

## PREDATOR AND PREY BODY SIZES IN MARINE FOOD WEBS

*Ecological Archives* E089-051

C. BARNES,<sup>1,18</sup> D. M. BETHEA,<sup>2</sup> R. D. BRODEUR,<sup>3</sup> J. SPITZ,<sup>4,5</sup> V. RIDOUX,<sup>4,5</sup> C. PUSINERI,<sup>5</sup> B. C. CHASE,<sup>6</sup>  
M. E. HUNSICKER,<sup>7</sup> F. JUANES,<sup>8</sup> A. KELLERMANN,<sup>9</sup> J. LANCASTER,<sup>10</sup> F. MÉNARD,<sup>11</sup> F.-X. BARD,<sup>11</sup> P. MUNK,<sup>12</sup>  
J. K. PINNEGAR,<sup>1</sup> F. S. SCHARF,<sup>13</sup> R. A. ROUNTREE,<sup>14</sup> K. I. STERGIU,<sup>15</sup> C. SASSA,<sup>16</sup> A. SABATES,<sup>17</sup> AND S. JENNINGS<sup>1</sup>

<sup>1</sup>Centre for Environment, Fisheries and Aquaculture Science, Lowestoft, Suffolk, NR33 0HT United Kingdom

<sup>2</sup>NOAA Fisheries Panama City Laboratory, 3500 Delwood Beach Road, Panama City, Florida 32408 USA

<sup>3</sup>Estuarine and Ocean Ecology Program, Northwest Fisheries Science Center, 2030 South Marine Science Drive,  
Newport, Oregon 97365-5296 USA

<sup>4</sup>Centre de Recherche sur les Mammifères Marins, Université de La Rochelle, F-17071 La Rochelle, France

<sup>5</sup>Centre de Recherche sur les Ecosystèmes Littoraux Anthropisés, UMR6217, Université de La Rochelle, F-17071 La Rochelle, France

<sup>6</sup>Annisquam River Marine Fisheries Station, Massachusetts Division of Marine Fisheries, 30 Emerson Avenue,  
Gloucester, Massachusetts 01930 USA

<sup>7</sup>School of Aquatic and Fishery Sciences, University of Washington, Box 355020, Seattle, Washington 98195 USA

<sup>8</sup>Department of Natural Resources Conservation, University of Massachusetts, Amherst, Massachusetts 01003-4210 USA

<sup>9</sup>International Council for the Exploration of the Sea (ICES), H. C. Andersens Boulevard 44-46, DK-1553 Copenhagen, Denmark

<sup>10</sup>Department of Biology, School of the Environment and Society, University of Wales Swansea, Singleton Park,  
Swansea SA2 8PP United Kingdom

<sup>11</sup>Institut de Recherche pour le Développement (IRD), Centre de Recherche Halieutique Méditerranéenne et Tropicale, BP 171,  
34203 Sète Cedex, France

<sup>12</sup>Department for Marine Ecology and Aquaculture, Danish Institute for Fisheries Research, Charlottenlund Castle,  
DK-2920 Charlottenlund, Denmark

<sup>13</sup>Department of Biology and Marine Biology, University of North Carolina, 601 S. College Road,  
Wilmington, North Carolina 28402 USA

<sup>14</sup>Marine Ecology and Technology Applications, Inc., 23 Joshua Lane, Waquoit, Massachusetts 02536 USA

<sup>15</sup>Aristotle University of Thessaloniki, School of Biology, Department of Zoology, UP Box 134, 54124 Thessaloniki, Greece

<sup>16</sup>Pelagic Fish Biology Section, East China Sea Fisheries Resources Division, Seikai National Fisheries Research Institute,  
Fisheries Research Agency, 1551-8 Taira-machi Nagasaki 851-2213 Japan

<sup>17</sup>Institue de Ciencias del Mar, CSIC, Pl. del Mar s/n, 08039 Barcelona, Catalonia, Spain

**Abstract.** Knowledge of relationships between predator size and prey size are needed to describe interactions of species and size classes in food webs. Most estimates of predator and prey sizes have been based on dietary studies and apply to small numbers of species in a relatively narrow size range. These estimates may or may not be representative of values for other groups of species and body sizes or for other locations. Marine predator and prey size data associated with published literature were identified and collated to produce a single data set. If predator or prey length of mass were not measured in the original study, the length or mass was calculated using length–mass relationships. The data set consists of 34 931 records from 27 locations covering a wide range of environmental conditions from the tropics to the poles and for 93 types of predator with sizes ranging from 0.1 mg to over 415 kg and 174 prey types with sizes from 75 µg to over 4.5 kg. Each record includes: predator and prey scientific names, common names, taxa, life stages and sizes (length and mass with conversion details), plus the type of feeding interaction, geographic location (with habitat description, latitude, longitude) and mean annual environmental data (sea surface temperature and primary productivity).

**Key words:** body size; consumer resource; energy transfer; food web; marine; transfer efficiency.

The complete data sets corresponding to abstracts published in the Data Papers section of the journal are published electronically in *Ecological Archives* at (<http://esapubs.org/archive>). (The accession number for each Data Paper is given directly beneath the title.)

Manuscript received 20 September 2007; accepted 4 December 2007. Corresponding Editor: W. K. Michener.

<sup>18</sup> E-mail: Carolyn.Barnes@cefas.co.uk