

U.S. Naval Undersea Museum

Keyport, Washington

Processor: Darlene M. Iskra (2018)

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Robert C. Sheats Diving Collection

Creator:	Robert C. Sheats, TMCM (MDV), USN (Ret.)
Extent:	7 boxes, 13 binders
Dates:	1940s through 1980s
Classification:	Unclassified
Language:	English
Access:	Open
Ownership & Copyright:	The Robert C. Sheats Diving Collection is the physical property of the U.S. Naval Undersea Museum. Literary rights, including copyright, belong to the authors or their legal heirs and assigns.

Scope and Content Notes:

Robert C. Sheats (b. September 30, 1915; d. March 9, 1995) was a U.S. Navy Master Diver. After his Navy retirement, he worked as a dive safety consultant in the state of Washington until his death.¹ He enlisted in the Navy in 1935, qualified as a second-class diver in 1937, a first-class diver in 1939, and Master Diver in 1958. He served at NUWC Keyport (then known as the Naval Torpedo Station Keyport) from 1958 until his retirement in 1966.² During World War II, he was captured and held by the Japanese as a prisoner of war. For three years and four months, he was imprisoned in both the Philippines and Japan. He and his group of divers were forced to dive on the Philippine National treasure sunk in Manila Bay, though through subterfuge and sabotage managed to recover only a fraction of the treasure. Sheats wrote a book, published posthumously in 1998, about this experience titled *One Man's War: Diving as a Guest of the Emperor 1942*.³ This book is not part of the collection. Two articles written by Robert Sheats about the project were published in 1977 by *Skin Diver* magazine, and are included in Box 3. His hand-written diary from before and during his time as a prisoner of war are found in Box 6.

¹ Obituary of Robert. C. Sheats. Kitsap Sun. Accessed Oct 3, 2018 at <https://products.kitsapsun.com/archive/1995/03-14/bituaries.html>

² Poole, Lisa with Diane Robinson. Torpedo Town U.S.A. A History of the Naval Undersea Warfare Engineering Station 1914-1989. Chapter 6: From Steam to Electronics. Online at <https://maritime.org/doc/torpedotown/chap6.htm> accessed Oct 3, 2018.

³ Amazon website accessed 3 October 2018. <https://www.amazon.com/One-Mans-War-Diving-Emperor/dp/0941332608>. Originally put out by Best Publishing Company (ISBN 0941332608)

As a Navy Master Diver, he participated both Sealab I (1964) and II (1965) (experimental underwater habitats) and he was a team leader for the Sealab II project. Some unclassified project notes and information regarding Sealab I and II are included in this collection and can be found in Boxes 5 and 6.

As a Master Diver, he collected many articles regarding diving safety, diving techniques, dive equipment and new technology of his time. This collection primarily consists of articles and Navy instructions regarding diving and diving equipment, much of it technical. However, as noted above, some personal notes as well as correspondence related to his consultant business are included in this collection.

The collection (5.5 linear feet), housed in 7 boxes, features folders in alphabetical order by content, starting with Diving Accident data and continuing through Ship Salvage notes. No special handling requirements are in place beyond normal care procedures. Also included are various NAVSEA instructions, such as the U.S. Diving Manual, Hyperbaric Chamber Ops Manual, the Ship Salvage Manual, etc. The information is a “point in time” collection of instructions and articles relevant to late 20th century diving technology.

Box and Folder Listing:

NUM.2018.024.001

Box 1 (S-1)

1. Folder: Diving Accident Data (A & B) (Originals and copies)
 - a. Hand written notes on death of J. Miller Sprinkle, 1960s.
 - b. Diving accident reports, Washington State, 76-1 to 76-10.
 - c. Diving accident reports, Washington State, 77-01 to 77-10.
 - d. Diving accident reports, Washington State, 78-01 to 78-07.
 - e. Diving accident reports, Washington State, 79-01 to 79-17.
 - f. Diving accident reports, Washington State, 80-01 to 80-13.
 - g. Investigation report/death ICO David W. Kelly, May 30, 1983.
 - h. LCDR Herman S. Kunz, USN. Report of Diving Accident at San Clemente Island, 8 February 1967.
 - i. Various newspaper clippings on diving deaths and treatments from the San Diego Evening Tribune, Seattle Post-Intelligencer, the Bremerton Sun, and unknown others circa 1963-65; 1970-79; 1980-1990.
 - j. Hand written notes on deaths of nine un-named divers, male and female, aged 17 to 59, circa 1976
 - k. Article: University of Washington, School of Medicine, Environmental Health Division, Occupational Health Newsletter, Vol. 18, Nos. 7 and 8, dated July and August 1970. Title: Carbon Monoxide Intoxication of a Scuba Diver.
 - l. Excerpt: University of Washington, School of Medicine, Environmental Health Division, Occupational Health Newsletter, Vol 14, Nos. 2 and 3, dated February &

March 1965. Title: Youthful Scuba Victim.

2. Folder: Aspirin and the Bends
 - a. Triage: Newsletter of the National Medical Association of Diver Medical Technicians, No. 6, April 1984. "The Making of a Myth."
3. Folder: Aspirated Cylinders
 - a. Calypso Log Special Dispatch, Vol. 10, No. 3, summer 1963. "Aspirated Cylinders: The Shape of Things to Come".
4. Folder: Arterial Gas Embolism
 - a. Article: "Arterial Gas Embolism", date and author unknown.
 - b. Article: "Improved Therapies for Decompression Sickness and Air Embolism", author J.J.W. Sykes, Naval Medical Research Institute, Bethesda, MD; date unknown, probably early 1980s.
5. Folder: Anchor Projectiles & Seastaple©
 - a. B&W Photos (3) of forcibly embedded Seastaple© deadman type anchor
 - b. Advertising folder for forcibly embedded Seastaple© deadman type anchor
6. Folder: Air Lifts
 - a. Excerpt from unknown source "Air Lifts", pp 24-26.
7. Folder: Advanced Diving Techniques
 - a. Darby, Jim and George Beardsley, 1972. "Advanced Diving Techniques for Scuba Rescue and Recovery. Second Printing. Compiled by the Illinois Scuba Rescue and Recovery Instructors Unit for Civil Defense.
8. Folder: Accident Statistics, Diving
 - a. Excerpt: Morrison, J.B., J.T. Florio, and W.S. Butt. "Loss of Consciousness Under Water", dated 1978
 - b. "Does Diver Training Produce Competent Divers?" NAUI circa early 1980s.
 - c. Tzimoulis, Paul J. "Smoking-A Silent but Deadly Assassin." *Skin Diver*/October 1971.
 - d. Barada, Bill. "Tomorrow 2500 Ft". *Skin Diver*/June 1972.
 - e. "NOAA, Coast Guard Report Underwater Fatalities". *Commercial Diving Journal*, Pg. 10 spring 1979.
 - f. "Amateur Diving Fatalities on Rise". Pg. 4. *Deep Submergence*. Unknown date (suspect early 1980s) and author.
 - g. Bennet, R. P, J.A. Dovenbarger, B.G. Bond and C. J. Wachholz. "Flying After Diving 1987 Accidents." *Alert Diver*. Pg. 1. Vol. 5, No. 1, Spring 1989.
 - h. Scuba Safety Program and Miscellaneous Diving Accident Statistics. 1970s and 1980s.
 - i. Envelope containing empty envelopes

NUM.2018.024.002

Box 2 (S-2)

1. CNO Seapower Presentation "Boundless Frontiers", dated 7 Sep 1965.
2. Folder: Bone Necrosis, Osteonecrosis
 - a. Kawashima, Mahito, MD Takehiko Torisu, MD and Ko Hayashi, MD Yoshi Kamo, MD. "Avascular Bone Necrosis in Japanese Diving Fishermen." Kyushu Rosai Hospital, Unknown source and date, pp. 80-106.
 - b. Smith, Kent H., et al. "Osteonecrosis" Part 2 of the National Plan for the Safety and Health of Divers in the Quest for Subsea Energy. Bethesda, MD: Undersea Medical Society, Inc. Unknown date, circa mid-to-late 1970s.
 - c. *Pressure*, Newsletter of the Undersea Medical Society, Inc. Vol 10, No 4, August 1981.
 - d. Hutchinson. W.R., "Aseptic Bone Necrosis: Potential Sport Diving Medical Problem". Pg. 40, *Skin Diver Magazine*/April 1976.
 - e. Brickley-Parsons, D. and M.E. Bradley. "Abnormal Bone and Cartilage Collagen Metabolism in Experimentally Induced Dysbaric Osteonecrosis." Office of Naval Research. Contract #N00014-77-C-0483.
3. Folder: Bouyant Unassisted Ascent from 300 Ft.
 - a. Bond, George F., CDR as told to Max Gunther. "We conquered the DEEP 300". *True The Man's Magazine*. Pp. 48-49, 103-109. Nov 1960.
4. Folder: British Columbia Safety Council
 - a. Quail, J. Francis. "Study of Skin and Scuba Fatalities in British Columbia from 1959 to December 1975." *B.C. Safety Council, Underwater Section*. Fifth Edition, March 1/76.
5. Folder: California State Scuba Advisory Committee
 - a. California State Scuba Advisory Committee, "Conclusions and Recommendations". Unknown source, circa mid-1974.
 - b. McAniff, John J. and Hilbert V. Schenck. "Scuba Diving Fatalities, State of California 1970 through 1974." Scuba Safety Project, National Underwater Accident Data Center.
 - c. Appendix III "Minimum Standards for Recompression Chambers". Change 1 to NPDR 715-1-1, 1 October 1971.
6. Folder: Cerebral Air Embolism
 - a. Waite, Charles L. et al. "Cerebral Air Embolism. I. Basic Studies". Report Number 493. Department of the Navy Bureau of Medicine and Surgery. 18 April 1967. Reports states using live dogs, cerebral air embolism is best treated by rapid and prompt recompression to 165 ft. and not prolonged decompression, using Navy treatment Tables III and IV.

7. Folder: Civil Diving Population of the U.S.
 - a. Jugel, Karl, et al. "An Analysis of the Civil Diving Population of the United States." Manned Undersea Science and Technology, NOAA, U.S. Dept of Commerce, March 1975. This is a statistical analysis of the scope of diving operations throughout the United States. Included are commercial, scientific/educational, non-military governmental and recreational divers. Included are tables and information on number of divers, areas of commercial and governmental work, training, geographic distribution, expenditures, and safety.

8. Folder: Closed Circuit Breathing Gas system for deep diving
 - a. Gelhaus, Ing.Joachim. "Closed-circuit Breathing-Gas System for Deep Diving" *Drager Review* 43, June 1979. Discusses the cost savings and safety of using a tethered closed-circuit breathing system vs. open circuit system at deep depths, (such as 130 meters or 425 feet).

9. Folder: Correspondence
 - a. Correspondence related to construction plans for a diving sled, circa 1959.
 - b. Correspondence related to proposed changes to divers and diving equipment on nuclear and non-nuclear submarines. Circa 1963-1964
 - c. Correspondence related to Navy Deep Sea Diving Equipment improvements, 1966.
 - d. Correspondence related to diving equipment and techniques to the Ad Hoc Committee on Diving Equipment, 1968.
 - e. Correspondence related to improvements/changes to the U.S. Navy Diving Manual, 1968.
 - f. Miscellaneous letters regarding diving equipment and procedures.
 - g. Duplicate correspondence of above.

10. Folder: Contact Lenses and Diving
 - a. Matzen, Mary M. "Contact Lenses and Diving: What are the Risks?" *Faceplate*, unknown date of issue, pp. 14-15.

11. Folder: Cobb Sea Mount-Project Sea Use
 - a. Handwritten notes on Sea Lab
 - b. Handwritten/typed diary on Project Sea Use by Bob Sheats, August 18 to 28, 1969?
 - c. Hoss, Ron. "Diving to a Mountaintop." *Seattle Times*, Nov 9, 1969. Story and photos of the expedition to Cobb Seamount, part two of Sea Use Program.
 - d. Birkeland, Charles. "Biological Observations on Cobb Seamount." *Northwest Science*, Vol. 45, No. 3, 1971, Pp. 193-199. A report on the types of underwater life observed on the Cobb Seamount at shallow (37 meter) depths.
 - e. To-scale drawings of Cobb Sea Mount.
 - f. Project Sea Use personnel information, training aids, tests, dive certification requirements, et al.

- g. Honeywell. *Standard Diving Procedures for Honeywell Diving Team*. 17 July 1970. Seattle, WA: Honeywell Marine Systems Center.

12. Folder: CMAS: The World Underwater Federation

- a. Partial article on CMAS: The World Underwater Federation-why the U.S. Isn't Fully Accepted. *Undercurrent*; unknown date.

NUM.2018.024.003

Box 3 (S3)

1. Folder: Diving Techniques, Polar Regions, Manual
 - a. Jenkins, W.T. *A Summary of Diving Techniques Used in Polar Regions*. Preliminary Manual. July 1973. Naval Coastal Systems Laboratory: FL, Panama City. This report documents research and operations germane to the conduct of self-contained diving operations in polar environments.
2. Folder: Diving Safety and Training
 - a. Various correspondence between Bob Sheats and diving certification and/or publications regarding dive training and diver safety.
 - b. Page, Don "A Course for Death" *Seattle Post-Intelligencer* Oct 7, 1973.
 - c. Sheats, Bob. "Diving Fatalities" Letter to the Editor. *Bremerton Sun*, Apr 2, 1982.
 - d. "Why Divers Die: Part II. 10% of the deaths occur in training." Pp 8-12, *Undercurrent*, July 1981.
 - e. "Does Diver Training Produce Competent Divers? Results of an Undercurrent Survey." Pp. 7-8, 13-14, *Undercurrent*, Unknown date.
 - f. *Undercurrent*, Vol. VI, No. 5, May 1981.
 - g. Hinde, Jamie Lee. "To Dive or Not to Dive: Issue for Pregnant Women." Unknown source, unknown date.
 - h. NAUI Safe Scuba Diving Practices. Unknown date.
 - i. "Why Divers Die: Part III. Problems with Hearts, Problems with Hamburger." Pp. 10-12, *Undercurrent*, Vol. 10, No. 9, Sept 1985.
 - j. David, Joseph H. "The Autopsy in Diving Fatalities." Pp2-6, *Weekly Report Hyperbaric and Undersea Medicine*. Vol. 1, No. 35, unknown date.
 - k. "SCUBA Air Quality: An Important Consideration for safe SCUBA diving." *University of Washington Environmental Health and Safety News*. Vol 21, Nos. 1, 2, 3, 4.
 - l. Harter, John V. and Robert C. Bornmann. "Diving Accidents Not Involving Decompression." Pp. 139-143, *Journal of Ocean Technology*, October 1968. Non-decompression sickness accident reports, reviewed by the Naval Experimental Diving Unit, include pressure chamber fires involving loss of life, diver entrapment, electric shock, mishaps with breathing apparatus and others.

- m. Hinde, Jamie Lee. "Divers Who Smoke Face Special Risks." Pp. 10-11, *Underwater USA*, May 1985.
 - n. Fead, Lou. "Too Old to Dive." Pp 16-18, *Aqua-Field*. Unknown date.
 - o. *Pressure*, Vol. 11, No. 1. Undersea Medical Society, Inc. February 1982.
 - p. *The Unbender*. Vol. 4, No. 11, October 1980. Florida Underwater Council.
 - q. Miscellaneous forms, checklists, points of contact.
3. Folder: Diving Regulations: OSHA
 - a. Information and correspondence on: geoduck harvesting in the Pacific NW; Diving Safety Standards, lack of OSHA oversight on diving, unsafe working conditions for commercial divers, etc.
 - b. *Federal Register*. "Commercial Diving Operations. Occupational Safety and Health Requirements." Department of Labor. Occupational Safety and Health Administration. Friday, July 22, 1977, Part III.
 4. Folder: Diving as Guest of the Emperor
 - a. Sheats, Bob. "Diving as a Guest of the Emperor." Pp. 36-39, *Skin Diver*, Vol. 26, No. 3, March 1977. The first of a two-part story: WWII POW's sabotage a Japanese silver salvage operation.
 - b. Sheats, Bob. "Diving as a Guest of the Emperor." Pp. 41-43, *Skin Diver*, Vol 26, No. 4, April 1977. The conclusion of a two-part story about WWII POWs.
 - c. Sheats, Bob. "Unusual Diving Accidents." Pp. 62-63, *Skin Diver*, Vol. 19, No 6, June 1970. Only page 63 included.
 5. Folder: Diving Physiology, University of Gotenborg, Stockholm
 - a. Rubenstein, Lt. C.J. Assistant Medical Officer, Naval Experimental Dive Unit. Trip Report, March 31 – 10 April 1968. Diving Medical Conference in Sweden.
 6. Folder: Diving Industry Hall of Fame
 - a. Diving Industry Hall of Fame Awards Program, January 19, 1990.
 7. Folder: Diving Equipment
 - a. NAVSEAINST 9597.1. 18 March 1976. Lists of diving equipment, which are service approved or authorized for Navy use; promulgation of.
 - b. "Telling the facts about regulator performance. The View from the Executive Offices." *Skindiving Australia & the South Pacific*, Vol. 11, No. 2, March 1981.
 - c. DUI, Inc. "Big 'D' Diesel fired heater." Technical Information Bulletin HT-8. Undated.
 - d. DUI, Inc. "Norseman Hot Water Suit." Undated.
 - e. DUI, Inc. "DUI Polar Bear." Undated.
 - f. Walker, Jim. "Surface Your Treasure. Automarine's SPDI Gives You Maximum Lift with Minimum Size." *Skin Diver*, February 1983.

- g. DUI, Inc. "Measuring Manual for Thermal Protective Garments." Nov 16, 1978.
- h. HELIX Underwater Catalog, 1983 (2 copies)
- i. *International Underwater Systems Design*, Vol. 4, No 1, Jan/Feb 1982.
- j. *International Underwater Systems Design*, Vol. 4, No 6, Nov 1982.
- k. The Parkway System 1985 Catalog.
- l. *International Underwater Systems Design*, Vol. 7, No 4, Jul 1985.
- m. Imperial Manufacturing Co. Wetsuit/drysuit products. Undated.
- n. *Commercial Diving Journal*. Fall 1981.
- o. *International Underwater Systems Design*, Vol. 5, No 3, May 1983.

8. Folder: Decompression Meter

- a. Correspondence between Bob Sheats, Searle Consultants, various diving safety institutions and others, circa 1970s, regarding early "decompression meters" or "decomputer". These are presumably the precursor to current dive computers. Many of the letters indicate the danger of relying on the meters, without also monitoring the dive depth and time via analog means, because of individual variances that cannot be programmed. It appears there have been several decompression sickness incidents due to sole reliance on the meter.
 - i. Articles:
 1. Mount, Tom. 1970. "The Decom Meter Vs. U.S. Navy Tables: A Comprehensive Comparison of Two Methods of Computing Decompression." *Skin Diver*. Nov. Pp 32-35.
 2. Cross, E.R. "Technifacts from a Master Diver". *Skin Diver*, unknown date. Discussion on high altitude diving and decompression.
 3. Terry, Lewis. "Theory of Decompression and the Calculation of Decompression Tables." Written for Prospective Submarine Medical Officers at the U.S. Naval school of Submarine Medicine.
 4. Thalmann, Edward, CDR. "Extended Air Treatment at 60 FSW for Severe Cases of Decompression Sickness". Experimental Dive Unit, Panama City, FL. Paper presented at the 1982 Great Lakes Chapter of the Undersea Medical Society, Toronto, Canada (September 1982).
 5. "The SOS Decompression Meter: Scubapro fiddles while divers bend." *Undercurrent*, June 1977.
 6. "Emergency Underwater Recompression: A Technique to Challenge Conventional Wisdom." Unknown source, unknown date.
- b. Correspondence between Marine Technology Society (Bob Sheats) and John A. Biggs, Director WA State Department of Ecology regarding the need by Washington State agencies to employ a full-time team

of divers to investigate and solve problems peculiar to the subtidal areas of Puget Sound and the State of Washington.

9. Folder: Deep Diving and Short Decompression by Breathing Mixed Gases
 - a. Keller, H. and A.A. Bulmann. "Deep Diving and short decompression by breathing mixed gases." *Journal of Applied Physiology*, Vol 20, No. 6, Nov 1965.

10. Folder: Deep Quest
 - a. Deep Quest: A Deep Submergence Research System. *The Lockheed Star*, Vol 14, No 33, March 29, 1968. Brochure on the Deep Quest system, precursor to the Deep Submergence Rescue Vehicle (DSRV), built by Lockheed's Oceana Systems branch for the U.S. Navy after the *USS Thresher* loss.

11. Folder: Deep Water Search Procedures
 - a. Supervisor of Diving. August 1972. *Deep Water Search Procedures*. Washington, D.C.: Naval Sea Systems Command. (2 copies)
 - i. Written by Bob Sheats. Manual promulgates three standard search methods utilizing divers from a PTC (Personnel Transfer Capsule) in the water column to 1000 feet.

12. Folder: Development of Bubbles in Blood during Decompression
 - a. Spencer, Michael P. and Spencer D. Campbell. "Development of Bubbles in Venous and Arterial Blood during Hyperbaric Decompression." Pp 26-32 in the *Mason Clinic*, Vol 22, No. 1, March 1968.

13. Folder: Dive Book List
 - a. List of books on helmet diving and salvage compiled by Bob Croot, Diver, Ltd, July 1983. Book dates range from 1874 to 1978. Three pages.

14. Folder: Dive Safety Advisory Committee Guidelines
 - a. W.H.D.A. Dive Safety Advisory Committee Guidelines.

15. Folder: Diver Exams-Training
 - a. Scuba School Final Exam-20 questions. Undated.
 - b. Oral questions for Diver II-17 questions. Undated.
 - c. Suggested Oral Examination Questions for Diver I-17 questions. Undated.
 - d. Performance Rating Sheet-Diver 1. State of Washington, Department of Personnel, Olympia, WA. Undated.
 - e. Tentative Topical Outline of Curriculum, Five Weeks' Course, Shallow Water and SCUBA Diving, U.S. Naval Submarine Base, Navy #128, Pearl Harbor, HI. Six pages, undated.

16. Folder: B.R. 155 Diving Manual, 1964. Weapons Department, ADMIRALTY

- a. Regulations to govern British Naval Diving and Diving Personnel, as well as Civilian Admiralty Diving and Diving personnel employed in H.M. Dockyards and the Marine Services.

NUM.2018.024.004

Box 4 (S4) E-H

1. Folder: Hyperbaric and Diving Physiology in Man
 - a. Yousef, M.K., K. Shiraki, and J.W. Wolfe. "Hyperbaric and Diving Physiology in Man: University of Occupational and Environmental Health, Japan." Pp 61-73 in *Scientific Bulletin*, Vol. 11, No. 1, January to March 1986.
2. Folder: Hyperbaric Terms, Glossary
 - a. Undersea Medical Society, Inc. *Glossary of Diving and Hyperbaric Terms*. Bethesda, Md: Undersea Medical Society, Inc. 1978.
3. Folder: Hyperbaric Oxygen Therapy/Research
 - a. *Hyperbaric Oxygenation*, Hyperbaric Medicine Branch, United States Air Force School of Aerospace Medicine, Aerospace Medical Division, Brooks Air Force Base, Texas. Undated.
 - b. Bradley, Mark E. "Hyperbaric Oxygen Therapy". Chapter 38 in *Pathophysiology of Shock, Anoxia, and Ischemia*. Unknown publisher and date.
 - c. Davis, Jefferson C., Jared M. Dunn, and Richard D. Heimbach. "Indications for Hyperbaric Oxygen Therapy" Pp. 6-9 in *The Underbender*, Vol. 8, No. 1, January/February 1983.
 - d. Naquin, J.C. and M.E. Bradley. U.S. Navy Hyperbaric Medicine Research- A Facility and Programs. Presentation given at DIVETECH '81, London, 24-25 November 1981.
 - e. Marx, Robert E. and John R. Ames. "The Use of Hyperbaric Oxygen Therapy in Bony Reconstruction of the Irradiated and Tissue-deficient Patient." *Journal of Oral and Maxillofacial Surgery*, Vol. 40, July 1982: 412-420.
 - f. "Hyperbaric Oxygen" Pp 4-5 in *MS Express*, Issue No. 28, February-March 1983. Special Issue: Update on Research.
 - g. Fischer, Boguslav H., Morton Marks, and Theobald Reich. "Hyperbaric-Oxygen Treatment of Multiple Sclerosis: A Randomized Placebo-Controlled, Double-Blind Study." *The New England Journal of Medicine*, Vol 308, No 4, Jan 1983: 181-186.
 - h. Thal, Alan P. Chairman, et al. "Hyperbaric Oxygenation: Potentialities and Problems." Report of the Ad Hoc Committee on Hyperbaric Oxygenation. Washington, DC: National Academy of Sciences-National Research Council. 1963.
 - i. Press Release from Muscular Dystrophy Association, June 1983: First Breakthrough in Lou Gehrig's disease.

- j. Cover letter and MDA Update from the research department, May 16, 1983. Amyotrophic Lateral Sclerosis: Highlights of Current Research.
 - k. Barash, Dan. "What to do when the doctor doesn't." Undated paper circa 1980s. A personal story of the diagnosis, self-education and frustration of treatment for ALS. Also discusses referral, disease management and support provided by the Muscular Dystrophy Association (MDA) and VA, if eligible.
 - l. Gilman, S.C., K.M. Greene, M.E. Bradley and R.J. Biersner. "Fetal Development: effects of simulated diving and hyperbaric oxygen treatment." *Undersea Biomedical Research*, Vol 9, No. 4, December 1982: 297-304.
4. Folder: Hydro-space Research Center
- a. Brochure describing the Taylor Diving and Salvage Company's Hydro-space research center in Belle Chasse, Louisiana. Mission of the center is training personnel, testing experimental equipment, and perfecting advanced operational techniques for undersea work at depths of 1000 feet and beyond. Undated.
5. Folder: Hypothermia
- a. Johnson, Terry. "Hypothermia: Surviving Killer Cold." *Sea Frontiers*, Vol 25, No 5, Sept-Oct 1979: 301-308.
 - b. Ryan, Patricia. "Diving in Cold Water." *NAUI News*, Jan 1978, pp. 4-5.
 - c. Cold Weather Survival. Chapter 1 of *Medical Technical Information Manual*, U.S. Coast Guard, November 1979.
 - d. Penrose, Nancy. "Rewarming the Hypothermic Human." *Sea Frontiers*, Vol 27, No 4, Jul-Aug 1981:219-223.
6. Folder: Fisheries
- a. Stone, Richard B., Chester C. Buchanan, and Frank W. Steimle, Jr. Scrap Tires as Artificial Reefs. Washington, DC: U.S. Environmental Protection Agency. 1974.
 - b. Kershaw, T.R., Commissioner. *The 14th and 15th Annual Report of the State Fish Commissioner to the Governor of the state of Washington*. Seattle, WA: The Metropolitan Press, INC. 1904. [copy]
 - c. Wright, Samuel G. *The Origin and Migration of Washington's Chinook & Coho Salmon*. State of Washington Department of Fisheries Research Division Information Booklet No. 1, October 1968.
 - d. Buckley, Raymond. *How to Unhook Small Salmon*. Washington Department of Fisheries. June 1974.
 - e. Sheats, Bob. "Geoduck Harvesting Techniques on Puget Sound." Unpublished paper, April 1970.
 - f. The Bremerton Sun, "Following the Fish." December 4, 1961. Pg. 1.
 - g. Patty, Stanton H. "Huge 'Flying' Net May Revolutionize Fishing". Undated newspaper article.

7. Folder: Explosives in U/W Salvage
 - a. OP 2081. *Use of Explosives in Underwater Salvage*. U.S. Navy Bureau of Ordnance, Washington D.C. 26 February 1956.
 - b. Allan. F. "The Philosophy and Application of Shaped Charge Explosives." Pp. 14-26 in *International Underwater Systems Design*, Vol 3, No. 2 February/March 1981.

8. Folder: Experiments in Water Breathing
 - a. Kylstra, Johannes A. "Experiments in Water-Breathing." Pp.66-74 in *Scientific American*, August 1968. (original and copy)
 - b. Kylstra, Johannes A. "Lungs Functioning as Gills." Pp. 11-12 in *Documenta Geigy Nautilus*, 1969.

9. Folder: Experimental Diving Unit U.S. Navy
 - a. Pamphlet, Experimental Diving Unit, U.S. Navy. Panama City, FL. Undated.
 - b. Patches: Experimental Diving Unit, 1 cloth, 1 sticker.
 - c. Timeline of U.S. Navy Experimental Diving Unit Milestones and Credits
 - d. Agenda/Schedule of Events, SEALAB Reunion 93, March 4-7, 1993.
 - e. Information Sheet: Diving Documents and Memorabilia.

10. Folder: Flunarizine-Drug for Oxygen Starved Accident Victims
 - a. "Drug might stop damage to brain, scientist says." *The Houston Post*, Monday April 27, 1981, page 8B. (5 copies)

11. Folder: Geo-Marine Technology (GMT), Vol 3 No 5 May '67
 - a. Hull, E. W. Seabrook. "Those Remarkable Little Work Boats". Pp 22-40 in *Geo-Marine Technology (GMT)*, Vol 3 No 5 May 1967. Article discussing the various Deep Research Vehicles (DRV) in use at that time.

12. Folder: Genesis I (He-N2-O2 Human Exposure Experiment)
 - a. Bond, Georg F. Principal Investigator. "Protocol for He-N2-O2 Human Exposure Experiment." *Project Genesis I. Phase D*. U.S. Navy Experimental Dive Unit. Five pages, undated. Describes the purpose of the study, the controls, the equipment, and personnel to conduct the experiment.
 - b. "Men under Pressure." *Naval Research Reviews*, Oct 1963. Office of Naval Research, Department of the Navy, Washington D.C. An article describing Project Genesis I. This was a study of man's reactions to conditions existing at simulated ocean depths as great as 200 feet, while the subjects breathe from an artificial atmosphere. This was conducted at Naval Medical Research. Five phases of the project were completed as of the writing, as well as a test that was planned in the Atlantic Ocean in May or June of 1964.

13. Folder: Flying After Diving & Altitude Diving

- a. Edel, Peter O, Joseph J. Carroll, Robert W. Honaker, and Edward L. Beckman. "Interval at Sea-level Pressure Required to Prevent Decompression Sickness in Humans who Fly in Commercial Aircraft After Diving." Pp.1106-1110 in *Aerospace Magazine*, Vol. 40, No 10, October 1969. A report of experiments to determine the susceptibility to decompression sickness in humans who breathe air while under increased pressure (as in scuba diving), and who then are exposed to an interval of decreased pressure, as in commercial airline flights. The test used no decompression dives and surface intervals prior to ascent to altitude from five minutes to five hours. Guidelines were established to safeguard divers against decompression sickness prior to flying.
 - b. Excerpt from unknown source (possibly training manual) regarding decompression problems of altitude diving as they relate to special situational variables. Circa early 1970s. Pages 6-22.
14. Folder: Hydrogen Gas Diving
- a. Fructus, X. Rene. "COMEX completes 1st SAT dive using Hydrogen." Page 3 in *Pressure*, Vol 14, No. 5, October 1985. Report of an experiment using gas mixture of hydrogen/helium/oxygen (hydreliox) in a saturation dive of 450 MSW (meters of seawater). Test was successful overall.
 - b. "J & J using hydrox in chamber tests." Pp 19-20 in *Ocean Industry*, February 1971. Hydrox is a hydrogen-oxygen gas mixture. Tests were conducted on both animals and men in a recompression chamber to 200 ft. Comparisons were made to also breathing Heliox (helium-oxygen), hydrox, and air. The dive lasted 141 minutes.
15. Folder: History of Diving Illustrated
- a. The History of Diving Illustrated. The illustrations, created by Paul Grandinetti of Battelle's Columbus Laboratories, illustrate "The History of Diving" for the 1976 Working Diver Symposium.
16. Folder: High Pressure Surgery
- a. "High Pressure Surgery: 62 Desperate Hours". Unknown date, unknown source. Article describes the accident of saturation diver Donald "Daniel" Boone whose intestines were forcefully sucked out while sitting on a toilet and it was remotely flushed. He survived 8 hours until the doctors were about to be locked into the chamber and conduct the surgery with only Demerol as anesthesia. After emergency decompression lasting 60 hours, the patient survived. (2 copies)
17. Folder: High Pressure Nervous Syndrome (HPNS)
- a. "New World depth record 2132 ft. at Duke's F.G. Hall Laboratory without the High-Pressure Nervous Syndrome." Pg. 11-13 in *The Unbender*, Vol. 4, No. 10, Sept 1980. The High-Pressure Nervous Syndrome occurs at depths

greater than 600 ft when breathing Heliox and causes nausea, vomiting, postural and intentional tremors, extreme fatigues, somnolence, weight loss, and increased slow wave (theta activity) in the EEG. The solution was to add nitrogen to the mix (TRIMIX).

- b. Hunter, Jr. William L. "The High-Pressure Nervous Syndrome...Current Concepts". 5 October 1973. Unknown source.

18. Folder: High Altitude Diving

- a. Lenihan, Daniel and Ken Morgan. *High Altitude Diving Considerations*. United States Department of the Interior, National Park Service, Southwest Region, Santa Fe, NM. February 22, 1975.
- b. Smith, C. L. *Altitude Procedures for the Ocean Diver*. October 1975. Unknown source.
- c. Sheats, Bob. "High Altitude Diving Problems." Unknown source, unknown date. (5 copies)

19. Folder: Heart Drawings

- a. American Heart Association. *Heart Drawings: Anterior, Posterior and Coronal Cross-Sectional Views*. Set of three slides (color) of the heart for topographic anatomical study. Drawings prepared by Leon Schlossberg, medical illustrator at the Johns Hopkins University.

20. Folder: Commercial Diving Center. *Human Factors and the Hyperbaric Chamber*.

Wilmington, CA 30 Jun – 3 July 1975. Proceedings of the conference.

Includes schedule and various papers presented at the conference including:

- a. Diving Medicine and Physiology
- b. Chamber Design and Engineering
- c. Treatment of Diving Casualties

21. Folder: NAVSHIPS 0994-007-7010, NAVFAC P-422. *Hyperbaric Facilities: General Requirements for Material Certification*. May 1970. Department of the Navy, Naval Ship Systems Command, Naval Facility Engineering Command, Washington, D.C.

22. Folder: NAVSHIPS 0994-010-4011. *Directory of Worldwide, Shore-based Hyperbaric Chambers, Vol 1 – United States and Canada*. Revised July 1974. With changes made as of 23 October 1974. U.S. Navy Supervisor of Diving, Department of the Navy, Naval Sea Systems Command, Washington D.C. 20390.

NUM.2018.024.005

Box 5 (S5) I-O

1. Folder: "Island Mail" Investigation

- a. Report of diving operations by Keyport, WA dive locker, July 1961. Divers investigated a large rock found within the 10-fathom curve around Smith

Island, WA. This investigation was to determine if the S.S. Island Mail was in fact in navigable waters when it struck the rock. There were indications that the S.S. Island Mail did strike this rock, which was instrumental in refuting possible damage claims by the ship and its owners.

2. Folder: Limit to HeO2 Diving
 - a. Office of Naval Research, London. "A Physiological and Psychological limit to He/O2 Diving?" Pp 233-234 in *European Scientific Notes ESN 22-9*. Dated 30 September 1968. Distributed by Office of Naval Research Branch Office, London, UK. [Original and a copy].
3. Folder: Master Switch of Life (Diving Reflex etc.)
 - a. Scholander, P.F. "The Master Switch of Life". Unknown source, unknown date. Original and a copy. Abstract: Studies of diving have led to the identification of the vertebrate animals' ultimate defense against asphyxia: a gross redistribution of the circulation that concentrates oxygen in the brain and heart.
4. Folder: Medical Aspects of Sustained Underwater Exploration
 - a. Schulte, Capt John H. "Medical Aspects of Sustained Underwater Exploration." Pp 333-336 in *Arch Environ Health*, vol 14, Feb 1967. Paper describing several studies of extended underwater life via saturation dives in the 1960s from experiments known as Genesis I, Genesis II, Conshelf I, Man in the Sea, Phase I, Conshelf II, Sea Lab I, Man in the Sea II, Sea Lab II and Conshelf III. Uneventful short-term physical issues.
5. Folder: Naval Diving Conference, First Annual International
 - a. Experimental Dive Unit. *Proceedings from the first annual international naval diving conference*. Washington Navy Yard, Washington, D.C. 6-9 December 1968.

Abstract: These proceedings represent a compilation of those papers presented at the First Annual International Naval Diving Conference, 6-9 December 1968, hosted by the United States Navy Experimental Diving Unit. Participants included representatives from the navies of the United Kingdom, Canada, Australia, Federal Republic of Germany, France, and Sweden. The subjects presented included descriptions of equipment used; duties, selection, and training of divers; and descriptions of research and development programs conducted. Pertinent medical and physiological aspects of some of the diving programs also presented.
6. Folder: New Breathing System (Taylor)
 - a. Taylor Diving. "New breathing system will allow prolonged diving jobs". Reprinted from *Offshore* January 1972 edition.

- i. Describes Taylor Diving's surface supplied, closed circuit free-flowing breathing system for commercial divers engaged in prolonged deep diving assignments.

- 7. Folder: Notes-Miscellaneous
 - a. Info card for Divers Academy of the Eastern Seaboard new mixed gas sat course.
 - b. Business Card for RFD No 1, Andover, CT
 - c. Reminder memos: List of various articles
 - d. Note sheet: names of people
 - e. Cover sheet from Naval Submarine Base, San Francisco to Chief of Naval Personnel, subject: SCUBA course of instruction; submission of; dated February 2, 1956. Enclosures not included.
 - f. Public Notice from Freydl and Maxwell attorneys, looking for divers who sustained injuries due to use of facemask anti-fogger from May 1980 to Sept 1982.

- 8. Folder: Ocean Simulation Facility
 - a. Green, George C., Lt. *Ocean Simulation Facility Facts*. Panama City Florida: Naval Ship Research and Development Laboratory. May 1971.
 - b. Official Navy black and white photo of facility wet pot, 8x10
 - c. Official Navy black and white photo of facility dry chamber, 8x10
 - d. Official Navy Color photo of SCUBA locker, 8x10
 - e. Color photo of outside of facility (assumed, not annotated), 8x10

- 9. Folder: Octopus
 - a. High, William L. "The Giant Pacific Octopus." MFR Paper 1200, Pp. 17-22 *Marine Fisheries Review*, Vol. 38, No 9, September 1976.
 - b. Paper: "Diving for Octopus in Puget Sound". No date, no source, no author.
 - c. Official Navy black and white photo, four divers from U.S. Naval Torpedo Station, Keyport, WA with two Pacific Octopus, May 6, 1977. Divers not identified.
 - d. Mottet, Madelon Green. *The Fishery Biology of Octopus Dofleini*. Washington Department of Fisheries, Technical Report No. 16. June 1975.

- 10. Folder: Otitis Externa: Prophylactic Program
 - a. The Old Master. A diving note about preventing ear infections during saturation dives, based on research of LCDR Ed Thalmann, MC, USNR and NEDU Report 10-74.

- 11. Binder: S5a Master Diver Notebook
 - a. 1970s era instructions for Master Divers in the U.S. Navy. Includes OPNAV, SECNAV, NAVSEA, NAVFAC, NAVMAT, BUMED, BUPERS, instructions plus

Safety Notes.

12. Binder: S5b Navy Diver's Guide to the Medical Aspects of Saturation Diving
 - a. Good, Robert F. *Navy Divers Guide to Medical Aspects of Saturation Diving*. Undated. Appears to be circa 1970s.

Abstract: The manual consists of fourteen chapters covering the most common medical problems associated with saturation diving from the diver's point of view. The material presents practical information with minimum discussion of theoretical concepts. Included are emergency procedures as well as a selected reading list.

13. Folder: S5c SEALAB II, Part 1 & 2
 - a. SEALAB II Part I: Operational Aspects
 - i. Produced in cooperation with the Office of Naval Research and Navy Special Projects office Deep Submergence Program.
 - ii. A series of 20 black and white photos and drawings depicting the workings of SEALAB. Prepared to assist children in understanding Oceanography. Sets placed in all elementary schools of San Diego County. Printed 1966.
 - b. SEALAB II Part II: Living and Working Under the Sea
 - i. Produced in cooperation with the Office of Naval Research and Navy Special Projects office Deep Submergence Program.
 - ii. A series of 20 black and white photos and drawings depicting the living and working in SEALAB. Prepared to assist children in understanding Oceanography. Sets placed in all elementary schools of San Diego County. Printed 1966.

NUM.2018.024.006

Box 6 (S6) P-S

1. Folder: Pharmacologic Agents in Prevention of Decompression Sickness
 - a. Campbell, Spencer D. and Merrill P. Spencer. "Pharmacologic Agents in Prevention of Decompression Sickness." *Journal of Occupational Medicine*, Vol 11 No 5, May 1969.
2. Folder: Pressure (Undersea Medical Society)
 - a. *Pressure*, Vol. 12, No. 1, February 1983.
 - b. *Pressure*, Vol. 10, No. 5, October 1981
3. Folder: Principals of Radiation and Contamination Control
 - a. Sulit, R.A., E.J. Leahy, A.L. Baietti. Illustrations by R.R. Lydecker. *Principals of Radiation and Contamination Control*. Prepared for Joint Task Force 7,

Operation HARDTACK. Review Draft Fall 1957. San Francisco, CA: U.S. Naval Radiological Defense Laboratory.

Prepared as a basic reference and training guide on radiological safety for industrial or peacetime operations, for emergencies or accidents, and for field tests involving nuclear weapons.

4. Folder: Proceedings, U.S. Naval Institute
 - a. *Proceedings* 100th Anniversary Issue, U.S. Naval Institute, October 1973.

5. Folder: Prolonged Exposure of Animals to Pressure-Study
 - a. Workman, Robert D., George F. Bond, and Walter F. Mazzone. *Prolonged Exposure of Animals to Pressurized Normal and Synthetic Atmospheres*. Vol. XXI, No. 5, Report No. 374, 26 January 1962. Groton, CT: Naval Submarine Medical Research Laboratory.
Experimental animals, including primates, were exposed to natural and synthetic atmospheres under conditions of pressure equivalent to 200 fsw for periods of up to two weeks. Decompression time was conducted. Findings determined that survival could be predicted with exposure to selected synthetic breathing mixture for a period of two weeks without physiological deterioration.

6. Folder: Recreational SCUBA Diving; A reminder for Safety
 - a. Memo: Recreational SCUBA Diving; A reminder for Safety. Unknown author, unknown date, unknown source.

7. Folder: Safety & Health of Deep Divers (A Review of)
 - a. Wise, Robert A. "A Review of Health and Safety of Deep Divers." Pp. 294-300 in *Journal of Petroleum Technology*. March 1971.

8. Folder: Safety Standard for Pressure Vessels for Human Occupancy
 - a. The American Society of Mechanical Engineers. *Safety Standard for Pressure Vessels for Human Occupancy*. ANSI/ASME PVHO 1- 1977.
New York: The American Society of Mechanical Engineers.

9. Folder: Safety Standards-SCUBA, Air-CO
 - a. Letter from Bob Sheats to LCDR Herman S. Kutz reviewing the proposed safety standards for ANSI Z86.1. Undated.

10. Folder: Saturation Diving (By Robert Sheats)
 - a. Sheats, Robert C. "Saturation Diving." Pp 55-61 in *Proceedings*, September 1972.

11. Folder: Saturation Diving by Robert Sheats
 - a. Terms of Publication for U.S. Naval Institute *Proceedings*.
 - b. Original typed article for *Proceedings*.

12. Folder: SEALAB II
 - a. Circa 1966 Poster depicting Aquanaut's work in SEALAB II. Produced in cooperation with the Office of Naval Research and Navy Special Projects office Deep Submergence Program. Prepared to assist children in understanding Oceanography.

13. Folder: Sea Frontiers (Sea Sled). See also Box 5, No. 14, Folder: S5c SEALAB II, Part 1 & 2.
 - a. *Sea Frontiers*, Magazine of the International Oceanographic Foundation. Vol 12, No. 1, January-February 1966.

14. Folder: SEALAB I Drawings
 - a. SEALAB I Drawings (2), preliminary, dated 26 Feb 64. U.S. Navy Mine Defense Laboratory, Panama City, FL.
 - b. Color photo of SEALAB I on the bottom, Bermuda, 1964.

15. Folder: SEALAB II US Navy by Brooks Foundation.
 - a. Brooks Foundation. *SEALAB II The Navy's Man-in-the-Sea Program. Teacher's Guide and Test Questions*. San Diego County: Department of Education. A Community Educational Resources Production.
 - b. Use in conjunction with Box 5, No. 14: Folder: S5c SEALAB II, Part 1 & 2.

16. Folder: Story of the Submarine by General Dynamics
 - a. Undated series of colored plates of submarines built by Electric Boat, a division of General Dynamics Corporation. Plates include:
 - i. USS Trigger (SS 564), launched 1951
 - ii. USS Flasher (SS 249), launched 1943
 - iii. USS Holland, launched 1897, accepted April 11, 1900 Official "Submarine birthday".
 - iv. USS Tarpon (SS 175), launched 1935
 - v. USS K-1, launched 1951
 - vi. USS Skipjack (E-1), launched 1911
 - vii. USS Nautilus (SSN 571), launched 1955, first nuclear-powered submarine.
 - viii. USS Seawolf (SSN 575), launched 1955

17. Folder: Submarine Disasters, Peacetime
 - a. Submarine Disasters in Peacetime, 1900-1971, compiled by Chester L. Somers. Pp 319-329 in Unknown source, unknown date.

18. Folder: Submarine Escape and Rescue: An Overview
 - a. Cover letter from Dale Mole', dated 17 Jan 1990

- b. Mole', Dale M. *Submarined Escape and Rescue: An Overview*. Submarine Development Group 1, January 1990.

19. Folder: Symposiums

- a. Agendas and/or attendee lists from various symposiums, including:
 - i. International Symposium and Workshop on Decompression Gas Bubbles, Aug 17 to Aug 18, 1973, Seattle, WA. Agenda and attendee list.
 - ii. Third Annual International Professional Diving Symposium and Exhibit, Nov 16-17, 1972, attendee list.
 - iii. Man in the Sea Symposium and International Photo competition, March 20-21, unknown year, Seattle, WA., agenda and attendee list.
 - iv. 1968 Puget Sound Symposium on Physiological Problems of Man-in-the-Sea, attendee list.
 - v. Participant list from unknown meeting, dated 7/28/72.
 - vi. Man in the Sea Symposium 1978 agenda.
 - vii. Man in the Sea Symposium and International Photo competition, March 22-23, 1975, Seattle, WA, agenda.
 - viii. Man in the Sea Symposium and International Photo competition, 1977, Seattle, WA, agenda.
 - ix. Membership list for Committee on Man's Underwater Activities meeting of Marine Technology Society, 1970
 - x. Symposium on Human Performance Capabilities in Undersea Operations, attendee list. Unknown date. Two copies.
 - xi. Address list of individuals involved in SEALAB II, unknown date. Two copies.
 - xii. Announcement of groundbreaking for new Experimental Diving Facility in Panama City, FL. Pg. 76 Unknown date, unknown source.

20. Folder: Shallow Water Blackout at 1000'

- a. Honaker, Robert W., Letter to the editor "Shallow Water Blackout at 1000'". Pg. 6 in *Pressure*, Vol 10, No. 1, February 1981. Newsletter of the Undersea Medical Society, Inc.

21. Folder: Shark Repellant

- a. K.W. of Darien, Ill. "Has an effective means of preventing shark attacks been developed?" Pg. 4 in *Sea Secrets* Vol. 29, No. 2, March-April 1985. An Educational Service of the International Oceanographic Foundation.

22. Folder: Skin Diving Safety Manual.

- a. Examiner, Exploratory Fishing and Gear Research Base, U.S. Bureau of Commercial Fisheries. June 1964.

23. Folder: Search & Rescue Manual

- a. Lewis, Tom. *Organization, Training, Search and Recovery Procedures for the Underwater Unit*. Littleton, CO: Little Fire Department. Received by State of Washington Dept of Emergency Services, Olympia, March 27, 1974.

24. Folder: Sheats, Bob-Diary (copy)

- a. Handwritten diary of Bob Sheats dated Pearl Harbor, HI, Tuesday Feb 23, 1937 to May 26, 1942.
 - i. Diary includes diving in the Johnston Island atolls in the 1930s, clearing coral in prep for tender anchorage and plane base aboard USS Swan
 - ii. Deep Sea Dive school, Anacostia, Washington DC, July- Dec 1939
 - iii. Navy diving operations in Hawaii and western pacific, 1940-41
 - iv. War log starting Dec 7, 1941, Pearl Harbor, HI and Manila, PI aboard USS Canopus [AS 9-sub tender], and at Corregidor under General Wainwright.
 - v. May 6, 1942 surrender at Corregidor and as Japanese prisoner of war.

NUM.2018.024.007

Box S7 (T-Z)

- 1. Folder: U.S. Navy Salvor's Handbook. NAVSEA 0994-LP-017-8010. Supervisor of Salvage, Naval Sea Systems Command. 1976
- 2. Folder: Undercurrent, March 1977
 - a. *Undercurrent, March 1977*
 - i. Articles:
 - 1. Diving for Dollars: Watching your portfolio go up while you go down.
 - 2. Ed Brawley, NASDS et al: The beef goes on
 - 3. Working your way up the river: Devices and techniques for murky river diving.
- 3. Folder: Undersea Ambient Environmental Habitation
 - a. Bond, George F. "Undersea Ambient Environmental Habitation and Manned Operations." Chapter 13, Pp 478-492 in *Ocean Engineering2*, Published by John Wiley & Sons. Undated.
- 4. Folder: Undersea Vehicles for Oceanography
 - a. Interagency Committee on Oceanography of the Federal Council for Science and Technology. *Undersea Vehicles for Oceanography*. ICO Pamphlet No. 18, October 1965.
 - i. This report, prepared by the Interagency Committee on Oceanography, to (1) to identify scientific investigations that might benefit from the use of manned undersea vehicles; (2) to indicate

capabilities required; and (3) to consider the limitations involved in the design and operation of these new research tools. The report informs members of government, industry, and the scientific community of the problems and opportunities inherent in the use of research submersibles for exploration and development of the ocean's deep frontier.

5. Folder: Thermo Jet Cutting Equipment
 - a. Brochure: Taylor Diving and Salvage Company. Thermo Jet Cutting Equipment. Undated.

6. Folder: Television Underwater
 - a. Kunz, H. S. "Summary Account of Torpedo Recovery 8-11 December 1959." Keyport, WA: U.S. Naval Torpedo Station. Report of a lost torpedo in Hood Canal. Includes a drawing of the four-point moor.
 - b. Photo of Solaris Deep-Diving Torpedo Recovery System dated July 19, 1961.
 - c. Enclosure (1) Johnston, C.D. "Solaris Deep-Diving Torpedo Recovery System." Research and Engineering Dept. U.S. Naval Torpedo Station, Keyport, WA. Undated but circa mid-1960s. Discussion of a relatively new technology for the time, using an unmanned but tethered underwater vehicle equipped with television, 3-D tracking devices, Hydrophone Listening systems, a control network of anchors and cables, and a torpedo-gripping claw. System is designed for torpedo recovery at depths to 2,000 feet. Other systems recover objects at greater depths, and extend the Navy's deep-diving salvage capability. Figures 2 thru 5 not included.

7. Folder: Thresher Mystery Unsolved
 - a. Bagwell, Mike. "Thresher Mystery Still is Unsolved". *The Day*, New London, CT, Tuesday, April 10, 1973. Page 1 and 10. Original and one copy.

8. Folder: Ziggy (Humor)
 - a. Ziggy cartoon dated Tuesday December 14, 1982. Pg. C3 of Seattle Post-Intelligencer.

9. Folder: U.S. Navy Diving Tables 1970
 - a. Excerpted from U.S. Navy Diving Manual NAVSHIPS 0994-001-9010 March 1970.

10. Folder: Underwater Safety, Los Angeles County
 - a. Ebro, Thomas C. Los Angeles County Underwater Safety Committee, Department of Parks and Recreation, Underwater Unit. Undated, Circa 1971-72. Safety report of skin and scuba diving accidents and fatalities in Los Angeles County. Purpose was to point out tragic accidents and recommendations for changes in training, conditioning, treatment and education to help prevent such accidents. Includes case reports from 1965

to 1970.

11. Folder: Treatment of Serious Decompression Sickness
 - a. Proceedings from the Twentieth Undersea Medical Society Workshop. *Treatment of Serious Decompression Sickness and Arterial Gas Embolism*. Duke University, 11-14 January 1979. Undersea Medical Society Publication Number 34 WS (SDS) 11-30-79.

12. Folder: Unequalized Equilibrium of Alveoli Air and Arterialized Blood.
 - a. Undated and author unknown, report of an experiment conducted at Keyport, WA with professional divers measuring blood oxygen, nitrogen, and carbon dioxide under pressure (recompression chamber) using a 75% oxygen breathing mix for 15-20 minutes at both 2 atm and 2-6 atm of ambient pressure. This was a study pertaining to the physiology of diving. It was unclear if the equalization of nitrogen in the tissues, which never occurred, would prevent or abate regarding diving related accidents. Original and one copy.

13. Folder: Unusual Diving Accidents.
 - a. Sheats, Bob. "Unusual Diving Accidents: Diving Medicine Part I: Carbon Dioxide Effects in Nitrogen Narcosis." Pp 62-63 in *Skin Diver Magazine, Vol 19, No 6, June 1970*.
 - b. Sheats, Bob. "Unusual Diving Accidents: Diving Medicine Part II: Decompression and Anoxia in Altitude Diving and Problems in Emergency Free Ascent." Pp. 42-43, 78-79 in *Skin Diver Magazine July 1970*.

14. Folder: University Diving Safety Manual
 - a. University of Washington. *University Diving Safety Manual*. University of Washington Environmental Health and Safety Department. Third revision, October 1980.

15. Folder: Wet-Suited Scuba Diver Performance in 5 to 25-degree C water
 - a. Curley, M. D., A.J. Bachrach, and H. C. Langworthy. *Wet Suited Scuba Diver Performance in 5 to 25-degree C Water*. Washington D. C: Naval Medical Research and Development Command. July 1981. Abstract: As an adequacy assessment of current Navy Diving guidelines for thermal protection, the performance and physiology of three wet-suited SCUBA divers were measured over a series of 36 dives in water temperatures ranging from 5 degrees C to 25 degrees C. The divers performed cognitive and motor tasks during dives lasting up to 50 min at a depth of 3.35 meters. Heart rate, respiration rate, and skin temperatures were recorded at 5-min intervals. Results indicated that despite substantial decreases in skin temperatures, dive performance on cognitive tasks was not significantly affected; motor performance was impaired only when water temperature reached 5 degrees

- C. These results indicate that the standard neoprene wet suit provides adequate protection during dives in shallow water at temperatures as low as 10 degrees C and for exposure times as long as 50 minutes.
16. Binder S7aⁱ: U.S. Navy Ship Salvage Manual, Volume II, Submarine Salvage. Office of the Supervisor of Salvage, U. S. Navy, Naval Ship Systems Command, Washington, D.C. 1970. NAVSHIPS 0994-000-3020.
 - a. This manual is a presentation of state-of-the-art salvage circa 1970. This manual offers a ready guide and reference for personnel assigned to submarine salvage. It compiles information gained by the U.S. Navy, listing techniques, experiences good and bad, and includes nine submarine salvage reports offering articulation of theory and guidelines into practice. Equipment and methods used by salvors in the past are ready for use again. New techniques and salvage tools are developed. It is intended to be updated as new theories and techniques are developed.
 17. Binder 7b: Slide sheet pages.
 - a. Four pages of 20 slides (80 total) depicting Sealab 1 and diving personnel (40 slides), Sealab II and diving personnel (40 slides).
 18. Binder 7c: Ship Salvage Notes used in the course of instruction for Salvage Officers and First Class Divers. Deep Sea Diving School, U.S. Naval Weapons Plant, Washington, D.C. September 1960.
 - a. These ship salvage notes were compiled by the Salvage School staff from many sources. It was used as a basis for instruction and reference. Material was drawn from case histories, pamphlets, and other publications and the personal experiences of many salvors. No attempt was made to include all information. The staff attempted to pick out those methods and procedures that would best assist the salvage student.
 - b. All phases of ship salvage are included, including the methods employed in raising sunken ships in harbors and coastal areas, the salvage of disabled or grounded ships, the clearance of navigable harbors, areas of wrecks or grounded ships, and in other salvage specializations such as elementary naval design and underwater mechanics.
 19. Binder 7dⁱⁱ: U.S. Navy Diving Manual Volume 2: Mixed Gas Diving. NAVSEA 0994-LP-001-9020. Change 1, January 1977. Navy Department, Washington D.C. 20362.
 - a. This dive manual was originally revised in 1973, and this change was issued in 1977.
 - b. This revision had three objectives: (1) to assemble and present all technical information then available; (2) to provide a vehicle for rapid dissemination of new developments; and (3) to authorize the use of specific practices that assist personnel in the field to perform their duties.

20. Binder S7e: U.S. Navy Diving Manual Volume 1: Air Diving. NAVSEA 0994-LP001-9010. Revision 1, 1 June 1985. Navy Department, Washington D.C. 20362
 - a. This revision of Volume 1 of the Diving Manual has been prepared to provide the most current information on air diving, related equipment, decompression Procedures, and treatment of decompression sickness. It replaces the current Volume 1 in its entirety. A portion of the diving equipment maintenance and logistic support has been moved, since this material is addressed in detail in the technical manuals of the individual equipment.
 - b. The MK 5 deep-sea equipment, which has been the mainstay of the Navy diving community for many years, is retained in this revision because the MK 12 DDS is not fully fleet deployed.
 - c. New equipment and procedures introduced. Chapter Four covers operational planning, the very foundation of safe diving. Chapter Eight encompasses emergency treatment procedures should decompression sickness occur.

21. Binder S7f: U.S. Navy Diving Manual Volume 2: Mixed Gas Diving. NAVSEA 0994-LP-001-9020. July 1981. Navy Department, Washington D.C. 20362.
 - a. This dive manual was originally revised in 1973; the next change was issued in 1977. The 1977 edition constitutes a total revision of that document and supersedes the same.
 - b. This revision has new chapters, and contains mixed gas decompression tables in individual chapters applicable to the diving equipment utilized. The field of diving is dynamic, and it has been the intent of this edition of the manual to include the timeliest, authoritative and safest information possible. The contents of this manual represent the distillation of countless years of experience and experimentation by Navy divers. From the lessons learned from the history of diving to the understanding gained of saturation diving procedures, this manual offers all divers hard-won knowledge which can improve the efficiency and safety of all diving operations.

22. Binder S7g: Handbook of U.S. Navy Diving Operations NAVSHIPS 0994-009-6010. 1 April 1974, Navy Department, Washington DC. 20350.
 - a. This handbook is an addendum to the U.S. Navy Diving Manual (NAVSHIPS 0994-001-9010) of 1 March 1970.

23. U.S. Divers Co. *"Aqua-Lung" Repair Manual*. Santa Ana, CA. undated.
 - a. Technical repair manual for a variety of U.S. Divers Co. single and double hose regulators, spear guns, and valves.

24. Molé, Dale M. *Submarine Escape and Rescue: An Overview*. Commander, Submarine Rescue Development Group One, January 1990.

- a. This monograph was written for the submarine officer community, and addresses medical and engineering concerns regarding the ability to rescue survivors from a submarine mishap that has exceeded the damage control capabilities of the boat and its crew.

25. *A Bibliographical Sourcebook of Compressed Air, Diving and Submarine Medicine, Volumes I, II, III*. NAVMED 1191. Navy Department, Research Division, Project X-427, Bureau of Medicine and Surgery, Washington, DC.

- a. Volume I (1948). Hoff, Ebbe Curtis. An annotated bibliography of the literature in the areas of compressed air, diving, and submarine medicine. This volume covers the literature from inception to 1 January 1946.
- b. Volume II (1954). Hoff, Ebbe Curtis and Greenbaum, Jr. Leon Jack. An annotated bibliography of the literature (unclassified reports and documents, published books, monographs, and papers) in the areas of compressed air, diving, and submarine medicine published or appearing between 1 January 1946 and 31 December 1951. It also includes literature published before January 1946 that should have been included in Volume I but were impossible to obtain due to the “exigencies of war” and pertinent declassified and unpublished reports dated prior to January 1946.
- c. Volume III (1966). Greenbaum, Jr. Leon Jack and Ebbe Curtis Hoff. An annotated bibliography of the literature in the areas of compressed air, diving, and submarine medicine. This volume covers the literature published between January 1, 1952 and December 31, 1961. In areas of particular significance, and in fields where rapid advances such as pressure physiology and hyperbaric oxygen therapy occurred, coverage extended to the end of 1964.

NUM.2018.024.014

1. Folder: Institute of Diving
 - a. Correspondence
 - b. Institute of Diving Newsletters/Journals, dating from 1979 to 1992.
 - c. Four copies of Spring 1989 Institute of Diving Journal which includes Bob Sheats’ article “Oscar: Camp Comedian”, about a rooster in Bob’s POW camp during WWII.
 - d. Information about silver bars from the Spanish Galleon Atocha
 - e. Institute of Diving membership lists: 1984, 1986
 - f. SEALAB Reunion Roster 1993
 - g. U.S. Navy Divers Association membership lists 1970

ⁱ The US Navy Ship Salvage Manual (NAVSHIPS 0994-000-3010) was three volumes issued between 1968 and 1973). Volume 1 is Theory of Strandings and the Use of Beach Gear (January 1, 1968). Volume 2 is

Submarine Salvage (item S7a 1970) and Volume 3 is Firefighting and Damage Control (1973). Six volumes of the Ship Salvage Manual were issued between 1989 and 1993. The most recent series is four volumes, beginning in 2013.

ⁱⁱ The Navy Diving Manual is in two volumes. Volume 1 is for air diving, Volume 2 is for mixed gas diving. Volume 1 originally was published in 1974. Volume I Revision 1 (item S7e) was published in 1985. Volume 2 change 1 is item S7d (1977), and Volume 2 of July 1981 (item S7f) is a complete revision.