Worth D. Nowlin, Jr.
17 boxes

Box 1 ----------

1) A resume for W. D. Nowlin, Jr. dated 10 November 1989

2) One copy of each of the following referred publications:

McLellan, H. J., and W. D. Nowlin, Jr. 1963. Some features of the deep water in the Gulf of Mexico, J. Mar. Res., 21: 233-245.

Nowlin, W. D., Jr., J. L. Harding, and D. E. Amstutz. 1965. A reconnaissance study of the Sigsbee Knolls of the Gulf of Mexico. J. Geophys. Res., 70: 1339-1347.

Nowlin, W. D., Jr. 1965. Review of George Wüst's Stratification and Circulation in Antillean-Caribbean Basins. Part I: Spreading and Mixing of the Water Types. In: Choice, Books for College Libraries, 1(II): 493.

Harding, J. L., and W. D. Nowlin, Jr. 1966. Gulf of Mexico. In: Encyclopedia of Oceanography (R. W. Fairbridge, Ed.) Reinhold: 324-331.

Nowlin, W. D., Jr., and H. J. McLellan. 1967. A characterization of the Gulf of Mexico waters in winter. J. Mar. Res., 25: 25-59.

Nowlin, W. D., Jr. 1967. A steady, wind-driven frictional model of two moving layers in a rectangular ocean basin. Deep-Sea Res., 14: 80-110.

Nowlin, W. D., Jr., and R. O. Reid. 1968. Formulation of a three-dimensional, steady ocean circulation model using a similarity hypothesis. J. Oceanogr. Soc. Japan, 24: 1-15.

Capurro, L. R. A., J. M. Hubertz, and W. D. Nowlin, Jr. 1968. The International Oceanographic Tables. J. Mar. Res., 26: 77.

Nowlin, W. D., Jr., and R. O. Reid. 1968. A detached eddy in the Gulf of Mexico. J. Mar. Res., 26: 185-186.

Nowlin, W. D., Jr., D. F. Paskausky, and H. J. McLellan. 1969. Recent dissolved-oxygen measurements in the Gulf of Mexico deep waters. J. Mar. Res., 27: 39-44.

Reid, J. L., and W. D. Nowlin, Jr. 1971. Transport of water through Drake Passage. Deep-Sea Res., 18: 51-64.

Nowlin, W. D., Jr. 1971. Water masses and general circulation of the Gulf of Mexico. Ocn. International, 6: 28-33.

Nowlin, W. D., Jr. 1972. Winter circulation patterns and property distributions. Chapt. 1 in Contributions on the Physical Oceanography of the Gulf of Mexico (Capurro and Reid, Eds.), Gulf Publ. Co.: 3-51.

Nowlin, W. D., Jr., and J. M. Hubertz. 1972. Contrasting summer circulation patterns for the eastern Gulf. Chapt. 6 in Contributions on the Physical Oceanography of the Gulf of Mexico (Capurro and Reid, Eds.), Gulf Publ. Co.: 119-137.

Schroeder, W. W., L. Berner, Jr., and W. D. Nowlin, Jr. 1974. The oceanic waters of the Gulf of Mexico and Yucatan Strait as observed during July 1969. Bull. Mar. Sci., 24: 1-19.

Nowlin, W. D., Jr., and C. A. Parker. 1974. Effects of a cold- air outbreak on shelf waters of the Gulf of Mexico. J. Phys. Oceanogr., 4: 467-486.

Murphy, D. L., D. F. Paskausky, W. D. Nowlin, Jr., and W. J. Merrell, Jr. 1975. Movement of surface drifters in the American Mediterranean. J. Phys. Oceanogr., 5: 549-551.

Reid, J. L., W. D. Nowlin, Jr., and W. C. Patzert. 1977. On the characteristics and circulation of the southwestern Atlantic Ocean. J. Phys. Oceanogr., 7: 69-91.

Morrison, J. M., and W. D. Nowlin, Jr. 1977. Repeated nutrient oxygen and density sections through the Loop Current. J. Mar. Res., 35: 105-128.

Treshnikov, A. F., R. D. Pillsbury, W. D. Nowlin, Jr., E. I. Sarukhanyan, and N. P. Smirnov. 1977. A comparison of summer current measurements in the Drake Passage. J. Phys. Oceanogr., 7: 610-614.

Nowlin, W. D., Jr., T. Whitworth III, and R. D. Pillsbury. 1977. Structure and transport of the Antarctic Circumpolar Current at Drake Passage from short-term measurements. J. Phys. Oceanogr., 7: 788-802.

Baker, D. J., Jr., W. D. Nowlin, Jr., R. D. Pillsbury, and H. L. Bryden. 1977. Antarctic Circumpolar Current: space and time fluctuations in Drake Passage. Nature, 268: 685-699.

Gordon, A. L., and W. D. Nowlin, Jr. 1978. The basin waters of the Bransfield Strait. J. Phys. Oceanogr., 8: 258-264.

Baker, D. J., Jr., and W. D. Nowlin, Jr. 1978. Antarctic Ocean. In: McGraw-Hill Yearbook of Science and Technology, 1978, 88-91.

Neal, V. T., and W. D. Nowlin, Jr. 1979. International Southern Ocean Studies of Circumpolar dynamics. Polar Record, 19: 461-470.

Pillsbury, R. D., T. Whitworth III, W. D. Nowlin, Jr., and F. Sciremammano, Jr. 1979. Currents and temperatures as observed in Drake Passage during 1975. J. Phys. Oceanogr., 9(3): 469-482.

Sciremammano, F., Jr., R. D. Pillsbury, W. D. Nowlin, Jr., and T. Whitworth III. 1980. Spatial scales of temperature and flow in Drake Passage. J. Geophys. Res., 85(C7): 4015-4028.

Nowlin, W. D., Jr., R. D. Pillsbury and J. Bottero. 1981. Observations of kinetic energy levels in the Antarctic Circumpolar Current at Drake Passage. Deep-Sea Res., 28A: 1-17.

Nowlin, W. D., Jr., and Melody Clifford. 1982. The kinematic and thermohaline zonation of the Antarctic Circumpolar Current at Drake Passage. J. Mar. Res., 40(Suppl.): 481-507.

Nowlin, W. D., Jr. Joseph S. Bottero, and R. Dale Pillsbury. 1982. Observations of the principal tidal currents at Drake Passage. J. Geophys. Res., 87(C8): 5752-5770.

Morrison, J. M., and W. D. Nowlin, Jr. 1982. General distribution of water masses within the eastern Caribbean Sea during the winter of 1972 and fall of 1973. J. Geophys. Res., 87(C6): 4207-4229.

Peterson, R. G., W. D. Nowlin, Jr., and Thomas Whitworth. 1982. Generation and evolution of a cyclonic ring at Drake Passage in early 1979. J. Phys. Oceanogr., 12(7): 712-719.

Whitworth III, T., W. D. Nowlin, Jr., and S. J. Worley. 1982. The Net Transport of the Antarctic Circumpolar Current through Drake Passage. J. Phys. Oceanogr., 12(9): 960-971.

Sievers, Hellmuth A., and W. D. Nowlin, Jr. 1984. The stratification and water masses at Drake Passage. J. Geophys. Res., 89(C6): 10,489-10,514.

Nowlin, W. D., Jr., S. J. Worley and T. Whitworth III. 1985. Methods for making point estimates of eddy heat flux as applied to the Antarctic Circumpolar Current. J. Geophys. Res., 90(C2): 3305-3324.

Nowlin, W. D., Jr., J. S. Bottero, and R. D. Pillsbury. 1986. Observations of internal and near-inertial oscillations at Drake Passage. J. Phys. Oceanogr., 16(1): 87-108.

Nowlin, W.D., Jr. and John M. Klinck. 1986. The physics of the Antarctic Circumpolar Current. Reviews of Geophysics and Space Physics, 24(3): 469-491.

Whitworth III, and W. D. Nowlin, Jr. 1987. Water masses and currents of the Southern Ocean at the Greenwich Meridian, J. Geophys. Res., 92(C6): 6462-6476.

Nowlin, W. D., Jr. 1987. Physical Oceanography for the Year 2000, National Academy Press, Washington, D.C., 38 pp.

Nowlin, W. D., Jr., and Walter Zenk. 1988. Westward bottom currents along the margin of the South Shetland Island Arc. Deep-Sea Research, 35(2): 269-301.

Sievers, H.A., and W.D. Nowlin, Jr. 1988. Upper Ocean Characteristics in the Drake Passage and Adjoining Areas of the Southern Ocean, 39°W-95°W, in Antarctic Ocean and Resource Variability, (D. Sahrhage, Editor),Springer, Berlin: 57–80.

3) My history of employment at TAMU–consisting of: job application, acceptance, letters granting leaves of absence, and one copy of each faculty member's annual report since 1966

4) Bound copies of my M.S. thesis and Ph.D. dissertation:

Nowlin, W. D., Jr. 1960. Fermat and Mersenne Prime Numbers. Unpubl. Masters Thesis, The A&M College of Texas.

Nowlin, W. D., Jr. 1965. On steady, wind-driven ocean currents in a stably stratified model of two moving layers. Unpubl. Doctoral Dissertation, Texas A&M University, Department of Oceanography, Ref. 65-33T.

5) Copies of the following reports I helped prepare:

McLellan, H. J., and W. D. Nowlin, Jr. 1962. The waters of the Gulf of Mexico as observed in February and March 1962. Department of Oceanography and Meteorology, A&M College of Texas, College Station, Ref. 62-16D.

Nowlin, W. D., Jr., D. L. Durham, and R. O. Reid. 1965. A preliminary program of direct current measurements over the northeastern shelf of the Gulf of Mexico. Department of Oceanography and Meteorology, Texas A&M University, Ref. 65-25-T.

Paskausky, D. F., and W. D. Nowlin, Jr. 1968. Measured and preformed phosphate in the Gulf of Mexico region. Texas A&M University, Department of Oceanography, Ref. 68-12T.

Jacobs, C. A., and W. D. Nowlin, Jr. 1968. A numerical treatment of steady, frictional boundary currents in a homogenous ocean applied to a two-port basin. Texas A&M University, Department of Oceanography, Ref. 68-19T.

Nowlin, W. D., Jr. 1972. The post-graduate fate of oceanography majors from Texas A&M University, Texas A&M University, Department of Oceanography, Ref. 72-9T.

Morrison, J. M., W. J. Merrell, Jr., and W. D. Nowlin, Jr. 1973. The waters of the eastern Gulf of Mexico as observed during May 1972. I. Data collected aboard R/V ALAMINOS. Texas A&M University, Department of Oceanography, Ref. 73-10T.

Nowlin, W. D., Jr., S. L. Patterson, R. D. Pillsbury, and G. C. Anderson. 1975. Contributions of R/V MELVILLE to FDRAKE, 1975. Antarctic Journal of the United States, X: 144-146.

Nowlin, W. D., Jr., R. D. Pillsbury, L. I. Gordon, G. C. Anderson, and D. J. Baker, Jr. 1976. Contributions of R/V THOMPSON Legs 1 and 2 to FDRAKE 76. Antarctic Journal of the United States, XI: 154-156.

Gordon, L. I., G. C. Anderson, and W. D. Nowlin, Jr. 1977. Results of an intercalibration at sea of hydrographic and chemical observations and standards aboard the USSR ship PROFESSOR VIESE and the U.S. research vessel T. G. THOMPSON during FDRAKE 76. ISOS Tech. Rept., OSU Ref. 77-7, 23 pp.

Nowlin, W. D., Jr., T. Whitworth III, L. I. Gordon, and G. C. Anderson. 1977. Oceanographic data collected aboard R/V MELVILLE during FDRAKE 75. Texas A&M University, Department of Oceanography, Data Report, Ref. 77-2-D, 355 pp.

Whitworth, T., III, W. D. Nowlin, Jr., L. I. Gordon, and G. C. Anderson. 1978. Oceanographic data collected aboard R/V THOMPSON during FDRAKE 76, Legs I and II. Texas A&M University, Department of Oceanography, Data Report, Ref. 78-1-D, 245 pp.

Merrell, W. J., Jr., J. M. Morrison, W. D. Nowlin, Jr., R. L. Molinari, I. H. Brooks, and R. Yager. 1978. A description of the circulation observed in the eastern Gulf of Mexico during CICAR survey month II, May 1972. In: CICAR-II Symposium on Progress in Marine Research in the Caribbean and Adjacent Regions, July 1976 (H. B. Stewart, Jr., Ed.). FAO, Fisheries Report No. 200(Suppl.): 51-61.

Nowlin, W. D., Jr., R. D. Pillsbury, and H. A. Sievers. 1978. FDRAKE 77 YELCHO. Antarctic Journal of the United States, XIII: 78-79.

Paskausky, D. F., and W. D. Nowlin, Jr. 1978. A comparison of summer and winter drifter movements within the American Mediterranean. In: CICAR-II Symposium on Progress in Marine Research in the Caribbean and Adjacent Regions, Caracus, July 1976 (H. B. Stewart, Jr., Ed.), FAO, Fisheries Report No. 200(Suppl.): 133-137.

Worley, S. J., and W. D. Nowlin, Jr. 1978. Oceanographic data collected aboard R/V MELVILLE during January-February 1977 as a part of FDRAKE 77. Texas A&M University, Department of Oceanography, Data Report, Ref. 78-12-D, 137 pp.

Nowlin, W. D., Jr., and R. D. Pillsbury. 1979. DRAKE 79 operations aboard R/V MELVILLE. Antarctic Journal of the United States, XIV(5): 121-123.

Worley, S. J., and W. D. Nowlin, Jr. 1979. Oceanographic data collected aboard R/V MELVILLE during January-February 1979 and AGS YELCHO during April-May 1979 as part of DRAKE 79. Texas A&M University, Department of Oceanography, Technical Report, Ref. 79-7-T, 159 pp.

Parker, R. D., J. M. Morrison, and W. D. Nowlin, Jr. 1979. Surface drifter data from the Caribbean Sea and Gulf of Mexico 1975-1978. Texas A&M University, Department of Oceanography, Technical Report, Ref. 79-8-T, 157 pp.

Nowlin, W. D., Jr. 1980. Recovery of 1979 ISOS Array from Drake Passage. Antarctic Journal of the United States, XV(5): 98.

Nowlin, W. D., Jr. and Hellmuth A. Sievers. 1983. Estudios del Clima Oceanico del Paso Drake. Unpublished report of the Department of Oceanography, Texas A&M University for the Instituto Antartico Chileno, 17 pp + appendices.

Nowlin, W. D., Jr. 1983. General Circulation of the Southern Ocean. SCOR Working Group 74. Antarctic Journal of the United States, XVIII(2): 9-10.

Physical, Chemical and *in-situ* CTD Data from the AJAX EXPEDITION in the South Atlantic Ocean, R/V KNORR, Leg I: 7 October- 6 November 1983; Leg II: 11 January-19 February 1984. 1985. Scripps Institution of Oceanography, The University of California at San Diego, Ref. 85-24 and Department of Oceanography, Texas A&M University, Ref. 85-4-D: 275 pp.

General Circulation of the Southern Ocean: Status and Recommendations for Research. 1985. A report by SCOR Working Group 74 (W.D. Nowlin, Chairman). World Climate Programme, International Council of Scientific Unions, World Meteorological Organization, WCP-108, WMO/TD - No. 86, 53 pp.

Nowlin, Worth D, Jr. 1987. World Oscean Circulation Experiment: Status of U.S. Planning for WOCE. Bull. of the Amer. Met. Soc., 68(12): 1559-65.

Box 2 ----------

6) Descriptions of the following inactive research projects (consisting of proposals, grant awards, interim and final reports, and selected correspondence) from 1971 to 1985:

Project 700-5, 1971. Office of Naval Research (ONR) contract for Regional Oceanographic Studies, Gulf of Mexico and Carribean Sea.

Project 700-5, 1972. ONR contract for Regional Oceanographic Studies, Gulf of Mexico and Carribean Sea.

Project 700-5, 1973. ONR contract for Regional Oceanographic Studies, Gulf of Mexico and Carribean Sea.

Project 700-5, 1974. ONR contract for Regional Oceanographic Studies, Gulf of Mexico and Carribean Sea.

Project 700-5, 1975. ONR contract for Regional Oceanographic Studies, Gulf of Mexico and Carribean Sea.

Project 3200-5, 1976. ONR contract for Regional Oceanographic Studies, American Mediterranean, South Atlantic, and Southern Ocean.

Project 3200-5, 1977. ONR contract for Regional Oceanographic Studies, American Mediterranean.

Project 3200-5, 1978–79. ONR contract for Regional Oceanographic Studies, American Mediterranean.

Sea Grant Study. Texas Sea Grant support for synoptic studies of circulation and property distributions on Northwestern shelf of Gulf of Mexico, 1975.

Project 982. NSF grant to support Scientific Advisory Panel for North Pacific Study and Initial Planning for International Southern Ocean Studies, 1973–75.

Project 3052. NSF grant to support International Southern Ocean Studies; Central Administrative Coordination and Planning by Nowlin, 1974–77.

Project 3075. NSF grant for field measurements in Drake Passage as part of International Southern Ocean Studies, 1974–77. (4 folders)

Project 3172. NSF grant for cruise work of ship ISLAS OREADAS as part of International Southern Ocean Studies, 1974–76.

Project 3486. NSF grant for chemical and physical oceanography in Antarctic Circumpolar Current (part of ISOS), 1977–78.

Project 3721. NSF grant for central administration on International Southern Ocean Studies, 1978–80.

Project 3976. Grant from NSF to support chemical and physical oceanography of ACC in region of Drake Passage, 1978–1982.

Project 4462. Grant from NSF to support ISOS administrative office during 1981, 1981.

Project 4476. Subcontract from NSF grant to Oregon State University to support time of Hofmann and Klinck to analyze ISOS data, 1981–82.

Project 4520. NSF grant to support analysis of FGGE drifting buoy data; May 1981–July 1984.

Box 3 ----------

1) Descriptions of the following inactive research projects (consisting of proposals, grant awards, interim and final reports, and selected correspondence) from 1971 to 1985:

Project 4645. NSF grant to support analysis of data on Antarctic Circumpolar Current collected as part of International Southern Ocean Studies; Jan 1982–June 1985.

Project 4698. NOAA grant to support Ocean Climate Studies of Drake Passage; Subcontract from Oregon State University; June 1982–June 1985.

Project 5014. NSF grant to support analysis of FGGE drifting buoy data; January 1984–December 1985.

2) Office correspondence (unsorted) of W. D. Nowlin, Jr. arranged by calendar year for 1974-1977

Box 4 ----------

2) *cont'd,* Office correspondence (unsorted) of W. D. Nowlin, Jr. arranged by calendar year for 1978-1981

3) Miscellaneous class notes of W.D. Nowlin, Jr. as graduate student:

Mathematics 602, Applied Mathematics II, TAMU, Prof. Bayse, about 1959

Mathematics 607, Real Variables I, TAMU, Professor E.C. Klipple, about 1959

Mathematics 608, Real Variables II, TAMU, Professor E.C. Klipple, about 1959

Mathematics 617, Complex Variables I, TAMU, Professor Bayse, about 1959

Mathematics 618, Complex Variables II, TAME, Prof. Bayse, about 1959

Oceanography 651, Air-Sea Interaction, TAMU, Prof. J.D. Cochrane, Fall 1961

Box 5

1) Notes for classes taken by W.D. Nowlin, Jr. as graduate student:

Oceanography 613 and 685 , Wave statistics and Wave spectra, TAMU, 1960 and 1961, Professors Basil Wilson and R. O. Reid

2) Papers related to Working Group 74 of the Scientific Committee for Oceanic Research, chaired by W. D. Nowlin, Jr. 1982-1986, including:

Background for and membership of WG 74
February 1983 Meeting of WG 74
Preliminary report from WG 74 to Fourth Session of the Intergovernmental Oceanographic Commission's Program Group for the Southern Ocean , Paris, March 1983
May 1984 Meeting of WG 74
Background Documents for WG 74 Report
Draft inputs and correspondence regarding WG 74 Report
Final Report of WG 74
Report to 27th Executive Committee of the Scientific Committee for Oceanic Research
SCOR WG 74 Follow up Activities
BIOMASS-related Issues
SCOR WG 74 Review of Southern Ocean Responsible Oceanographic Data Center Proposals
International Council of Scientific Unions/ United Nations Questions

3) TAMU System Marine Study, 1980: background, correspondence, minutes, reports. (1 folder)

Box 6

3) *cont'd,* TAMU System Marine Study, 1980: background, correspondence, minutes, reports. (1 folder)

4) Miscellaneous Meetings Attended or Convened:

* Visit to inspect oceanographic capabilities in Brazil, Argentina and Chile and to participate in a research cruise off the Coast of Chile while employed by the Office of Naval Research — January-February 1969

* US/USSR Workshop for the Discussion of the Results of Cooperative Studies in the Southern Ocean and the Development of Future Directions; Leningrad, July 1976 — Co-chairman of Workshop

* Planning Discussion for Joint USSR-US Efforts during *Prof. Zubov* Cruise during 1977 — Attendee as Co-chairman of the ISOS Executive Committee

* Workshop on the Environmental Effects of Mineral Exploration and Exploitation in the Antarctic; Bellagio Italy, March 1979 — Attendee and co-author of meeting report (Sponsored by the Rockefeller Foundation)

* Visits to Punta Arenas, Chile and Buenos Aires, Argentine; April 1979

* ONR-sponsored Southern Ocean Research Meeting; Palisades, NY, February 1983 —

Attendee, resulting in new ONR support for South Atlantic research

* Symposium of Antarctic Variability and Krill; Paris, June 1987 — Co-convener and co-contributor of two papers

5) Engagement Calendars: 1977-1984

6) An incident of Scientific Misconduct perpetrated against W. D. Nowlin, Jr. in 1972

7) Miscellaneous Committee Memberships:

* Materials related to membership on Joint Committees of the US-USSR Agreement on Cooperation in Studies of The World Ocean, 1973-80

* TAMU Marine Programs Council, 1978-79 — Nowlin, member

* UNOLS ad hoc Fleet Replacement Comittee, 1984-86 — Nowlin, member

Box 7

1) Papers related to Nowlin's membership on the NASA Space and Earth Sciences Advisory Committee, NASA Advisory Council, 1986-88. This is the single most important committee in setting internal NASA priorities for new science initiatives; this three year example of their agendas, minutes, and correspondence may be of interest.

NASA's advisory committee structure was changed at the end of my tenure so that materials science and life sciences could be considered together with space and earth sciences.

2) Papers regarding Nowlin's chairmanship of the North Pacific Experiment (NORPAX) Scientific Advisory Committee. One of the largest science projects of the International Decade of Ocean Exploration was NORPAX. I chaired its Scientific Advisory Committee during its critical build-up stage 1972-74, after which a council of co-principal investigators was formed to direct the ongoing program. These papers contain the background on the NORPAX, proposal Nowlin prepared to support the Scientific Advisory Committee, agendas, minutes and correspondence regarding Committee meetings, and miscellaneous correspondence not in Nowlin's general correspondence files.

Box 8

3) Papers regarding Nowlin's membership on the Ocean Sciences Board of National Academy of Sciences/National Research Council, 1978-1981. These papers have not been sorted; they include agendas, minutes and correspondence related to the Board meetings, plus materials related to several subcommittees and studies on which Nowlin served.

4) A committee appointed by the Ocean Sciences Board (item #3 above) carried out a major study of the Academic Research Fleet. (this ARF) was chaired by Mike Mullin; it was staffed by John Morrison (employee of W. Nowlin) and Nowlin served as a member. During the course of the study, Mullin left for a one-year sabbatical in Australia, and Nowlin was left with the task of preparing the final National Academy of Sciences/National Research Council report on the ARF. That report formed the basis for planning of the U.S. academic oceanographic fleet until the formation by UNOLS of the ad hoc Fleet Replacement Committee (of which Nowlin was also a member).

Boxes 9-11

Background: W. D. Nowlin served as a member of the UNOLS (University National Oceanographic Laboratory System) Fleet Replacement Committee from 1984 until 1986. This was an *ad hoc* committee charged with reviewing the status of the U.S academic fleet and with recommending improvements and replacements. The work of that committee was so successful that in 1986 UNOLS established the UNOLS Fleet Improvement Committee as the major standing committee of the organization. Nowlin chaired the FIC from 1986 until 1989; he then served as vice-chair for one more year before resigning from the committee.

Boxes 9-11 contain the records of the FIC from its inception until mid 1990. This includes correspondence, special studies, meeting notes and reports, and the formal reports of the committee. This FIC has redirected the U.S. academic fleet through the development of scientific mission requirements for our research vessels, the formulation, together with marine architects, of new ship designs, and the establishment of a plan for the orderly refit and replacement of UNOLS research vessels.

Below are stated the objectives and approach of the Fleet Improvement Committee, as directed by the UNOLS through its new charter, and the initial membership of the committee. (Note that the initial executive secretary of the FIC was Captn. T. K. Treadwell, Professor Emeritus of Oceanography at TAMU.)

This information is followed by a table of contents of these papers.

Objectives of the UNOLS Fleet Improvement Committee:

1. Amplify and update the UNOLS Improvement Plan. This will require continuing reassessment of number and mix of ships, required sources, program planning, vessel availability, results of committee studies, and so forth.

2. Continue to refine science mssion requirements, including specifically the roles and requirements for smaller vessels and innovative platforms.

3. Initiate and carry through conceptual designs for smaller vessels.

4. Consider alternatives to new construction for meeting science mission requirements.

    a) Refits and improvements to existing UNOLS vessels may have them more capable and economical, and extend their service life.

    b) There are numerous relatively new vessels in the merchant fleet which might be converted to form one or more classes of research vessels. Many of these are owned by the Federal government.

5. Carry two of the new conceptual designs for large vessels into more detailed design phases (perhaps to full preliminary design).

6. Serve as liaison activity and information source for Federal agency representatives working on matters of planning or funding for new construction and upgrading of UNOLS vessels.

Approach of the UNOLS Fleet Improvement Committee:

The committee will have responsibility for overall directions. They will assume total responsibility for objectives (1), (2), (5), and (6).

Subcommittees may be established to carry through objectives (3) and (4) under the overall guidance of the parent committee. This will allow broader representation by experts from the community in carrying out the somewhat diverse tasks.

The Executive Secretary will staff the committee. He will have specific responsibility for tracking, initiating and the contracted design studies.

Initial Calendar:

31 October 1986 – UNOLS Decision on committee membership.
December 1986 or January/February 1987 – First meeting of committee.
March 1987 – Committee review of draft proposal.
April/May 1987 – Submit proposal to NSF/ONR.

Initial FIC Committee Membership:

Dick Barber	Worth Nowlin (F) Chairman
Robert Dinsmore (F)	Bruce Robison
Donn Gorsline	Fred Spiess (F)
Mark Langseth (F)	T. K. Treadwell (Exec. Secr.)
James Murray	

(F) Former Fleet Replacement Committee Member

Box 9 ----------

Table of Contents for UNOLS Fleet Improvement Committee Records 1986-1990

III. White Paper Studies
Scientific Demands for UNOLS Fleet, FIC Report, Murray et al.
Non-UNOLS Ship Use Study, Treadwell
History of Academic Fleet, Gorsline and Treadwell
Computer Assistance for Ship Scheduling
Multichannel Seismic Requirements, Langseth
Alternatives to Federal Funding Construction and Conversion – Case Studies, Gorsline

IV. Scientific Mission Requirements
Small Ice-Capable Vessel
Small General-Purpose Vessel
Small SWATH General-Purpose Vessel
Intermediate SWATH General-Purpose
Research Submarine
Deep Ocean Stable Platform — Spiess Committee
Manned Spar Buoy — FLIP II
Stable Platforms (General Correspondence File of Various Plaform types)

V. Mid-Life Refits and Improvements
Survey of Intermediate and KEEP Class vessels; Users/Operators suggestions for improvements
Intermediate Class refit workshop
CAPE Class Study
POLAR-Class ice-breaker modifications
OCEANUS-Class modifications; A draft proposal from Woods Hole

VI. Preliminary Design Studies
Advanced study monohull, Glosten and Spiess

VII. Concept Designs
Intermediate Four Strut SWATH Concept Design
Modifications to Intermediate Four Strut SWATH Concept Design
Concept Design Small SWATH by Interocean
Pacific Marine Small SWATH
NATATEK SWATH

Box 10 ----------

VIII. Navy Plans
AGOR-23
MELVILLE/KNORR refits
November 87 recommendation regarding AGOR (SWATH) design by NavSea
T-AGOS (OCEAN) SWATH
Correspondence re. Construction of AGOR-24

IX. Special Studies
Vessel Construction Costs
Multibeam Requirements
Coast Guard Icebreaker Scheduling
DPP RVIB for Antarctic
Modes of R/V Acquisition and Operation; Letter to Heinrichs
Revised UNOLS Cruise Evaluation forms
Marine Meteorological measurements UNOLS vessels NORPO
Surplus Federal Vessels
NSF Antarctic Ice-Breaking Research Vessel specifications
M/V BERNIER
Present Value of UNOLS Fleet, by Larry Glosten
R/V Seakeeping Criteria (Unfinished FIC Subcommittee study)

X. Arctic Research Vessel Requirements
Polar Research Vessel Study
Arctic Research Vessel Study

XI. General Correspondence
Arctic Energies Limited

XII. Submarines
Scientific Mission Requirements for Research Submarine

XIII. FIC Operating Proposal and Budget
FIC Proposal
FIC Operating Budgets
FIC 1989 Budget

XIV. FIC Meeting Minutes
February 1987
May 1987
August 1987
November 1987

Box 11 ----------

March 1988
July 1988
October 1988
February 1989
July 1989
November 1989
March 1990
July 1990
October 1990
April 1991

XV. Reports on FIC to UNOLS Council
October 1987 Meeting
October 1988 Meeting
April 1989 Meeting

XVI. Reviews of Key Manuscripts by FIC
Scientific Mission Requirements
Fleet Improvement Plan 1990

Box 11 cont'd ----------

UNOLS Research Submarine Report

XVII. Copies of FIC Reports
Science Mission Requirements for New Oceanographic Ships (June 1986)
Scientific Requirements for the UNOLS Fleet (February 1988)
Stable Research Platform Workshop (April 1988)
Concept Design for a General Purpose SWATH Oceanographic Research Ship (June 1988)
Arctic Science Requirements for Ice-Worthy Research Vessels (July 1988)
History of the U.S. Academic Oceanographic Reseach Fleet and the Sources of Research Ships (September 1988)
Scientific Mission Requirements for Oceanographic Research Vessels (September 1988)
Report on a Workshop on Improvements to the Cape-Class Research Vessels (April 1989)
Scientific Mission for an Intermediate Ice-Capable Research Vessel (April 1989)
Preliminary Design for Medium Endurance General Purpose Oceanographic Research Vessel (May 1989)
Scientific Mission Requirements for Oceanographic Research Vessels (November 1989)
Tamdem Strut Design Modifications for the UNOLS 150 foot General Purpose SWATH Oceanographic Research Vessel (November 1989)
UNOLS Fleet Improvement Plan (May 1990)
Concept Evaluation for a Research Submarine (December 1990)

In boxes 12 and 13 there are background papers and notes regarding various committees that Worth D. Nowlin, Jr. served on while at Texas A&M University. They are not in chronological order. A preliminary pass was made to delete duplicate and unneeded information, but that process was cursory.

Box 12

1. Investigation of Dr. Michael Trulson, former TAMU faculty, for scientific misconduct. Trulson was judged to be guilty by the TAMU investigating committee and by the Department of Health and Human Services. He was subsequently barred from receipt of Federal funds for research.

Box 13

2. Notes and meeting minutes related to the preparation of the first (and successful) proposal for having TAMU named a "Space Grant University".

3. Materials related to search for a Department Head for Meteorology in 1988.

4. Materials related to search for director of Marine Engineering in Galveston.

5. Materials related to the formation of The Oceanography Society. This new society formed in the late 1980s is now a powerful force in Marine Sciences. Jim Baker and Worth Nowlin spearheaded its development.

6. Materials related to the formation by the American Geophysical Union a new newsletter for Oceanography. The newsletter continues. Jim Baker and Worth Nowlin spearheaded its development.

7. Nowlin organized and ran the first joint meeting of the American Geophysical Union and the American Society for Limnology and Oceanography. It was called Ocean Sciences 1882 and held in San Antonio. Such joint meetings have continued using the name Ocean Sciences 19__. Related materials are included.

8. Miscellaneous correspondence related to the American Geophysical Union. Nowlin served on many AGU committees and as president of the Oceanography Section.

Box 14 ----------

Summaries of Nowlin's professional activities

- Worth Nowlin's long resume
- Letters of application and appointment to faculty position at TAMU
- Copies of Nowlin's annual faculty reports 1(963-2009)
- Nowlin's annual faculty evaluations
- IPAs with Naval Oceanographic Office/Navy, National Coastal Data Development Center/NOAA, National Data Buoy Center/NOAA, and Coastal Services Center/NOAA
- Nowlin's Job Applications and Offers: 1959 ->
- Nowlin's Tour at NSF's Office for the International Decade of Ocean Exploration, 1970-71
- Texas Institute for Oceanography
- Texas Center for Climate Studies

Summaries/Results of Research Projects directed by Nowlin

- The International Southern Ocean Studies, 1973-1982
- Long Lines: A Program of Oceanographic Stations, 1981->
- International Southern Ocean Studies (ISOS): Structure and Dynamics of the Antarctic Circumpolar Current (ACC) at Drake Passage, 1982-1985
- Source water and variability of the deep western boundary current in the South Atlantic, 1 January 1985 – 31 December 1988
- Study of low-latitude western boundary currents in the Pacific. 1988-1989
- Studies of the Stratification and Circulation of the South Atlantic, 1984-1986.

Box 14 cont'd ----------

• Variability of the Antarctic Circumpolar Current and its relationship to forcing: data analysis and numerical modeling. A six-year proposal submitted to NASA in 1985.

• Studies of the Stratification and Circulation of the South Atlantic, 1987-1988

• U.S.—Japan Workshop on WOCE, 1987

• The ACC and deep western boundary currents of the SW Atlantic: analysis of observations, 1989-1992

• Deep western boundary currents in the southwestern Pacific Ocean, 1990-1996.

• The Oceans and Coasts: Challenges for the 90s, 1993-1995

• Collaborative Research: Indian Ocean investigations in support of WOCE Core Project 1, 1994-1998

• SGER: Evaluation of Expendable Current Meter Mooring, 1995

• WOCE Hydrographic Line S4 in the Indian Sector of the Southern Ocean, 1995-1999

• Galveston Bay Wind Field Development and Acquisition and Quality Control of Recent Current Data in the Gulf of Mexico, 1996-1997

• Analysis of Indian Ocean WOCE data, 1998-2003

• High-resolution Houston Ship Channel ADCP and CTD Survey to Support NOAA/NOS Nowcasting and Forecasting, 1999

• Consulting for Continental Shelf Associates: preparation of physical oceanography section of an Environmental Impact Statement for the Minerals Management Service, 1999-2001

• Simulated ten-year time series of currents in the Gulf of Mexico, 2000

• Installation and use of DODS servers for the Gulf of Mexico Region, 2001-2003

• Processes responsible for hypoxia in the Gulf of Mexico, 2001-2003

• Development of a Regional Association for the Gulf of Mexico Coastal Ocean Observing System, 2003-2006

Box 15----------

Ocean Observing System Development Panel

In 1990 the Ocean Observing System Development Panel (OOSDP) was formed under the auspices of the Intergovernmental Oceanographic Commission, the Scientific Committee for Oceanic Research and the Joint Scientific Committee of the World Meteorological Organization, all bodies of the United Nations. The committee was chaired by Professor Nowlin. It was charged with developing a plan for monitoring the world ocean for marine meteorology and climate variability/change. It completed that plan in 1995.

That plan is the basis for ongoing observations and models to observe and forecast marine weather and ocean climate variability. As such it is a lynchpin for observing the earth.

- Initiation of the OOSDP (terms of reference, membership, support, initial advising);
- Reports of the ten meetings of the OOSDP;
- Seven commissioned Background Reports;
- The interim report; and
- The OOSDP Final Report.

Global Ocean Observing System Steering Committee

In 1997 an international group of scientific experts was organized into the GOOS Steering Committee to provide guidance for the development of the GOOS. Nowlin was chosen as the initial chair. The Committee was largely successful in preparing plans for implementation. However, funding has proven difficult to attract.

- Terms of reference and formation of the Committee
- Proceeds of the first six Committee meetings

Toward a U.S. Plan for an Integrated, Sustained Ocean Observing System

This report was requested by Congress. Tom Malone and Worth Nowlin lead an interagency team to prepare this report on behalf of the National Oceanographic Partnership Program (NOPP). It was reviewed by NOPP and submitted to Congress in 1999.

Included here are:

- Request from Congress
- Documents establishing the writing team
- Transmittal of the draft for review by NOPP
- Transmittal letter to Congress
- The report itself

Box15 cont'd ----------

U.S Global Ocean Observing System (GOOS) Steering Committee

This committee was set up by the Co-chair of the national Oceanographic Partnership Program and Administrator of NOAA in 1998 with the principal purpose of providing advice on the development of the U.S. component of GOOS. It functioned in that capacity until 2006 when NOAA set up an internal coordination office for this component. Tom Malone and Worth Nowlin co-chaired the Committee from 1998 until 2003, when Nowlin took the chair.

Included here are:

- Reports of first two US GOOS meetings (pre 1998)
- Report of meeting at which the U.S. GOOS Steering Committee was proposed
- Other documents regarding the establishment and purposes of the Committee
- Reports of the thirteen meetings of the Committee.

Box16----------

Louisiana/Texas Physical Oceanography Program Task a (LATEX A)

This study of the northwest shelf of the Gulf of Mexico, funded by the Minerals Management Service, consisted of three parts: a physical oceanography shelf program (A), a Mississippi River plume hydrography program (B) and an offshore reconnaissance program using air dropped drifting buoys (C). TAMU was the lead on Task A. The funding amount received from MMS was$10, 784,000 plus approximately $1,400,000 in state matching funds. The project period was 30 September 1991 – 29 September 1998. This is the largest shelf experiment yet conducted. Nowlin was PI.

Included here are:

- Proposals for Tasks A & B
- Copies of the LATEX Fortnightly News(letter)
- LATEX A annual reports
- LATEX A bibliography
- LATEX A Synthesis Report, Vols I and II

Box16 cont'd ----------

Northeastern Gulf of Mexico Chemical Oceanography and Hydrography Study between the Mississippi Delta and Tampa Bay

Fiscal years 1998-2001
Department of the Interior, Minerals Management Service
Funding $2,313,378
Nowlin PI

- Four-page summary of the Study
- Five required parts of the proposal
- The Oral Presentation to the MMS
- Annual reports for years one through three
- Technical Report on near shore bottom properties in May 1998 and MS Theses on near-surface nutrient distributions in summer
- The Final Synthesis Report
- Description of an enhancement to the study to use acoustic backscatter to study plankton stock variability

Northeastern Gulf of Mexico Integrated Study of Physical and Biological Processes

A Proposal solicited by the Dept. of the Interior, Minerals Management Service Submitted June 2001 for $7,647,972. Nowlin PI

Solicitation was withdrawn after proposal was prepared

- Results of a planning workshop in advance of the solicitation
- Capabilities Statement
- Management Plan and Technical Proposal
- Cost Proposal
- Oral Presentation to the MMS
- Proposed Options
- Companion Proposal from the U.S. Geological Survey

Box 17 ----------

Deep Water Program: Northern Gulf of Mexico Habitats and Benthic Ecology

Funded 1999-2003 by the Minerals Management Service for $4,877,835. Gilbert Rowe and M.C. Kennicutt co-PIs.
Nowlin's group was included.

- Capabilities Statement
- Technical Proposal and Optional Work Elements
- Program Management Plan
- Summary of oral presentation to the MMS
- Cost offerings

Deepwater Physical Oceanography Reanalysis and Synthesis of Historical Data

Funded by the Minerals Management Service for $748,547. June 30, 1998 – June 30, 2001.
Nowlin PI.

Included are:

- Capabilities Statement
- Written presentation of proposal to MMS and Program Management Plan
- Oral presentation to MMS
- Final Data Report
- Program Synthesis and Technical Summary

Study of deepwater, high-speed jets in the deep water region of the Gulf of Mexico

Funded by the Minerals Management Service for $179,886.
Sept. 1, 1999 – September 30, 2003
Nowlin PI.

Included are:

- Proposal and notice of award
- Report to annual MMS meeting November 1999
- Quarterly and annual reports
- Final Report

Exploratory Study of Deep water Currents in the Gulf of Mexico

Submitted to the MMS in September 2001.
This excellent proposal was not funded.

Included here:

- Program Management Plan
- Oral presentation to MMS