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ENDANGERED SPECIES

Technical Bulletin Insert

Wildland Management Center
The University of Michigan

From the World Wildlife Fund-U.S.

HUMPBACK SONGS: An Alluring Tool For Man And Beast

Humpback whales, a species of baleen whale, share a unique characteristic with man: they can both initiate and compose songs to sing to each other. It goes even further; whales compose songs according to laws of composition that are remarkably similar to those employed by human composers. It is this unique ability of humpbacks to revise song, and its relatively recent discovery and unexpected significance that we shall explore.

Dr. Roger Payne, currently Research Scientist for World Wildlife Fund-U.S. (WWF-US), demonstrated, in 1968, that humpback whales near Bermuda (most probably a way station for whales migrating between feeding and breeding areas) make complex sequences of sounds in repeated patterns or "songs." While we cannot definitively state the purpose of this singing, one clue to its function is that songs

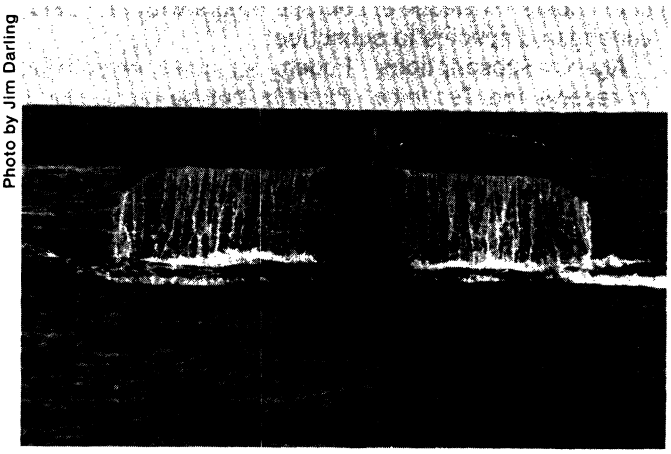


Photo by Jim Darling

are rarely heard except in breeding areas. Peter Tyack and James Darling (both WWF-US grant recipients for this work) feel that males sing to challenge other males who are potential competitors. In addition, Tyack feels they also sing to attract females as potential mates. Whales from one ocean which congregate on a single breeding ground are found to have split into distinct feeding aggregations by the time the whales reach the feeding grounds. It is also worth noting that individuals very rarely, if ever, feed on more than one feeding ground.

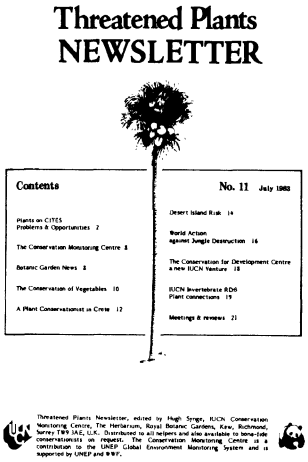
After the initial discovery of singing humpbacks, Payne's wife, Katharine, later found that the whales continually modify their songs, usually finishing a complete transformation every four years. Why humpbacks continually modify their tunes is not yet fully understood, but it is clear that humpbacks progressively change song patterns over time and adopt each other's material. Moreover, whales on widely seperated breeding grounds have been recorded singing the same songs, and individuals (identified through photographs of unique color patters on their flukes) have been seen in different breeding areas in different years. This suggests that separate feeding stocks intermingle to breed (although no one has ever seen breeding). They may also intermingle during the course of migration, but they segregate on distinct feeding grounds.

Until 1982, when several groups of researchers including the Ocean Research and Education Society (ORES), with WWF-US funding, failed to document photographically the mixing of individual feeding stocks in the North Atlantic, there was no evidence that stocks only intermingle to breed or migrate. What we now believe to be four separate North Atlantic feeding stocks include those off: 1) West Greenland (Davis Strait), 2) Gulf of Maine (off Nova Scotia), 3) Newfoundland, and 4) Iceland.

Variations in fluke pigmentation have been widely used as a humpback stock indicator. Yet current reports from western north Atlantic researchers indicate that some tails can change color significantly over the course of a humpback's lifetime. Since matched photographs have con-

IN THE NEXT TECHNICAL BULLETIN INSERT

Information on the *Threatened Plants Newsletter*


Threatened Plants
NEWSLETTER

Contents No. 11 July 1983

Threatened Plants Newsletter, edited by Hugh Synge, IUCN Conservation Monitoring Centre, The Herbarium, Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AE, U.K. Distributed to all helpers and also available to bona fide conservationists on request. The Conservation Monitoring Centre is a contribution to the UNEP Global Environment Monitoring System and is supported by UNEP and WWF.

Humpback Songs—

Continued from page 1

stituted the evidence for whale movements between areas, failure to identify a changed individual after the change has occurred is not an error of commission, but one of ommission. This error simply reduced the data upon which the above conclusions were based.

Data on whales' songs and tail flukes support the conclusions that are being drawn, of what constitutes a whale "stock" and how these species migrate. Since dialects vary from breeding stock to breeding stock (from one song pool to another), the significance of singing whales is not only that of yet another wonder of the animal kingdom, these songs may currently provide the most practical and accurate technique for stock assessment, one of the most important steps in setting hunting quotas for this species.

During the summer of 1983, the ORES party identified a whale off West Greenland (Davis Strait) that Payne had seen off Bermuda in 1968. This West Greenland stock is still being hunted by Greenland aboriginals who are killing the same whales whose haunting songs, recorded by Payne, have become known the world over. And, from the remarkable decline in whales now seen by Payne off Bermuda, this stock seems to be in a state of collapse. It also may be the same feeding aggregation hunted in a satellite Caribbean breeding area by the inhabitants of Bequia, an island off St. Vincent in the Grenadines, where as many as six humpbacks have been taken in a single year.

With progressively smaller stocks of migrating humpbacks that pass Bermuda, the chances for the demise of the already endangered West Greenland feeding aggregation are continually greater. What all this means concerning the four separate North Atlantic feeding groups is that not only do whaling quotas greatly affect each feeding stock, but they adversely affect the entire Atlantic humpback population. For example, if a fifth feeding aggregation that used to appear off Northern Europe (now at or close to extinction) is ever to recover, it will likely do so through an eastward spillover from the West Greenland population. If, then, the West Greenland population is allowed to collapse, the process of repopulation could be set back by 50 years or more.

While more data has to be compiled for humpbacks off West Greenland, Bermuda, and Bequia, the newly released ORES report (also funded by WWF-US) of a West Greenland humpback stock estimate of 283 indicates that the International Whaling Commission should strongly consider substantially lowering the annual West Greenland quota of nine. If the songs of humpback whales can be used to provide the declining stock proof necessary for this to be accomplished, then the work of Roger Payne and his colleagues not only enriches our knowledge of our world's musical repertoire, but could also help ensure the survival of one of our most remarkable animals.

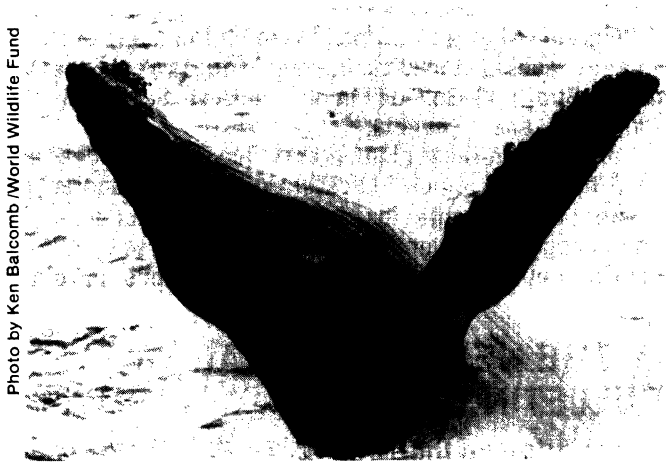


Photo by Ken Balcomb /World Wildlife Fund

Technical Bulletin Insert

A forum for information exchange on endangered species from

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Richard Block ..... Editor

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It is important that you include your name, address and phone number with your communications. If you have referenced a publication, please provide adequate information on how to obtain the materials.

-Insert Editor

IN THE NEXT ISSUE OF THE TECHNICAL BULLETIN

. . . Kentucky Cave Shrimp
. . . Eight Ash Meadows Species Proposed as Endangered
. . . Listing the Chihuaua Chub as Threatened
. . . Reclassifying Alligators in Texas
. . . Proposing the San Benito Evening Primrose as Endangered
. . . Delisting the Santa Barbara Song Sparrow (Extinct)

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The proceeds support the Seychelles Islands Foundation Endowment Drive.

SPECIAL THANKS

We are indebted to Mike Bender, editor of the Technical Bulletin, for his cooperation and assistance in developing this alternative subscription program. Rob Wilke, a graduate student in the School of Natural Resources, has helped organize the pilot mailing list and created the computer file for subscriptions. Ellen Lambeth, also a graduate student in the school, has helped prepare *Insert* copy.

OF INTEREST . . .

Nature Conservancy News (Nov/Dec/1983) is dedicated entirely to the subject of endangered species.

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