

DEDICATION

Donald Evan McAllister, 1934–2001

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Marine Fishes of Arctic Canada is dedicated with affection and respect to Don McAllister in recognition of his contributions to the study of Arctic marine fishes and in acknowledgment of his decades of work that formed the foundation and impetus of this book.

Don was hired as Curator of Fishes at the National Museum of Canada (now the Canadian Museum of Nature, Ottawa) on 1 August 1958. His primary research endeavour for the next thirty-six years was centred on Arctic marine fishes. His aim was to complete a book in monographic form on this fauna to complement and improve on others that had appeared on Pacific coast fishes (1946, rewritten in 1973), Atlantic coast fishes (1966, rewritten in 1988), and freshwater fishes (1973).

Don published forty-nine articles relevant to Arctic marine fishes, as well as others not listed here on freshwater fishes in Canada's north. He was the first author on thirty-five of these and collaborated with twenty-four co-authors. The numbered bibliography below forms an outline of his research in this field.

He began publishing on the Arctic in 1960 with a preliminary, annotated checklist of Canada's marine fishes² followed by keys to the Arctic fishes³. The latter benefited from Don's first foray into Russian¹, a language Don taught himself to read so that he could access works complementary to his studies on Canadian Arctic fishes.

The Canadian Museum of Nature's collections in 1958 comprised only 4,368 specimens from all of Canada and the rest of the world. Don planned and carried out fieldwork to enhance this limited material base, with particular emphasis on Arctic marine fishes, eventually making the museum's collection of the latter the best in the world. He made several expeditions, among them one to the Herschel Island area in the Yukon with J.G. Hunter on the M.V. *Salvelinus* in 1960⁵, where thirty species of fish were taken and new records and taxonomic decisions were made. Other expeditions were taken with museum colleagues Edward L. Bousfield in 1961⁶ along the southeastern Alaska coast, and Arthur H. Clarke in 1963^{10,11} on the east coast of Hudson Bay (the "Tnuk Expedition"). Don not only collected fishes from the shore and from boats but, as an avid scuba diver, also collected under water. Under Don's direction, staff and contractors participated in or carried out many

subsequent expeditions. Continuing work, and the need for work in the Arctic, based on the materials collected was conveyed to peers in various papers, notes, and presentations^{15,17–18,23,32,39–42}. He was to have been an editor of this book before his untimely death, and his last article on the Arctic was a poster presentation on this project⁴⁹. At 14 January 2013, the Canadian Museum of Nature's collection of Arctic marine fishes stood at 4,777 collection lots and 57,623 specimens.

In the days before online collection databases, Don summarized the museum's holdings of Arctic fishes in two publications: one listing all the marine fish species, with curatorial assistant Michèle Steigerwald, in 1982³¹; and one mapping solely Arctic fishes in a distributional atlas³³. The former summarized the Arctic holdings at that date as 135 species, 4,410 collections, and 53,742 specimens, a tremendous increase from twenty years before, when one recalls that this was only part of the collection's growth. The latter was also co-authored with Michèle Steigerwald and in particular with Jerry Hunter and Shirley Leach, both members of the Arctic Biological Station, DFO, with whom Don had a long-term collaborative relationship in accessioning and identifying collections from DFO research activities in the north. Type-specimens in the fish collection were detailed in 1965¹² and included, for example, the holotype of *Cyclopterus lumpus hudsonius* from Fort Churchill, Hudson Bay.

Specimens were often collected, preserved, identified, labelled, catalogued, shelved, retrieved, measured, counted, and re-shelved alone in the early days. Don catalogued the new material using an original and innovative system he had developed that also recorded ecological data as well as the traditional tombstone data. He also pioneered computerization of the collections to facilitate data retrieval and mapping of distributions. The computer used in the 1970s featured a screen with a single text line and such limited power that a mapping program had to run overnight. Not infrequently, the paper feed stuck, and fifteen hours of inking would be confined to one very deep and dark spot on an expanse of white.

A collection of line drawings based on selected specimens in the collection was accumulated over decades in competition with other scientists for the limited time of a staff artist or for scarce funds. This

proved to be an invaluable base for *Marine Fishes of Arctic Canada* and for other works on Canadian fishes.

Don was a firm believer in compiling bilingual lists of names to foster understanding and communication. He learnt French well enough to be exempt from the civil service's language examinations and collaborated with colleagues in Québec such as Vianney Legendre, along with Jerry Hunter, to produce in 1975 a list of the French, English, and scientific names of the marine fishes of Arctic Canada²². In 1987 this list became quadrilingual with Inuktitut, French, English, and scientific names³⁸, and in 1990 he expanded the list to encompass all Canadian species of fish, from all three coasts and from fresh waters⁴³. He reported 137 species on the Arctic coast. Some of the rarer species had no common name, and for these Don coined new ones, some of which proved mildly controversial.

The dearth of information on Arctic fishes led Don to build up a large collection of reprints and copies of published works along with books and translations. He developed an extensive reprint-exchange program through contacts with colleagues around the world, particularly Russian scientists. This information was disseminated in bibliographies in 1966¹³ and revised with Michèle Steigerwald in 1987³⁷. The former was 16 pages long with 278 references, and the latter 108 pages with 1,111 references. The online bibliography for this book exceeds 5,300 references. Don also published a bibliography with Iola Gruchy on Smelts, an important family of fishes in Arctic waters¹⁹.

Don had long held strong beliefs on the need for the conservation of species and was active in working with the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). In 1985 this work was summarized in a publication with Brad Parker and Paul McKee, on the rare, endangered, and extinct fishes in Canada³⁴, mostly on freshwater fishes but also mentioning two Arctic marine species. Status reports on these two species, the Bering Wolffish, *Anarhichas orientalis*, and the Blackline Prickleback, *Acantholimpemus mackayi*, were co-authored with J. Houston in 1990⁴⁴⁻⁴⁵. Both species were considered vulnerable. His environmental concerns for Arctic waters were expressed in papers on the James and Hudson Bays hydro projects^{46,48} and on global warming⁴⁷.

Completion of a series of revisionary papers on Arctic taxa was planned to place the systematics of the Arctic ichthyofauna on a firm basis but was continually delayed by Don's forays into other fields and by the demands and opportunities of his position as Curator of Fishes. His work in other fields has been reviewed in obituaries by Cook, Gruchy, and Coad (2001), Cook and Coad (2002), Cook, Coad, and Renaud (2002), Coad (2011), and Cook, Coad, Renaud, Gruchy, and Alfonso (2011).

Nevertheless Don carried out systematic studies on various taxa in Arctic and adjacent waters. He first tackled the Smelts (Osmeridae), producing a revision of the family in 1963⁷ that included new taxa from Japan and data on Arctic Canadian samples. Systematic data on the Smelts were analysed using numerical taxonomy in 1967¹⁴, and comments were made on the utility of this new technique. With Russian colleague V.A. Kljukanov, Don reviewed the taxonomy, systematics, and biology of the family for the book *Clofnam: Check-List of the Fishes of the North-Eastern Atlantic and of the Mediterranean*, which extends its coverage into Arctic waters²⁰. That

short segment contained a dissenting opinion of Don, the junior author, ever of independent thought.

Don investigated the variation and characters of sculpins in several papers. The first with Arctic marine content was on *Myoxocephalus thompsonii* and its "parent" species *M. quadricornis*, which included systematic and ecological analyses⁴. The genera *Arteidiellus*, *Icelus*, and *Triglops* were examined in 1963⁸, and keys, descriptions, and systematic conclusions were given from new material. His paper on mandibular pore patterns in the Family Cottidae included various Arctic taxa and demonstrated their utility as characters¹⁶. With curatorial assistant Jadwiga Aniskowicz in 1976, Don published the results of studies on the vertebral number in the *Myoxocephalus quadricornis* complex²⁵, concluding provisionally that coastal marine forms should be called *Myoxocephalus quadricornis hexacornis*.

A series of papers were published on the Eelpouts (Family Zoarcidae) of northern waters. An early study with E.I.S. Rees in 1964⁹ was a revision of the worldwide genus *Melanostigma*, now known to have one species in Arctic Canada. The paper included a new genus, *Oidiphorus*. A new species of Arctic eelpout, *Lycodes sagittarius*, from the Beaufort Sea (Alaska) and the Kara Sea (former USSR), was described by Don in 1975²⁴, and, with M. Eric Anderson and Jerry Hunter, the deep-water Eelpouts from Arctic Canada and Alaska were revised in 1981³⁰. This latter paper gives a key to the Arctic Canadian zoarcids and detailed descriptions, illustrations, maps, and biology. One species, *Lycodes frigidus*, had a range extension of over 6,500 km, and this Glacial Eelpout was recorded in 1986 with N.J. Prouse³⁶ in the Arctic Canadian Basin at 85°48' N, 350 km from the North Pole. Recognition of his contributions to polar ichthyology came in the description of new species of Eelpouts named *Oidiphorus mcallisteri* by M. Eric Anderson (1988) and *Lycodes mcallisteri* by Peter Rask Møller (2001).

Another systematically difficult family in Arctic water is that of the Snailfishes (Liparidae), and it was revised with Ken Able in 1981²⁹. The layout of this work is similar to the one on zoarcids³⁰ and shows the kind of monographic treatment that Don planned for all the species in the Arctic waters of Canada. Collaboration with a Russian colleague, Anatoly Andriashev, in 1977 and 1978 had clarified the confused status of the presumed Arctic zoarcid fish *Ophidium parrii*, which turned out to be a common species of Snailfish²⁷⁻²⁸.

Don's last contribution to the systematics of Arctic fishes was on biochemical evidence of speciation in the cod genus *Gadus* in collaboration with his doctoral student Claude Renaud and with Larry Speers, Carleton University, Ottawa, and Sami Qadri of the University of Ottawa³⁵.

Don also accumulated data on the ecology of these fishes along Canada's least accessible coast, co-operating extensively with Jerry Hunter of the Arctic Biological Station, and compiling the files used in this book. An overview of the ecology of Arctic fishes was published in 1977²⁶.

The authors of *Marine Fishes of Arctic Canada* are pleased to dedicate it to the memory of their colleague and hope that it will stimulate further work on the systematics, biology, and conservation of this ichthyofauna that for so long engrossed Don's thoughts and endeavours.

Arctic Marine Fish Bibliography of Donald Evan McAllister

A complete bibliography of works by Don McAllister, numbering over 625, can be found in Coad (2011).

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