

# Sirenews



## Newsletter of the IUCN/SSC Sirenia Specialist Group

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- NEW LIGHT ON MANATEES IN CUBA (p. 5)

EDITORIAL: EARTH DAY 1990

April 22, 1990 has been designated as Earth Day - in fitting and timely acknowledgement of the planet whose future is so much in doubt at the start of this new decade. Environmentalists want this to be a Decade of the Environment, and it will be, for better or worse: it may be remembered as the decade in which our environment started repaying us in kind and in earnest for our assaults on it. But whatever justice there may be in this will be a perversely blind justice, for our species will not be the only one to suffer if we bring down the roof on our own heads. Meanwhile, we continue as usual our more direct attacks on our fellow species.

In the very first days of 1990, the manatee population in Florida suffered a sickening blow, due to unusually cold weather in the preceding weeks. In the month of January, 73 carcasses were recovered - comparable to the total of any entire year in the late 1970s. Such natural disasters must be expected every few years, but coming on top of record and still sharply rising human-caused mortality, the population can no longer afford them. It may even be premature to absolve humans from all blame in this



UNION INTERNATIONALE POUR LA CONSERVATION DE LA NATURE ET DE SES RESSOURCES  
INTERNATIONAL UNION FOR CONSERVATION OF NATURE AND NATURAL RESOURCES

Commission de la sauvegarde des espèces—Species Survival Commission

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instance, given the known changes in migration patterns caused by artificial warm-water sources, and the possibility of other, unsuspected factors. Beyond dispute, though, is the human responsibility for at least 58 of the unprecedented 166 manatee deaths in Florida last year.

This newsletter is aimed at specialists in a single taxonomic group of only four living species. On this narrow front, the news is sometimes encouraging, sometimes (as above) grim; but elsewhere there are far grimmer reverses in progress. If estimates of destruction in the tropical rainforests are to be believed, more species are wiped out there in a single day than the Order Sirenia presently contains - more, perhaps, by an order of magnitude. While working on behalf of manatees and dugongs, we must also help whenever we can in other phases of the conflict - especially by seizing opportunities to raise environmental consciousness in our respective communities and nations.

As has often been said in these pages before, that consciousness needs raising most of all on the issue of human population growth. Almost every nation on earth needs, but lacks, an official population policy aimed at reducing its present population - starting with the United States, which devours far more than its fair share of the world's resources and where political leadership on this issue is so shamefully lacking. Every nation must begin forging an explicit consensus as to its optimum population, and then set about reaching that population level through explicit national goals (such as the two-child or one-child family) and social policies (such as tax incentives) designed to achieve those goals.

Florida is in many ways a microcosm of the U.S. In both, population growth is now mainly the result of immigration; and neither can continue to absorb immigrants at the present rate. In the case of immigrants to the U.S. as a whole, the humane remedy is to improve living conditions in their home countries so that they have no reason to leave. But it will never be possible to provide the 5.25 billion people now alive with the standard of living now prevailing in the U.S. and other overdeveloped countries. In fact, the American society of 1990 is itself not sustainable. It is sustained now, artificially, only at the expense of poorer nations. If a uniform worldwide standard of living can someday be achieved, how low a standard will the human race be willing to accept? When (not if) we all finally have to acknowledge the limits to our resources, and choose between a lower per-capita standard of living or a smaller population, we will regret that we did not start far sooner on the latter course.

As long ago as 1972, the Rockefeller Commission concluded that it saw no benefit from further population growth in the United States. That was some 40 million Americans ago - roughly the present population of Nicaragua, Honduras, and all the Caribbean islands combined. Our politicians have still not gotten the message. More disturbingly, over the last decade even some environmental groups in this country have shied away from the population issue - a clear instance of political cowardice, since they, unlike many politicians, cannot plead ignorance of the facts. It is part of our job as scientists and stewards of the

biosphere to educate and persuade these influential elements in our societies, and this Earth Day is not a bad time to begin or redouble our efforts. - DPD

TOM O'SHEA HONORED  
FOR MANATEE RESEARCH AND CONSERVATION EFFORTS

Dr. Thomas J. O'Shea, Deputy Chairperson of the Sirenia Specialist Group, has worked on the U.S. Fish and Wildlife Service's Sirenia Project in Gainesville, Florida for about 11 years, and has headed the Project since 1985. Recently he was recognized for the hard and often frustrating work that he has devoted to manatee research and conservation over the past decade. On February 21, 1990, at a ceremony at the Sirenia Lab in Gainesville, he was presented with a special plaque acknowledging his service. The plaque, which was embellished with a section of fossilized rib of one of Florida's extinct dugongids, was inscribed "In appreciation for your efforts to prevent the extinction of the Florida manatee, from the IUCN Sirenia Specialist Group, 1990."

This honor is a well-deserved tribute not only to Tom but to all the current members of his team and all those who have worked on the Sirenia Project over the nearly two decades of its existence. They have been responsible for major advances in our knowledge of sirenian biology, knowledge which is now being applied to management decisions on a daily basis. The Sirenia Specialist Group thanks them all for their past and continuing dedication, and looks forward to their future discoveries. Well done, Tom!

NEW SIRENEWS FAX NUMBER

Anyone wishing to send communications to Sirenews by FAX is requested to use the following number: 202-636-5523. All communications should be clearly addressed to "Dr. Daryl Domning, Dept. of Anatomy"; addressing them to "Sirenews" is not sufficient.

LOCAL NEWS

AUSTRALIA

"Dugongs in Deep Water". - Notwithstanding the evidence cited by Helene Marsh (Sirenews No. 12) and the fact that many of the sightings in the recent Shark Bay survey were (to my surprise) in waters with charted depths greater than 11 m, a note of caution may be in order. Observation of feeding dives in Shark Bay shows that the length of the dive cycle (submerged plus surface time) increases dramatically with depth. When depth is 2 m or less, dive cycles fall in the 45-90 second range (including a surface time of 1-2 s), and an individual may complete in excess of 40 feeding dives per hour. At depths of 11-12 m, dive cycles may average 420 s and surface times may be over 60 s, limiting an individual to fewer than 10 dives per hour. Moreover,

animals feeding in 11-12 m of water show what appear to be signs of stress (resting near the surface and breathing deeply and repeatedly between dives, "exploding" to the surface at the end of a dive). These indications of reduced foraging efficiency and high cost as depth increases lead me to doubt the favorability of deep water habitat. The proportionately longer surface time also suggests that when dugongs do feed in deep water they may be more available to aerial survey enumerations. This would bias estimates of both numbers and habitat preference. - Paul Anderson

Dugongs in Deep Water: A Reply. - The results of recent aerial surveys suggest that deep-water seagrass meadows are a feature of most of the major dugong areas in Australia. A significant proportion of dugong sightings in the Stracke River region (>30%), Torres Strait (>20%), Hervey Bay (>25%), and Shark Bay (>60%) have been in water between 10 and 20 m deep. To date, extensive deep-water seagrass meadows have been confirmed at all these places except Shark Bay, which needs to be investigated further. As Paul Anderson points out, the proportion of animals which are using these deep-water areas is unknown, as we lack information on the relationship between diving and surfacing times for dugongs at different depths. I have recently applied for funds for Tony Preen to conduct a study entitled "The importance of deep-water seagrass meadows to dugongs." We plan to use both satellite tracking and time depth recorders on dugongs in Hervey Bay. It is the easiest of these areas to work in, and has the most pressing management problems as it has by far the largest level of human use. - Helene Marsh

[EDITOR'S NOTE: Readers may find interesting a record of a dugong feeding in deep water off New Ireland, Papua New Guinea, where T. R. Williams (Cryptozoology 4: 61-68, 1986) reported surfacing "in periods ranging from 8 to about 11 minutes" in water 40-50 feet deep. Unfortunately the lengths of times spent at the surface are not stated.]

Dugongs Sighted on Remote Offshore Reef. - Dr. Terry Done of the Australian Institute of Marine Science reported sighting a dugong cow and calf from a boat during a scientific expedition to Ashmore Reef in November 1989. Seagrasses of the genera Thalassia and Thalassodendron occur on Ashmore Reef, which is in Australian territorial waters about 400 km off the northern coast of Western Australia and about 140 km from Timor. - Helene Marsh

Traditional Hunting by Urban Aborigines and Islanders in Australia. - In Australia, Dugongs are protected by State and Federal legislation. Only indigenous people are allowed to hunt them, and trade in dugong products is illegal. Apart from these overall restrictions, the situation differs somewhat in different areas. The law is most restrictive in Queensland, where only Aborigines and Islanders living in Trust Territories (formerly Reserves) are automatically allowed to hunt under State law, although they still require a permit to hunt in the Great Barrier Reef Marine Park.

In May 1989, four native Torres Strait Islanders with the remains of a dugong and a green turtle in their boat were apprehended by fisheries patrol officers. All the hunters are now resident in the coastal city of Townsville near where they had caught the dugong, and are therefore ineligible to hunt dugongs (or sea turtles) without special permits. The Islanders were charged with taking protected species. The case has proceeded to trial, but is currently adjourned. The hunters explained that they procured the animals for a feast to be celebrated in honor of their uncle who had recently died. They maintained that it is their tradition to feast on dugongs and turtles on such occasions.

The case has also been brought before the United Nations by the Aboriginal Development Commissioner, who said that the law restricting indigenous people from hunting dugongs and turtles just because they did not live in a Trust area was "offensive to Aborigines and Islanders".

The situation is complicated by the large-scale movements of Aborigines and Islanders from their traditional lands to cities and towns. The results of the 1986 census of Australia indicate that the Islander population of the Torres Strait region is about 5000, close to the estimated population at the time of European contact. However, the Torres Strait Islanders have increased rapidly over the last 25 years and have emigrated in large numbers to the mainland for economic reasons. Thus there are now more than 4000 Islanders living in the coastal cities bordering the Great Barrier Reef Marine Park from Cairns south. These cities also have a combined Aboriginal population of over 9000.

The dugong population of the Great Barrier Reef Marine Park from Cairns south is much less than that of Torres Strait. On the basis of aerial surveys, I estimate that there are some 12,500 dugongs in Torres Strait (mainly in the Western Straits, which are hunted mainly by Islanders rather than Papuans). This represents a ratio of about 2.5 dugongs per Islander. The corresponding estimate of the number of dugongs in the Great Barrier Reef region from Cairns south is 3500, or 0.27 dugongs per indigenous person. The differences in the dugong numbers in the two areas reflects the availability of suitable dugong habitat, and their relative importance to dugongs has probably not changed since European contact. Thus we now have the unfortunate situation of a change in the relative numbers of potential predators and their prey, largely as a result of movement of the predators.

I await the outcome of the court case with some trepidation. I fear it will be the first of several attempts to bring the law in Queensland more in line with those in other states. All Aborigines and Islanders could then be allowed to hunt dugongs, irrespective of the conservation implications of their doing so.

- Helene Marsh

CUBA

Distribution and Status of Manatees in Cuba. - Lourdes T. Ferrer (Centro de Investigaciones Pesqueras, Habana) and Alberto R. Estrada report that they have completed an interview survey of

manatee distribution along the entire coastline of Cuba. A total of 293 fishermen and other persons engaged in water-related activities reported having seen manatees. Of the most recent sightings by each interviewee, 58% had occurred in the 12 months immediately preceding the interview. Sightings were concentrated in 12 areas around the coasts of Cuba and the Isla de la Juventud, especially in or near estuaries and river mouths, and were somewhat more frequent during the rainy season (May to October). An interesting aspect of the interviews is that many interviewees believed that females with nursing young seek safe and secluded places in estuaries, channels, and lagoons where they can leave their calves during the day while they go in search of food. Presently the mothers return and feed their young. These reports have not been verified by direct observation; however, a reported aerial observation of a group of calves in a river (see below) may be significant in this regard. Manatees were perceived by 58% of the respondents as having increased in numbers over the last 10 years; only 18% thought their numbers had diminished. Causes of manatee mortality seemed to be primarily accidental, with entanglement in fishing nets being the predominant cause reported.

These data are supplemented by the results of aerial surveys undertaken in 1985-87 by Carlos Wotzkow (Museo Nacional de Historia Natural). Series of flights were made over two different stretches of the south coast of Cuba, each about 90 km long: the Ensenada de la Broa, and the south coast of Sancti Spiritus Province. Manatees were sighted a total of 98 times in the course of 15.25 hours and 2415 km of survey: 59 sightings (9.5 hours, 1425 km) in the former area and 39 (5.75 hours, 990 km) in the latter. The maximum number sighted on any one flight was 14 in the former area and 11 in the latter. Only two calves were seen in each area during the surveys; on another occasion, however, a group of 14 animals interpreted as juveniles was seen by a pilot in the Rio Hatiguanico. Although observed several times in the lower parts of larger rivers, manatees were never seen more than 150 m from the coastline, despite the presence offshore of abundant beds of Thalassia. Manatees are legally protected in Cuba, populations of sharks (potential manatee predators) have been reduced by intensive commercial fishing, and efforts are made to apprehend illegal fishermen who might take manatees; however, there still remain threats to the manatee population from pollution, accidental entanglement in nets, and deliberate poaching.

The unconfirmed reports of cows leaving their calves unattended in secluded places deserve further investigation. Such behavior has been suggested by Ed Asper (in Reynolds, Mammalia 45: 443, 1981), but has not been confirmed for Florida manatees either. Even if these reports prove to be illusory, they should serve to remind us of how few observations of wild manatees by biologists have actually been made. Further study of the relatively little-known Antillean subspecies could well reveal behavior patterns that are less common or absent in other taxa or in other parts of the West Indian manatee's range. If the Sirenia Specialist Group were to select an official motto, I would propose: "Never underestimate a sirenian." - DPD

## FLORIDA

Seagrass Ecology and Manatee Habitat Protection. - The National Ecology Research Center Sirenia Project is cooperating in a study on seagrass ecology led by personnel of the National Marine Fisheries Service, Southeast Fisheries Research Center, Beaufort, North Carolina. The Bureau of Marine Research, Florida Department of Natural Resources, is also involved in the project. Seagrass is an important food for manatees year-round, but is especially relied upon during winter cold periods by manatees aggregating at warm water refuges on the east coast of Florida. Hobe Sound and Jupiter Sound, the seagrass study areas, provide significant winter foraging sites for manatees migrating to and from warm water sources in southeast Florida.

The cooperative agreement among Federal and State agencies was prompted by concern for the degradation of water quality and a coincident decline of seagrasses in estuaries throughout the southeastern U.S. Florida has by far the largest amount of tropical and subtropical seagrasses in the U.S. Some seagrass declines have been attributed to the adverse effects of elevated levels of water turbidity, which reduce the amount of light available to submerged vegetation. This study has characterized the submarine light regime and determined the degree of light attenuation under various environmental conditions in Hobe Sound. Water clarity tended to be poorest in the winter and to improve during the spring and summer. The worst conditions occurred after the passage of Hurricane Floyd in October of 1987. Improvement in water clarity closely tracked the increase in salinity to normal sea water levels, indicating that tidal flushing is a critical aspect in maintaining water clarity in the lagoon. Recovery to pre-storm conditions took about 70 days.

Preliminary estimates indicate that between 15% and 20% of the subtidal area is vegetated by the co-dominant seagrass species, Halodule wrightii and Syringodium filiforme, which do not occur beyond a depth of 2 m in Hobe Sound. About two-thirds of the lagoon's bottom is between 2 and 3 m in depth, well within the depth limit of these seagrasses in clear tropical waters. Submerged seagrass in Hobe Sound usually receives 20% or more of the incident light, indicating that seagrass light requirements may be greater than previously estimated, and are certainly greater than that allowed under current water quality standards. Researchers collected data weekly on boat traffic, wind speed, and light attenuation in Hobe Sound to determine the relative contributions of boat wake-wave and wind-wave energy to water turbidity. Vessel wake waves approximately double the amount of wave energy in the lagoon and could be a major source of sediment and organic matter resuspension. Instantaneous measurements of the formation of turbidity plumes following the passage of wake waves also support this conclusion. The removal of boat wake-induced turbidity could result in the conservation and enhancement of the seagrass beds in Hobe Sound, benefiting manatees and many other aquatic species. Martin County has already made use of the study results to support an idle speed zone for boat traffic outside of the channel in Hobe Sound, and

two Water Management Districts are planning to extend the methods pioneered in Hobe Sound to seagrass communities elsewhere in Florida. - Lynn Lefebvre and Jud Kenworthy

The Manatee Technical Advisory Council. - Manatee research and management efforts carried on by the State of Florida are the responsibility of the State's Department of Natural Resources (DNR). Ten years have now passed since the genesis of the Manatee Technical Advisory Council, the body officially charged with advising DNR on the conduct of its manatee activities. A look at the history, philosophy, and functioning of this unique organization may be of interest in other parts of the world where sirenian protection efforts are in progress.

The Council was created in 1980 at the urging of the U.S. Marine Mammal Commission (an independent watchdog agency of the Federal Government), and with funds provided to DNR by the Commission. Its first meeting was held in June 1981. The members are appointed by the Executive Director of DNR, often on the recommendation of the Council itself, and serve without salary for indefinite terms. At present the Council has 8 members, representing a broad variety of backgrounds: a member of the State House of Representatives; a concerned citizen and spouse of a State Senator; an attorney, lobbyist, and former DNR official; a prominent conservationist and former Assistant Secretary of the Federal Department of the Interior; a practicing ophthalmologist and interested citizen; the Executive Director of the Save the Manatee Club (a private lobbying and fundraising organization); a biologist employed by the Florida Power and Light Company (which operates many of the power plants used by manatees as warm-water winter refugia); and a sirenian biologist from an out-of-state university. DNR provides the Council with staff support.

The Council generally meets two to four times a year at different locations in Florida, which often provides the opportunity for field trips on which the Council members can personally inspect sites currently of importance to manatee protection. The meetings are open to the public and typically last about half a day. They are routinely attended by representatives of DNR, the U.S. Fish and Wildlife Service, the Florida Marine Patrol, and other agencies involved in manatee research and/or conservation. The agenda typically consists of briefings by these representatives on their agencies' manatee-related activities since the last meeting, followed in each case by general discussion, and often by specific recommendations in the form of resolutions of the Council. Formal minutes of all meetings are kept.

In view of the Council's name, it might appear that its actual makeup is short on the required expertise in manatee biology. Such an inference, however, would be mistaken. The issues coming before the Council are almost always administrative or political rather than biological in nature - a reflection of the basic fact that it is not manatees but people that need managing. Therefore, the technical expertise which the Council needs, and has, is primarily expertise in the techniques of environmental legislation and public administration. The needed scientific input is readily available at Council meetings thanks



to the regular attendance of leading manatee biologists from the federal, state, and other entities active in Florida.

In recent years, with the increasing shift of manatee responsibilities from the federal to the state government, DNR's advisory council has come to have increasing strategic importance. However, the attendance at its meetings of representatives from other agencies has proven to have an importance at least equal to that of the Council's own deliberations. Since their inception, Council meetings have provided an informal but extremely useful forum for interagency communication and coordination. Under the auspices and scrutiny of the Council, disagreements, friction, and misunderstandings within and among DNR, the Fish and Wildlife Service, the Marine Patrol, the Save the Manatee Club, the Army Corps of Engineers, Florida Power and Light, and other organizations have been aired and resolved. In other words, although the Council's mandate is nominally restricted to advising DNR and Florida's Governor and Cabinet, in practice it has been able to influence manatee-related affairs in a much wider arena, often merely by getting other organizations to talk to each other. This has contributed significantly to the climate of interagency cooperation and teamwork which is the hallmark of the manatee protection effort in Florida - in welcome contrast to the conflicts and rivalry that too often beset work on other species and in other places by the same and similar organizations. - DPD

WASHINGTON, D.C.

Sirenian Bibliography Update. - The computerization of my hand-written bibliography and index of the sirenian and desmostylian literature has been completed, and all the data are now in machine-readable form. As of this writing, the database comprises 3,996 main entries (bibliographic references alphabetized by author) and 11,921 index entries filed under a total of 1,003 different subject headings. Over 40% of the main entries are fully indexed and annotated; each of these is indexed under anywhere from one to as many as 124 subject headings. Many of the remaining main entries are partially indexed and annotated. The main task to be completed before publication is the full indexing of as many of these as time permits; emphasis here is being placed on those works most important to the study and conservation of living sirenians. I expect to cut off this activity arbitrarily sometime in the early fall, and then generate a camera-ready hard copy for publication. Implication: If you want your latest work included, please send me reprints as soon as humanly possible! - DPD

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