

BUCHBESPRECHUNG

BURNS, J. J.; MONTAGUE, J. J.; COWLES, C. J. (eds.): **The Bowhead Whale**. Lawrence, Kansas: Society for Marine Mammalogy, Spec. Publ. No. 2, 1993. 787 pp., numerous figures and tables. US \$ 75,-. ISBN 0-935868-62-3

This outstanding book deals with *Balaena mysticetus*, the "bowhead", "Greenland", "Arctic", "polar" or "right whale". It is authored by 37 contributors and represents the result of seven years of preparation. The present reviewer can only hope that the book is not a voluminous "obituary". On page 548 W. G. Ross writes: "No one can confidently say that the stocks . . . will survive." The minimum total estimate of the population of this species for the time before commercial whaling in the early 16th century amounts to about 50 000 bowhead whales in the Bering and Okhotsk Seas, Spitsbergen, Davis Strait, Hudson Bay (WOODBY and BOTKIN, p. 404). The present-day stocks amount to about 8000 animals, of which 7500 live in the Bering Sea (ZEH et al., p. 480).

In an introductory chapter MONTAGUE introduces programs of research, US legislation and policy and study projects dealing with bowhead whales. NIEBAUER and SCHELL introduce the reader to the physical environment of the Bering Sea. Of general interest is a detailed chapter by McLOED et al. dealing with evolutionary relationships, paleontology and systematics of the species. A chapter by HALDIMAN and TARPLEY compiles information on anatomy and physiology. Although the chapter comprises 85 pages, only very little physiological information can be presented. In spite of technical difficulties related to visual observations and acoustic records with the help of hydrophones, WÜRSING and CLARK are able to give an informative account of bowhead behavior. LOWRY presents information on the bowhead food, which consists mostly of copepods and euphausiids. His chapter addresses the still unanswered question why the Bering Sea stock periodically leaves highly productive areas and migrates for 3000 km into less productive waters farther north.

For reasons of conservation and to understand population dynamics, an account of reproductive biology as presented by KOSKI et al. is essential. It is interesting to note that average females of *Balaena mysticetus* become sexually mature when they attain a body length of 14.2 m. On the other hand, males already mature at a total length between 12 to 13 m. In Barrow, Alaska, PHILO et al. were able to study morbidity and mortality of bowhead whales. Mortality as a result of Eskimo subsistence hunting, as well as parasitic infections, wounds, ice entrapment and other factors are documented.

After the species' distribution and migratory movements are discussed by MOORE and REEVES, two chapters deal with bowhead stocks before the beginning of commercial whaling (WOODBY and BOTKIN) as compared to the current population size (ZEH et al.). The comparison of data is tragic. For example, before commercial whaling a minimum of 24 000 animals lived in the waters around Spitsbergen. Human activities have been so "effective" that today's number lies "in the tens"! The picture becomes even more gloomy when the results of feeding and especially growth intensity are considered, as indicated by measurements with stable isotopes: Bowheads grow very slowly and reach sexual maturity at an age of about 20 years (SCHELL and SAUPE)!

Historical aspects of animal numbers are considered in the three following chapters: Commercial whaling in the North Atlantic (ROSS), the North Pacific (BOCKSTOE and BURNS) and modern subsistence whaling by Eskimos (STOKER and KRUPNIK) are discussed. It is very probable that hunting by North American aboriginal people influences the bowhead stock negatively. RICHARDSON and MALME discuss the influence of man-made noise (e.g., oil-drilling, ships, aircraft), and BRATTON et al. deal with potential effects of chemical contaminants on health and survival of this species.

In an epilogue BURNS emphasizes three points, which he considers important future research needs: a. The role of fermentation in digestion and energetics of bowhead whales. b. Determination of bowhead distribution in ice-covered waters with the help of acoustical monitoring. c. Integration, synthesis, and assessment of environmental and biological data about bowhead whales and their habitat.

Each chapter is followed by a detailed list of references. These as well as two indices, a geographic and a general one, make the impressive wealth of information contained in this monograph on a fascinating mammal readily accessible.

P. LANGER, Gießen

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Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Mammalian Biology \(früher Zeitschrift für Säugetierkunde\)](#)

Jahr/Year: 1993

Band/Volume: [58](#)

Autor(en)/Author(s): diverse

Artikel/Article: [Buchbeschreibungen 384](#)