Counts of Mysidacea species collected during the International Indian Ocean Expeditions (IIOE) aboard multiple cruises in the Indian Ocean from 1962-1965 (IIOE project)

Website: https://www.bco-dmo.org/dataset/3815
Data Type: Cruise Results
Version: 1
Version Date: 2012-12-28

Project
» International Indian Ocean Expedition (IIOE)

Program
» Census of Marine Life (CoML)

Contributors	Affiliation	Role
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Rauch, Shannon	Woods Hole Oceanographic Institution (WHOI BCO-DMO)	BCO-DMO Data Manager

Abstract
Counts of Mysidacea species collected during the International Indian Ocean Expeditions (IIOE) in the Indian Ocean. Mysidacea were collected by several ships that took part in the IIOE from 1962 to 1965. Though collections were taken from all over the Indian Ocean, the bulk of the material comes from the seas around the Indian Peninsula.

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Coverage

Spatial Extent: **N**:24.77 **E**:120.03 **S**:-40.9 **W**:19.98
Temporal Extent: 1962-07-11 - 1965-05-11

Dataset Description

Mysidacea were collected by several ships that took part in the International Indian Ocean Expedition (IIOE) from 1962 to 1965. Though collections were taken from all over the Indian Ocean, the bulk of the material comes from the seas around the Indian Peninsula.

Although technically retired, **Vijaya Nair** remains the contact for anyone seeking information about these data.

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Methods & Sampling

'During the IIOE, zooplankton collections were made between 25 degrees N and 45 degrees S latitude and 30 to 120 degrees E longitude. Sampling covered the entire Indian Ocean, with better coverage north of 10 degrees S latitude. Though 1927 samples were collected during IIOE, zooplankton data for 1548 standard hauls were considered to be comparable and these alone were utilized for all publications. A standard haul is defined as an Indian Ocean Standard net collection of zooplankton in the water column under 1 square meter.' (Nair, 2005)

When the depth of the water exceeded 200 meters, the net was hauled from a depth of 200 meters to the surface. In shallower waters, the net was operated from the bottom to the surface. The material studied was collected during both day and night. (Pillai, 1973)

'The samples were then to be preserved in 10% formalin neutralized with hexamethylenetetramine...The samples would then be sent to the Sorting Centre for further processing.' (Hansen, 1966)

References:
Hansen, Vagn Kr., 1966. The Indian Ocean Biological Centre: The centre for sorting plankton samples of the International Indian Ocean Expedition. Deep-Sea Res., 13, pp.229-234.
Nair, V.R., 2005. Database for zooplankton collected during International Indian Ocean Expedition (IIOE) 1960-65. Cooperating project Report. Census of Marine Zooplankton (CMarZ), Connecticut, USA.

Pillai, N. K. 1973. Mysidacea of the Indian Ocean. Handbook to the International Zooplankton Collections, curated and processed at the Indian Ocean Biological Centre 4: 1-125.

Data Processing Description

Zooplankton samples collected during the IIOE are archived at the regional Centre of National Institute of Oceanography, Kochi.

BCO-DMO made the following modifications:
- Replaced blanks with zeroes in the species columns.
- Replaced blanks with 'nd' ('no data') in the depth, time_local, and day_night_flag columns.
- Changed parameter names to BCO-DMO standard names.
- Corrected date of reference 293 (station 404) from 10/10/2004 to 10/10/1964.
- Corrected date of reference 896 (station 27) from 4/1/1963 to 4/1/1964.
- Corrected spelling of Gymmerythrops macrops to Gy**mn**erythrops macrops.
- Corrected spelling of Acanthomysis micropes to Acanthomysis macrops.
- Added 'species_WoRMS' column by checking original species names against the WoRMS database and recording the WoRMS-accepted taxonomic name.

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Data Files

File
iioe_mysids.csv(Comma Separated Values (.csv), 4.21 MB) MD5:1a34f6dd989b5748e6736000108f7c60 Primary data file for dataset ID 3815

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Related Publications

Hansen, V. K. (1966). The Indian Ocean biological centre: The centre for sorting plankton samples of the international Indian ocean expedition. Deep Sea Research and Oceanographic Abstracts, 13(2), 229–234. doi:10.1016/0011-7471(66)91103-x https://doi.org/10.1016/0011-7471(66)91103-X *Methods*

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Related Datasets

IsRelatedTo

Nair, V. R. (2010) **Chaetognaths recorded during the International Indian OceanExpedition (IIOE) from 64 cruises on 17 ships in the Indian Ocean from 1962-1965 (IIOE project).** Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 1) Version Date 2010-07-20 http://lod.bco-dmo.org/id/dataset/2487 [view at BCO-DMO]

Nair, V. R. (2010) **Copepods subsorted from the zooplankton collected during the International Indian OceanExpedition (IIOE) from14 cruises on R/V Anton Bruun, R/V Argo, RRS Discovery, and R/V Natal in the Indian Ocean from 1962-1964 (IIOE project).** Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version final) Version Date 2010-11-22 http://lod.bco-dmo.org/id/dataset/2483 [view at BCO-DMO]

Nair, V. R. (2010) **Ostracods recorded from the Northern Indian Ocean, north of 10 degrees S, from 31 cruises on 10 ships in the Indian Ocean from 1962-1965 (IIOE project).** Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 1) Version Date 2010-11-22 http://lod.bco-dmo.org/id/dataset/2486 [view at BCO-DMO]

Nair, V. R. (2014) **Pleuronectiformes larvae collected during the International Indian Ocean Expedition (IIOE) 1960-1965 from 47 cruises on15 ships in the Indian Ocean from 1962-1965 (IIOE project).** Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version 1) Version Date 2014-08-28 http://lod.bco-dmo.org/id/dataset/2485 [view at BCO-DMO]

Nair, V. R. (2014) **Zooplankton collected during the International Indian Ocean Expedition (IIOE) from 17 ships and 63 cruises in the Indian Ocean from 1962-1965 (IIOE project).** Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version final) Version Date 2014-08-28 http://lod.bco-dmo.org/id/dataset/2481 [view at BCO-DMO]

Nair, V. R. (2015) **Decapods collected during the International Indian OceanExpedition (IIOE) from 64 cruises on 17 ships in the Indian Ocean from 1962-1965 (IIOE project).** Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version final) Version Date 2015-04-17 http://lod.bco-dmo.org/id/dataset/2484 [view at BCO-DMO]

Nair, V. R. (2015) **Other Zooplankton groups collected during the International Indian OceanExpedition (IIOE) from 17 ships and 64 cruises in the Indian Ocean from 1962-1965 (IIOE project).** Biological and Chemical Oceanography Data Management Office (BCO-DMO). (Version final) Version Date 2015-04-20 http://lod.bco-dmo.org/id/dataset/2482 [view at BCO-DMO]

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Parameters

Parameter	Description	Units
reference	Master reference number of sample.	unitless
vessel	Ship designation.	text
year	Year of collection. in YYYY format.	unitless
cruise	Cruise number of the particular vessel.	text
station	Station number.	unitless
lat	Latitude of tow, North = positive.	decimal degrees
lon	Longitude tow, East = positive.	decimal degrees
date_local	day/month/year of the sample collection, in dd/mm/YYYY format.	unitless
time_local	Local time, 24-hour clock in HHMM format	unitless
day_night_flag	D = Day; N = night	unitless
depth_w	Depth of water at the station.	meters
month_local	2-digit month (local) in mm (01 to 12) format.	unitless
day_local	2-digit day of month (local) in dd (01 to 31) format.	unitless
ISO_DateTime_Local	Local date and time formatted to ISO8601 standard in YYYY-mm-ddTHH:MM:SS.ss format.	unitless
species_WoRMS	Accepted taxonomic name according to the World Register of Marine Species (WoRMS) website.	text
species_orig	Original species name as recorded in Pillai (1973).	text
count	Count of the number of individuals of the species.	unitless

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Instruments

Dataset-specific Instrument Name	Indian Ocean Standard Net
Generic Instrument Name	Indian Ocean Standard Net
Generic Instrument Description	The Indian Ocean Standard Net was designed specifically for the International Indian Ocean Exploration project. The net has a mouth area of one square meter and a total length of 5 meters. The net is made of nylon gauze with a mesh size of .333 mm (330um).

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Deployments

AB_63_1

Website	https://www.bco-dmo.org/deployment/57850
Platform	R/V Anton Bruun
Report	http://hdl.handle.net/1912/3878
Start Date	1963-03-12
End Date	1963-05-10
Description	Cruise Itinerary (from cruise report): Depart Bombay, India on 3/12/63 and arrive at Phuket, Thailand on 3/22/63. Depart Phuket on 3/23/63 and arrive at Chittagong, E. Pakistan on 4/3/63. Depart Chittagong on 4/4/63 and arrive at Vizagapatnam, India on 4/11/63. Depart Vizagapatnam on 4/14/63 and arrive at Vizagapatnam on 4/25/63. Depart Vizagapatnam on 4/28/63 and arrive at Madras, India on 5/3/63. Depart Madras on 5/4/63 and arrive at Bombay on 5/10/63 (no sampling during this leg).

AB_63_2

Website	https://www.bco-dmo.org/deployment/57851
Platform	R/V Anton Bruun
Report	http://hdl.handle.net/1912/3879
Start Date	1963-05-22
End Date	1963-07-23
Description	Itinerary, Cruise 2, R/V ANTON BRUUN (from cruise report): May 22, 1963: Departed Bombay, India. May 22 - June 11: Completed series of stations from 17° N to 20° S latitude along 70° E longitude. June 14: Arrived Port Louis, Mauritius (fuel and provisions). June 18: Departed Port Louis. June 22: Returned Port Louis (emergency call, appendicitis case on board). June 22: Departed Port Louis. June 25 - July 2: Completed series of stations from 22° S to 37° S latitude along 70° E longitude. July 5 - July 17: Completed series of stations from 30° S to 4° N latitude along 80° E longitude. July 18: Arrived Colombo, Ceylon (fuel and provisions). July 19: Departed Colombo. July 23: Arrived Bombay - end of Cruise 2.

AB_63_3

Website	https://www.bco-dmo.org/deployment/57860
Platform	R/V Anton Bruun
Report	http://hdl.handle.net/1912/3880
Start Date	1963-08-08
End Date	1963-09-20
Description	Cruise Itinerary (from cruise report): August 8, 1963: Departed Bombay, India. August 13-25: Completed series of stations from l2° N to l2° S latitude along 60° E longitude. August 29: Arrived Port Louis, Mauritius. September 3: Departed Port Louis. September 4-13: Completed series of stations from 23° S to 44° S latitude along 60° E longitude. September 20: Arrived Port Louis - end of Cruise 3.

AB_63_4A

Website	https://www.bco-dmo.org/deployment/57861
Platform	R/V Anton Bruun
Report	http://hdl.handle.net/1912/3881
Start Date	1963-09-25
End Date	1963-11-08
Description	Cruise 4A Itinerary (from cruise report): September 25, 1963: Departed Port Louis, Mauritius September 25 - October 1: Occupied Stations l6l-l65 October 1: Arrived Port Victoria, Seychelles October 4: Departed Port Victoria October 4-10: Occupied Stations l66-l70 October 10: Arrived Aden October 12: Departed Aden October 12-24: Occupied Stations l7l-l82 October 24: Arrived Karachi October 28: Departed Karachi October 28 - November 8: Occupied Stations l83-200 November 8: Arrived Bombay, India - End of Cruise 4A

AB_63_A

Website	https://www.bco-dmo.org/deployment/57849
Platform	R/V Anton Bruun
Start Date	1963-02-24
End Date	1963-03-04

AB_64_5

Website	https://www.bco-dmo.org/deployment/57862
Platform	R/V Anton Bruun
Report	http://hdl.handle.net/1912/3882
Start Date	1964-01-26
End Date	1964-05-04
Description	Cruise 5 of the R/V ANTON BRUUN originated from Bombay on January 26 and terminated at Bombay on May 4, 1964. In addition to the basic hydrographic and biological programs continued from previous cruises, a special program of longline fishing was conducted in cooperation with the U. S. Bureau of Commercial Fisheries. See cruise report for itinerary and more information.

AB_64_6

Website	https://www.bco-dmo.org/deployment/57863
Platform	R/V Anton Bruun
Report	http://hdl.handle.net/1912/3883
Start Date	1964-05-15
End Date	1964-07-16
Description	Cruise 6 Itinerary (from cruise report): May 15, 1964: Departed Bombay, India. May 17 - June 8: Occupied Stations 328 to 346 from 18 degrees N to 19 degrees S latitude on 65 degrees E longitude. June 11: Arrived Port Louis, Mauritius. June 21: Departed Port Louis. June 23 - July 4: Occupied Stations 347 to 354 from 22 degrees S to 41 degrees S latitude on 65 degrees E longitude. July 11: Occupied Station 355. July 16: Arrived Durban, South Africa - end of Cruise 6.

AB_64_7

Website	https://www.bco-dmo.org/deployment/57864
Platform	R/V Anton Bruun
Report	http://hdl.handle.net/1912/3884
Start Date	1964-07-29
End Date	1964-09-10
Description	Cruise 7 Itinerary (from cruise report): 29 July 1964: Departed Durban (SOUTH AFRICA) - Start Cruise 7 7 August: Arrived Tulear (MADAGASCAR) 10 August: Departed Tulear 20 August: Arrived Lourenco Marques (MOZAMBIQUE) 22 August: Departed Lourenco Marques 10 September: Arrived Durban - End Cruise 7

AB_64_8

Website	https://www.bco-dmo.org/deployment/57865
Platform	R/V Anton Bruun
Report	http://hdl.handle.net/1912/3884
Start Date	1964-09-25
End Date	1964-11-09
Description	Cruise 8 Itinerary (from cruise report): 25 September: Departed Durban - Start Cruise 8 5 October: Arrived Beira (MOZAMBIQUE) 8 October: Departed Beira 24 October: Arrived Nossi Be (MADAGASCAR) 24 October: Departed Nossi Be 24 October: Arrived Diego Suarez (MADAGASCA) 27 October: Departed Diego Suarez 28 October: Arrived Nossi Be 29 October: Departed Nossi Be 9 November: Arrived Mombasa (KENYA) - End Cruise 8

Ar_62_Lu

Website	https://www.bco-dmo.org/deployment/57866
Platform	R/V Argo
Start Date	1962-07-01
End Date	1962-09-21

Ar_64_Do

Website	https://www.bco-dmo.org/deployment/57867
Platform	R/V Argo
Start Date	1964-08-12
End Date	1964-09-04

Co_63_196

Website	https://www.bco-dmo.org/deployment/57868
Platform	R/V Conrad
Start Date	1963-10-17
End Date	1963-10-18

Co_63_198

Website	https://www.bco-dmo.org/deployment/57869
Platform	R/V Conrad
Start Date	1963-10-28
End Date	1963-10-29

Dm_62_2

Website	https://www.bco-dmo.org/deployment/57872
Platform	R/V Diamantina
Start Date	1962-07-20
End Date	1962-08-23

Dm_62_4

Website	https://www.bco-dmo.org/deployment/57874
Platform	R/V Diamantina
Start Date	1962-10-16
End Date	1962-10-20

Dm_63_1

Website	https://www.bco-dmo.org/deployment/57875
Platform	R/V Diamantina
Start Date	1963-03-30
End Date	1963-04-27

Dm_63_2

Website	https://www.bco-dmo.org/deployment/57876
Platform	R/V Diamantina
Start Date	1963-05-07
End Date	1963-06-02

Dm_63_3

Website	https://www.bco-dmo.org/deployment/57877
Platform	R/V Diamantina
Start Date	1963-07-11
End Date	1963-08-09

Dm_63_5

Website	https://www.bco-dmo.org/deployment/57878
Platform	R/V Diamantina
Start Date	1963-09-05
End Date	1963-09-11

Dm_64_3

Website	https://www.bco-dmo.org/deployment/57881
Platform	R/V Diamantina
Start Date	1964-05-05
End Date	1964-05-15

Dm_64_5

Website	https://www.bco-dmo.org/deployment/57882
Platform	R/V Diamantina
Start Date	1964-08-11
End Date	1964-09-08

Dm_65_1

Website	https://www.bco-dmo.org/deployment/57883
Platform	R/V Diamantina
Start Date	1965-04-18
End Date	1965-05-12

Di_63_1

Website	https://www.bco-dmo.org/deployment/57870
Platform	RRS Discovery
Start Date	1963-06-16
End Date	1963-08-17

Di_64_3

Website	https://www.bco-dmo.org/deployment/57871
Platform	RRS Discovery
Start Date	1964-03-08
End Date	1964-09-03

Ga_62_4

Website	https://www.bco-dmo.org/deployment/57884
Platform	R/V Gascoyne
Start Date	1962-08-20
End Date	1962-08-27

Ga_63_1

Website	https://www.bco-dmo.org/deployment/57885
Platform	R/V Gascoyne
Start Date	1963-01-18
End Date	1963-02-16

Ka_63_3

Website	https://www.bco-dmo.org/deployment/57886
Platform	Kagoshima-Maru
Start Date	1963-11-26
End Date	1964-01-09

Ki_63_4

Website	https://www.bco-dmo.org/deployment/57891
Platform	Kistna
Start Date	1963-01-19
End Date	1963-01-21

Ki_63_7

Website	https://www.bco-dmo.org/deployment/57892
Platform	Kistna
Start Date	1963-03-14
End Date	1963-03-18

Ki_63_11

Website	https://www.bco-dmo.org/deployment/57888
Platform	Kistna
Start Date	1963-07-25
End Date	1963-07-25

Ki_63_13

Website	https://www.bco-dmo.org/deployment/57889
Platform	Kistna
Start Date	1963-08-20
End Date	1963-08-27

Ki_63_14

Website	https://www.bco-dmo.org/deployment/57890
Platform	Kistna
Start Date	1963-09-06
End Date	1963-09-15

Ki_64_15

Website	https://www.bco-dmo.org/deployment/57893
Platform	Kistna
Start Date	1964-06-08
End Date	1964-06-20

Ki_64_16

Website	https://www.bco-dmo.org/deployment/57894
Platform	Kistna
Start Date	1964-06-23
End Date	1964-07-03

Ki_64_17

Website	https://www.bco-dmo.org/deployment/57895
Platform	Kistna
Start Date	1964-07-16
End Date	1964-07-20

Ki_64_19

Website	https://www.bco-dmo.org/deployment/57896
Platform	Kistna
Start Date	1964-08-22
End Date	1964-08-25

Ki_64_20

Website	https://www.bco-dmo.org/deployment/57897
Platform	Kistna
Start Date	1964-09-03
End Date	1964-09-07

Ki_65_21

Website	https://www.bco-dmo.org/deployment/57898
Platform	Kistna
Start Date	1965-01-16
End Date	1965-01-21

Ki_65_22

Website	https://www.bco-dmo.org/deployment/57899
Platform	Kistna
Start Date	1965-01-28
End Date	1965-02-05

Ki_65_25

Website	https://www.bco-dmo.org/deployment/57900
Platform	Kistna
Start Date	1965-03-23
End Date	1965-03-27

Ki_65_26

Website	https://www.bco-dmo.org/deployment/57901
Platform	Kistna
Start Date	1965-04-01
End Date	1965-04-08

Ki_65_27

Website	https://www.bco-dmo.org/deployment/57902
Platform	Kistna
Start Date	1965-04-15
End Date	1965-04-19

Me_64_1

Website	https://www.bco-dmo.org/deployment/57905
Platform	R/V Meteor
Start Date	1964-11-30
End Date	1965-03-08

Na_62_5

Website	https://www.bco-dmo.org/deployment/57906
Platform	R/V Natal
Start Date	1962-10-05
End Date	1962-10-22

Na_63_6

Website	https://www.bco-dmo.org/deployment/57907
Platform	R/V Natal
Start Date	1963-01-11
End Date	1963-01-27

Os_62_1

Website	https://www.bco-dmo.org/deployment/57908
Platform	Oshoro-Maru
Start Date	1962-12-12
End Date	1963-01-19

Os_63_7

Website	https://www.bco-dmo.org/deployment/57909
Platform	Oshoro-Maru
Start Date	1963-12-13
End Date	1963-12-25

Os_64_11

Website	https://www.bco-dmo.org/deployment/57910
Platform	Oshoro-Maru
Start Date	1964-12-15
End Date	1965-01-02

Pi_64_442

Website	https://www.bco-dmo.org/deployment/57911
Platform	R/V Pioneer
Start Date	1964-04-10
End Date	1964-06-21

Um_62_23

Website	https://www.bco-dmo.org/deployment/57912
Platform	Umitaka-Maru
Start Date	1962-12-10
End Date	1963-01-07

Um_63_24

Website	https://www.bco-dmo.org/deployment/57913
Platform	Umitaka-Maru
Start Date	1963-11-21
End Date	1964-01-22

Va_63_30

Website	https://www.bco-dmo.org/deployment/57916
Platform	Varuna
Start Date	1963-05-07
End Date	1963-05-10

Va_63_31

Website	https://www.bco-dmo.org/deployment/57917
Platform	Varuna
Start Date	1963-05-13
End Date	1963-05-15

Va_63_104

Website	https://www.bco-dmo.org/deployment/57914
Platform	Varuna
Start Date	1963-11-04
End Date	1963-11-06

Va_63_106

Website	https://www.bco-dmo.org/deployment/57915
Platform	Varuna
Start Date	1963-12-09
End Date	1963-12-10

Vi_62_35

Website	https://www.bco-dmo.org/deployment/57918
Platform	Vityaz
Start Date	1962-08-24
End Date	1962-10-26

Vi_64_36

Website	https://www.bco-dmo.org/deployment/57919
Platform	Vityaz
Start Date	1964-10-24
End Date	1965-02-12

Zu_64_Zu

Website	https://www.bco-dmo.org/deployment/57920
Platform	Zulfiquar
Report	http://www.cmarz.org/jg/serv/CMarZ/iioe_zoo.html1%7Bdir=www.cmarz.org/jg/dir/CMarZ/,info=cmarz.whoi.edu/jg/info/CMarZ/iioe_zoo%7D?vessel_eq_Zulfiquar
Start Date	1964-11-09
End Date	1964-11-13

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Project Information

International Indian Ocean Expedition (IIOE)

Coverage: Indian Ocean

"During IIOE 1548 standard zooplankton samples were collected covering the entire Indian Ocean. The database is prepared based on published information on these zooplankton samples. Three sets of Tables are made (1) Basic data on zooplankton volume, total population and all the 54 taxa found in the collections. (2) Data emerged from subsorting of copepods, decapods and fish larvae (3) Species level data for chaetognaths for entire Indian Ocean and ostracods for northern Indian Ocean." (from summary of CMarZ Cooperative Project final report)

CMarZ Cooperative Project: Database for Zooplankton collected during International Indian Ocean Expedition (IIOE) 1960-65

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Program Information

Census of Marine Life (CoML)

Website: http://www.coml.org/

Coverage: global

The Census of Marine Life is a global network of researchers in more than 80 nations engaged in a 10-year scientific initiative to assess and explain the diversity, distribution, and abundance of life in the oceans. The world's first comprehensive Census of Marine Life - past, present, and future - will be released in 2010.

The stated purpose of the Census of Marine Life is to assess and explain the diversity, distribution, and abundance of marine life. Each plays an important role in what is known, unknown, and may never be known about what lives in the global ocean.

First, diversity. The Census aims to make for the first time a comprehensive global list of all forms of life in the sea. No such unified list yet exists. Census scientists estimate that about 230,000 species of marine animals have been described and reside in jars in collections in museums of natural history and other repositories. Since the Census began in 2000, researchers have added more than 5600 species to the lists. They aim to add many thousands more by 2010. The database of the Census already includes records for more than 16 million records, old and new. By 2010, the goal is to have all the old and the new species in an on-line encyclopedia with a webpage for every species. In addition, we will estimate how many species remain unknown, that is, remain to be discovered. The number could be astonishingly large, perhaps a million or more, if all small animals and protists are included. For comparison, biologists have described about 1.5 million terrestrial plants and animals.

Second, distribution. The Census aims to produce maps where the animals have been observed or where they could live, that is, the territory or range of the species. Knowing the range matters a lot for people concerned about, for example, possible consequences of global climate change.

Third, abundance. No Census is complete without measures of abundance. We want to know not only that there is such a thing as a Madagascar crab but how many there are. For marine life, populations are being estimated either in numbers or in total kilos, called biomass.

To complete the context, it is important to understand the top motivations for the Census of Marine Life. Most importantly, much of the ocean is unexplored. Most of the records in its database are for observations near the surface, and down to 1000 meters. No observations have been made in most of the deep ocean, while most of the ocean is deep.

Another important issue is that diversity varies in space. Marine hot spots, like the rain forests of the land, exist off for large fish off the coasts of Brazil and Australia. The goal is to know much more about marine hot spots, to help conserve these large fish. Their abundance and thus their diversity is changing, especially for commercially important species. Between 1952 and 1976, for example, fishermen and their customers emptied many areas of the ocean of tuna.

The Census has evolved a strategy of 14 field projects to touch the major habitats and groups of species in the global ocean. Eleven field projects address habitats, such as seamounts or the Arctic Ocean. Three field projects look globally at animals that either traverse the seas or appear globally distributed: the top predators such as tuna and the plankton and the microbes. The projects employ a mix of technologies. These include acoustics or sound, optics or cameras, tags placed on individual animals that store or report data, and genetics, as well as some actual capture of animals. The technologies complement one another. Sound can survey large areas in the ocean, while light cannot. Light can capture detail and characters that sound cannot. And genetics can make identifications from fragments of specimens or larvae where pictures tell little.

This mix of curiosity, need to know, technology, and scientists willing to investigate the unexplored and undiscovered will result in a Census of Marine Life in 2010 that provides a much clearer picture of what lives below the surface around the globe. Several reasons make such a report timely, indeed urgent. Crises in the sea are reported regularly. One recent study predicted the end of commercial fishery globally by 2050, if current trends persist. Better information is needed to fashion the management that will sustain fisheries, conserve diversity, reverse losses of habitat, reduce impacts of pollution, and respond to global climate change. Hence, there are biological, economic, philosophical and political reasons to push for greater exploration and understanding of the ocean and its inhabitants. Indeed, the United Nations Convention on Biological Diversity requires signatories to collect information on living resources, but, as yet, no nation has a complete baseline of such information. The Census of Marine Life's global network of researchers will help to fill this knowledge gap, providing critical information to help guide decisions on how to manage global marine resources for the future.

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