CURRICULUM VITAE

Dr. Steven A. Murawski
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EDUCATION

University of Massachusetts at Amherst Fisheries Biology (cum laude) **B.S.** 1973
Course work in zoology, physical sciences, mathematics and statistics, fisheries.

University of Massachusetts at Amherst Fisheries Biology **M.S**. 1976
Course work in fisheries science, applied statistics, and oceanography.
Thesis title: *Population dynamics of anadromous rainbow smelt,* Osmerus mordax*, in the Parker River, Massachusetts*.

University of Massachusetts at Amherst Fisheries and Wildlife Biology **Ph.D**. 1984
Course work in applied statistics, systems ecology and fisheries science.
Dissertation title: *Simulating optimal harvest strategies for mixed-species trawl fisheries off the Northeast coast of the United States.*

ADDITIONAL SPECIFIC TRAINING

Leadership, Supervision, Safety:
NOAA course Supervision and Group Performance,1980.
Workshop on Managing in a Multi-Racial Workplace, 1986
NOAA course EEO Training for Supervisors, 1986 NOAA
course Supervisory Training for Managers. 1988.
Office of Personnel Management Course, Management Development Seminar, Denver, CO, 1993 Office of Personnel Management Course, Managing Scientists and Engineers, 1993, Woods Hole, MA.
Office of Personnel Management Course, Conflict Resolution. 1995, Woods Hole, MA.
Expert witness training. 1994, Woods Hole, MA
Safety Training for Supervisors, 2003
Laboratory safety training, University of South Florida 2012-2025
IACUC Training, 2015, University of South Florida

Technical Training:
FORTRAN IV Computer Programming. Brookdale College, NJ, 1976.
Calculus and Linear Algebra. Bridgewater State College, MA, 1978, 1979.
Time-Series Analysis. University of Massachusetts, 1987
Desktop Publishing, Boston University, 1987
Linear models for unbalanced data. by Shayle Searle, Woods Hole, MA, 1991

Randomization methods in statistical analysis, by Bryan Manly, Woods Hole, MA, 1998
Visual display of quantitative information, by Edward Tufte, 2000, Boston, MA.

US Coast Guard Captain's License (Operator of Uninspected Passenger Vessels, Near Coastal) 2025

PROFESSIONAL EMPLOYMENT

January 2011-present
University of South Florida, College of Marine Science, St. Petersburg, Florida
Supervisor: Dr. Thomas Frazer, Deans, College of Marine Science

Position Title: **Professor and Downtown Partnership/Peter Betzer Endowed Chair of Biological Oceanography**
Description of Duties: As Professor, my duties are to develop and conduct an active program of research, collaboration, and professional development commensurate with the goals of the University. I am developing interdisciplinary programs and research investigating how activities such as recovery of the Gulf of Mexico marine ecosystem can be structured to achieve long term positive outcomes. My research in fisheries science includes developing new technological approaches to the assessment of resource status (reef fishes), employing a towed camera system (C-BASS or camera-based assessment survey system), using novel techniques for understanding fishermen's behavior and choice, and investigating the short- and long-term effects of the *Deepwater Horizon* oil spill on marine animal populations. I undertook the first comprehensive survey of fish diseases of the Gulf of Mexico and continue to analyze the impacts of *Deepwater Horizon* on Gulf fish population dynamics. I served as the Director and Principal Investigator of the Center for Integrated Modeling and Analysis of Gulf Ecosystems (C-IMAGE), funded through a total of $36 million in grants by the Gulf of Mexico Research Initiative (GoMRI). I am currently the Director and PI for the Center for Ocean Mapping and Innovative Technologies (COMIT), a cooperative agreement between the NOAA Office of Coast Survey and the University of South Florida. I served on the National Academies' Ocean Studies Board (two terms), and as the chair of its Fisheries Sub-Committee, and have participated in three OSB - sponsored panels (Use of Chemical Dispersants in Oil Spills, Limited Access Permit Programs, LAPPs, and Decadal Survey of Oceanography). Currently I serve on the National Academies' Gulf Environmental Protection and Stewardship Board, the NOAA Science Advisory Board and the Gulf of Maine Research Institute Science Advisory Committee (Chair, 2024-).

June 2005-January 2011
Employer: National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, Maryland, 20910-3282
Supervisor: Dr. William Hogarth, Assistant Administrator for Fisheries, NOAA
Position Title: **Director of Scientific Programs and Chief Science Advisor**
Informal Title: **Chief Scientist**
Grade: **Federal Senior Executive Service**

Description of Duties: As Chief Scientist for the U.S. National Marine Fisheries Service, I was responsible for the development and implementation of national science programs for the agency. This included the policies and priorities for the use of science supporting the federal Magnuson Stevens Fishery Conservation and Management Reauthorization Act, the Endangered Species Act, the Marine Mammal Protection Act, and many other statutes requiring ecological science input for implementation of federal laws and statutes. I organized and participated in numerous U.S. national government and international fora concerned with ecological sciences, marine science and fisheries management. This includes being the chief agency spokesperson on ecological science issues, representing the agency before Congress and with the administration, and working with the NGO and academic communities. I also participated in formulating new legislation and reauthorization packages to better address environmental issues, and work with CEQ, OSTP, OMB and Congress to both pass legislation and fund its requirements. Overall, I supervised 1,400 permanent employees and about 600 contractors, and executed an annual budget of $450 million, organized into 25 laboratories within six regional Centers (Northeast to the western Pacific Islands). Our science capability utilized 11 ocean-going research vessels as well as numerous other infrastructure assets and technologies. I developed and implemented detailed budgets for science, participated in agency and national management and science policy development, and provided critical and often controversial testimony and briefings to Congress, the federal court system, the US Regional Fishery Management Councils, states and other decision-making bodies. I was heavily involved in international environmental issues with respect to bilateral and multinational treaty obligations of the USA, the United Nations and its various organizations, and the International Council for the Exploration of the Seas, of which I was US Commissioner and vice-President. I was one of NOAA's chief advocates for implementing the ecosystem approaches to its management activities and for understanding the impacts of climate change on living marine resources and their management. I funded numerous studies by the National Academy of Sciences, including three evaluations by the Ocean Studies Board on impacts of ocean acidification, sea turtle assessment methods and infrastructure requirements to meet the national ocean science needs for the next decade.

November 2005-May, 2006

Employer: National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, Maryland, 20910-3282
Supervisor: Dr. Michael Sissenwine
Position Title: **Director, Office of Science & Technology**
Grade: **Federal Senior Executive Service**
Description of Duties: I served as Director of the Office of Science and Technology of the NOAA Fisheries Service. This headquarters office coordinates national science and technology initiatives, science quality assurance, and reporting on the status of fishery resources of the United States. The Office employs 67 people, with an annual budget of $26 million. The office manages the national recreational fisheries statistics data collection program, national fishery information systems program, national observer program, national cooperative research program, national social sciences improvement plan, and the stock assessment improvement initiative, in addition to numerous other initiatives and ongoing programs. The office provides coordination for mission-related services for research vessel usage and construction. Additionally, I serve as the Program Manager for the NOAA Ecosystem Observing Program (EOP), coordinating all NOAA programs that provide ongoing observations of the status of our nation's ecosystems. In

total, this program oversees planning and execution for over $300 million annually of activities related to NOAAs missions. Additionally, I provide science outreach to constituent communities. I served as the USA Delegate to the International Council for the Exploration of the Sea (ICES).

March 2004-October 2004 [**Special Detail**]

Employer: National Marine Fisheries Service, Office of Science and Technology, 1315 East-West Highway, Silver Spring, Maryland, 20910-3282
Grade: GS-482-ZP-V, Supervisory Research Fishery Biologist
Description of Duties: I served as the Program Manager for the Ecosystem Pilot Program funding allocated by Congress in FY-2004 ($1.9 m). This program consisted of four modules including public process development with four regional councils (NE, MA, SA, GOM), GIS application enhancement, and programming/testing of quantitative scientific decision support tools and chairing several technical workshops. Additionally, my duties included serving as the official USA government Delegate to the International Council for the Exploration of the Sea, Member USA GLOBEC Steering Committee, developing a white paper on ecosystem approaches to fishery management and MPAs, and serving as a national stock assessment coordinator.

June 1997 – March 2004

Employer: National Marine Fisheries Service, Northeast Fisheries Science Center, Resource Assessment and Evaluation Division, Woods Hole, Massachusetts 02543
Supervisor: Dr. Fredric Serchuk
Position Title: **Chief, Population Dynamics Branch**
Grade: **GS-482-15/ZP-V** Supervisory Research Fishery Biologist
Description of Duties: I Served as Chief of the Population Dynamics Branch, Resource Evaluation and Assessment Division. In this capacity I supervised the activities of 52 professional fishery biologists, operations research analysts, computer professionals, technicians and administrative personnel (Z series I-IV) and contract employees, with an annual operating budget in excess of $5 million. The primary mission of the Branch was to provide scientific advice on the current status and likely effects of management for about 50 fishery stocks off the northeast USA. Management of Branch activities included prioritizing assessment responsibilities, reviewing the scientific content of research and scenario analyses, and coordinating this work with various management authorities and the regional Stock Assessment Review Committee/Stock Assessment Workshops. Most work is presented at regional Stock Assessment Review Committees/Stock Assessment Workshops, which are assessment review fora jointly conducted by NMFS-NEFSC/NERO/ASMFC/States. I coordinated Branch interactions with various peer review bodies, including the National Academy of Sciences, regional peer review processes (SAW/SARC), and related activities reviewed in Federal courts. Presentations are routinely made before various management bodies, including Regional Councils, ASMFC and various international research/management authorities. Additional Branch research responsibilities included supporting a number of bilateral and multi-national fishery agreements including NASCO (North Atlantic Salmon Conservation Organization), ICES (International Council for the Exploration of the Sea), and NAFO (Northwest Atlantic Fisheries Organization), and the TMGC (Transboundary Management Guidance Committee), between the USA and Canada. I was responsible for overseeing the conduct of specific cooperative research programs with the fishing industry, assuring their scientific rigor and integration into the stock

assessment process. I oversaw the Center's Atlantic salmon research program including a field station in Orono, Maine. I interacted directly with Regional Fishery Management Councils and Staffs, NMFS Northeast Regional Director and staff, NMFS Directorate, and representatives of various other governmental agencies (e.g., U.S. Dept. of State, U.S. Department of the Interior), universities, state marine fisheries agencies and the fishing industry.

December 1990 - June 1997

Employer: National Marine Fisheries Service, Northeast Fisheries Science Center, Conservation and Utilization Division, Woods Hole, Massachusetts 02543
Supervisor: Dr. Vaughn Anthony / Dr. Stephen Clark / Dr. Fredric Serchuk
Position Title: **Chief, Population Dynamics Branch**
Grade: **GM-482-14** Supervisory Research Fishery Biologist
Description of Duties: I served as Chief of the Population Dynamics Branch, Conservation and Utilization Division. In this capacity the activities 27 professional fishery biologists, operations research analysts, computer professionals, technicians and administrative personnel (G.S./G.M. 4-14) were directed, with an annual operating budget of about $2 million. The primary mission of the Branch was to provide scientific advice on the current status and likely effects of management for about 50 fishery stocks off the northeast USA. Management of Branch activities included prioritizing assessment responsibilities, reviewing the scientific content of research and scenario analyses, and coordinating this worked with various management authorities and the regional Stock Assessment Review Committee/Stock Assessment Workshops. Most work was presented at regional Stock Assessment Review Committees/Stock Assessment Workshops, which were assessment review fora jointly conducted by NMFS-NEFSC/NERO/ASMFC/States. Presentations are routinely made before various management bodies, including Regional Councils, ASMFC and various international research/management authorities.

I served as editor of the annual NEFSC publication 'Status of the Fishery Resources off the Northeastern United States', and supervised production of regional summaries for the NMFS national document 'Our Living Oceans'. Additional Branch research responsibilities included supporting a number of bilateral and multi-national fishery agreements including NASCO (North Atlantic Salmon Conservation Organization), ICES (International Council for the Exploration of the Sea), and NAFO (Northwest Atlantic Fisheries Organization). I served as a Member of the Scientific and Statistical Committee of the Mid-Atlantic Fishery Management Council, and as USA representative to the ICES Working Groups on Methods of Fish Stock Assessment, Multispecies Fisheries (chairman of Multispecies Committee 1988-1992), and Cod and Climate Change (Convener of the 1995 workshop on database needs), and member of the ICES/GLOBEC Cod and Climate Programme Steering Committee (1996-present). I was also the USA ICES Demersal Fish Committee member. Research topics in which I was personally involved include specific studies on important fisheries as well as generic investigations to develop new methodologies for stock assessment, such as evaluating the magnitude and significance of fisheries bycatch, and aspects of management of multispecies fisheries. I interacted directly with Regional Fishery Management Councils and Staffs, NMFS Northeast Regional Director and staff, NMFS Directorate, and representatives of various other governmental agencies (e.g., U.S. Dept. of State, U.S. Department of the Interior), universities, state marine fisheries agencies and the fishing industry. Additionally, I represented the Agency in proceedings in federal district courts (MA, VA, ME) and before an administrative law judge.

March 1986 - December 1990

Employer: National Marine Fisheries Service, Northeast Fisheries Center, Conservation and Utilization Division, Population Dynamics Branch, Woods Hole, Massachusetts 02543
Supervisor: Dr. Tim Smith
Position Title: **Chief, Mid-Atlantic Offshore Fishery Resources Investigation**
Grade: **GM-482-13** Supervisory Fishery Biologist (Research)
Description of Duties: Served as Chief of the Mid-Atlantic Offshore Fishery Resources Investigation, of the Population Dynamics Branch, Conservation and Utilization Division. Supervised the activities seven professional fishery biologists and technicians (G.S. 4-13), in relation to stock assessment activities on several species of commercial /recreational fisheries importance, primarily in the Middle Atlantic Region, off the northeast USA. Stocks included Atlantic mackerel, butterfish, surf clams, tilefish, ocean quahog, haddock, as well as several other species. Investigation activities also included conduct of marine mammal research and management of all marine mammal contracts awarded in the Northeast Fisheries Center, and coordination of one of the semi-annual stock assessment workshops conducted by the Conservation and Utilization Division. Serves as Leader of the Biological Interactions Research Program within the Population Dynamics Branch, coordinating research activities on the effects of interspecies predation on management advice. Specific duties included responsibility for conducting stock assessment research on the surf clams and ocean quahogs, and for timely distribution of the results of this research to appropriate management bodies (e.g., Regional Fishery Management Councils), members of the fishing industry and general community. Served as a member of the Scientific and Statistical Committee of the Mid-Atlantic Fishery Management Council, and as USA representative to the ICES (International Council for the Exploration of the Sea) Working Groups on Methods of Fish Stock Assessment, and Multispecies Fisheries (chairman of Multispecies Committee 1988-1992). Served as USA ICES Shellfish Committee member. Appointed member of the Northeast Fisheries Center Research Council. Research topics included specific directed studies on important fisheries as well as generic investigations to develop new methodologies for stock assessment, such as incorporation of discards into assessment calculations, and aspects of management of multispecies fisheries. Interacted directly with Regional Fishery Management Councils and Staffs, NMFS Northeast Regional Director and staff, NMFS Directorate, and representatives of various other governmental agencies (e.g., U.S. Dept. of State, U.S. Department of the Interior), universities, state marine fisheries agencies and the fishing industry.

June 1985 - March 1986

Employer: National Marine Fisheries Service, Resource Assessment Division, Northeast Fisheries Center, Woods Hole, Massachusetts 02543
Supervisor: Dr. Emory D. Anderson
Position Title: **Fishery Biologist (Research)**
Grade**: GS-482-13**
Description of Duties: Member of the Mid-Atlantic Offshore Fishery Resources Investigation of the Population Dynamics Branch. Served as Acting Investigation Chief from October 1985 - March 1986. Primary responsibility to conduct population dynamics and related studies in support of management Council needs for stocks in the Middle Atlantic region off the USA east

coast. Stocks primarily include surf clam and ocean quahog. Developed population models and related data to project the likely impacts of alternative management regulations for these species. Conduct annual assessments of stocks based on research vessel and commercial catch sampling data. Developed methods for analyzing multispecies fisheries in a system context, concentrating on technological interactions as an impediment to full utilization of fishery resource production. Serves as member of the Mid-Atlantic Fishery Management Council's Scientific and Statistical Committee, and USA representative to a number of national and international fishery consultative bodies (e.g. ICES Assessment Methods and Multispecies Working Groups). Interacts as scientific advisor to Regional fishery Management Councils (New England and Mid-Atlantic) and staffs, NMFS Northeast Director and staff, NMFS Washington Directorate, and representatives of various other governmental agencies (e.g. Department of State, Interior), universities, state marine fisheries agencies and the fishing industry

December, 1982 - June 1985

Employer: National Marine Fisheries Service, Resource Assessment Division, Woods Hole, Massachusetts

Supervisor: Dr. Fredric M. Serchuk

Position Title: **Fishery Biologist (Research)**

Grade: **GS-482-12**

Description of duties: Member of the Shellfish Assessment Investigation of the Resource Assessment Division, with primary responsibility to implement timely directed stock assessment research on surf clam and ocean quahog populations (two commercially important offshore bivalve mollusk species) in waters off the Northeast USA. Results of research vessel surveys, growth, mortality and advanced population modeling studies are of critical importance in the development of successful management programs for these two species under U.S. Federal Regional Fishery Management council authority. Duties also include modeling and related research on mixed-species trawl fishery problems in support of the New England Fishery Management Councils Atlantic Demersal Finfish (ADF) management plan. Acts as NEFC representative to the Fishery Management Plan (FMP) priorities committee and had responsibility to coordinate efforts of the Resource Assessment Division relative to U.S./Canada East Coast Boundary disputes adjudicated in World Court proceedings. An additional responsibility is to act as official United States representative to the ICES working group on Stock Assessment Methods and the Multispecies working group, and to coordinate the dissemination of information from these international committees so as to maintain advanced assessment capabilities within the NEFC and NMFS. In this capacity periodically supervises teams of 1-3 junior and mid-level (GS-5-11) fishery biologists, as well as student trainees. Interacts directly with Regional Fishery Management Councils and staff, NMFS Northeast Regional Director and staff, NMFS Directorate staff, and representatives of various other governmental agencies (e.g., U.S. Department of State), universities, state marine fisheries agencies, and the fishing industry. Also interacts with other NEFC Divisions and represents NMFS in other forums such as NAFO.

December 1980 - December 1982

Employer: National Marine Fisheries Service, Woods Hole Laboratory

Supervisor: Dr. Michael P. Sissenwine

Position Title: **Fishery Biologist (Research)**

Grade: **GS-482-12**

Description of Duties: Member of Fishery Systems Investigation responsible for conducting research addressing more realistic methods for identifying and managing mixed-species trawl fisheries off the Northeast USA. Focus of this research related to the Northeast Fishery Management Task Force organized in 1979 by the New England and Mid- Atlantic Fishery Management Councils and the Northeast Regional Office of NMFS. Duties included responsibility for conducting research on the dynamics of surf clam and ocean quahog stocks in the Northeast Region and conveying results directly to fishery managers within NMFS and to the Regional Councils. Frequently represented NEFC and NMFS in advising management councils, NMFS Directorate, various state marine fisheries agencies, and university Staff. Periodically supervised teams of junior level biologists and statisticians, and student trainees.

June 1979 - December 1980

Employer: National Marine Fisheries Service, Woods Hole Laboratory

Supervisor: Dr. Fredric M. Serchuk

Position Title: **Fishery Biologist (Research)**

Grade: **GM-482-11**

Description of Duties: Member of the Fishery Analysis Investigation responsible for conducting population dynamics research on various species of commercial and recreational importance off the Northeast USA. Designed, conducted, and analyzed the results of various empirical and modeling studies to elucidate the productivity potential of various significant stocks of finfish and shellfish. Specific duties included execution of the first comprehensive analysis of ocean quahog population dynamics, and development of reliable survey abundance measures for surf clam and ocean quahog. Served as chief NEFC representative at Management Council meetings, industry panels and public hearings when management of surf clam-ocean quahog and butterfish resources were considered. Consulted on numerous occasions with council staffs and industry representatives regarding impacts on resources of various management scenarios. Additional duties included serving as NEFC representative on the Regulation Review Team of the Northeast Regional Office (NMFS), responsible for overall review of management programs administered in the region, assumed responsibilities of Chief Scientist and Watch Chief aboard NOAA research vessels and initiated sea-sampling trips aboard various commercial clam-quahog fishing vessels. Supervised teams of junior level fishery biologists and technicians in specific projects.

April 1977 - June 1979

Employer: National Marine Fisheries Service, Woods Hole Laboratory

Supervisor: Dr. Bradford E. Brown

Position Title: **Fishery Biologist (Research)**

Grade: **GS-482-9**

Description of Duties: Member of the Fishery Statistics and Fishery Analysis Investigations, conducted research on stock status and yield potential of surf clam, ocean quahog, butterfish and weakfish resources of the Middle Atlantic Bight. Coordinated the transition to a stratified random sampling design for ocean shellfish assessment cruises. Restructured existing data bases for commercial catch sampling, age and growth, and research survey abundance information for rapid retrieval and synthesis. Acted as NEFC scientific advisor during the preparation of the surf

clam-ocean quahog and butterfish management plans by the Mid- Atlantic Fishery Management Council. Served as Chief Scientist and Watch Chief in various NOAA research vessel cruises.

February 1976 - April 1977

Employer: National Marine Fisheries Service, Sandy Hook Laboratory, Highlands, New Jersey, USA

Supervisor: Dr. Sukwoo Chang

Position Title: **Fishery Biologist (General)**

Grade: **GS-482-7**

Description of Duties: Assisted in the preparation of stock assessments of several species of commercial and recreational importance in the Middle Atlantic including weakfish, butterfish, and surf clams. Prepared computer programs for the analysis of age and growth data collected from groundfish surveys during 1972-1977. Acted as statistical consultant to various projects in the Middle Atlantic Center. Participated in research on the effects of anoxic conditions off the New Jersey coast during 1976 and was a member of scientific parties aboard NMFS research vessels.

September 1975 - February 1976

Employer: Institute for Man and Environment, University of Massachusetts, Amherst, Massachusetts

Position Title: **Research Assistant**

Description of Duties: Compiled existing literature on the ecology, dynamics and effects of environmental alterations on species of finfish found in Massachusetts coastal waters. Information from this study was compiled in book form and is currently used by coastal zone planners in various state agencies.

September 1973 - September 1975

Employer: Massachusetts Cooperative Fishery Research Unit, University of Massachusetts, Amherst, Massachusetts

Position Title: **Research Assistant**

Description of Duties: Conducted field investigations and associated laboratory studies of the population dynamics and movement patterns of anadromous rainbow smelt in the Parker River, Massachusetts. Studies involved determining the age and sex composition of the winter sport fishery, and biological characteristics of the spring spawning runs. A tagging system was developed and used successfully to determine rates and extent of movement between river tributaries during spawning and throughout the year. Data developed during the study were used by the State Marine Fisheries Agency to develop rational management policy.

September 1972 - January 1973

Employer: Zoology Department, University of Massachusetts, Amherst

Position Title: **Laboratory Assistant**

Description of Duties: Maintained museum collections of fishes for ichthyology and vertebrate zoology classes. Set up laboratory demonstrations and serviced field collecting equipment.

SPECIAL ASSIGNMENTS AND ACTIVITIES

Research vessel surveys and fishing Vessel Observations

R/V WIECZNO. September 1974. Juvenile herring and mackerel survey, Georges Bank, aboard Polish national research vessel

F/V VALERIE E. August 1976. Clam survey during summer anoxia conditions, coast of New Jersey

R/V. ALBATROSS IV. September-October 1976. Autumn groundfish survey, Cape Cod, MA - Cape Hatteras, VA.

R/V DELAWARE II. April 1977. Shellfish resource assessment cruise, Cape Cod, MA - Cape Charles, VA.

R/V DELAWARE II. July 1977. Clam dredge testing w/dive team off Long Island, NY.

R/V DELAWARE II. January-February 1978. Shellfish resource assessment cruise. Clam dredge survey Cape Cod, MA - Cape Hatteras, NC.

F/V DIANE MARIA. July-August 1978. Ocean quahog marking project off Long Island, NY.

R/V DELAWARE II. December 1978. Shellfish resource assessment cruise. CHIEF SCIENTIST. Clam dredge survey from Montauk Pt., NY, to Cape Charles, VA.

R/V DELAWARE II. April 1979. Groundfish survey cruise. WATCH CHIEF. Southern New England - Gulf of Maine.

F/V KRISTY LEE. June 1979. Sea sampling trip from Ocean City, MD.

F/V BRANDYWINE. June 1979. Sea sampling trip from Chincoteague, VA.

F/V NORMAN D. June 1979. Sea sampling trip from Ocean City, MD.

R/V DELAWARE II. August 1979. Recovery of marked ocean quahogs and gear testing. Long Island, NY.

R/V DELAWARE II. January 1980. Ocean clam survey. WATCH CHIEF. Cape Cod to Cape Hatteras, NC.

R/V DELAWARE II. April 1980. Groundfish survey, WATCH CHIEF. Southern New England - Gulf of Maine.

R/V DELAWARE II. September 1981. Groundfish survey. WATCH CHIEF. Georges Bank.

F/V SHINNECOCK. August 1984. Sea sampling trip to Georges Bank from Provincetown, Massachusetts.

R/V ALBATROSS IV. February 1985. Yellowtail flounder stock assessment survey.

R/V DELAWARE II. June, 1986. Ocean clam resource survey cruise. WATCH CHIEF.

R/V EDWIN LINK-JOHNSON SEA LINK II (submersible). Submersible studies to evaluate the impacts of shellfish dredging on continental shelf resources. CHIEF SCIENTIST.

R/V J.W. POWELL-DELTA (submersible). Completion of submersible studies to evaluate the effects of shellfish dredging. CHIEF SCIENTIST.

R/V DELAWARE II. April 1988. Groundfish survey.

R/V ALBATROSS IV. April, 1996. Groundfish survey.

F/V MARY K. February, 2001. Cooperative Monkfish resource survey, with fishing industry vessels.

F/V HEATHER LYNN, November, 2003. Cooperative research with hook fishing vessel for haddock out of Chatham, Massachusetts.

F/V PISCES, BRANDY, June-August 2011, 2012. CHIEF SCIENTIST. Longline surveys to determine status of fish diseases on reef fish species

R/V WEATHERBIRD II. August, 2012-current. CHIEF SCIENTIST. Sediment coring and fish longlining cruises throughout the Gulf of Mexico (USA, Mexico, Cuba, 12 cruises combined).

Special Assignments:

Director and Principal Investigator of the center for Ocean Mapping and Integrative Technologies (COMIT) a cooperative agreement between the NOAA Office of Coast Survey and the University of South Florida ($9 million, 5-year agreement, 2020-2026).

Director and Principal Investigator for the Center for Integrated Modeling and Analysis of Gulf Ecosystems (C-IMAGE-I), funded through an $11 million grant by the Gulf Research Initiative (GoMRI), C-IMAGE-II in 2014 ($20.01 million), C-IMAGE-III ($5.1 million in 2017). Total = $36.1 million

Appointed U.S. National Delegate (commissioner), International Council for the Exploration of the Sea (ICES, 2005-2011) http://www.ices.dk/indexfla.asp Elected Vice-President, 2009 (served until 2011)

NOAA Representative to the Presidential Ocean Policy Task Force (2009), working group member on implementation options for ocean policy recommendations, co-authored the National Ocean

Policy http://www.whitehouse.gov/administration/eop/ceq/initiatives/oceans/interim-framework

Co-Chair of the White House's National Science and Technology Council (NSTC), Joint Subcommittee on Ocean Science and Technology (JSOST); Served as one of the Principal Authors of the Ocean Research Priorities Plan and Implementation Strategy (ORPP/IS): http://ocean.ceq.gov/about/sup_jsost_prioritiesplan.html

Served as NOAA's Representative to the National Science and Technology Council's Subcommittee on Ecological Systems. This Subcommittee coordinates research on sustainability and ecological services across resource management and science agencies, and has sponsored numerous efforts including the National Academy of Sciences Workshop (2008): "*Transitioning to Sustainability through Research and Development on Ecosystem Services and Biofuels*": http://sustainability.nationalacademies.org/

One of the principal sponsors and member of the design committee producing the Heinz Center's State of the Nation's Ecosystems 2008 report. This compilation provides a systematic evaluation of terrestrial and aquatic ecosystems, monitoring data and interpretation of ecosystem status. http://www.heinzctr.org/ecosystems

Served as the NOAA Ecosystem Goal Team (EGT) Lead (2006-2010): The EGT is a NOAA cross-Line Office "matrix" (NMFS, NOS, OAR, NESDIS) group charged with strategic planning for all ecosystem-related programs in fisheries, protected species and areas, coastal programs, ocean research, and data archival. These programs constitute about $1.2 billion in annual expenditures, accounting for >25% of NOAA's annual budget. http://ecosystems.noaa.gov/

Principal scientist generating a cross-agency program (government scientists, the academic community and foundation donors) to conduct Comparative Analysis of Marine Ecosystem Organization (CAMEO), http://cameo.noaa.gov/

US Scientific Advisor to United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea, http://www.un.org/Depts/los/consultative_process/consultative_process.htm and the Food and Agriculture Organization (FAO) regarding numerous issues of fishery and marine ecosystem science

Served as member of the Scientific and Statistical Committee of the Mid-Atlantic Fishery Management Council, 1991-1995. Committee is responsible for ensuring the proposed management measures for FMP (fishery management plan) stocks are scientifically justifiable based on the adequacy of data, and analyses and their specific application to the fishery in question.

Appointed as a member of the National Academy of Sciences USA oversight board for the International Institute for Advanced Systems Analysis (IIASA), 2010-2016

Appointed to the Ocean Studies Board of the National Research Council of the National Academy of

Sciences (2013-2018), served on the Decadal Survey of Oceanography (2013-2015), the Dispersants Study (2017-2019), and the LAPP (limited-access permit program) study (2020-2021).

Appointed as a member of the NOAA Scientific Advisory Board (SAB), term 2024-2026

Appointed as Chair of the Scientific Advisory Committee (SAC) of the Gulf of Maine Research Institute, 2024-2026

Appointed as Member of the Gulf Environmental Protection and Stewardship (GEPS) Board of the National Academies, 2023-2026, created to oversee research programs funded by the settlement of claims owing to the Deepwater Horizon oil spill

RECENT KEYNOTE/PLENARY LECTURES

If I were Posiedon: Right Sizing an Ocean Observing System for the Gulf of Mexico. Plenary Panel, Gulf of Mexico Oil Spill and Ecosystem Science Conference. http://gulfofmexicoconference.org/program/plenary-panelists/

Current State of the Gulf of Mexico. Public Forum Gulf of Mexico. Gulf of Mexico Oil Spill and Ecosystem Science Conference. http://gulfofmexicoconference.org/2012/public-forum-abroader-understanding-of-the-current-status-of-the-gulf-of-mexico/

Overview of oil and dispersant impacts and mitigation on living marine resources. DEEPWATER HORIZON OIL SPILL PRINCIPAL INVESTIGATOR WORKSHOP OCTOBER 25-26, 2011 http://www.whitehouse.gov/sites/default/files/microsites/ostp/SOST%202011%20DWH%20Workshop%20Final%20Report.pdf

Lessons from Deepwater Horizon. Oil on the Waves Symposium, Den Helder, Netherlands, April 2011. Oil on the Waves, held in Den Helder, Netherlands April 20th 2011.

Rebuilding Depleted Fisheries: The Good, the Bad, and the Mostly Ugly". ICES/PISCES UNCOVER Workshop. 2009. http://www.uncover.eu/index.php?id=180

Climate Change Effects on Fish and Fisheries: Forecasting Impacts, Assessing Ecosystem Responses, and Evaluating Management Strategies, Boston, MA

Symposium final plenary outcomes. Sendai, Japan http://www.pices.int/publications/book_of_abstracts/2010-Sendai-Book%20of%20Abstracts.pdf

News of the death of fishery-dependent data has been greatly exaggerated. ICES/PISCES Symposium on the Use of Fishery-Dependent Data in Fisheries management. Galway, Ireland, August, 2010 I http://www.marine.ie/fisherydependentdata/Documents/Book%20of%20abstracts/Book%20of%20Abstracts%20master.pdf

Selected Congressional and other Testimony:

Subcommittee on Insular Affairs, Oceans and Wildlife Oversight hearing on Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006. October 27, 2009
http://republicans.resourcescommittee.house.gov/Calendar/EventSingle.aspx?EventID=150420

Oversight hearing on rebuilding overfished fisheries under the Magnuson-Stevens Fishery Conservation and Management Act before the House of Representatives Committee on Natural Resources Subcommittee on Fisheries, Wildlife and Oceans, December 5, 2007
http://www.legislative.noaa.gov/Testimony/murowski120507.pdf

Oversight hearing on projected and past effects of climate change: a focus on marine and terrestrial ecosystems before the Senate Committee on Commerce, Science and Transportation Subcommittee on Global Climate Change and Impacts. United States Senate, April 26, 2006
http://www.legislative.noaa.gov/Testimony/murawski042606.pdf

Field Oversight Hearing on two bills to reauthorize the Magnuson-Stevens Fishery Conservation and Management Act (1) "American fisheries management and marine life enhancement act" (H.R. 5018) and (2) "fishery management amendments act of 2006" (H.R. 4940) before the Committee on Resources, U.S. House of Representatives, New Bedford, Ma, April 25, 2006
http://www.legislative.noaa.gov/Testimony/murawski042506.pdf

Statement to the US Commission on Ocean Policy. Scientific Challenges in Supporting Living Marine Resource Management. Boston, MA. July 23, 2002.
http://www.oceancommission.gov/meetings/jul23_24_02/murawski_testimony.pdf

House Natural Resources Committee, Oversight Hearing on "Innovations in Safety Since the 2010 Macondo Incident." *April 22, 2015, Washington DC*
http://naturalresources.house.gov/uploadedfiles/murawskitestimony.pdf

Witness, U.S. Senate Hearing: "Improvements and Innovations in Fishery Management and Data Collection" May 20, 2015

MEMBERSHIP IN PROFESSIONAL SOCIETIES

American Fisheries Society (including Marine Section, Northeast Division, and Southeast Division)

American Association for the Advancement of Science (AAAS) 2005 to present., Elected Fellow, 2015

The Oceanography Society, 2015-present

SCIENTIFIC AND PROFESSIONAL HONORS AND AWARDS

NOAA Unit Citation, Population Dynamics Branch, 1994

Department of Commerce/NOAA **Bronze Medal** [individual], November, 1994, for *'professional accomplishments in fishery population dynamics research*'.

Department of Commerce/NOAA **Bronze Medal** [team], November, 1999, for *'rapid and successful development of a fishery management program - Georges Bank sea scallop'* Includes Special Act Award

NMFS Employee of the Year, Northeast Fisheries Science Center, Management/Supervision Category. March, 2003

Distinguished Alumni Award, 2003. Department of Natural Resource Conservation, University of Massachusetts, Amherst, Massachusetts, April, 2003
http://www.umass.edu/forwild/Banquet/2003.htm

Department of Commerce/NOAA **Bronze Medal** [team] "*for developing new analytical techniques for computing biological reference points and developing adaptive management approaches for New England groundfish, September, 2003*".

David Belding Award for Fishery Research and Conservation. Massachusetts Division of Marine Fisheries, December, 2004

NOAA **BRONZE Medal** 2007, for "*providing the vision and scientific and organizational leadership across NOAA to respond to devastating effects of hurricanes Katrina and Rita*".

U.S. Department of Commerce **GOLD Medal**, 2007, for: "*Assisting in the passage of the 2006 Magnuson Stevens Fishery Conservation and Management Reauthorization Act, a major administration priority*".

Presidential Rank Award for Meritorious Service, United States Senior Executive Service, Conferred by President Barack Obama, October, 2009. "*Each year, the President recognizes a small group of career Senior Executives with the President's Rank Award for exceptional long-term accomplishments. Winners of this prestigious award are strong leaders, professionals, and scientists who achieve results and consistently demonstrate strength, integrity, industry, and a relentless commitment to excellence in public service*".

Dwight A. Webster Memorial Award. American Fisheries Society, Northeastern Division. April, 2011. For: *"Meritorious/prestigious service to the profession and fisheries"*.

USF Outstanding Faculty Research Award, 2013

USF, College of Marine Science, Mentor of the Year Award, 2015

AAAS, Elected Fellow, 2016

USF Outstanding Faculty Award, 2016

USF Global Engagement (group) award, C-IMAGE Consortium, 2017

American Fisheries Society, Award of Excellence, 2023 *"The most prestigious of the Society's awards".*

GRANTS (Total = $57,794,633 2011 TO PRESENT)

National Oceanic and Atmospheric Administration (2011-2014): for "Systematic Survey of Finfish Diseases in the Northern Gulf of Mexico" $423,000

National Oceanic and Atmospheric Administration (2011-2015): for "Reef Fish Stock Assessment Initiative" $399,000

Gulf of Mexico Research Initiative (2012-2021): for "Center for Integrated Analysis and Modeling of Gulf Ecosystems (C-IMAGE)". Serving and Director and Principal Investigator. Total Grant $11,000,000

National Oceanic and Atmospheric Administration (2012-2014): for "C-BASS, Camera-Based Assessment System" $253,000

Florida Institute of Oceanography (2012-2013): for competitive days at sea aboard the R/V BELLOWS $37,800 for C-BASS cruise

National Science Foundation (2013-2017), for: Novel approaches for understanding human use patterns of coastal natural resources" $550,000

National Oceanic and Atmospheric Administration: for "Support of the Gulf of Mexico Fisheries Symposium, St. Pete Beach, September 2012" $25,000

Gulf of Mexico Research Initiative, C-IMAGE II: for "Center for Integrated Modeling and Analysis of Gulf Ecosystems" $20,010,000

National Fish and Wildlife Foundation: for "Restoring Fish and Sea Turtle Habitat on the West Florida Continental Shelf: Benthic Habitat Mapping, Characterization and Assessment, $4,477,863

National Academy of Sciences (2015-2018): For "Understanding Oil Spill Impacts on Fishing Communities of the Gulf of Mexico: From Deepwater Horizon to Future Spill Scenarios" $1,000,000.

Gulf of Mexico Research Initiative, C-IMAGE III: for "Center for Integrated Modeling and Analysis of Gulf Ecosystems" $5,141,000

Tampa Bay Estuary Program (2020-2021), for "Do PFAS Compounds Represent a Threat to Tampa bay Ecosystems" $147,000

NOAA National Ocean Service (NOS) (2020-2022) for "Collaborative Habitat Mapping Big Bend Demonstration Project" $274,000

NOAA National Ocean Service, Office of Coast Survey (2020-2025) for "Center for Ocean Mapping and Integrative Technologies (COMIT)" $8,970,000 (5 years)

NOAA Mississippi/Alabama Sea Grant, for "Greater Amberjack Count" (2021-2024) $1,115,000 (2021-2023)

National Oceanic and Atmospheric Administration (2023-2027): for "Surveillance of Emerging Pollutant Threats in Tampa Bay" $3,400,000

National Science Foundation (2025-2029) DISES: Dynamics of Integrated Socio-Environmental Systems "Spatial Dynamics of Emerging Chemical Threats Along Social and Ecological Gradients in a Large Urban-to-Rural Estuarine System" $750,000

National Sea Grant College program, South Carolina Sea Grant (2025-2026). "Does Variability in Coastal Hydrology Affect the Sources and Concentration of CECs in a Large Estuarine System in Florida?" $75,000

PUBLICATIONS AND REPORTS (chronological order)

[1] **Murawski, S.A.** 1976. Population dynamics and movement patterns of anadromous rainbow smelt, *Osmerus mordax*, in the Parker River, Massachusetts. M.S. Thesis, **Univ. of Mass**., Amherst. 125 pp.

[2] **Murawski, S.A.**, and A.L. Pacheco. 1977. Biological and fisheries data on Atlantic sturgeon, *Acipenser oxyrhynchus* (Mitchill) Nat. Mar. Fish. Serv., **Sandy Hook Lab. Tech. Rpt**. 10:69 pp.

[3] Brown, B.E., E.M. Henderson, **S.A. Murawski** and F.M. Serchuk. 1977. Review of status of surf clam populations in the Middle Atlantic. Nat. Mar. Fish. Serv. **Woods Hole Lab. Ref**. 77-08. 16 pp.

[4] **Murawski, S.A.** 1977. Yield-per-recruit analysis of surf clams in the Middle Atlantic Bight. Nat. Mar. Fish. Serv. **Woods Hole Lab. Ref**. 77-12:10 pp.

[5] **Murawski, S.A.** 1977. A preliminary assessment of weakfish in the Middle Atlantic Bight. Nat. Mar. Fish. Serv. **Woods Hole Lab. Ref**. 77-26:14 pp.

[6] **Murawski, S.A.** and G.T. Waring. 1977. An assessment of the butterfish, *Peprilus triacanthus* (Peck) off the northwestern Atlantic coast. Nat. Mar. Fish. Serv. **Woods Hole Lab. Ref.** 77-29:33 pp.

[7] **Murawski, S.A.** and C.F. Cole. 1978. Population dynamics of anadromous rainbow smelt, *Osmerus mordax*, in a Massachusetts River System. **Trans. Am. Fish. Soc.** 107(4):535-542.

[8] **Murawski, S.A.**, D.G. Frank and S. Chang. 1978. Biological and fisheries data on butterfish, *Peprilus triacanthus* (Peck). Nat. Mar. Fish. Serv., **Sandy Hook Lab. Tech. Rpt.** 6:39 pp.

[9] Clayton, G.C., C.F. Cole, **S.A. Murawski** and J.D. Parrish. 1978. Common marine fishes of coastal Massachusetts. Coop. Ext. Serv., **Univ. of Mass-MIT Sea Grant:** 231 pp.

[10] Serchuk, F.M., **S.A. Murawski** and B.E. Brown. 1978. Assessment of offshore surf clam populations in Mid-Atlantic waters: Data, methodologies and analyses. Questions and answers. Nat. Mar. Fish. Serv. **Woods Hole Lab. Ref.** 78-25:3 pp.

[11] **Murawski, S.A.** 1978. Consideration of the maximum sustainable yield from the northwestern Atlantic butterfish stock. Nat. Mar. Fish. Serv. **Woods Hole Lab. Ref.** 78-30: 8 pp.

[12] **Murawski, S.A.**, F.M. Serchuk and M.C. Aelion. 1978. Shell length-meat weight relationships of ocean quahog, *Arctica islandica*, from the Middle Atlantic Shelf. Nat. Mar. Fish. Serv. **Woods Hole Lab. Ref.** 78-38: 20 pp.

[13] **Murawski, S.A.** and G.T. Waring. 1978. Status of the northwestern Atlantic butterfish stock: September 1978. Nat. Mar. Fish. Serv., **Woods Hole Lab. Ref.** 78-47: 15 pp.

[14] **Murawski, S.A.** and G.T. Waring. 1978. A population assessment of butterfish, *Peprilus triacanthus*, in the Northwestern Atlantic Ocean. **Trans. Am. Fish. Soc**. 108(5):427-439.

[15] Serchuk, F.M., **S.A. Murawski**, E.M. Henderson and B.E. Brown. 1978. The population dynamics basis for management of offshore surf clam populations in the Middle Atlantic. **Proc. of the Northwest Clam Industries-Management for the future Coop. Ext. Serv., Univ. of Mass-MIT Sea Grant.**

[16] **Murawski, S.A.** and F.M. Serchuk. 1979. Shell length-meat weight relationships of ocean quahogs, *Arctica islandica*, from the Middle Atlantic Shelf. **Proc. Nat. Shellfish. Assoc**. 69:40-46.

[17] Ropes, J.W., A.S. Merrill, **S.A. Murawski**, S. Chang and C.L. MacKenzie. 1979. Chapter XI. Impact on clams and scallops associated with anoxic bottom water in the Middle Atlantic Bight during the summer of 1976. Part I. Field survey assessments. In: R.L. Swanson and C.J. Sindermann (eds.). Oxygen depletion and associated mass mortalities in the New York Bight, 1976. **NOAA Professional Paper 11**. 345 pp.

[18] **Murawski, S.A.** and F.M. Serchuk. 1979. Distribution, size composition and relative abundance of ocean quahog, *Arctica islandica*, populations off the Middle Atlantic Coast of the United States. **ICES C.M.** 1979/K:26 Shellfish Cttee. 22 pp.

[19] **Murawski, S.A.** and F.M. Serchuk. 1979. An assessment of offshore surf clam, *Spisula solidissima*, populations off the Middle Atlantic Coast of the United States. **Woods Hole Laboratory Reference** 79-13. 36 pp.

[20] **Murawski, S.A.** and F.M. Serchuk. 1979. Dynamics of ocean quahog, *Arctica islandica*, populations off the Middle Atlantic Coast of the United States. **Woods Hole Laboratory Reference** No. 79-16. 23 pp.

[21] **Murawski, S.A.** and G.T. Waring. 1979. A population assessment of butterfish, *Peprilus triacanthus*, in the Northwest Atlantic Ocean. **International Commission for the Northwest Atlantic Fisheries (ICNAF) Res. Doc**. 79/VI/92. Ser. No. 5454. 26 pp.

[22] **Murawski, S.A.** 1979. On the question of offshore surf clam, *Spisula solidissima*, resources off New England. Nat. Mar. Fish. Serv. **Woods Hole Lab. Ref**. 79-22: 14 pp.

[23] **Murawski, S.A.** 1979. Areal distribution of the offshore surf clam, *Spisula solidissima*, and ocean quahog, Arctica islandica, resources of the Middle Atlantic Bight: 1979. **Woods Hole Laboratory Reference** 79-44. 11 pp.

[24] **Murawski, S.A.** and F.M. Serchuk. 1980. Clams and scallops off the Northeast coast. **Underwater Naturalist** 12(4):25-33.

[25] **Murawski, S.A.**, G.R. Clayton, R.J. Reed and C.F. Cole. 1980. Movement patterns of spawning anadromous rainbow smelt, *Osmerus mordax*, in a Massachusetts estuary. **Estuaries** 3(4): 308-314.

[26] Ropes, J.W. and **S.A. Murawski**. 1980. Size and age at sexual maturity of ocean quahogs, (*Arctica islandica*) from a deep oceanic site. ICES C.M. 1980/ K:26. 11 pp.

[27] **Murawski, S.A.**, J.W. Ropes and F.M. Serchuk. 1980. Growth studies of the ocean quahog, *Arctica islandica***. ICES C.M.** 1980/K:38. 28 pp.
[28] Serchuk, F.M. and **S.A. Murawski**. 1980. Evaluation and status of ocean quahog, *Arctica islandica*, populations off the Middle Atlantic coast of the United States. Nat. Mar. Fish. Serv. **Woods Hole Lab. Ref.** 80-32. 8 pp.
[29] Serchuk, F.M., **S.A. Murawski**. 1980. Assessment and status of surf clam, *Spisula solidissima*, populations in offshore Middle Atlantic waters. Nat. Mar. Fish. Serv. **Woods Hole Lab**. Ref. 80-33. 46 pp.
[30] **Murawski, S.A.**, A.M. Lange, R.K. Mayo, M.P. Sissenwine and B.E. Brown. 1981. Species similarity of otter trawl catches off the Northeast Coast of the United States. Nat. Mar. Fish. Serv. **Woods Hole Lab. Ref.** 81-16. 32 pp.
[31] Lange, A.M.T., **S.A. Murawski**, M.P. Sissenwine, R.K. Mayo and B.E. Brown. 1981. Fishery trends off the Northeastern coast of the United States, 1964-1980. Nat. Mar. Fish. Serv. **Woods Hole Lab. Ref**. 81-17. 61 pp.
[32] Mayo, R.K., A.M.T. Lange, **S.A. Murawski**, M.P. Sissenwine and B.E. Brown. 1981. Estimation of discards in mixed trawl fisheries off the Northeast coast of the United States, based on bottom trawl survey catches. Nat. Mar. Fish. Serv. **Woods Hole Lab. Ref.** 81-18. 24 pp.
[33] **Murawski, S.A**. and F.M. Serchuk. 1981. Assessment and current status of offshore surf clam populations off the Middle Atlantic coast of the United States. Nat. Mar. Fish. Serv. **Woods Hole Lab. Ref**. 81-33. 50 pp.
[34] Mayo, R. K., A.M.T. Lange, **S.A. Murawski**, M.P. Sissenwine and B.E. Brown. 1981. Estimation of discards in mixed trawl fisheries off the Northeast coast of the United States, based on bottom trawl survey catches. **ICES C.M.** 1981/ G:62. 22 pp.
[35] **Murawski, S.A.**, A.M. Lange, M.P. Sissenwine and R.K. Mayo. 1981. Definition and analysis of multi-species otter trawl fisheries off the Northeast coast of the United States. **ICES C.M**. 1981/G:62. 32 pp.
[36] **Murawski, S.A.** and F.M. Serchuk. 1982. Assessment and current status of offshore surf clam populations off the Middle Atlantic coast of the United States - Autumn 1982. Nat. Mar. Fish. Serv. **Woods Hole Lab. Ref. 82-43.** 59 pp.
[37] **Murawski, S.A.** 1982. Deterministic yield per recruitment simulations of mixed-species fisheries. **ICES C.M.** 1982/G:35. 46 pp.
[38] Ropes, J.W., **S.A. Murawski** and F.M. Serchuk. 1982. Atlantic surf clam. P. 141-144. In: M.D. Grosslein and T.R. Azarovitz (eds.). Fish distribution. MESA New York Bight Atlas Monograph 15. **New York Sea Grant Institute**. Albany.
[39] Serchuk, F.M., **S.A. Murawski** and J.W. Ropes. 1982. Ocean quahog. P. 144-146. IN: M.D. Grosslein and T.R. Azarovitz (eds.). Fish distribution. MESA New York Bight Atlas Monograph 15. **New York Sea Grant Institute**. Albany.
[40] **Murawski, S.A.**, J.W. Ropes and F.M. Serchuk. 1982. Growth of the ocean quahog, *Arctica islandica*, in the Middle Atlantic Bight. **Fishery Bulletin** (U.S.) 80(1):21-34.
[41] Conover, D.O. and **S.A. Murawski**. 1982. Offshore winter migration of the Atlantic silverside, *Menidia menidia*. **Fishery Bulletin** (U.S.) 80(1):145-150.
[42] Sissenwine, M.P. and **S.A. Murawski**. 1982. Simulated Canadian rebuttal to fisheries and ecology section of USA memorial. N**at. Mar. Fish. Serv. Woods Hole Lab.** (DISTRIBUTION RESTRICTED). 98 pp.

[43] Anderson, E.D., **S.A. Murawski**, and M.P. Sissenwine. 1982. Density profile of fishery resources and U.S. fishing effort between Block Island (Southern New England) and LaHave Bank (Nova Scotia). **Nat. Mar. Fish. Serv. Woods Hole Lab.** (DISTRIBUTION RESTRICTED). 65 pp.

[44] **Murawski, S.A.** and F.M. Serchuk. 1983. An assessment of the surf clam resource in FCZ waters off southern New England - Spring 1983. Nat. Mar. Fish. Serv. **Woods Hole Lab. Ref.** 83-20: 21 pp.

[45] **Murawski, S.A.** and F.M. Serchuk. 1983. An assessment of the ocean quahog, *Arctica islandica*, resource and fishery in FCZ waters off the Northeastern USA - Autumn 1983. **Nat. Mar. Fish. Serv. Woods Hole Lab. Ref.** 83-25. 32 pp

[46] Ropes, J.W. and **S.A. Murawski**. 1983. Maximum shell length and longevity of ocean quahogs, *Arctica islandica*. **ICES C.M.** 1983/K:32. 8 pp.

[47] **Murawski, S.A.**, M.P. Sissenwine and J.E. Kirkley. 1983. Optimal effort allocation among competing mixed-species fisheries, subject to fishing mortality constraints. **ICES C.M.** 1983/D:12. 22 pp.

[48] **Murawski, S.A.**, A.M. Lange, M.P. Sissenwine, and R.K. Mayo. 1983. Definition and analysis of multispecies otter trawl fisheries off the Northeast coast of the United States. **J. Cons. int. Explor. Mer**. 41(1): 13-27.

[49] **Murawski, S.A.** 1983. Depth distribution of fishery resources and landings in the Georges Bank - Scotian Shelf region. **Nat. Mar. Fish. Serv. Woods Hole Lab.** (DISTRIBUTION RESTRICTED). 54 pp.

[50] **Murawski, S.A.** 1983. Calculation of U.S. and Canadian access to fish and shellfish stocks on Georges Bank. **Nat. Mar. Fish. Serv. Woods Hole Lab.** (DISTRIBUTION RESTRICTED). 20 pp.

[51] **Murawski, S.A. (editor).** 1983. Review of Canadian Counter-Memorial paragraphs 200-226, Figures 20-24. by Resource Assessment Division Staff. **Nat. Mar. Fish. Serv. Woods Hole Lab.** (DISTRIBUTION RESTRICTED). 104 pp.

[52] **Murawski, S.A. (editor).** 1983. Review of Canadian Counter-Memorial, Annex Volume I, Paragraphs 104-151, Figures 31-60. by Resource Assessment Division Staff. **Nat. Mar. Fish. Serv. Woods Hole Lab.** (DISTRIBUTION RESTRICTED). 114 pp.

[53] **Murawski, S.A.** 1984. Simulating optimal harvest strategies for mixed-species trawl fisheries off the Northeast Coast of the United States. Ph.D. Dissertation, **University of Massachusetts, Amherst**. 322 pp.

[54] Ropes, J.W., D.S. Jones, **S.A. Murawski**, F.M. Serchuk and A. Jearld, Jr. 1984. Documentation of annual growth lines in ocean quahogs. **Fishery Bulletin** (U.S.) 82(1): 1-19.

[55] Ropes, J.W., **S.A. Murawski** and F.M. Serchuk. 1984. Size, age, sexual maturity, and sex ratio of ocean quahogs from off Long Island, New York. **Fishery Bulletin** (U.S.) (822): 253-267.

[56] **Murawski, S.A.** 1984. Mixed-species yield per recruitment analyses accounting for technological interactions. **Can. J. Fish. Aquat. Sci.** 41(6):897-916.

[57] **Murawski, S.A.** 1984. Size distributions and discarding rates in the Atlantic surf clam fishery - 1984. Nat. Mar. Fish. Serv., **Woods Hole Lab. Ref**. 84-25. 9 pp.

[58] **Murawski, S.A.**, and F.M. Serchuk. 1984. Assessment update for Middle Atlantic offshore surf clam; *Spisula solidissima*, populations - Winter 1983-1984. Nat. Mar. Fish. Serv. **Woods Hole Lab**. Ref. 84-07. 42 pp.

[59] **Murawski, S.A.**, and F.M. Serchuk. 1984. An assessment of the Georges Bank surf clam resource - summer 1984. Nat. Mar. Fish. Serv. **Woods Hole Lab. Ref.** 84-28. 23 pp.

[60] **Murawski, S.A.**, and F.M. Serchuk. 1984. Assessment update for Middle Atlantic offshore surf clam, *Spisula solidissima* populations - autumn 1984. Nat. Mar. Fish. Serv. **Woods Hole Lab. Ref**. 84-32. 40 pp.

[61] Gabriel, W.L., W.J. Overholtz, **S.A. Murawski**, and R.K. Mayo. 1984. Spawning stock biomass per recruit analyses for seven Northwest Atlantic demersal finfish species, Spring, 1984. Nat. Mar. Fish. Serv. **Woods Hole Lab. Ref.** 84-25. 36 pp.

[62] **Murawski, S.A.** 1984. Identifying themes in multispecies fishery systems: use of cluster analysis. **Canadian Atlantic Fisheries Scientific and Advisory Committee (CAFSAC) WP 84/165**. Marine Ecosystem and Environment Sub-Committee Workshop on Fishery Interactions, November 1984, Halifax, N.S.

[63] Fogarty, M.J., and **S.A. Murawski**. 1984. An evaluation of two delayed recruitment models for crustacean fisheries**. ICES C.M**. 1984/K:23.

[64] **Murawski, S.A.**, and M.J. Fogarty. 1984. A spatial yield model for bivalve populations accounting for density-dependent growth and mortality. **ICES C.M.** 1984/K:26.

[65] Gabriel, W.L. and **S.A. Murawski**. 1985. The use of cluster analysis in identification and description of multispecies systems. In: R. Mahon (ed.) Towards the inclusion of fishery interactions in management advice. **Canadian Technical Report of Fisheries and Aquatic Sciences** 1347. 221 pp.

[66] **Murawski, S.A.** and W.J. Overholtz. 1985. Population interactions among selected components of the Northwest Atlantic shelf ecosystem: Fishes, Whales and Man. A modeling study based on retrospective analyses of fishery perturbations. Nat. Mar. Fish. Serv. **Woods Hole Laboratory** MS, 43 pp.

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[69] Anthony, V.C. and **S.A. Murawski**. 1985. Managing multispecies fisheries with catch quota regulations - the ICNAF experience. **ICES Cooperative Research Report** 139:17 pp.

[70] **Murawski, S.A.**, S.H. Clark, and V.C. Anthony. 1985. Impacts of fishery discards on stock size and yield calculations. **ICES C.M.** 1985/G:60. Demersal Fish Committee, 18 pp.

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