

National Oceanic and Atmospheric Administration
US Department of Commerce

National Undersea Research Program Bibliography: Preliminary Statistics

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Introduction

This report presents some preliminary statistics and analysis of the National Undersea Research Program (NURP) bibliography after approximately one year of data collection. The bibliography attempts to compile all of the scientific and technical publications supported by NURP. This bibliography is still under construction, so the statistics and analyses presented in this report will change as the bibliography expands over time. This report is not intended, nor should it be used, to provide final information about the publication of NURP-sponsored research. Rather, it is intended to provide information about the current state of the NURP bibliography and to present some preliminary findings resulting from the development of the bibliography.

This report gives the number of NURP-sponsored publications per publication type, NURP Center, and year; summary bibliometric indicators for all of NURP and for each NURP Center; and keyword maps identifying the major subject areas of research sponsored by each NURP Center. Data used in the bibliometric analyses were derived from Web of Science, Science Citation Index Expanded; all data in this report were accurate as of 16 July 2012.

Number of Publications

Number of Publications per Publication Type*

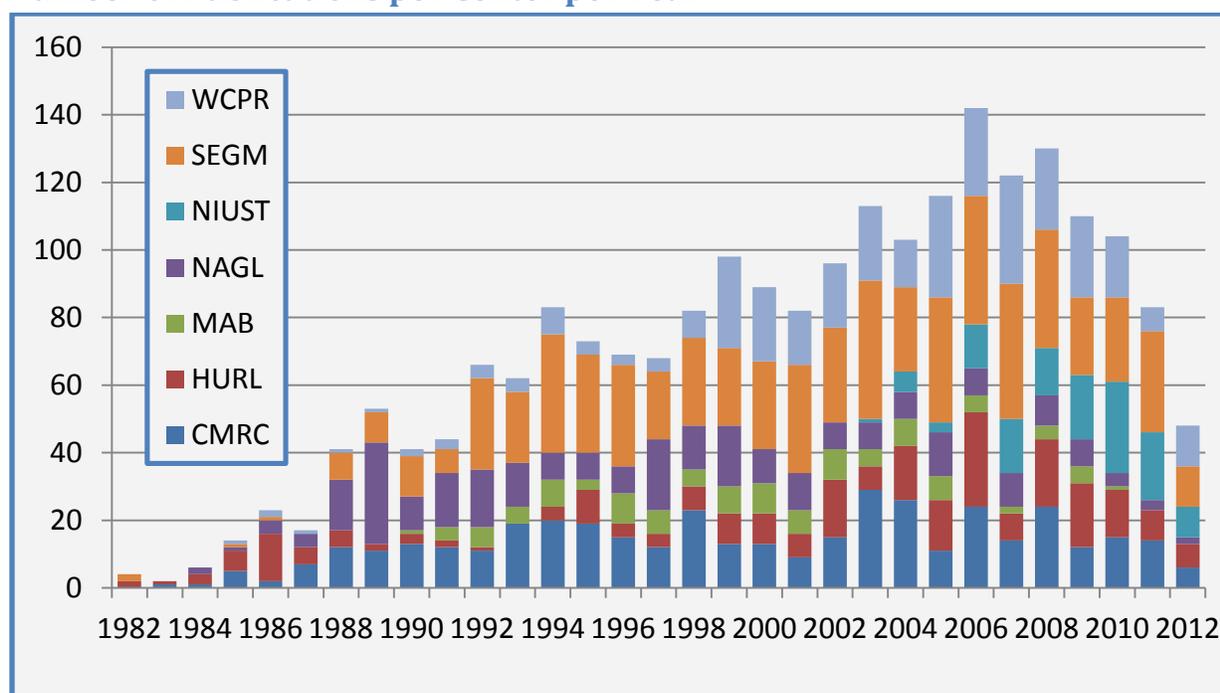
Publication Type	Number
Books and Book Chapters	64
Conference Papers	142
Journal Articles	1,974
Magazine Articles	4
Reports	28
Theses	5
Total	2,217

*Note: data collection for the NURP bibliography has, to this point, almost exclusively focused on collecting journal articles; other publication types were primarily collected in the process of searching for journal articles, not due to any concentrated searching for these publication types. Such searching will be conducted in the future.

Number of Publications per NURP Center

NURP Center	Number
Caribbean Marine Research Center (CMRC)	408
Hawai'i Undersea Research Laboratory (HURL)	258
Mid-Atlantic Bight (MAB)	118
North Atlantic and Great Lakes (NAGL)	290
National Institute for Undersea Science and Technology (NIUST)	128
Southeast and Gulf of Mexico (SEGM)	644
West Coast and Polar Regions (WCPR)	340
Center Currently Unknown	70

Number of Publications per Center per Year



Bibliometric Indicators

NURP Center	Publications	Citations	CPP	H-Index	100+ Cited
CMRC	372	12,800	34.41	56	27
HURL	187	3,885	20.78	33	5
MAB	87	2,578	29.63	31	4
NAGL	240	7,287	30.36	44	15
NIUST	92	861	9.36	16	0
SEGM	597	20,336	34.06	68	38
WCPR	276	7,804	28.28	48	14
All NURP	1,851	55,551	30.01	100	101

These bibliometric indicators are calculated based on publications available in WoS only. The “CPP” value indicates the mean number of citations per publication in the set. The H-Index value indicates that the set contains h publications that have each received h or more citations. The “100+ Cited” column indicates the number of papers in the set that have received 100 or more citations each; three publications in this column were co-funded by CMRC and SEGM and one has not been linked to a center. Values for all of NURP are estimated based on the indicators calculated for each NURP center and the total number of 100+ citation papers.

These figures indicate that NURP-sponsored publications tend to be highly cited. These publications have received over 55,000 citations since 1982, and average 30 citations per publication. By comparison, the average number of citations per publication in similar subjects published between 1997 and 2002 (the mean and median year of publication for NURP articles, respectively) is between 18 and 21. In addition, approximately 5% (101 out of 1,851) of NURP-sponsored articles have received over 100 citations, well above the 1-3% of all articles on similar topics from 1997 and 2002.

Significant Articles

The following tables list the twenty most highly-cited articles currently identified as being supported by one or more NURP Centers. Since citation counts are, broadly speaking, an indicator of significance, these articles are indicative of the most significant research to have been performed with NURP support.

Article	NURP Center	Times Cited
Harvell CD, Kim K, Burkholder JM, Colwell RR, Epstein PR, Grimes DJ, Hofmann EE, Lipp EK, Osterhaus A, Overstreet RM et al. . 1999. Review: Marine ecology - Emerging marine diseases - Climate links and anthropogenic factors. <i>Science</i> 285(5433):1505-1510. doi:10.1126/science.285.5433.1505	SEGM	688
Caley MJ, Carr MH, Hixon MA, Hughes TP, Jones GP, Menge BA. 1996. Recruitment and the local dynamics of open marine populations. <i>Annual Review of Ecology and Systematics</i> 27:477-500. doi:10.1146/annurev.ecolsys.27.1.477	CMRC	649
Swearer SE, Caselle JE, Lea DW, Warner RR. 1999. Larval retention and recruitment in an island population of a coral-reef fish. <i>Nature</i> 402(6763):799-802. doi:10.1038/45533	CMRC	420
Steneck RS, Dethier MN. 1994. A functional-group approach to the structure of algal-dominated communities. <i>Oikos</i> 69(3):476-498. doi:10.2307/3545860	NAGL	398
Turner RE, Rabalais NN. 1994. Coastal eutrophication near the Mississippi river delta. <i>Nature</i> 368(6472):619-621. doi:10.1038/368619a0	SEGM	361
Fisher CR. 1990. Chemoautotrophic and methanotrophic symbioses in marine-invertebrates. <i>Reviews in Aquatic Sciences</i> 2(3-4):399-436.	SEGM	356
Delong EF, Wu KY, Prezelin BB, Jovine RVM. 1994. High abundance of archaea in Antarctic marine picoplankton. <i>Nature</i> 371(6499):695-697. doi:10.1038/371695a0	WCPR	348
Baker AC. 2003. Flexibility and specificity in coral-algal symbiosis: Diversity, ecology, and biogeography of Symbiodinium. <i>Annual Review of Ecology Evolution and Systematics</i> 34:661-689. doi:10.1146/annurev.ecolsys.34.011802.132417	SEGM	273
Rowan R, Powers DA. 1991. A molecular genetic classification of zooxanthellae and the evolution of animal-algal symbioses. <i>Science</i> 251(4999):1348-1351. doi:10.1126/science.251.4999.1348	CMRC	264
Warner ME, Fitt WK, Schmidt GW. 1999. Damage to photosystem II in symbiotic dinoflagellates: A determinant of coral bleaching. <i>Proceedings of the National Academy of Sciences of the United States of America</i> 96(14):8007-8012. doi:10.1073/pnas.96.14.8007	SEGM/CMRC	247

Article	NURP Center	Times Cited
Rabalais NN, Turner RE, Wiseman WJ. 2002. Gulf of Mexico hypoxia, aka "The dead zone". <i>Annual Review of Ecology and Systematics</i> 33:235-263. doi:10.1146/annurev.ecolsys.33.010802.150513	SEGM	241
Steneck RS, Graham MH, Bourque BJ, Corbett D, Erlandson JM, Estes JA, Tegner MJ. 2002. Kelp forest ecosystems: biodiversity, stability, resilience and future. <i>Environmental Conservation</i> 29(4):436-459. doi:10.1017/s0376892902000322	NAGL	241
Gleason DF, Wellington GM. 1993. Ultraviolet-radiation and coral bleaching. <i>Nature</i> 365(6449):836-838. doi:10.1038/365836a0	SEGM	231
Hay ME, Kappel QE, Fenical W. 1994. Synergisms in plant defenses against herbivores - interactions of chemistry, calcification, and plant-quality. <i>Ecology</i> 75(6):1714-1726. doi:10.2307/1939631	SEGM	229
Hixon MA, Carr MH. 1997. Synergistic predation, density dependence, and population regulation in marine fish. <i>Science</i> 277(5328):946-949. doi:10.1126/science.277.5328.946	CMRC	224
Collie JS, Hall SJ, Kaiser MJ, Poiner IR. 2000. A quantitative analysis of fishing impacts on shelf-sea benthos. <i>Journal of Animal Ecology</i> 69(5):785-798. doi:10.1046/j.1365-2656.2000.00434.x	NAGL	223
Baker JE, Eisenreich SJ. 1990. Concentrations and fluxes of polycyclic aromatic-hydrocarbons and polychlorinated-biphenyls across the air-water-interface of Lake-Superior. <i>Environmental Science & Technology</i> 24(3):342-352. doi:10.1021/es00073a009	NAGL	220
Moyer CL, Dobbs FC, Karl DM. 1994. Estimation of diversity and community structure through restriction-fragment-length-polymorphism distribution analysis of bacterial 16s ribosomal-rna genes from a microbial mat at an active, hydrothermal vent system, Loihi Seamount, Hawaii. <i>Applied and Environmental Microbiology</i> 60(3):871-879.	HURL	218
Suess E, Torres ME, Bohrmann G, Collier RW, Greinert J, Linke P, Rehder G, Trehu A, Wallmann K, Winckler G et al. . 1999. Gas hydrate destabilization: enhanced dewatering, benthic material turnover and large methane plumes at the Cascadia convergent margin. <i>Earth and Planetary Science Letters</i> 170(1-2):1-15. doi:10.1016/s0012-821x(99)00092-8	WCPR	216
Mumby PJ, Dahlgren CP, Harborne AR, Kappel CV, Micheli F, Brumbaugh DR, Holmes KE, Mendes JM, Broad K, Sanchirico JN et al. . 2006. Fishing, trophic cascades, and the process of grazing on coral reefs. <i>Science</i> 311(5757):98-101. doi:10.1126/science.1121129	CMRC	216

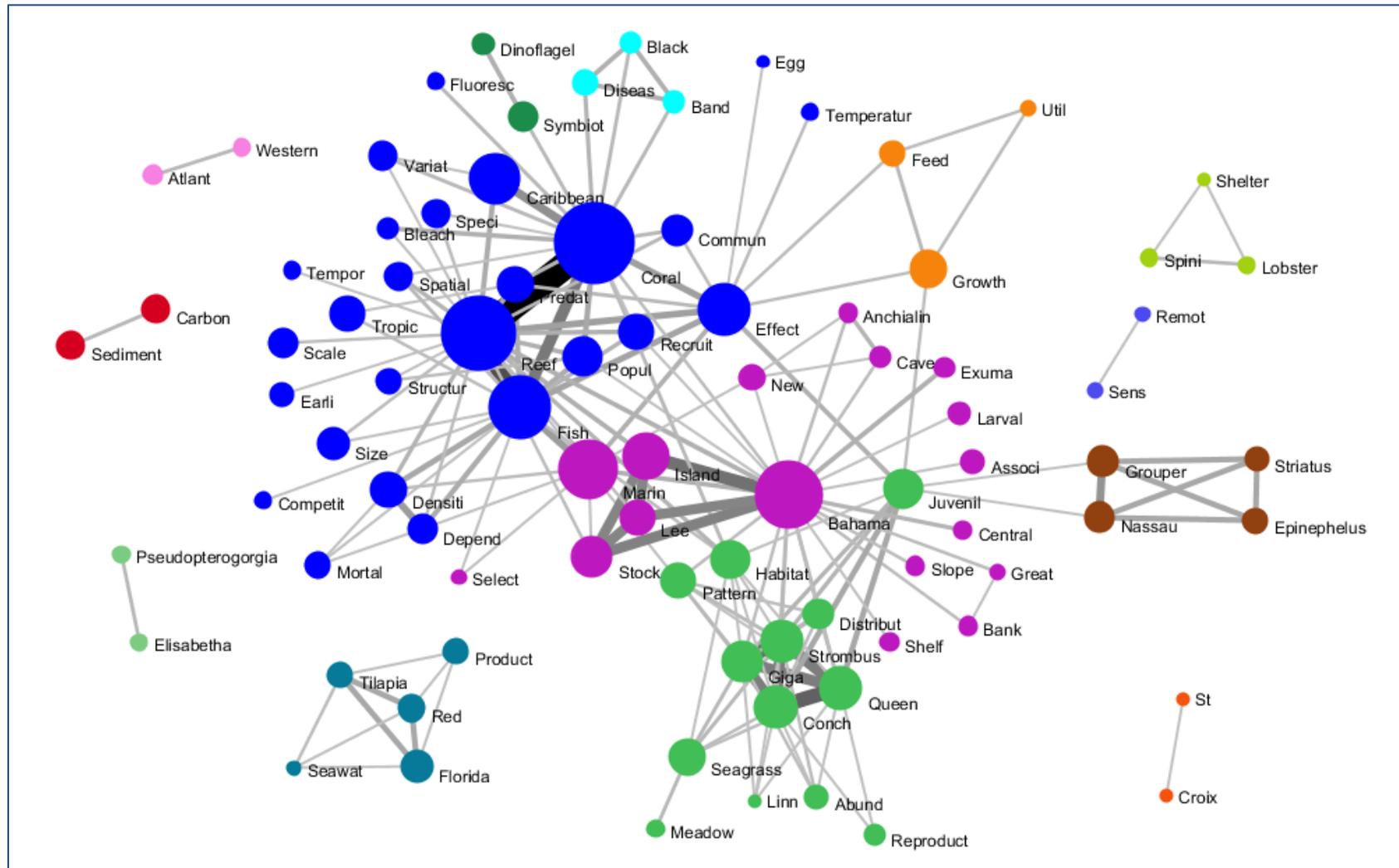
Research Topics

To identify the major topics addressed by publications supported by NURP Centers, keyword networks were derived for each NURP Center from the titles of publications supported by that Center. Words were stemmed and stopwords (and, the, if, etc) were removed prior to creating these networks. A relationship, or edge, is formed between two words if both words appear in the title of one or more publications.

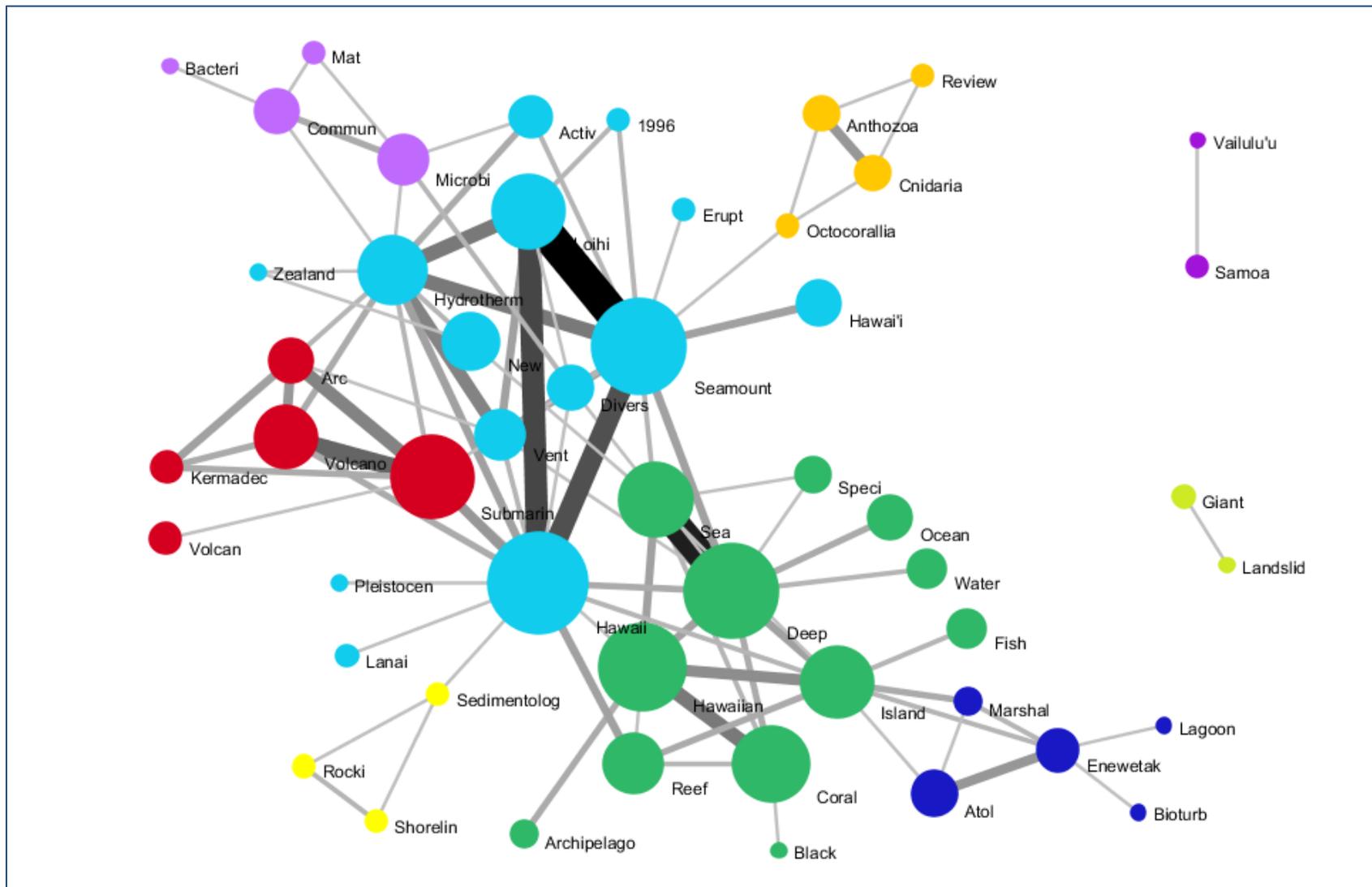
Visualizations, or maps, of the keyword networks created for each NURP center are provided in the following pages. In these visualizations, circles represent words and lines represent edges, or paper titles in which the two connected words both appear. Circles are sized based on the number of titles in which the word appears and colored to indicate research topics. Circles of the same color indicate words that are more likely to appear together in paper titles than with circles of other colors. Edges are sized and colored to indicate the number of paper titles in which the connected words appear together, with thicker and darker edges indicating higher frequency. To increase the clarity and readability of these images, weaker edges were removed and isolated words were deleted. Some words have been repositioned slightly to enhance readability.

These topic maps not only identify the major research topics pursued by each NURP Center, but also indicate the amount of research produced on these topics. For example, both CMRC and SEGM have supported a large amount of research on coral reefs (indicated by the size of the two words and of the edge between them in both maps and by the large number of words connected to those central terms), whereas HURL and WCPR have supported a large amount of research on undersea volcanoes and hydrothermal vents. Collectively, these maps indicate that although each Center has a different research profile, several topic areas—such as corals and coral reefs, undersea geothermal activity, and hydrocarbon seeps—are common to multiple Centers across NURP.

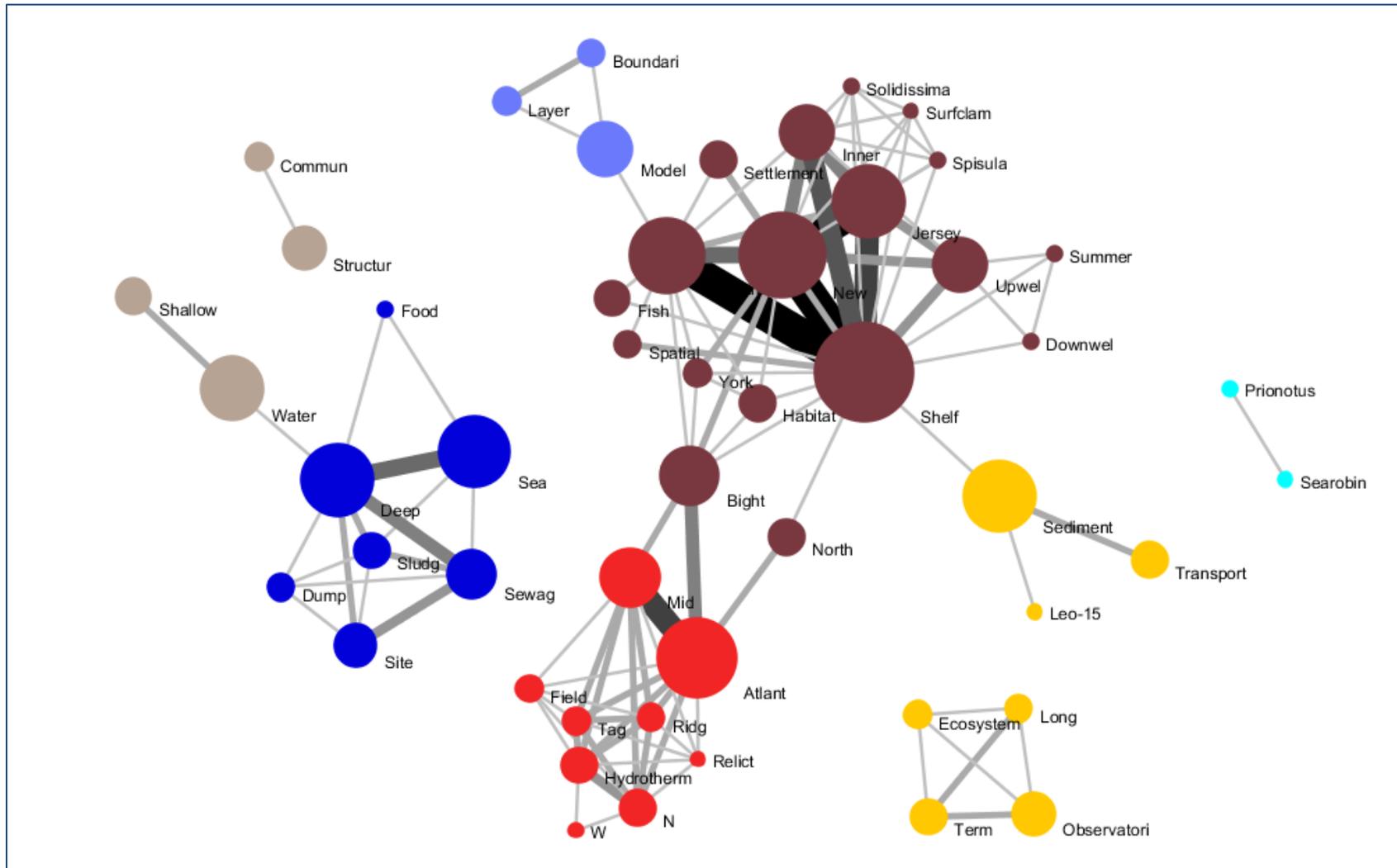
Caribbean Marine Research Center



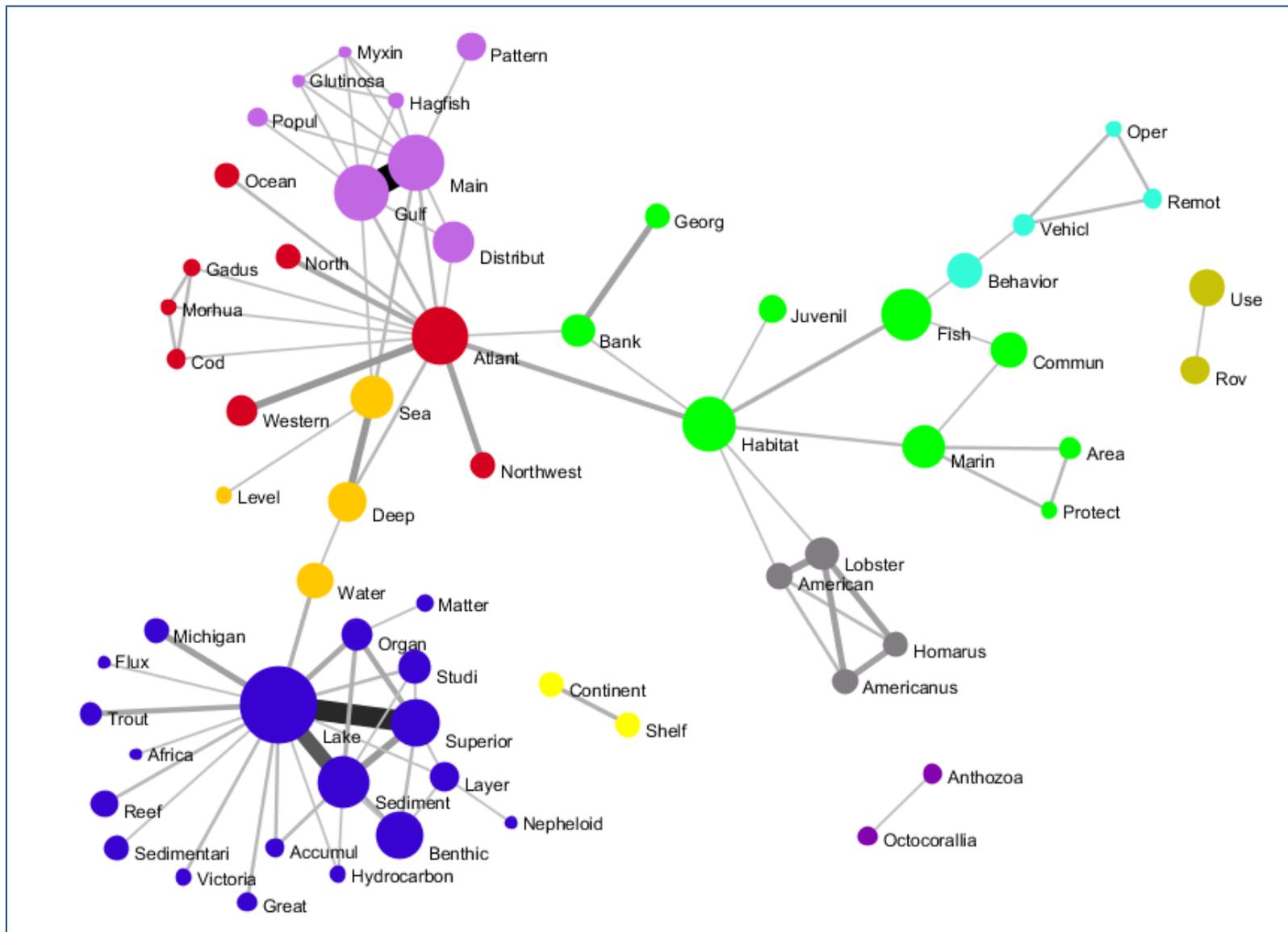
Hawai'i Undersea Research Laboratory



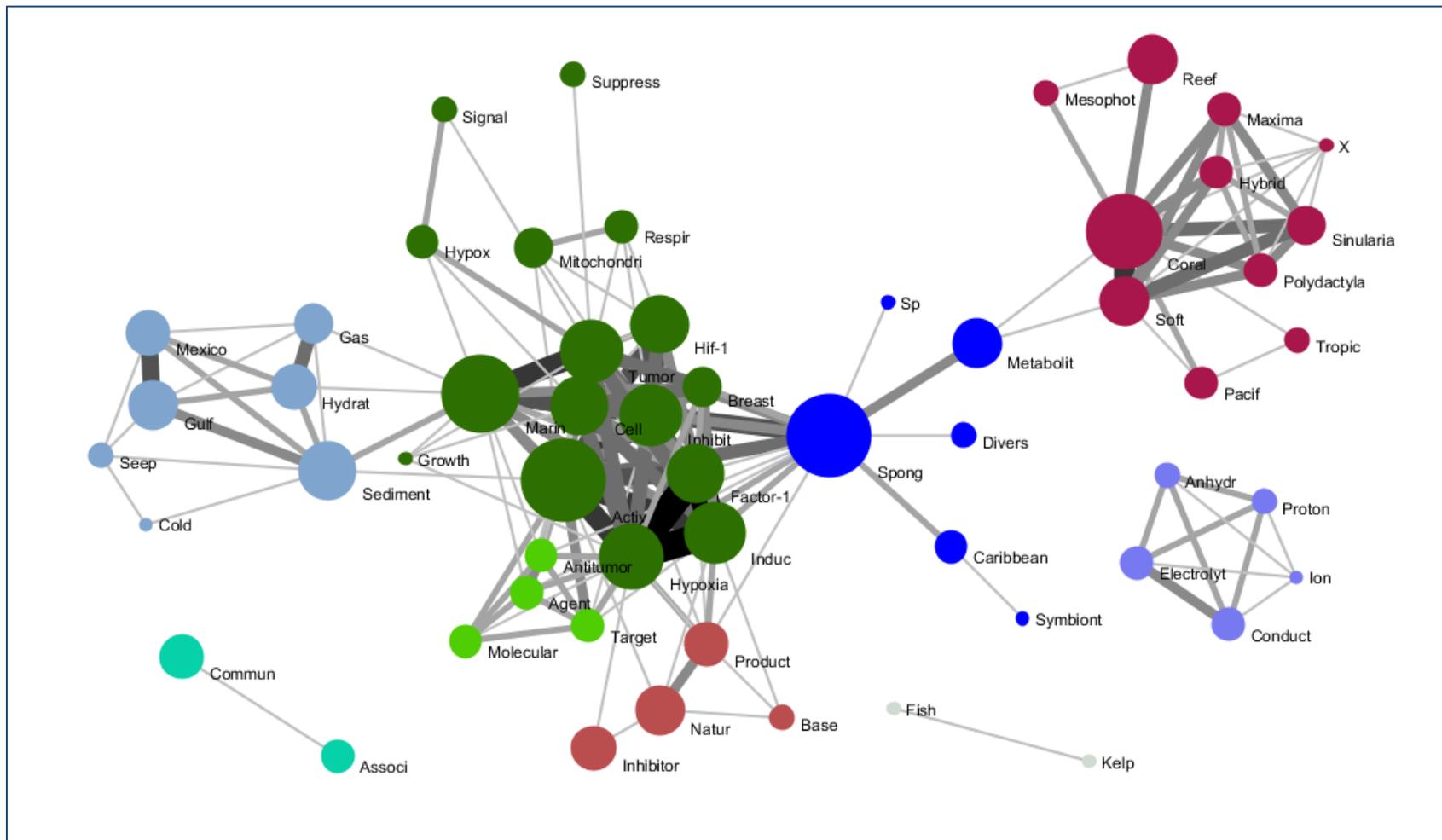
Mid-Atlantic Bight



North Atlantic and Great Lakes



National Institute for Undersea Science and Technology



West Coast and Polar Regions

