Republic of Maldives, and Food and Agriculture Organisation of the United Nations. 76pp. 1993.

This review was carried out to assess and resolve a number of problems affecting the Maldivian shark fisheries, including suggestions of overfishing of the valuable deep-water gulper shark (or spiny dogfish) resource; conflict between fishermen catching shark and those targeting other resources; and complaints from the tourism industry about the reduction of shark numbers at particular 'shark diving' sites.

The report describes the three main shark fisheries in the Maldives: a deep-water longline fishery for gulper shark (which yields oil for export), an offshore longline fishery for oceanic shark, and an inshore gillnet, handline and longline fishery for reef and other atoll-associated sharks (both yielding fins and meat for export). The first appears to be heavily fished and would benefit from some control, the second is small and could be expanded, and the last would probably run the risk of overfishing if expanded very much more.

Reef shark fisheries are a source of conflict with the important tourism industry. 'Shark watching' is a major activity among tourist divers. It is roughly estimated that this generates US$2.3 million per year in direct diving revenue, and that a grey reef shark may be worth at least one hundred times more alive at a dive site than dead on a fishing boat. Various recommendations are made for the management and development of commercial shark fisheries in the Maldives and for resolving conflicts between the tourism industry and shark fishermen. These include a complete ban on fishing at the most important dive site in the islands and the protection of the whale shark. These recommendations are currently being considered by the Ministry.

The Status of the Elasmobranch Fisheries in Europe

Report of the Northeast Atlantic Subgroup of the IUCN Shark Specialist Group. Ramón Muñoz-Chápuli, Giuseppe Notarbartolo di Sciara, Bernard Séret & Matthias Stehmann. June 1993. (Unpublished report.) 23 pp.

This report is based on a questionnaire sent to countries around the Atlantic and Mediterranean. The most significant result is perhaps the

discovery of the extreme shortage of knowledge concerning these fisheries. Of the 13 countries declaring a targeted elasmobranch fishery, and six declaring shark by-catches, only eight collect shark fishery data, and only one collects data which distinguishes between species. The paucity of data makes stock assessment virtually impossible, a situation which is of particular concern considering the special reproductive biology of elasmobranchs. Most species are slow to reach maturity (up to 15 years for larger species), have long periods of gestation (or development for oviparous species) and produce only small numbers of offspring. Evidence of decline in populations of rays throughout the region, decline in *Mustelus* catches in the Mediterranean, and concern over the expected increase in spiny dogfish catches all highlight the need for further investigation and control of this little-understood fishery.

The report concludes that while the elasmobranch fishery in the region has not yet collapsed, a number of important measures are required to prevent this from occurring.

There is a need for improved statistical data, and more intensive research on the role of shark ecology – particularly reproductive biology and population dynamics, and on catch trends.

Size restrictions and total allowable catches should be established for more sensitive species such as the spiny dogfish (or spurdog) *Squalus acanthias*, *Mustelus* species, and skates and rays.

Finally, there needs to be effective control of the use of large-scale pelagic driftnets which indiscriminately capture all species of elasmobranchs, including small specimens.

The Status of the Chondrichthyan Resources in the South West Pacific

Report of the South West Pacific Subgroup of the IUCN Shark Specialist Group. John Stevens (compiler). 1993. (Unpublished report.) 50 pp.

The report notes that data on chondrichthyan fishery landings and distributions within the south west Pacific region were most readily available, and more reliable, from Australia and New Zealand. Both countries have relatively well regulated fisheries with co-ordinated logbook and catch and effort data recording systems, particularly for more recent years. However, even for these countries effort data in particular are not always readily accessible. The report is based on preliminary information obtained from IUCN members in Australia, New Zealand and the Solomons. Data for some countries, particularly Indonesia, are very difficult to obtain.

The status of chondrichthyans in the region are dealt with on a country by country basis under five general headings: targeted commercial fisheries, by-catch in other commercial fisheries, beach protection meshing programmes, recreational fisheries, and other concerns.

In Australia, five main chondrichthyan species are targeted by commercial fishing (school *Galeorhinus galeus*, gummy *Mustelus antarcticus*, whiskery *Furgaleus macki*, dusky whaler *Carcharhinus obscurus* and blacktip sharks – mainly *Carcharhinus tilstoni* and *C. sorrah*). These targeted fisheries are all currently subject to management controls aimed at reducing or holding catches at sustainable levels.

Chondrichthyans taken in large quantities as by-catch in other fisheries (or targeted on a relatively small scale) are saw sharks (*Pristiophorus* spp.), elephant fish (*Callorhynchus milii*), angel shark (*Squatina australis*), dogfish (*Squalus, Centrophorus, Centroscymnus* and *Deania* spp.), blue shark (*Prionace glauca*), wobbegongs (*Orectolobus* spp.), and skates and rays. Virtually nothing is known of stock structure, stock size or population dynamics of any of these species.

Currently, the species most at risk would appear to be deep-water dogfish and blue shark. Some species of *Squalus* and *Centrophorus* are now being targeted and large quantities of several deep-water species are taken by vessels fishing for orange roughy. Although some are landed for squalene oil extraction much of the catch is discarded and not reported. The productivity of these deep-water squalid resources is almost certainly low in view of what is known of their biology from other areas.

Blue sharks are taken in large numbers as by-catch in Australian waters. The current very limited markets for the flesh in Australia and regulations effectively prevent the fins from being retained. Almost all the sharks come up alive on the longlines and while many are released a large proportion are killed. Outside the AFZ the majority of blue sharks caught by longliners are finned and the carcasses discarded. While blue shark stocks are likely to be relatively productive they are undoubtedly being caught on a massive scale throughout the south west Pacific region.

The annual catch of skates and rays is largely unknown. Estimates suggest that some 2,000 tonnes were taken annually in the late 1980's as by-catch of the northern prawn fishery alone. In most cases, data are not even available on the species composition of the catch.

Other species whose status requires careful monitoring are whale sharks *Rhincodon typus*, freshwater sawfish *Pristis microdon*, white shark *Carcharodon carcharias*, and grey nurse *Carcharias taurus*.

In New Zealand, school, gummy *Mustelus lenticulatus*, elephant fish and white-spotted spurdog *S. acanthias* are targeted commercial species and are managed under a system of Individual Transferable Quotas aimed at holding catches at sustainable levels. As in Australia, blue shark, deep-water dogfish and skates and rays are taken in large numbers as by-catch and the status of their stocks must be considered uncertain.

Data from other south western Pacific countries are poor. Anecdotal evidence suggests that the status of some shark stocks in Indonesia should be viewed with concern, as should the by-catch of pelagic sharks from foreign fleets fishing elsewhere in the south west Pacific region.

Status of shark populations in the western North Atlantic

Abstract of the IUCN Shark Specialist Group Northwest Atlantic Working Group, Report 1993, chaired by George H. Burgess, Florida Museum of Natural History, University of Florida, Gainesville, Florida USA 32611. 22 pp.

The IUCN/SSG Northwest Atlantic Region extends from western Greenland southward to the Brazilian border. Major shark fisheries are found in waters of Mexico, Trinidad and Tobago, and the United States. Since 1976 an average of 9,249 metric tonnes (t) per year of sharks has been harvested in Mexican waters, with declines in catches reported since a peak of 16,236t in 1985. It is thought that Mexican waters may support a sustainable yield of 10-12,000t/year. In Trinidad and Tobago catches have averaged 1,016t/yr since 1972 with a peak of 1,995t in 1977. Stock assessments are not available for either Mexico or Trinidad and Tobago shark populations, and no management regimes are in effect. Shark catches in US North Atlantic waters have averaged 8,850t since 1979. Marine fisheries management in United States waters is exclusively vested to the National Marine Fisheries Service (NMFS). The NMFS estimates maximum sustainable yields (MSY) of 3,800 dressed t for large coastal sharks (LCS), 2,590t for small coastal sharks (SCS) and 1,560t for pelagic sharks (PS) of this region. Of these, the NMFS considers only the LCS group overfished. On April 26, 1993 a NMFS Fishery Management Plan (FMP) was enacted for 39 species of sharks in the Atlantic waters of the United States. Key features of the recovery plan include annual capture quotas of 2,900t of LCS and 1,560t of PS, and a recreational bag limit of four LCS/PS per boat per trip. By May 15 1993 the commercial fishery for LCS was closed, the half-year quota of 1,218t having been reached. The second half-year began on July 1, and the commercial fishery was again closed on July 31 after filling the quota. Recreational bag limits are expected to have little effect on recreational anglers. The FMP is considered overly optimistic because it considers maximum annual production estimates used in modelling as sustainable, fails to utilise pre-1986 data (that indicate overfishing as early as 1980) and

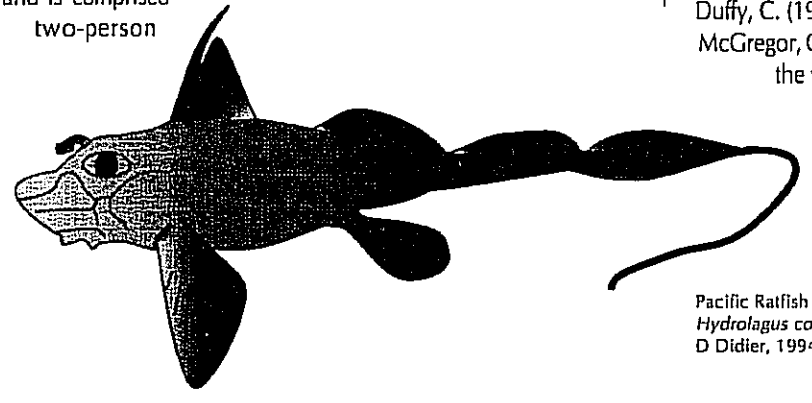
Continued on page 7

The Fishery Status of Chimaeroids (Chondrichthyes, Holocephali), Summary Report

Dominique Didier
The Academy of Natural Sciences, Philadelphia

Of the 34 known species of chimaeroids, only the three species of callorhynchid fishes (Family Callorhynchidae) are part of a commercial fishery. These species occur only in the Southern Hemisphere and are fished off the coast of New Zealand, south-eastern Australia and Tasmania, western and southern Africa, and in South America off the coasts of Chile, Peru, and Argentina. In these regions callorhynchids comprise a small, but not insignificant, portion of the coastal fishery where they are important as food fishes and sometimes frozen for export. Other species of chimaeroids, of the Families Chimaeridae and Rhinochimaeridae, are taken as by-catch and used for fish meal. In addition, the oil rendered from the livers of these fishes is known to be a fine lubricant; however, further data are unavailable regarding this aspect of their utilization.

In New Zealand the fishery for elephant fishes *Callorhinchus milii* occurs primarily off the eastern and southern coasts of the South Island, with the major landings occurring in the Canterbury Bight region. This is an inshore fishery (up to 150 m depths) in which fishes are caught by either bottom trawl or gill net and is comprised of two-person operated 12–20m vessels. Elephant fishes are seasonally abundant, coincident with spawning migrations, and the majority are fished from the months of October to February. Recently the Maximum Constant Yield (MCY) for *C. milii* was estimated to be 400t; however, data from 1983–1992 show that the fishery has consistently exceeded this level (Duffy, 1992). Unfortunately, very little is known about the biology of these fishes which seem to be relatively late-maturing, slow-growing fishes with males maturing at three years and females at 4.5 years (Sullivan, 1978). In particular, the reproduction and spawning behavior of all chimaeroid fishes is poorly understood and fecundity estimates are currently unavailable. Without further data it is difficult to determine whether or not the fishery can maintain current catch levels; however, it is likely that this species is over-fished in New Zealand waters (Duffy, 1992).



Pacific Ratfish
Hydrolagus colliei
D Didier, 1994

A major threat to all chimaeroid fishes is overfishing in the absence of adequate information on population movements and fluctuations, abundance, fecundity, and life span. The only chimaeroids for which there is a regulated fishery are the callorhynchid fishes. Other chimaeroids are caught as a by-catch, but there are few, if any, records of the numbers landed and/or their utilization, for example, the targeting of a non-quota species, *Hydrolagus novaezealandiae*, in Cloudy Bay, New Zealand (Duffy, 1990), and the large numbers of longnose chimaeras, *Neoharriotta pinnata* and *Rhinochimaera atlantica*, which are caught and not used by hake trawlers off the African coast (Compagno *et al.*, 1989). There is a real danger in overfishing these species without an adequate assessment of their population structure and the potential consequences of such fishery practices.

A second threat to chimaeroid fishes is the potential destruction of spawning habitats, especially habitats that are as yet undetermined to be critical spawning areas, because very few chimaeroid spawning sites have been positively identified. As an example, egg cases of the New Zealand elephant fish, that were once quite abundant in trawls along the southeastern coast of New Zealand, are currently only known from the Marlborough sounds. This apparent shift in spawning areas may be due to bottom trawling, but appropriate baseline data are not available to verify this hypothesis. However, it is now apparent that the spawning sites for *C. milii* may be very limited, yet pressure continues to be exerted to utilize these critical spawning areas for commercial enterprises. The results of such activities are unknown and one can only guess at the potential disruption to populations of *C. milii*.

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Shark organisations worldwide

American Elasmobranch Society

The American Elasmobranch Society (AES) was founded in 1983 as a nonprofit organization to advance the study and understanding of living and fossil elasmobranchs – the sharks, skates and rays, as well as the closely related chimaeras. The Society was born of the need for a common forum and international clearinghouse for researchers working on elasmobranchs.

The AES publishes its Newsletter four times a year, produces a membership directory and occasionally a bibliography of elasmobranch research. It also runs an email Elasmolink, which mainly has items of American interest, and a bulletin board. The email address for this is: elasmo-l-request@umassd.edu.subscribeelasmo.l.(your email name and address).

There are two categories of membership: 'standard' for active researchers, and non-voting 'affiliate' status for those not currently professionally involved in research.

For membership or additional information, contact either Dr Jeffrey C. Carrier, AES Secretary & Editor, Department of Biology, Albion College, Albion, MI 49224, USA. Tel. (+1) 517-629-0389. Fax. (+1) 517-629-0509, or Dr Robert E. Hueter, AES President, Director, Center for Shark Research, Mote Marine Laboratory, 1600 Thompson Parkway, Sarasota, FL 34236, USA. Tel. (+1) 813-388-4441. Fax. (+1) 813-388-4312.

Japanese Society for Elasmobranch Studies

The Society was set up in 1977, and now has 133 Japanese and 37 foreign members. An annual report is produced. Contact the Secretary, Dr Taniuchi, for further information at University of Tokyo, Department of Fisheries, Yayoi, Bunkyo-ku, Tokyo 113, Japan.

Regional News

Brasil

Alberto Amorim has reported a shark attack at a beach near his home in Santos during February. A boy's foot was bitten and, as usual, the press took up the story with great excitement; it was still the subject of media attention two weeks later. There were some calls for all sharks to be killed near beaches to protect swimmers, despite the fact that attacks are very unusual in the area.

Dr Amorim points out that no fewer than 24 people were drowned while swimming from the beaches of four towns close to Santos during the carnival a few days after the shark attack. Unsurprisingly, little attention was paid to these statistics and the much greater likelihood of swimmers losing their lives in this way, or indeed in traffic accidents, than through shark attack.

The Shark Group needs to make sure that these sort of comparative mortality figures are made more widely available to the media to counteract the sensationalism elicted by shark attacks on swimmers and surfers.

Ecuador

Several accounts of illegal shark fishing around the Galapagos Marine Reserve have recently been received from diving tourists and tour operators in the area. They include divers finding dozens of dead hammerheads in fishing nets set in only 10m of water less than 100m offshore. This area was zoned for scientific and educational use only: the highest protection category there. Additionally, shark fishing is illegal within 80 miles of shore in the Galapagos and commercial fishing anywhere within two miles of shore. Boats have also been filmed by tourists trolling for shark about 50–100 m offshore.

It is to be hoped that these incidents receive sufficient publicity to help the Ecuadorean government find the support they need to enforce controls within the Reserve. This is one of only a very few areas where divers may still see schools of hammerheads, and ecotourism should be a huge source of foreign currency for the country.

Canada

On 1st January 1994 it became illegal to take white sharks in Californian waters for at least the next five years except with a scientific or educational permit from the Department of Fish and Game, or as incidental catch in selected net fisheries. (Press release from the Center for Marine Conservation, San Francisco, California.)

Assembly Bill 522 prevents white sharks from becoming a target species for sport or commercial fishing in Californian waters. An adult white shark caught in southern California in September 1993 had sold for $10,000 and large sets of shark jaws have also been fetching thousands of dollars, so the protection of the species was obviously timely. In contrast, it must be noted that the history of white shark attacks in California, Oregon and Washington shows only four fatal attacks out of 38 documented incidents in the 18 years since 1975, illustrating the much greater threat posed to sharks by man than *vice versa*.

What was particularly interesting about the campaign to support the protection proposals was the diverse nature of the coalition of interest groups involved. They included major commercial and sports fishing groups, scientific organisations, surfing groups, sport diving associations, marine mammal conservation groups and environmental bodies.

Bibliography: technical reports, ***continued from page 5***

available fishery-independent studies in developing its assessment, assumes unrealistically high annual survival rates from birth (0.97), and probably underestimates the catch of SCS. While the implementation of the FMP is a welcome first step, NMFS's projection of rebuilding and recovery to MSY levels in two years is absurd when compared to historical stock recoveries measured in decades.

In summary, the conclusion is that shark populations in the western North Atlantic appear to be declining primarily as a result of overfishing. More aggressive reductions of catches are needed under the US FMP. In certain other areas shark populations are probably fully fished or have become overfished, but no management is occurring.

(*Editor's note:* on May 13, NOAA/NMFS announced that the semiannual commercial fishery quota for large coastal sharks for the period January 1, 1994, through June 30 will be reached by 17 May, and the fishery was closed on that date. It will reopen on July 1st.)

Preliminary Report for the Subequatorial African Region, Atlantic, Indian and Antarctic Oceans

Abstract of the IUCN Shark Specialist Group Subequatorial African Region Report. L.J.V. Compagno, with input from M. J. Smale, S.F.J. Dudley and S.F. Cook. November 1993. (Unpublished report.)

The Subequatorial African Region is somewhat arbitrarily defined as that part of Africa below the equator, which is bordered on the west by the southeastern Atlantic, and on the east by the southwestern Indian Ocean, and to the south by the Antarctic Ocean and Continent. Its longitudinal limits are 10°W to 70°E. The Region includes the coasts of Gabon, Congo Republic, Zaire, Angola, Namibia, South Africa, Mozambique, Tanzania, and most of Kenya on the African Continent, plus Madagascar, a section of Antarctica from Maudheim to the Mawson Coast, and several islands in the South Atlantic, Southern Indian, and Antarctic Oceans.

The Region forms a major faunal province and a centre of diversity for marine cartilaginous fishes, with approximately 260 species of sharks, rays and chimaeras of which approximately 79 (30%) are endemics. The high endemicity of the fauna, coupled with virtually no fisheries regulation, accelerating fisheries and other marine activities by humans, and localized marine habitat degradation make for considerable urgency in addressing the rational exploitation and conservation of regional chondrichthyans.

The diversity and conservation status of regional cartilaginous fishes are discussed, including present fisheries, conservation problems, and conservation strategies. A checklist of regional species, a data matrix with localities, distributional pattern, habitat, and ecomorphotype, and a bibliography of the area are included in the report.

Other recent papers

Hanan, D. A., D.B. Holts, and A.L. Coan, Jr. 1993. The California drift gill net fishery for sharks and swordfish, 1981-82 through 1990-91. *California Department of Fish and Game, Fish Bulletin* **175**. 95 pp. Marine Technical Information Center, CA Dept. Fish and Game, 330 Golden Shore, Suite 50, Long Beach, CA 90802, USA.

Ishihara, H., H. Homma, Y. Takeda, and J.E. Randall. 1993. Redescription, distribution, and food habits of the Indo-Pacific dasyatid stingray, *Himantura granulata*. *Japanese Journal of Ichthyology*. **40(1)**: 23-28.

Parsons, G.R. 1993. Geographic variation in reproduction between two populations of the bonnethead shark, *Sphyrna tiburo*. *Environmental Biology of Fishes* **38**: 25-35. G.R. Parsons, Dept. Biol., Univ. Miss., University, MS 38677, USA.

English Nature is pleased to sponsor the first edition of *Shark News*. We wish it every success and hope that it will provide a focus for the exchange of information within the Shark Specialist Group and with other interested parties.

In 1992 English Nature set out a long-term conservation programme to achieve effective solutions to the over-exploitation and lack of proper care which now threatens our coasts and estuaries, and many of the species living in the seas around them. As the 'Campaign for a Living Coast' continues, issues such as coastal protection and development, sustainable management of estuaries and the promotion of sensitive marine areas as a form of conserving important areas for marine wildlife are being addressed.

Within our work, commercial and recreational fisheries have been recognised as an area where both like-minded and opposing views exist in relation to the conservation of marine wildlife. In order to develop better understanding of fisheries and their potential impacts, English Nature has developed policies on particular areas of concern. One of these policies advocates a review of priorities for research, stock assessment and management protocols for sharks, skates and rays. These non-quota species are subject to particular pressure as a result of their slow growth, time taken to reach maturity and the production of small numbers of young which are vulnerable to fishing from birth. Despite these facts, fisheries for such species lack any form of conservation regulation in Britain.

With the decommissioning of the last British licensed basking shark fishing vessel, further consideration will also be given to protecting this species using the provisions of the Wildlife and Countryside Act.

If you are able to provide any information that would help in our work, please contact Paul Knapman, Marine Fisheries Officer, English Nature, Northminster House, Peterborough, Cambridgeshire PE1 1UA, UK. Tel. (44) (0) 733 318298.

Meetings

European Shark and Ray Workshop

The second Shark and Ray workshop, organised by Dr Bob Earll, was held at the Natural History Museum in London on 15 and 16 February 1994 with the generous help of several sponsors.

Over 60 participants from several European countries and Jack Casey, US National Marine Fisheries Service, attended. The first day was devoted to presentations and discussions of European and the US tag and release programmes, and the second to consideration of management plans. Recommendations of the meeting included the need for the establishment of a European Elasmobranch Working Group and a shark conservation implementation programme, possibly analogous to the International Whaling Commission or North Atlantic Salmon Conservation Organisation.

A report of the workshop will shortly be available from Dr Clare Eno, Marine Conservation Branch, Joint Nature Conservation Committee, Monkstone House, City Road, Peterborough PE1 1JY (UK). Fax. (44) (0)733 893971.

American Elasmobranch Society AGM

The American Elasmobranch Society Annual Meeting 1994 is about to take place in Los Angeles, from 4 to 6 June, as this newsletter goes to print. A meeting of the Shark Specialist Group will take place during the weekend to review progress on the production of the Action Plan and discuss specific conservation projects and actions to be recommended in the plan. A report will appear in our next issue.

Sharks in Danger Slide set

The IUCN Shark Specialist Group slide set features 40 colour transparencies, including many by professional shark photographers Jeremy Stafford-Deitsch and Jack Jackson and contributions from Specialist Group members. It is accompanied by a leaflet with speaker's text which covers shark biology, ecology and threats to chondrichthyans from man's activities. Copies are available from Dr Gruber (price US$38, cheque payable to Center for Marine Conservation) or Sarah Fowler (£21 in Europe, £23 elsewhere, including postage and packing, cheque or credit card payable to the Nature Conservation Bureau).

Editorial details

Shark News aims to provide a forum for exchange of information on all aspects of chondrichthyan conservation matters for use both by Shark Group members and other readers.

We will publish articles dealing with shark, skate, ray and chimaerid fisheries, conservation and population status issues around the world; circulate information on other relevant journals, publications and scientific papers; alert our readers to current threats to chondrichthyans; and provide news of meetings.

Publication dates are dependent upon sponsorship and receiving sufficient material for publication, but the target is three to four issues per annum.

Manuscripts should be sent to the editors at the address given on this page. They should be composed in English, legibly typewritten and double-spaced (generally 500–750 words, including references). Word-processed material on IBM-compatible discs would be most gratefully received. Tables and figures must include captions and graphics should be camera-ready.

Authors' name, affiliation and address must be provided, with their fax number and email address where available.

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