

GILLNET PROBLEMS ON THE RISE

Gillnets are very efficient in catching fish. Unfortunately, they also kill other marine animals efficiently and indiscriminately. Gillnet fisheries are proliferating and expanding around the world, and the incidental kills of cetaceans (and pinnipeds, birds, turtles, sharks and undersized or non-target fish) are growing rapidly and getting increasing attention in conservation circles and in the media. The damage done by the thousands of miles of pelagic driftnets now in use has received the most attention, but similar problems exist in hundreds of coastal fixed-net fisheries, many of them in the less-developed nations, where data collection, management and enforcement are often extremely difficult. The problems of assessment and regulation are exacerbated by the fact that the international aid agencies have pushed gillnets as cheap, efficient, and suitable for artisanal fisheries.

In the coming year, the CSG will give major attention to gillnet problems. This will include preparation and submission of proposals for funding of projects listed in the Action Plan that relate to gillnets (about half of the 44 projects in the Plan) and organization of an international conference



on the technical aspects of the problem (described below). Following are brief summaries of some of the relevant issues and events.

Italian gillnetters kill whales and dolphins illegally

A drift gillnet fishery for swordfish in the waters surrounding the Italian Peninsula is estimated to kill thousands of dolphins and hundreds of whales annually. In a recent report to the Scientific Committee of the IWC, Giuseppe Notarbartolo di Sciara of the Center for Cetacean Studies (Centro Studi Cetacei) headquartered in Milan described the results of a limited unofficial survey of stranded carcasses and animals found dead or entangled at sea. In 1988, 92 whales and dolphins were found entangled or dead on the beach with clear signs of having been entangled. These included 9 sperm whales, one Cuvier's beaked whale, 10 pilot whales, five Risso's dolphins, 8 bottlenose dolphins, 39 striped dolphins and 20 unidentified cetaceans. The survey was limited to only a small part of the area of the fishery. In addition to the fact that there is no organized monitoring of the fishery, most incidental catches are believed to be actively concealed by the fishermen, because they are illegal and because of a wish to avoid adverse publicity. One method used is to sink the carcasses by tying them to large stones. The populations of cetaceans in Italian waters have not been assessed, but there is concern that the large and unregulated kills may be more than can be sustained without decline in abundance in the long term, especially considering the many other environmental abuses affecting the Mediterranean. Additional problems caused by the swordfish gillnetters include the hazards to

navigation of unmarked nets, abuse of emergency radio frequencies, and possibly depletion of the swordfish resource itself. The following petition to several ministries of the Italian Government and to officials of the European Community has been circulated jointly by several organizations, including the Center for Cetacean Studies, the Tethys Institute, WWF-Italy, "Marevivo", the CETACEA Foundation and others:

"ENOUGH WITH THE KILLING OF CETACEANS CAUSED BY THE SWORDFISH FISHERY!"

CONSIDERED THAT

– alone among all Mediterranean Countries, Italy has allowed the massive proliferation of pelagic driftnet fishing activities, mainly used to capture swordfish, with a fleet numbering more than 700 vessels and with a total net length exceeding 15,000 km, i.e. almost twice the entire length of the Italian coastline;

– this fishing activity causes every year, in the waters surrounding the Italian Peninsula alone, the incidental death of thousands of dolphins and hundreds of larger cetaceans belonging to various species, including several sperm whales;

– fishermen, to protect their nets and to elude the Italian law which protects all cetaceans, brutally mutilate the dolphins that are caught still alive, and sink the drowned specimens to conceal them;

– this non-selective fishing method is rapidly depleting the Italian seas of numerous species, also rare, and of the swordfish itself, which is often captured below the size permitted by the law, thus attracting the hostility of all other categories of fishermen;

– these huge obstructions, often insufficiently marked, constitute a

constant and serious danger for navigation, especially for pleasure boats, causing numerous foreign yachts to desert the Italian seas; - the constant abuse and congestion, by the swordfish fishermen, of the emergency radio frequency (channel 16 VHF - 156.800 kHz) is a further cause of discomfort and danger for navigation;

- if appropriate and timely action is not taken, it is most likely that the cetacean populations of the Italian seas, already depleted and threatened by numerous other factors, will be at risk of extinction by the year 2000;

PETITION

that fishing with pelagic driftnets be promptly outlawed in Italy, and that the resumption of alternative fishing methods, of proven selectivity, be encouraged.

San Remo, 9 August 1989"

Further information can be obtained from G. Notarbartolo di Sciara, Centro Studi Cetacei, Museo Civico di Storia Naturale, corso Venezia 55, 20121 Milano, Italy (FAX 06 392 2940 1987) or Pier Lorenzo Florio, Director TRAFFIC(Italy), via Salaria 290, 00199 Roma (FAX 06 868334).



New Zealand and Australia ban driftnetters

In response to greatly increasing activity in the southern hemisphere by driftnet fleets from Taiwan, Japan and South Korea,

the governments of New Zealand and Australia have banned drift gillnetting within their 200-mile exclusive economic zones and are urging other nations in the South Pacific to do the same. The bans extend to the possession of large drift gillnets by any fishing craft, trans-shipment of drift-net catches and port access to drift gillnet vessels. In a press statement issued in May, Deputy Prime Minister Geoffrey Palmer and several other ministers characterized the use of drift gillnets as "abhorrent", saying that "their impact on fish resources is vandalistic and can destroy the viability of fisheries industries in the South Pacific". The ministers also expressed their alarm at the disastrous consequences the nets had on marine mammals. They stated in relation to the enforcement of a possible cooperative ban throughout the South Pacific,

"To add teeth to these efforts, we are prepared to provide aerial surveillance supported by a naval vessel to maintain a watch on the operations of drift gillnet vessels and to patrol the EEZs of countries taking similar measures as us that request our help."

Australia had previously (1986) prohibited use of long drift gillnets off its northern coast because of dolphin kills in a fishery formerly operated there, mainly by Taiwan. In July, Prime Minister R.J.L. Hawke announced an expansion of the ban in his Statement on the Environment,

"We will extend the net length restriction to cover the whole of the Australian Fishing Zone, continue to deny access by driftnet vessels to Australian ports, except in cases of emergency, and prevent transshipment of fish caught by driftnets in the Zone."

He said further,

"Driftnetting is a global problem and there is an urgent need for international action to put an end to this barbarous form of fishing. Accordingly, Australia will press for a global ban on driftnet fishing."

The two Australasian nations thus join Canada, the U.S., Peru, Vanuatu, Fiji and American Samoa in prohibiting the use of large-scale commercial driftnets in their waters. To quote the Earthtrust report "Stripmining the Seas, A Global Perspective on Driftnet Fisheries",

"Even Japan, which fields over half of the world's active driftnet vessels, has expelled these ships from its coastal waters, requiring by law in 1981 that squid driftnetters establish operations east of 170 degrees E longitude - more than 1000 miles from the Japanese mainland. This move was prompted when it became apparent that commercial squid driftnetters were not only threatening the livelihood of thousands of coastal fishermen, but promoting the collapse of Japan's offshore fisheries as well. This has not prevented the Japanese and others from seeking to establish driftnet fisheries in the coastal waters of other nations, or in international waters where the fleets freely operate without restriction."

The U.S. Government has recently taken a hard line with Japan, Taiwan and South Korea on the question of driftnetting on the high seas, in particular the North Pacific with its valuable and vulnerable salmon and albacore fisheries. Agreements for placement of observers aboard some vessels to collect data on catches of mammals, birds, turtles

and undersized fish have been negotiated with all three nations. The agreements also call for the use of radio locator beacons to monitor the fleets, as well as containing provisions for gear restrictions, enforcement, bans on the catch of anadromous fish, etc. A bill introduced in the U.S. Congress in July 1989 (H.R. 2958) would require that the Secretary of State seek to secure an international agreement to ban the use of driftnets on the high seas.

Exploratory gillnetting kills whales and dolphins in Micronesia

The following is abstracted from the report of an observer on board the Japanese fishing boat *Monju Maru* during an exploratory drift-gillnetting trip in waters of the Federated States of Micronesia in February and March, this year.

The voyage was a joint venture between the Yap Marine Development Venture and the Monju Suisan Company Limited, authorized through a special arrangement between Japan and Yap State. The observer, Robert Goldblatt, was contracted by

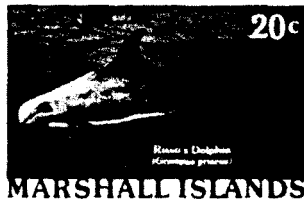
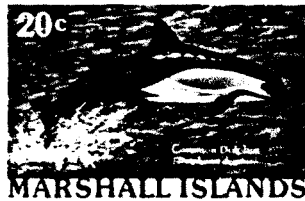
Yap's Marine Resource Management Division. The vessel was a 100-foot gillnet boat, carrying approximately 18 miles of nylon net separated into 9 nets approximately 2 miles long and 25 feet deep. The mesh size was 3 inches. The nets were set in the evening and pulled in the early morning, with total soaking time of 7-14 hours. The catch included skipjack tuna and other scombrid fishes (65% of the fish frozen and stored), billfish (42%), mahi mahi (24%), sharks (23%), manta rays, various small non-commercial fishes (16% of the total catch, all discarded), whales, dolphins, and turtles. Dolphins were caught in 19 of the total 24 sets made and whales in 3; the total catch was 97 dolphins (average 3 per set) and 11 whales (average about 1/2 whale per set). Ten turtles were caught, in 9 sets. The cetaceans were not identified to species. One whale was noted as weighing "several tons". The whales that could be handled by the winches were brought aboard and butchered, the meat being stored frozen for return to Japan. The dolphins were discarded. Dolphins still alive when the nets were pulled had their flukes cut off to facilitate removal from the mesh. Two leatherback turtles were released

alive but injured; of the remaining 8 turtles (juvenile hawksbills and greens and one tentatively identified olive ridley), 4 were frozen (one alive), 2 were maintained alive on deck for later use, and 2 were discarded dead. Much of the fish catch was also discarded, because of undesirability, small size, damage by sharks, or decomposition due to prolonged time in the net.

The observer concluded in his report that the drift-gillnet method was wasteful and generally destructive of marine life and recommended strongly that no more permits be issued by the Federated States of Micronesia. Inquiries can be directed to Marine Resources Management Division, P.O. Box 251, Colonia, Yap 96943, Federated States of Micronesia.

The vaquita still needs help

The plight of the vaquita, the endemic porpoise restricted to the upper Gulf of California (*Phocoena sinus*) and arguably one of the least known and most endangered cetaceans, is receiving more attention in the Mexican press, but incidental kill in the gillnet fisheries in the Gulf is still not being monitored on a regular basis. A grant to the Mexican organization CEDO from the Center for Marine Conservation in 1988 allowed a pilot monitoring effort (Anon, 1989c). They interviewed a sample of the fishermen that operated 816 boats fishing in the same areas, at the same depths and during the same seasons that vaquitas are captured and found that 93% used the type of gillnet that entangles vaquitas. CEDO recommends the suspension of all gillnet fishing, especially the use of 5 and 6-inch mesh nets, in the northern Gulf of California.



Omar Vidal of the Guaymas Campus of the Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM) reports efforts to educate the public and government officials about the uncertain future of the species. A lengthy illustrated article by Vidal and other staff of the institute appeared recently in 10 newspapers scattered throughout Mexico. However, severe funding limitations prevent the research needed to adequately assess the size and impact of the gillnet kills and to determine what might be done to reduce them. Illegal gillnetting for the totoaba (a large sciaenid fish, itself endangered) and legal fisheries for sharks and other species continue at many localities around the upper Gulf and are largely unmonitored.

Greg Silber, a graduate student at the Institute of Marine Sciences of the University of California at Santa Cruz, writes in a letter to the Editor (October, 1988),

"I endorse the group's opinion that the biggest threat to the porpoise is that of totoaba gillnetters. In the coming months I will complete data analysis of four seasons of field work on the porpoise. My principal interest is the study of the relative abundance, ecology, and behavior of the porpoise (we have now accumulated 47 sightings of the vaquita), and not in interviewing fishermen or quantifying the fishing effort. Nonetheless, it is apparent that the vaquita population continues to receive considerable impact from this source. In the 1988 season alone we recovered three vaquita carcasses, two of which were gillnet victims, and the third may [also] have died as a result of entanglement. Opportunistic conversations indicate that fishermen are well aware of the vaquita and

openly acknowledge that they entangle the porpoise in their nets.

"It is my hope that my work might shed new light on the ecology and distribution of the vaquita, such that future gillnet fishing might be restricted to locations where the vaquita is not present."

Silber's work has been supported by the Nature Conservancy's international program and the Center for Marine Conservation.

The population size is unknown but probably very small, possibly less than one hundred but also possibly a thousand or more (Barlow, 1986; Silber, 1987a and b, 1988a and b); the information required to make a reliable estimate does not exist. Survey conditions are very difficult in the turbid upper Gulf, and the porpoise's unobtrusive habits make finding and counting them even more difficult. The external appearance of the animal was not even well known until 1985 (Brownell et al., 1987). The CSG has given highest priority in its Action Plan to the need for monitoring the scattered gillnet fisheries in order to estimate incidental mortality. Following one year of fishery monitoring, a report would be submitted to the Mexican government, with recommendations for fishery management actions and an educational program to increase lay awareness of the uniqueness of this endemic Mexican species and the threat to its survival. The cost estimate for one year of monitoring, data collation, and preparation of the report is \$20,000. Funds for this crucial work are currently not available in Mexico. Mexican cetologists stand ready to begin the monitor-

ing as soon as international support can be found.

Further information can be obtained from CSG member Luis A. Fleischer (Centro de Investigaciones Pesqueras, Km1 Carretera a Pichilingue, La Paz, B.C.S., Mexico), Greg Silber (Institute of Marine Sciences, University of California, Santa Cruz, California 95064, U.S.A.) or Omar Vidal (Escuela de Ciencias Maritimas y Alimentarias, ITESM, Apartado Postal 484, Guaymas, Sonora, 85400 Mexico).

Gillnets may threaten harbor porpoise in Canada and U.S.

After an examination of the nature, magnitude and impact of incidental catches of harbor porpoises by groundfish gillnets in the southwestern Bay of Fundy in 1986, Andrew J. Read and CSG member David Gaskin (1988) at the University of Guelph concluded that, given the slow reproductive rate of the harbor porpoise, the incidental catch of around 100 per year in combination with other takes seriously threatens the population of the species in the region. Porpoises in the Bay of Fundy and Gulf of Maine apparently form a discrete population unit. Since 1973, two significant changes in length frequencies have occurred (an increase in length of calves and an absence of large porpoises in the 1986 sample). These changes may be attributable to the gillnet fishery, which has been operating for 10-15 years. Porpoises from the same population are also caught in other gillnet fisheries in the Gulf of Maine; data to support reliable estimation of the incidental kill there do not exist, but the kill may lie between about 300 and 800 (Polacheck, 1989). The University of Guelph studies suggest that this may be affecting the

population of 5,000-18,000 adversely, but better population estimates are needed. Research to develop reliable census survey techniques is underway by the U.S. National Marine Fisheries Service (Polacheck, 1989). On the other side of the border, Canada's Fisheries and Oceans department seems little interested in addressing the problem of incidental porpoise kill.

Comments by Tom Polacheck on the problem of conflict between porpoises and gillnet fisheries are trenchant and worth quoting *in extenso*,

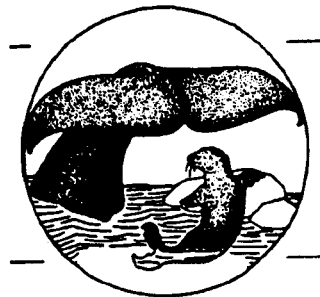
"One avenue of porpoise protection is gear modification that might reduce or eliminate the incidental take, such as making the nets more 'visible' to the porpoise sonar system. Similar research in other fisheries with other small cetaceans has not been successful in the past [see article below], but one always remains hopeful."

"If it is true that harbor porpoises are attracted to the gillnets as a source of food, then eliminating or reducing the incidental kills would most likely require seasonally prohibiting gillnetting on many of the fishery's best grounds. Such an action could threaten the viability of the fishery.

"The problem of the incidental take of harbor porpoise exemplifies some of the problems that face both the marine scientist and society with regard to the interaction of marine mammals and commercial fisheries. Both are highly valued and represent issues of concern to various segments of society. The total number of animals killed may not appear large to some, and fishermen may find it hard to believe

that their incidental takes are of any significance. However, the populations of small marine mammals tend to be highly vulnerable to low levels of exploitation (article, pp. 5-11). On the other hand, commercial fisheries represent peoples' livelihoods and way of life. Fisheries, particularly those operating at small scales, often cannot sustain large additional costs and remain competitive.

"As critical as the need for more information may be, resources for research are scarce and many important projects compete for limited funds. Population biology studies of marine mammals are expensive compared to those of land mammals, and the information required for assessment calls for long-term studies. Moreover, even the best possible assessments are likely to be imprecise, leaving large uncertainties. Yet, these difficulties should not be used as an excuse to do nothing. On conservation issues, ignorance has too often resulted in inaction. Competing concerns need to be balanced, and reasonable solutions found."



Modifying gillnets may not help

In a review recently submitted for publication in a technical journal, Steve Dawson of Canterbury University in New Zealand has

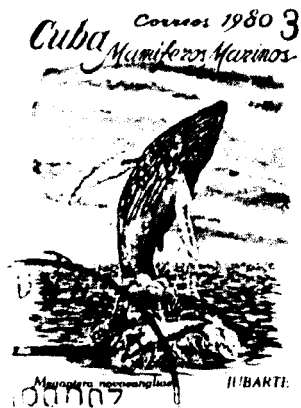
concluded that net modifications tried to date have not been successful in reducing entanglement of cetaceans in gillnets and that reductions in mortality are best achieved through closure of specific areas to gillnetting. He discussed the methods and results of unsuccessful attempts to reduce entanglement through net modifications in the Japanese salmon gillnet fishery in the North Pacific (which takes mainly Dall's porpoise), in the now defunct Taiwanese shark fishery in waters of Northern Australia (which took tropical dolphins), and in South Africa, where gillnets used to protect bathing beaches kill bottlenose dolphins and other dolphins.

Most of the attempts to reduce entanglement through net modification have involved trying to make the net more "visible" acoustically to the animals, by the use of acoustic reflectors, such as air bubbles trapped in the net twine or attachment of air-filled tubing, and sound emitters. Dawson argues that since experimental work has shown that small cetaceans such as harbor porpoise can easily detect even unmodified nets, they become entangled not because their sonar system cannot detect the nets, but because they make mistakes that sometimes result in entanglement. He posits two kinds of possible mistakes: the animal may have an acoustic search image of what it expects to encounter and therefore not perceive non-target objects or pingers, or it may not be using its sonar and therefore be unaware of the net's presence. Dolphins and porpoises are certainly capable of learning to be on the lookout for warnings of the presence of nets, but the animals that blunder into nets of course usually do not survive to make use of their experience. In addition, there is

the problem that the cetaceans may feed on the gillnet-caught fish or on the other scavengers feeding on them. In this case, a sound-emitter is effective a "dinner bell" and may actually increase entanglements.

Dawson concludes that because "making nets more acoustically reflective and placing warning devices in them are unlikely to achieve better than marginal reductions in the entanglement rate of dolphins and porpoises", "...the management strategy most likely to achieve effective protection of cetacean populations from gillnet entanglement is the closure of specific areas to gillnetting..". He adds,

"Detailed data on the location of fishing effort, if available, can help identify which areas should be protected" ... "However, management decisions should not be based solely on such data."... "Management strategies must take into account that fishing is an extremely dynamic industry, and that the location and amount of fishing effort often change markedly between seasons. For this reason areas subject to low fishing effort may warrant inclusion into an area closure if they support significant marine mam-



mal populations that would be at risk if gillnet fishing effort increased."

Steve Dawson's address is Department of Zoology, University of Canterbury, Christchurch 1, New Zealand.

International conference planned.

The long-awaited meeting on gillnets and cetaceans may finally materialize. The conference, to be titled Mortality of Cetaceans in Fishing Traps and Nets will be organized by the Scientific Committee of the IWC and is planned to take place in October, 1990 at the Southwest Fisheries Center in La Jolla, California. It will consist of a two-day symposium of invited and unsolicited technical papers and an invited workshop of 30 or so specialists. The main charges to the workshop will be:

- (1) to identify and describe new and expanding net and trap fisheries which take cetaceans;
- (2) to investigate how and why entanglement occurs;
- (3) to the extent possible, estimate mortality and assess its impact on cetacean populations; and
- (4) to consider possible ways of reducing levels of net-caused mortality of cetaceans.

The products of the workshop will include:

- (1) a list and summary descriptions of gillnet and trap fisheries that take or potentially could take cetaceans, with lists of the species involved;
- (2) a species-by-species summary, listing cetacean takes by population and fishery and assessing the impacts of the takes;

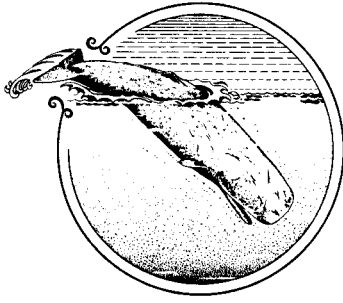
(3) an analysis of the causes of entanglement and assessment of technology and alternatives for reducing the incidental takes; and

(4) recommendations for (a) documentation of takes, (b) research to develop methods for reducing takes, and (c) management actions.

The estimated budget for the meeting is approximately \$40,000. Most of this will be used to pay travel and per diem costs for participants from the less developed nations and for a limited number of experts, such as a behavioral scientist, a sensory physiologist, and a gear expert. About half the needed funds have been pledged, by WWF-Sweden, the Government of New Zealand, the U.S. Marine Mammal Commission, the Southwest Fisheries Center of the U.S. National Marine Fisheries Service, and IUCN.

The IWC steering group for the meeting is presently trying to find the rest of the funds needed and preparing a draft list of invited participants. The IWC steering group includes Bill Perrin (U.S.), Bob Brownell (U.S.), Tom Arnborn (Sweden), John Harwood (U.K.), Linda Jones (U.S.) and Toshio Kasuya (Japan). The local organizing committee consists of Perrin, Brownell, Jones, Doug DeMaster and Jay Barlow.

It will be crucial to involve participants from the developing nations that are placing high priority on coastal and offshore fishery development. The amount of money that can be raised will determine how many of these people can be included. Anyone interested in helping support this important meeting should contact Bill Perrin as soon as possible (FAX 01 619 546 7003).



REPORT OF CSG CHAIRMAN TO MEETING OF IUCN SPECIES SURVIVAL COMMISSION Rome, August 20-22, 1989

"This will be a short report. As some of you know, we issued an Action Plan last year, covering the 5-year period 1988-1992. The plan concentrates on the small cetaceans, because we believe that the greatest problems are there. Some of the small cetaceans are in imminent danger of extinction, in particular some of the river dolphins.

The plan lists 44 specific projects and actions that the Group believes should go forward. Eleven are considered to be of the highest priority. Most of these (8) are concerned with river dolphins; the remaining three relate to the incidental kill of vaquitas in the Gulf of California, the illegal use of small cetaceans for crab bait in southern South America, and the need for a workshop on gillnets and cetaceans.

We cannot say that our progress in implementing the plan has been tremendous, but we can

report some achievements for several of the recommended actions. I'll summarize these in the order in which the projects are listed in the plan.

Project 15. We recommended that the status of the common dolphin in the western Mediterranean be assessed because of a possible great decline in the population there. This was to include research on the stock identity of dolphins in the western Mediterranean and the adjacent North Atlantic. Alex Aguilar of the University of Barcelona has received a grant from the National Science Foundation (NSF) U.S.-Spain Program to begin the work, using tagging and sighting surveys, and the first report will be due in October.

Project 35. A high-priority project for the severely endangered baiji, or Chinese river dolphin, is to continue monitoring of the population. Prof. Zhou Kaiya of Nanjing Normal University has just informed me that he has received partial funding for this from WWF International.

Project 36. Another of the high-priority items for the baiji is to determine individual movements and population structure. Bernd Wuersig of Texas A & M University has begun this work with funding from WWF, under a joint research agreement with the Academia Sinica and Nanjing Normal University. In addition, the International Whaling Commission (IWC) funded two Chinese students to attend the recent IWC-sponsored workshop on photo-identification methods for cetacean assessment, and they have returned to China and made a good start on cataloging the individual dolphins in the baiji population (about 300).

Project 39. We are happy to report that good progress has been made toward saving Hector's dolphin, which is endemic to New Zealand. The New Zealand Government has established a sanctuary to protect the species from gillnetting and has

started programs to monitor trends in abundance and to obtain better information on kill rates. This has been primarily due to the efforts of Steve Dawson and Elizabeth Sooton of Canterbury University in Christchurch, but international expressions of concern seem to have helped.

Project 40. Very many of the problems that cetaceans face are caused by fisheries, and some of the worst problems are caused by gillnets. We recommended that an international workshop be convened to examine the problem of gillnets and cetaceans. We are very happy to announce that the meeting will take place in October, next year, in La Jolla, California. [See article above.]

The 44 projects listed in the action plan will cost about \$1 million. So far, we've succeeded in raising only a small fraction of that. Ninety percent of the projects remain to be initiated. Many of these relate to situations where species or populations most definitely will disappear in this century unless there is intervention. The most severe crises are in the Indian Sub-continent and in China. The most recent news is that the susu has disappeared from the Karnaphuli River above the Kaptai Dam in Bangladesh, apparently because of poaching. This is a very large piece of habitat, now empty of dolphins. In another piece of grim news, it is estimated that construction of the proposed Three Gorges Dam on the Yangtze River will destroy dolphin habitat along 200 km of the river below the dam and reduce the carrying capacity of another 150 km of the river by 41-71%. And, of course, there is the recent information out of the meeting of the Scientific Committee of the IWC that the Antarctic population of the blue whale may

be much smaller than had been previously estimated. [See article below]. The crisis for the cetaceans continues and grows. We need to move on these projects, and the Cetacean Specialist Group would very much welcome any assistance or advice on how to proceed." [Some advice was received; see article below on CSG's plans for stepped-up activities.]

RIVER DOLPHIN NEWS

The CSG continues to place high priority on the severe problems faced by the river dolphins.

Susu studied in Indian reserve

In a paper submitted to TIGER-PAPER, R. J. Rao, S. A. Hussain and R. K. Sharma reviewed research on the susu in the National Chambal Sanctuary, a crocodile sanctuary in Madhya Pradesh. A survey in the mid-1980s found 45 dolphins in a 305-km stretch of the Chambal River. Subsequent surveys by different teams recorded 43 dolphins in 265 km and, in 1988, 50 dolphins in 320 km. These numbers (all about 6 dolphins per km) are remarkably stable. The authors note that protection of crocodiles has also resulted in protection of dolphins. They recommend that enforcement of existing laws protecting dolphins and their habitat outside the reserve be improved. Further information is available from R. J. Rao, Deori Gharial Rearing Centre, National Chambal Sanctuary, P.O. Box 11, Morena, 476 001 M.P., India.

Baiji added to U.S. Endangered Species List

The U.S. Department of Interior's Fish and Wildlife Service has placed the severely depleted and baiji, *Lipotes vexillifer*, on the List of Endangered and Threatened Wildlife after a determination by the National Marine Fishery Service that the species is endangered. The action, effective June 29, 1989, gives the U.S. Government a mandate to assist China in planning for recovery of the species if that nation so requests. The other river dolphins (*Platanista gangetica*, *P. minor*, *Inia geoffrensis* and *Pontoporia blainvilliei*) are under review for possible addition to the List.



Costs of the Three Gorges Dam outweigh benefits

As noted above (Report of Chairman to meeting of SSC), construction of the proposed high dam at the Three Gorges on the Yangtze River (Chang Jiang) would destroy much of the habitat of the baiji. (See also last year's newsletter). A review in World Development by Philip M. Fearnside suggests that there would be other, perhaps unacceptable costs as well. The abstract of the paper follows: "China's plans for the Three Gorges Dam on the Yangzi River imply costs that go far beyond the dam's substantial monetary price. The consequences would be catastrophic should the dam fail as a result of warfare, earthquakes, or other

causes. Resettlement of population displaced by the reservoir, especially farmers, presents a formidable obstacle in the land around the reservoir site. Resettlement could affect minority groups if population is moved to border areas. The reservoir would sacrifice cultural landmarks. Erosion and reservoir siltation may impede navigation with a few years, and in the longer term will reduce storage volume. Impacts on natural habitats and human structures downstream of the dam include a variety of changes caused by greater streamflow at the low-water period and by reduced sediment load. The major justification for building the dam is flood control; alternatives include reforestation in the watershed, smaller dams on upper tributaries, and reversing the movement of population to dangerously exposed areas along the middle and lower Yangzi. Electricity could be produced more cheaply and quickly from smaller dams elsewhere. Energy conservation and population control are more cost effective ways of increasing per capita power supply. Installation of infrastructure



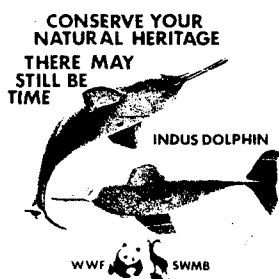
for construction at the damsite before impact assessment in complete raises doubts about the place of environmental evaluation in China's decision process." At last word in the press, the Three Gorges project was on hold, for unclear reasons but probably having to do with finances. The effects of the current purges on the young environmental movement in China are unknown.

Dam in Bangladesh causes local extinction of dolphins

The Ganges susu, *Platanista gangetica*, has disappeared from the portion of the Karnafuli River above the Kaptai Dam. A few dolphins remain in the estuarine region below the dam. The dam has created a permanent barrier across the river blocking the movements of the dolphins. The dolphins trapped above the dam were exposed to poaching, especially during the summer months, and have been exterminated. Fishermen in the region say that they have not seen dolphins above the dam for several years. Dolphins below the dam are also threatened, by heavy pollution, increased fishing activities and vessel traffic. Untreated domestic waste and discharges from metallurgical factories pollute the estuary. The maximum concentration of zinc found in the estuary is 0.5 mg/l. It has been observed that concentration as low as 0.3 ppm are lethal to snails and certain fishes. In a recent study of the hydrology of the estuary by Hossain and others, it was found that dissolved oxygen varied between 3.3 and 6.2 mg/l, whereas BOD ranged between 1.8 and 4.8 mg/l. All this indicates the degradation of the estuary that has occurred and the danger to wildlife there. The river dolphin workshop held in Wuhan, China

in 1986 highlighted the dangers posed by construction of dams without giving adequate thought to impacts on dolphin populations and the riverine fauna in general. The results of the construction of the Kaptai Dam should be a warning to agencies planning construction of dams on other rivers inhabited by dolphins. The information cited here was obtained with the cooperation of residents of Chitagong and the banks of the Karnafuli.

—Submitted by CSG member R. S. Lal Mohan, B/18, Gandhinagar, Calicut, 673005, Kerala, India.



River dolphin volume published

The proceedings of the Workshop on Biology and Conservation of the Platanistoid Dolphins held at Wuhan, PRC in October, 1986 have been published in the Occasional Papers of the IUCN Species Survival Commission (No. 3, 173p). The volume contains the report of the workshop and 24 technical contributed papers on *Inia geoffrensis*, *Platanista gangetica*, *P. minor*, *Pontoporia blainvillei* and *Lipotes vexillifer*. Topics include population status, distribution, conservation, management, captive husbandry, acoustics, behavior, anatomy, ecology, and physiology. The

book can be ordered from the IUCN Publications Services Unit, 219c Huntingdon Rd, Cambridge CB3 0DL, U.K. for U.S. \$25.00 plus \$4.38 for postage (\$8.86 for air-mail).

UPDATES

Peruvian dolphin fishery may be growing

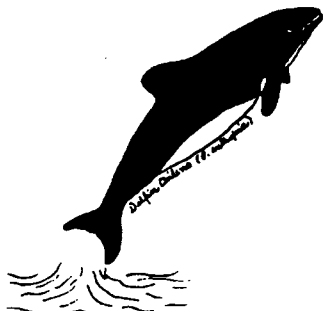
In the past, the directed take in the Peruvian dolphin fishery has been mainly of dusky dolphins, *Lagenorhynchus obliquidens*, taken in drift gillnets, but other species are apparently becoming increasingly important. In addition, the total landings may be increasing. The catch in 1985 was approximately 10,000 dolphins and porpoises (Read et al., 1988). Detailed catch statistics by species are available for Pucusana, one of the important dolphin-fishing ports. In a paper in press and a recent draft report, Koen van Waerebeek and Julio Reyes list estimates of yearly landings there. (see table 1.)

The sharp increases in catches of dusky dolphins and Burmeister's porpoises are alarming. On one day alone, 106 dusky dolphins and 3 porpoises were landed. Government catch statistics for 1987 (reported by weight) do not indicate an increase in overall landings for Peru, but rather a 38% decrease. Either Pucusana is highly anomalous, or the official statistics are not accurate. It is not clear what, if anything, is being done officially to assess the impacts of the catches on the populations. A workshop scheduled for last November in Lima to bring together scientists and administrators interested in the fishery did not take place.

Table 1. L.o.= dusky dolphin; P.s.= Burmeister's porpoise (*Phocoena spinipinnis*), D.d.= common dolphin (*Delphinus delphis*), T.t.= bottlenose dolphin (*Tursiops truncatus*). * = included in Other.

Year	L.o.	P.s.	D.d.	T.t.	Other	Total
1985	95	47	*	*	14	175
1986	691	24	*	*	11	760
1987	711	83	264	30	12	1101
1988	1725	384	155	18	8	2290

Inquiries can be directed to Koen van Waerebeek, Laboratorium voor Morfologie en Systematiek der Dieren, Rijksuniversiteit Gent, Ledeganckstraat 35, 9000 Gent, Belgium, or Julio C. Reyes, Centro Peruano de Estudios Cetológicos (CEPEC), c/o Asociación de Ecología y Conservación (ECCO), Vanderghen 560, 2A, Lima-27, Peru.



Cetaceans receive increased protection in India

CSG member R. S. Lal Mohan reports that his efforts to obtain greater protection for dolphins and whales in Indian waters have succeeded. All species of cetaceans are now included in Schedule I of the Indian Wildlife Protection Act of 1972. They were formerly in Schedule II, Part 1. With the new status, sale of

cetacean products is prohibited (under penalty of up to two years in prison and fine of up to Rs. 2000), and it has been possible to stop the sale of dolphin meat in the markets of Calicut.

Dolphin kills in the tuna fishery

Efforts to improve rescue performance by the international fleet of tuna seiners are paying off in lower kill rates, but increased fishing on dolphins in 1989 may result in higher kills for the year. Martin Hall of the Inter-American Tuna Commission provided information on technological extension work with the fleet.

1. A waterjet-propelled boat is being tested on some U.S. and non-U.S. boats to aid in herding dolphins to the backdown channel and in hand rescue; it can cross the corkline and is much better for these purposes than the inflated raft that has been used.

2. "Water hauls" to test the placement and alignment of small-mesh rescue panels in the net have been made for 30 boats so far this year. Some governments are requiring that prior to fishing under their flags, vessel captains attend a seminar on how to reduce dolphin mortality. These seminars are now frequently being attended by vessel navigators, deck bosses and fleet managers as well as captains. Nine seminars, in nearly all the

countries involved in the fishery, have been held so far; 137 fleet personnel have attended, including 61 captains.

3. Many fishing companies are now routinely reviewing the dolphin-rescue performance of their captains after each trip. They are also collecting and collating performance data for release to interested parties.

4. The Mexican tuna industry has opened a tuna-dolphin office in San Diego, California. Carlos R. de Alba Pérez, formerly of the Universidad Autónoma de Baja California in La Paz, has been retained to head the office. Services to the Mexican fleet will include organizing training seminars, assisting boats in arranging net-alignment trials, maintaining monitoring inventories of dolphin-rescue equipment, and following captain performance in rescuing dolphins.

Based on preliminary and incomplete data for 1989, these and other efforts have resulted in drops in kill rates for the international fleet: a decline in kill per set of about 10% and in kill per ton of tuna of about 20%. These gains may not result in lower overall mortality, however, because fishing effort on dolphins is up steeply, about 38% in sets and 55% in tons. Unless the pattern of fishing changes drastically in the last two months of the year, the total kill in 1989 will be greater than in 1988. Questions can be directed to Martin Hall, IATTC, P.O. Box 271, La Jolla, California 92038, U.S.A.



CSG TAKES NEW STEPS TO IMPLEMENT ACTION PLAN

Two ideas emerged in recent consultations with IUCN Secretariat staff on how to speed up progress in implementing the action plan: to make each project the responsibility of an individual CSG member, and to set up an office for the CSG.

Assignment of projects to members--The member will be charged with the responsibility of preparing, or soliciting the preparation of, formal proposals to agreed potential donors. There will be agreed deadlines for preparation of the proposals. They will be subject to peer review by other, appropriate members of the CSG and will be forwarded by the Chairman to the potential donor, with a copy of the action plan and with a cover letter explaining that the proposal addresses a high priority for cetacean conservation as identified by IUCN. Not more than one proposal will be submitted the CSG to the same donor at the same time (unless more than one proposal has been specifically requested by the donor).

Office for the CSG--The expanded role proposed for the CSG will be much more active and involve a great deal of time and work. The time and resources that any one person can devote to the CSG are limited. The IUCN staff recommended strongly that core support be set up for the Group, most importantly to coordinate the preparation, review and submission of proposals, but also to carry out other functions, such as preparation and mailout of newsletters. They estimate that

about \$30,000 would be required annually for this; it would be mainly to hire some young cetologist with knowledge of the fund-raising world. The CMC is prepared to help with development of a proposal and with raising the funds for the core support.

New members of the CSG--Eight new members have been added to the Group during the year to augment expertise and relevant experience needed for preparation of proposals and for response to requests for advice by the IUCN Secretariat:

1. Fernando Rosas, Departamento de Biología de Mamíferos Acuáticos, Instituto Nacional de Pesquisas da Amazônia (INPA), Manaus, Amazonas, Brazil.
2. Ricardo Praderi, Sociedad Uruguaya Cetológica, Conchillas, Colonia, Uruguay.
3. George C. T. Chen, Graduate School of Fisheries, National Taiwan College of Marine Science and Technology, Keelung, Taiwan.
4. Jorge Oporto, Centro de Investigación y Manejo de Mamíferos Marinos (CIMMA), Universidad Austral de Chile, Valdivia.
5. Julio Reyes, Grupo Cetáceos, Asociación de Ecología y Conservación (ECCO), Lima, Peru.
6. John E. Heyning, Los Angeles County Museum of Natural History.
7. Idelisa Bonnelly de Calventi, Centro de Investigaciones de Biología Marina, Universidad Autónoma de Santo Domingo, Dominican Republic.
8. Aldemaro Romero, BIOMA (Fundación Venezolana para la Conservación de la Diversidad Biológica, Caracas.

New edition of the Action Plan--The Action Plan has been a best-seller; the printing of 1000 copies is nearly exhausted. An updated version will be published late this year or early next year. One project, a workshop to assess small cetaceans exploited by Japan, will be added; the appendices will be corrected and augmented; and a progress report will be included.



CMS TO FOCUS ON SMALL CETACEANS

The Convention on the Conservation of Migratory Species of Wild Animals (CMS), commonly called the Bonn Convention, aims to conserve migratory species by fully protecting endangered species and facilitating concerted action by Range States for migratory species which would benefit from international agreement. This necessarily involves more than one State, since a "migratory species", as defined in the Convention, is one "a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries". The Convention came into force 1 November 1983 and currently has twenty-seven Parties: Benin, Cameroon, Chile, Denmark, Egypt, Finland, Federal Republic of Germany, Ghana, Hungary, India, Ireland, Israel, Italy, Luxembourg, Mali, Netherlands,

Niger, Nigeria, Norway, Pakistan, Portugal, Senegal, Somalia, Spain, Sweden, Tunisia, United Kingdom, and the European Economic Community.

To encourage and oblige States to protect migratory species, the Convention takes two approaches, each reflected in a separate Appendix. (If the circumstances so warrant, a species may be listed in both Appendices). Appendix I lists species which are deemed "endangered", that is, which according to "reliable evidence, including the best scientific evidence available is in danger of extinction throughout all or a significant portion of its range" (in the context, equivalent to the IUCN category "endangered"). The Convention obliges Parties which are Range States of Appendix I species to prohibit their taking (hunting, capturing, etc) with few exceptions, to endeavor to conserve and restore their habitats, and to minimize activities and obstacles impeding migration and other factors endangering the species such as habitat loss and exotic species. Appendix I includes *Balaenoptera musculus*, *Megaptera novaeangliae*, *Balaena mysticetus*, and *Eubalaena glacialis*.

Appendix II lists species which would benefit from international co-operation, whether or not the species is endangered. Parties which are Range States of Appendix II species are required to endeavor to conclude AGREEMENTS, which must be open to accession by Range States which not Parties. Such AGREEMENTS can stipulate more precise and perhaps more onerous obligations than the global Convention, because they respond to a specific problem under definable circumstances. Appendix II at this point includes *Delphinapterus*

leucas and North and Baltic Sea populations of *Delphinus delphis*, *Globicephala melas*, *Grampus griseus*, *Lagenorhynchus acutus*, *L. albirostris*, *Tursiops truncatus* and *Phocoena phocoena*.

The latter seven species were added to the Appendix at the October 1988 Conference of the Parties in Geneva, on the advice of the Scientific Council. The Conference also decided that the working group on small cetaceans established by the first Conference should be replaced by a working group of the Scientific Council. This working group is currently being established, and interested members of the Cetacean Specialist Group should contact the Convention Secretariat. CSG Chairman Bill Perrin was appointed to the Scientific Council by the Conference. The Scientific Council was directed to give priority over the next three years to a global review of the conservation status of small cetaceans, including freshwater species, to establish the case for Parties to prepare proposals for further additions of small cetacean species to Appendix II at the next Conference.

The Parties also stressed the need to complete work arising from their first Conference, including the development of the AGREEMENT for North and Baltic Sea populations of *Phocoena phocoena* and *Tursiops truncatus*. (It is possible that the AGREEMENT will be extended to include some other small-cetacean populations occurring in that area, following the amendment of Appendix II, as mentioned above).

Further information can be obtained from the Coordinator of the UNEP/CMS Secretariat (Judy Johnson), Postfach 201448, D-5300

Bonn, Federal Republic of Germany.

Submitted by UNEP/CMS Secretariat



HOW MANY BLUE WHALES ARE LEFT IN THE ANTARCTIC?

There may not be as many blue whales remaining in the Antarctic as have been previously estimated. Certain other of the great whales may also be more depleted there than has been thought. The conclusions of a working paper submitted to the Scientific Committee of the International Whaling Commission in San Diego (Butterworth and Decker, 1989) this year have attracted a lot of attention and caused concern in the environmental community (e.g., see Anon, 1989a and b). However, the paper is preliminary; the authors emphasize that their conclusions are tentative and give several reasons why the estimates may be biased downward.

The estimates were developed from sightings data collected during IWC cruises to census minke whales in 1979-1986, using methodology similar to that used to generate estimates of minke whale abundance. A series of estimates were made for each species considered, using different data from different sighting modes and different combinations of survey years. The es-

timite of most concern is that of about 500 (with a coefficient of variation of 40%) for the blue whale. The estimates for other species (fin, sei, sperm, humpback, killer and pilot whales) are on the whole of less concern, either because they are not greatly lower than expected or because a significant portion of the range, or even most of the range in some cases, of the stock lies north of the area surveyed.

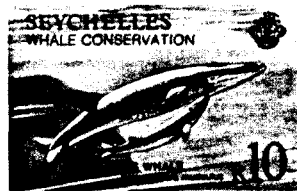
The Scientific Committee noted that the small number of sightings meant that the data could not be stratified nor estimates calculated by area, as has been done for minke whales, a factor affecting possibly both accuracy and precision. It was further noted that the estimates all require adjustment for the unsurveyed area (the surveys covered only 64% of the area south of latitude 60 degrees South and adjustment for whales missed on the trackline (a chronic problem with line-transect surveys). The Committee concluded that although the estimates suffered from these problems, they were very much lower than the total known catches from the stocks and concluded that at least the blue and fin whale stocks are at only a very small fraction of their unexploited size. Some members of the Committee expressed reservations about this statement for fin whales, because their range extends north of the survey area.

The most recent estimate of the number of blue whales in the Antarctic based on trends in catches was about 10,000 (including about 4,000 "exploitable" adult whales) in 1963 (Gulland, 1981). Earlier estimates were 930-2790 in 1961/62 (IWC, 1964) and 10,600 for Areas II-V for 1965/66 - 1970/71 (Chapman, 1974). The estimate of 4440 (south of 50 degrees S) in 1965/66-

1976/77 by Masaki and Yamamura (1978) was based on sightings from Japanese whale-scouting vessels. An earlier estimate derived from the IDCR sightings data (for the first 6 years) was 1011 (with S.E. of 412) for 75% of the area south of 60 Degrees S (Butterworth and Dudley, 1984). Thus, while it is not clear with which prior estimate(s) the most recent estimate should be compared, the new estimate is lower than all previous estimates; there is no evidence that the blue whale has even begun to recover in the Antarctic, despite 20 years of complete protection.

As noted by NMFS Chief Scientist Michael Tillman in a letter to Ocean Science News, the IWC Scientific Committee had time at the meeting only to take a very cursory look at the estimates. Tillman concludes that "the utility of these estimates is in great doubt at this stage" and advises that judgment be held until the Scientific Committee has had time to examine the estimates and their derivation in detail. Caution would seem to be in order; in some quarters, more faith is being placed in the estimates than the authors themselves are willing to place in them. In any case, the estimates are not encouraging, and the topic most certainly will come up again at the IWC meetings in the Netherlands next year.

The authors' address is Department of Applied Mathematics, University of Cape Town, Rondebosch 7700, South Africa.



JAPAN PORPOISE CATCHES NOT SUSTAINABLE

Japanese catches of Dall's porpoise tripled from 1987 to 1988, possibly as a result of reduction in whale catches. The following is from the report of the IWC Scientific Committee for 1989:

"The Committee is extremely concerned about the great increase in take of Dall's porpoise in the Japanese hand-harpoon fishery, from about 13,000 in 1987 to about 39,000 in 1988 (SC/41/ProgRep Japan). There is evidence that the porpoise meat is being substituted in commerce for whale meat because of the decrease in access to large whales. The take is from two stocks in unknown proportion, estimated to contain about 105,000 porpoises in the aggregate..... There may be some over-reporting involved in the 1988 estimate, but other catches in an international gillnet fishery are not included. The Committee concludes that the present take is clearly unsustainable. Depending on the stock composition of the catch, the situation may be even worse for one of the stocks than immediately apparent.

"The Committee believes that it is urgent that the catch be reduced at least to the levels of previous years (which themselves may have been too high) and that assessments of status of the stocks be carried out, to determine safe levels of catch for the two stocks independently. It recommends that catch statistics be collected and reported on a stock-by-stock basis, and that the Republic of Korea be requested to report by-catches of Dall's porpoise (and

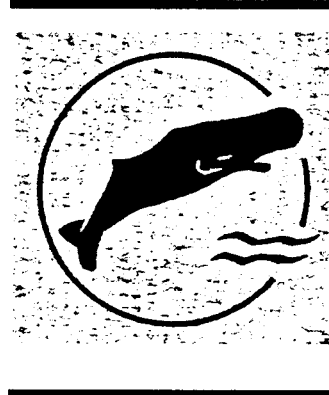
other cetaceans) in its squid gillnet fishery to the IWC."

The IWC has chosen to demur on the question of management mandate for small cetaceans; currently it only allows its Scientific Committee (on a low-priority basis) to receive and review scientific information and make recommendations, which have no force and are not considered substantively in the Commission per se. Because of this international management vacuum and because of concern about rising Japanese catches of Dall's porpoise and other small cetaceans, the CSG is adding a project to its Action Plan:

"39. Convene workshop to assess small cetaceans exploited by Japan (\$16,000)

Several small cetaceans may be seriously over-exploited in the western Pacific. In 1988 Japan took over 33,000 Dall's porpoise in harpoon fisheries. This is clearly unsustainable if the current estimates of the total population of the two or more stocks involved of about 110,000 is correct (IWC, 1989). Concern has also been expressed about increased takes of Baird's beaked whales and pilot whales. The small-cetacean meat is being substituted for large-whale meat in commerce as the Japanese access to the great whales declines. The small cetaceans are not managed by the IWC. Although national quotas have been set by Japan for beaked whales and pilot whales, these may be too high, and the Dall's porpoise take has been largely unregulated. A workshop meeting involving international small-cetaceans experts and experts in whale assessment and management is needed, to assemble and review the existing data, to iden-

tify and plan needed research to achieve adequate assessments, and to formulate recommendations for interim management."



RESIDENT BLUE WHALES OFF CENTRAL AMERICA?

Steve Reilly and Vicky Thayer of the Southwest Fisheries Center in La Jolla, California recently completed a study of blue whale sightings extracted from two decades of cetacean sightings by observers in the eastern Pacific and have concluded in a paper to be presented at the marine mammal conference in Monterey in December that a resident population of blue whales may inhabit waters off Central America. All 211 sightings of blue whales examined occurred in "relatively cool, productive upwelling-modified waters, along Baja California, the equator near the Galapagos Is., the coasts of Ecuador and northern Peru, and around the Costa Rica Dome (a large, stationary eddy centered near 9 degrees N, 89 degrees W). Occupation of the most productive parts of the ETP, all with relatively large standing stocks of euphausiids, indicates that blue whales may select low latitude

habitats which also permit foraging. The waters off western Baja California were occupied seasonally, with a sightings peak coinciding with the spring peak in upwelling and biological production. The Costa Rica Dome area was occupied year round, suggesting either a resident population, or that both northern and southern hemisphere whales visit, with temporal overlap and potential for interbreeding." They propose that the identity of the whales in the Costa Rica Dome be determined by following the movements of individual whales, by photo-identification or satellite-based tracking. Further information can be had from the authors at P.O. Box 271, La Jolla, California 92038, U.S.A.

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