



Office of Coast Survey  
Hydrographic Surveys Division's



USS MONITOR

**AWOIS User's  
Guide**

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## **INTRODUCTION**

This manual has been compiled to provide users of the Automated Wreck and Obstruction Information System (AWOIS) with instructions for obtaining and interpreting data from the system. Background is also available which explains the use of the system as a basic research tool.

## **EXPLANATION**

### **Background**

In 1981, the National Ocean Service (NOS) implemented the Automated Wreck and Obstruction Information System (AWOIS) to assist in planning hydrographic survey operations and to catalog and store a substantial volume of reported wrecks and obstructions that are considered navigational hazards within U.S. coastal waters. Today, over 10,000 reports have been received, which include unverified accounts of vessel casualties, as well as chronological history. As part of the hydrographic survey planning process, these records are reviewed and those wrecks or obstructions which require additional field investigation are assigned to specific field units. The results of these investigations eventually become part of the AWOIS file so that a permanent record of a wreck or obstruction is always available.

Besides functioning as a survey planning tool, AWOIS is of potential value to various users outside of NOS. The historical record of selected wrecks, the accessibility of information in a sorted format, and its reasonable cost make AWOIS an important information source for marine archaeologists and historians, fishermen, divers, salvage operators, and others in the marine community. Interested individuals are encouraged to use the system as a supplement to other sources of information. However, AWOIS has limitations that should be considered by potential users. Most notably, it is not a comprehensive record of wrecks in any particular area. Historical research is constantly being conducted to improve the quality of the file, but it will never completely address every known or reported wreck. The emphasis is constantly placed on wrecks which may be a hazard to navigation.

### **Purpose of User's Guide**

The purpose of this guide is an aid to decipher the Automated Wreck and Obstruction Information System (AWOIS) information within a MS Access 2000 database. As Access 2000 is the current version of the master AWOIS database, previous versions of Access (such as version 7) will not function.

**Figure 1:** Sample of Form in MS Access:

RECRD	<input type="text" value="7611"/>	VESSTERMS	<input type="text" value="UNKNOWN"/>	CHART	<input type="text" value="11524"/>	AREA	<input type="text" value="G"/>
		CARTOCODE	<input type="text" value="0100"/>	SNDINGCODE	<input type="text" value=""/>	DEPTH	<input type="text" value="0"/>
NATIVLAT	<input type="text" value="32/49/42.00"/>	NATIVLON	<input type="text" value="079/58/01.00"/>	NATVDATUM	<input type="text" value="31"/>		
LAT83	<input type="text" value="32/49/42.00"/>	LONG83	<input type="text" value="079/58/01.00"/>	GPQUALITY	<input type="text" value="Med"/>		
LATDEC	<input type="text" value="32.8283333333333"/>	LONDEC	<input type="text" value="79.9669444444445"/>	GPSOURCE	<input type="text" value="Scaled"/>		
History	<p>HISTORY            LNM48/78-A 75 X 200 FT BARGE IS SUNK IN APPROX. POS. LAT.32-49.7N. LONG.79-58.0W, ABOUT 20FT OUTSIDE THE CHANNEL. THE BARGE IS MARKED BY UNLIGHTED FLOATS AND IS COVERED AT HIGH TIDE. POSITION WAS ADJUSTED BY THE COMPILER TO PLACE WRECK OUTSIDE KNOWN CHANNEL LIMITS. (ENTERED 1/90 MCR)</p>						
REFERENCE:	<input type="text" value=""/>	YEARSUNK	<input type="text" value="1978"/>	SYSTEMNUM	<input type="text" value="6504"/>		

### **DATABASE STRUCTURE**

**Fields of the AWOIS table:** The fields are listed below and are grouped by themes as reflected in rectangular groupings on the standard MS Access AWOIS form. SEE FIGURE 1.

**1. Identifier Fields:**

RECRD: Unique 5-digit AWOIS number. AWOIS numbers are assigned by the Hydrographic Surveys Division, Operations Branch.

VESSTERMS: A vessel name or the terms UNKNOWN, OBSTRUCTION, and SOUNDING.

CHART: The chart number entered here is that of either an NOS chart or a Defense Mapping Agency chart and is the largest scale chart on which the wreck, obstruction, or sounding is located.

**AREA:** A single capital letter designating a particular geographic zone will appear in this field. These letters are used to assign project numbers (e.g. OPR-**B**118-MI-85) See figure1 and 2 (part 1 & 2).

**CARTOCODE:** This 3-digit cartographic code with leading zero identifies the characteristic of the item. A list of the carto codes used in AWOIS is contained in appendix 2.

**SNDINGCODE:** This is essentially a cartographic code (appendix 2) which indicates the units; i.e., feet, fathoms, or meters in which the least depth over the feature has been determined.

**DEPTH:** Actual least depth or wire drag cleared depth over a feature that has been determined by hydrographic or wire drag survey methods. This depth will not be a reported or unverified depth. These depths originate primarily from National Ocean Service (NOS) hydrographic surveys.

**2. Geographic Position Fields:** The geographic position represents the most accurate position available found in documents at NOS. Other positions in the History memo field are for reference purposes only and will have generally been superseded by the Header Record position. Users should be aware that the AWOIS position may not agree with a charted position for a similar feature. Most of these differences are minor and due to the fact that the paper chart cannot always show a location as accurately as a digital list. Other more significant differences are generally due to a time lag in updating either the chart or AWOIS..

**NATIVDATUM:** This two-digit code refers to a specific horizontal datum (See appendix 3). The code will reference the original datum for source of the best known position of the item.

**LAT83 and LONG83:** This is the best available geographic position and reference position for the AWOIS item. It will always be in the NAD 83 datum. As with the NATIVDATUM fields, the position is to be entered into the fields with a space delimiter between degrees, minutes, and seconds with provision for recording tenths and hundredths of seconds. Place a leading zero in the longitude degree block for east coast, gulf coast, and Great Lakes positions. This is particularly important here as the "Update GP" function (see below) will not function properly with only two numbers entered for longitude degrees.

**LATDEC: and LONGDEC:** Decimal degrees created from the LAT83 and LONG83 fields.. This feature allows the AWOIS item to be plotted directly into GIS systems such as MapInfo, however a leading minus ("-") sign must be generated for the longitude column with the GIS. In MapInfo, add the leading "-" while using the "create points" feature.

**GPQUALITY:** Contains a drop down selection list for the relative position quality of the position shown in the fields LAT83 and LONG83. The position quality is to be categorized as follows:

**High:** A high quality position originating from a survey source or whenever there is a high level of confidence that the wreck or obstruction may be relocated without unreasonable difficulty. Although most positions in this category originate with NOS surveys, other sources may qualify. In evaluating these other positions, it is essential that the originating authority have the capability to do high quality work. Authorities such as the U.S. Army Corps of Engineers and private surveyors are selected examples. It is also important that the position be

appropriately reported. Survey field sheets or written documentation that clearly states that the position is of good quality should be available. As a general rule, it has been found that positions expressed without partial seconds may be classified with a lower quality accuracy code.

Med: A probable high quality position such as that originating with a survey but lacking supporting documentation or a lower quality survey position obtained by such means as see-field-sheet techniques. Positions originating from non-agency sources may also be in this category if the location is tightly controlled by adjacent features such as pier lines or fixed aids to navigation. A report that the wreck or obstruction has been actually located by the Coast Guard or Corps of Engineers will usually qualify a position for this category. In some cases, the item may be charted with an approximate position (PA) notation.

Low: A position of questionable or unverified quality. Most reports from Local Notice to Mariners and private observers are of this type. If the reported position is expressed as a GP or range and bearing from an identifiable fixed feature and is near shore relative to the position fixing method, it will probably be included in this category. If the position fixing method is unknown, it is assumed to be visual. The nautical chart should indicate an approximate position (PA) for this item.

Poor: A position of doubtful quality usually referenced to some general shoreline feature or portion of shoreline. The nautical chart may indicate an approximate position (PA) or a position doubtful (PD) for this item.

GPSOURCE: Contains a drop down selection list indicating the method in which the position was derived from the source document. The two selections available are as follows:

Scaled: Scaled from a hard copy or from a digital (vector / raster) image.

Direct: Transcribed directly as reported in the source document.

### **3. History Field:**

This memo field contains information which is a byproduct of the NOS nautical chart revision system. Some of the entries in this category (e.g., USPS chart letters or USCG LMN's) are unverified and may be unreliable. Codes used here are restricted to document file numbers and designator. Common codes include hydrographic survey registry numbers (e.g., H-9872/79), shoreline manuscript registry numbers (e.g., TP-00278), and miscellaneous document numbers (e.g., CL980/76 and BP100234). The format for entry may be seen on the example shown on the cover page or on figure 1.

### **4. Reference Field:**

This memo field will contain the code of various publications that describes the AWOIS item (see appendix 4 for a list of references). **Copyright information will be not be included in database subsets or printouts sent to the general public.**

## **5. Miscellaneous Fields:**

YEARSUNK: If known, enter the year in which the vessel was sunk.

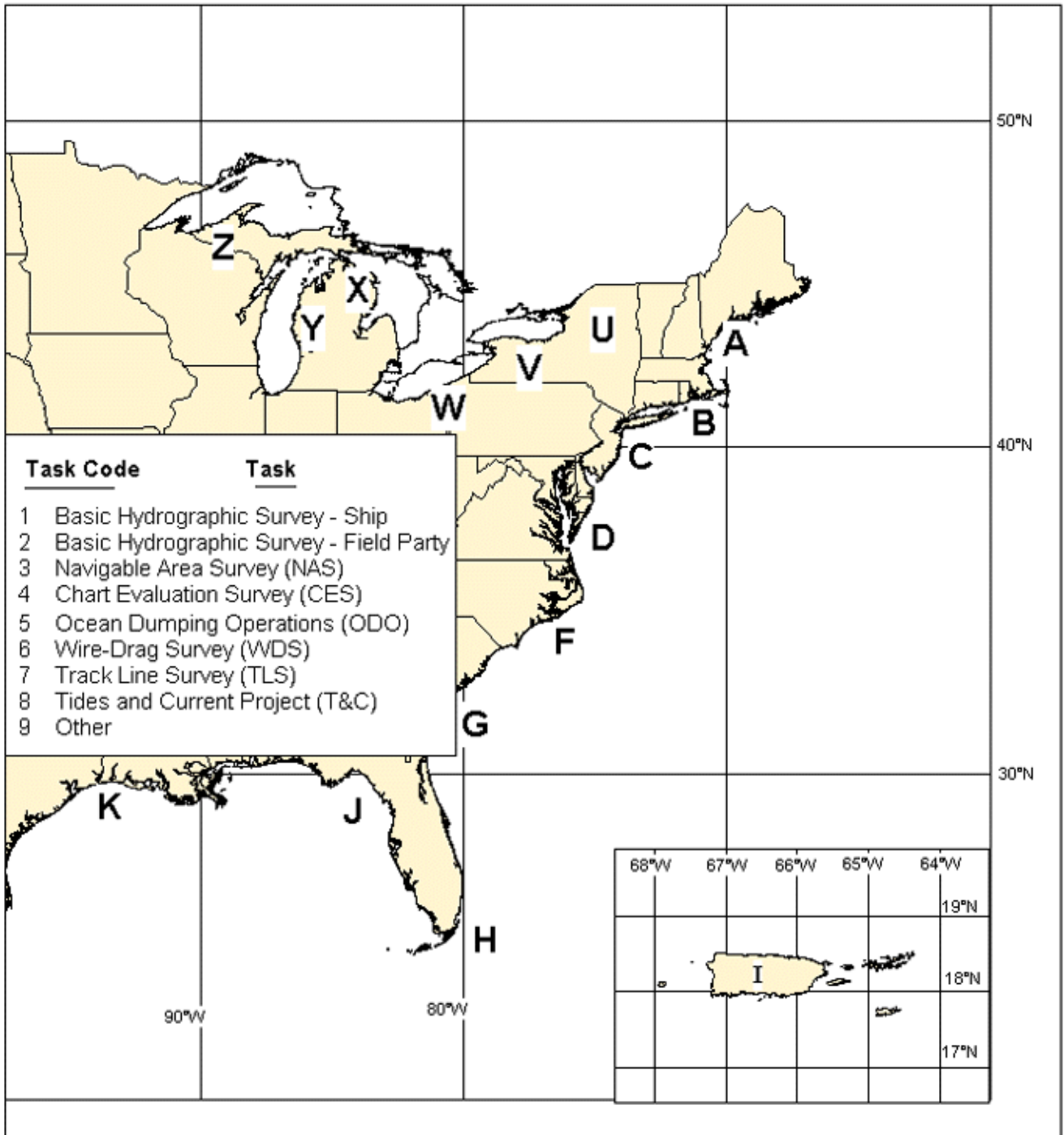
SYSTEMNUM: An internal system number to the database, not generally a concern to the database user.

### **INQUIRIES**

For questions concerning the AWOIS database please use the Coast Survey's Inquiry Webpage:

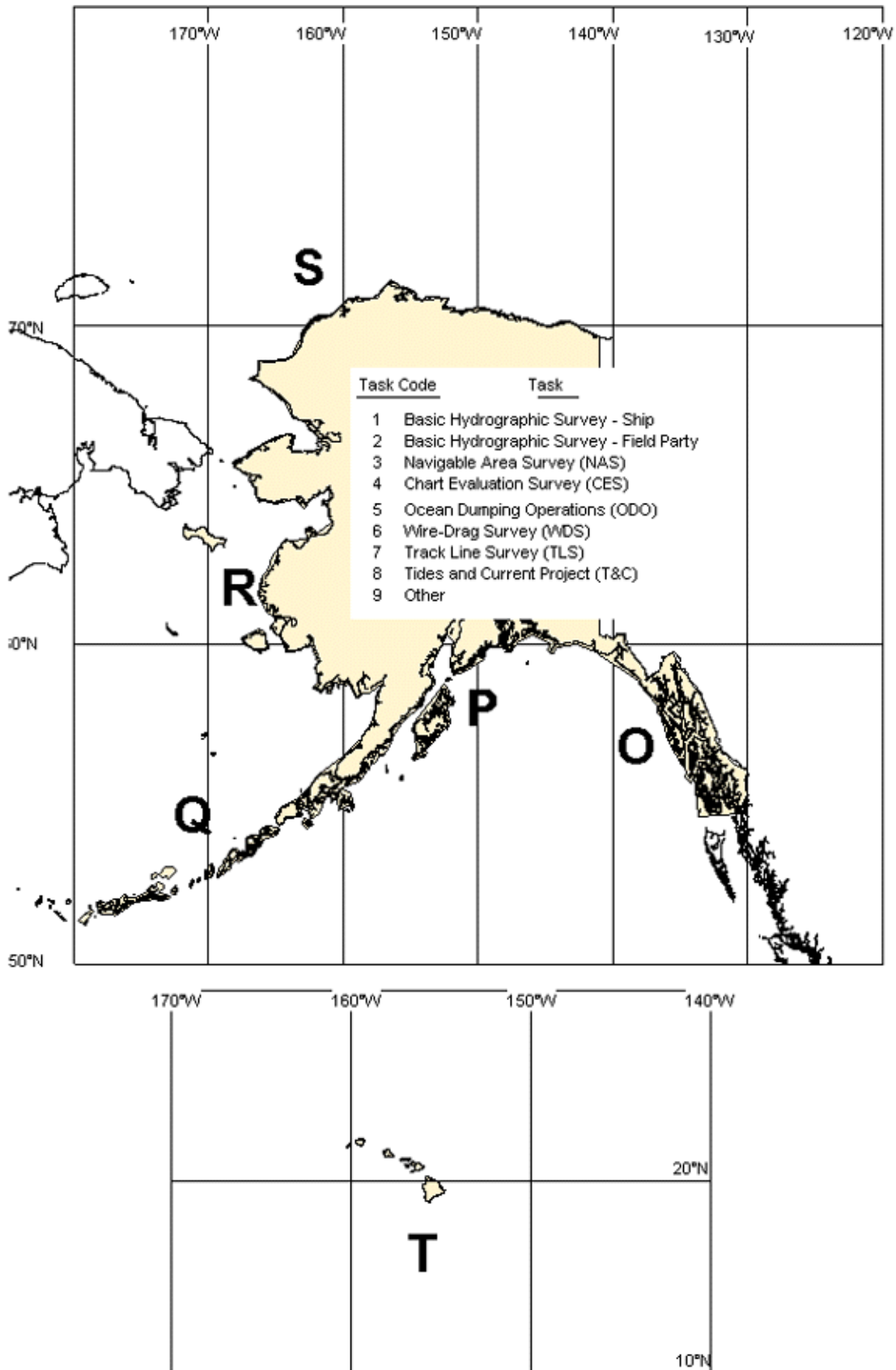
<http://ocsdata.ncd.noaa.gov/dr/inquiry.asp>

# Figure 2 (Part 1)

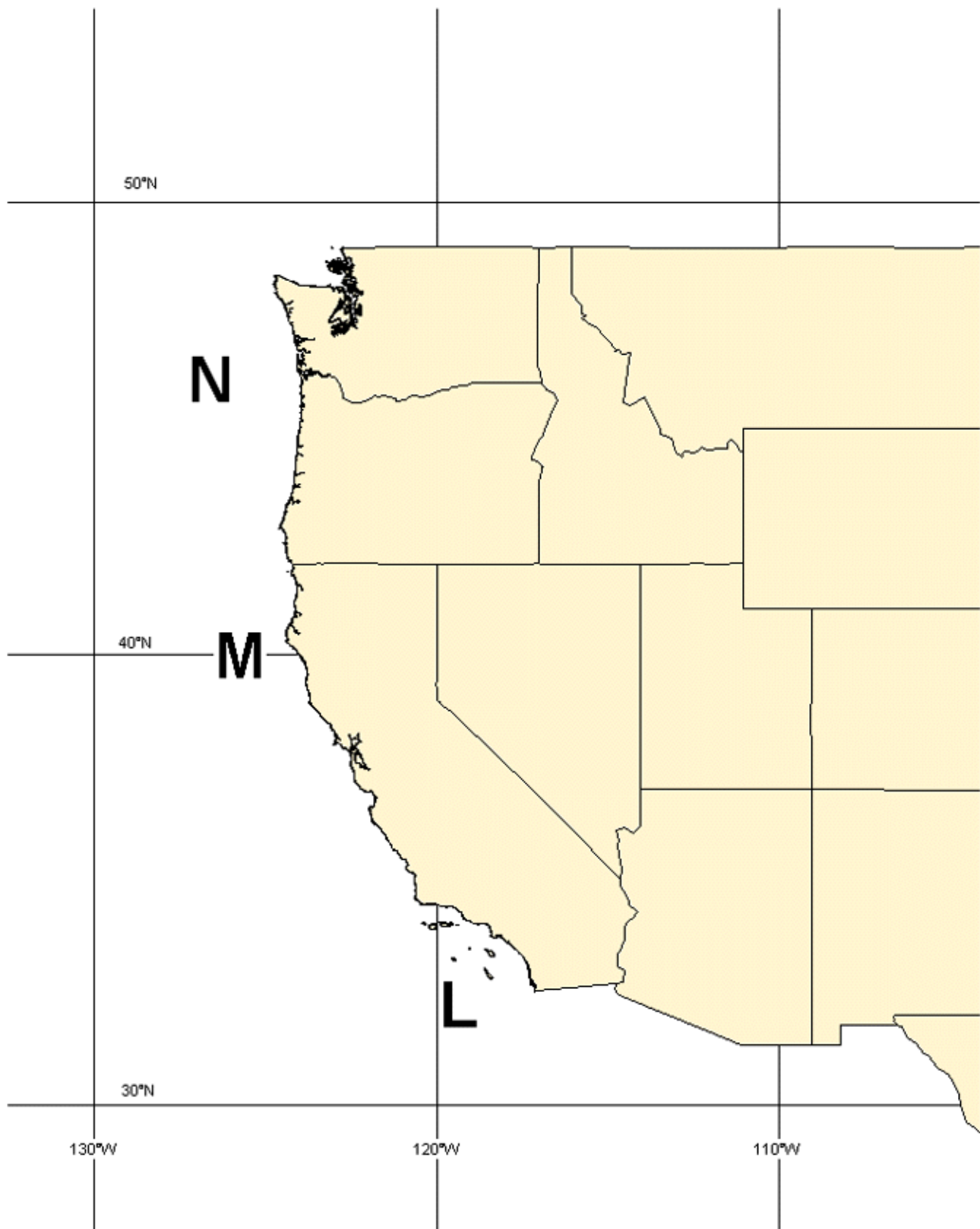




# Figure 2 (Part 2)













**Figure 2 (Part 3)**



## Appendix 1

PROJECT AREA CODE	GENERAL	SPECIFIC
A	Atlantic Coast	Canadian Border to Cape Cod
B		Cape Cod to Sandy Hook (Includes Long Island Sound, New York Harbor, and the Hudson River below Troy)
C		Sandy Hook to Cape May (Includes south shore of Long Island)
D		Cape May to Cape Hatteras (Includes Delaware Bay)
E		Chesapeake Bay (Includes all charted tributary waters)
F		Cape Hatteras to Cape Fear
G		Cape Fear to Cape Canaveral (Including St. Johns River)
H		Cape Canaveral to Fort Myers
I		Puerto Rico and Virgin Islands
J		Gulf of Mexico
K	Mississippi River to Mexican Border	
L	Pacific Coast	Mexican Border to Point Reyes
M		Point Reyes to Yaquina Head
N		Yaquina Head to Canadian Border
O	Alaska	Canadian Border to Point Manby
P		Point Manby to Unimak Pass
Q		Aleutian Islands
R		Unimak Pass to Seward Peninsula
S		Seward Peninsula to Canadian Border
T	Pacific Ocean	Pacific Islands (Hawaii, Samoa, Guam, Marianas, etc.)
U		Inland Waters
V		Lake Champlain & New York State Barge Canal System
W		St. Lawrence River, Lake Ontario, & Lower Niagara River
X		Upper Niagara River, Lake Erie, Detroit River, Lake St. Clair, & St. Clair River
Y		Lake Huron & St. Marys River
Z		Lake Michigan, Lower Fox River, & Lake Winnebago
		Lake Superior, Lake of the Woods, Rainy Lake, & Minnesota-Ontario Border Lakes

Appendix 2  
AWOIS CARTO CODES

CODE	SYMBOL	DESCRIPTION
		<u>Wrecks</u>
098		Visible
100		Submerged, dangerous to surface navigation
102		Submerged, nondangerous
		<u>Obstructions</u>
085		Visible at high water
284		Covers/uncovers (awash)
067		Submerged
		<u>Rocks</u>
094		Awash
104		Covered at low water
		<u>Soundings</u>
127		Feet and tenths
130		Fathoms and tenths
711		Meters and tenths
370		Wire-drag clearance, feet
372		Wire-drag clearance, fathoms

Appendix 3  
HORIZONTAL DATUM CODES

Area Usage

General

- 01 Bessel Spheroid of 1841-1880 (Bessel Datum)
- 02 Clarke Spheroid of 1866 (Clark Datum)
- 03 Astronomic Datums (all astronomic datums unless specifically named)

Geodetic

- 04 United States Standard Datum 1901-1913
- 05 North American Datum 1913-1927
- 06 North American Datum of 1927 (NAD 27)

Limited Area Usage

Hawaiian Islands

- 07 Old Hawaiian Datum
- 08 Kauai Datum

Astronomic

- 09 Lisianski Island 1931
- 10 Laysan Island 1930
- 11 Gardners Pinnacles 1929
- 12 French Frigate Shoal 1928
- 13 Necker Island 1928
- 14 Nihoa Island 1928

Philippine Islands

- 15 Vigan Datum
- 16 Luzon Datum 1911

Atlantic

- 17 San Juan Astronomic Datum 1901
- 18 Puerto Rico Datum 1905

## Panama Canal Zone

- 19 Limon Bay--Colon 1877
- 20 Panama Harbor--Panama Cathedral 1877
- 21 Panama--Colon Datum 1911

## Alaska

- 22 Valdez Datum
- 23 Unalaska Datum
- 24 Southeast Alaska Datum

## Independent Astronomic

- 25 Aleutian Islands
- 26 Nushagak Bay
- 27 Cape Newenham
- 28 Norton Sound
- 29 Port Clarence and Pribilof Islands

## Additional Areas

### Codes assigned since 1980

- 30 North American Datum of 1902
- 31 North American Datum of 1983 (NAD 83)
- 32 Guam 1963
- 33 World Geodetic System of 1972 (WGS 72)
- 34 World Geodetic System of 1984 (WGS 84)
- 35 Johnston Island 1961 Astronomic Datum
- 36 Maro Reef Astronomic Datum 1930
- 37 Bosun Astronomic Datum of 1941
- 38 Preliminary North American 1927 Datum
- 39 Palmyra Atoll--Astronomic Datum 1944

## Other

- 99 Undetermined datum

## Appendix 4

### REFERENCES

#### NOS AUTOMATED WRECK AND OBSTRUCTION INFORMATION SYSTEM

##### FILE NO.

- 01 Merchant Vessels of the United States, U.S. Coast Guard, "Supplements," 1906 to present.
- \*10 Graveyard of the Atlantic, David Stick, 1952, Univ. of NC Press, Chapel Hill, NC.
- \*11 Shipwrecks, Skindivers and Sunken Gold. Dave Horner, Dodd, Mead and Co., NY, 1965.
- \*12 1001 Lost, Buried and Sunken Treasures. F.L. Coffman, Thomas Nelson and Sons, NY, 1957.
- 13 Wreck Report. Unknown author. Covers Chesapeake Bay only.
- 14 California Wreck List. Larry J. Pierson, Environmental Research Archaeologists, Los Angeles, CA.
- 15 Impact of Oil Spillage from WWII Tanker Sinkings. Brad Campbell, Ed Kern and Dean Horn, Massachusetts Institute of Technology, Cambridge, MA, Jan 1977.
- \*16 Shipwrecks off the New Jersey Coast. Walter and Richard Krotee, Underwater Society of America, Middle Atlantic Underwater Council, Philadelphia, PA, 1968.
- \*17 Encyclopedia of American Shipwrecks. Bruce D. Berman, Mariners Press, Boston, MA, 1972.
- 18 Hang and Obstructions to Trawl Fishing, Atlantic Coast of U.S. Univ. of North Carolina, Sea Grant Publication, UNC-SG-79-04, Dec, 1979.
- 19 Wreck List Area C and D. Ray Mathieson, 1118 Port Echo Lane, Bowie, MD 20716, PH. 301-249-9093.
- \*20 Guide to Sunken Ships in American Waters. A., A.L. Lonsdale and H.R. Kaplan, Compass Publications, 1964. (out of print)
- 21 Wreck Diving in North Carolina: A Directory of Shipwrecks Along the North Carolina Coast, Dennis C. Regan and Virginia Worthington, Sea Grant Publication UNC-SG-78-13, Univ. of North Carolina.
- \*22 Hard Aground, The Story of the Argo Merchant Oil Spill. Ron Winslow, Norton, NY, 1978.
- \*23 California Shipwrecks. Don B. Marshall, Superior Publishing Co., Seattle, WA, 1978.
- 24 Navy Wreck List, 1957. U.S. Navy Hydrographic Office, Washington, D.C.
- 25 Michigan City Scuba Center, Inc.
- 26 Wreck List, Great Lakes Survey. U.S. Army Corp of Engineers, Jan 1962.
- 27 Wreck Information List. U.S. Hydrographic Office, Washington, D.C., March 10, 1945.
- \*28 Sailing Ship. Romola Anderson, RMM. Mobride, 1926.
- 29 Annual Reports of the Life Saving Service, 1876-1914. The National Archives, General Services Administration
- 30 Annual Reports of the US Coast Guard, 1915-1931. The National Archives, General Services Administration
- \*31 Underwater Site Test Excavations Off Padre Island, Texas, 1977, J. Barto Arnold III, Texas Antiquities Committee, Publication Number 5, 1978.
- \*32 An Underwater Archeological Magnetometer Survey and Site Test Excavation Project Off Padre Island, Texas. J. Barto Arnold III, Texas Antiquities Committee, Publication Number 3. 1976.

- \*33 Down To The Sea In Ships. Irwin Anthony, Penn Publishing Co., Philadelphia, PA, 1925.
- \*34 Atlas of Treasure Maps. F.L. Coffman, Thomas Nelson and Sons, NY, 1957.
- 35 National Archeology of Padre Island, The. J. Barto Arnold III, Texas Antiquities Committee, Publication Number 7. 1978. LC No. HF392 P14 A74. National Archives and Records Service, GSA. Civil Archives Division, Legislative, Judicial and Fiscal Branch, Washington, D.C. 20408. Records of Shipwrecks 1875- 1940; Will make limited searches if name, date, and place provided. National Archives and Records Service, Reference Report: Information about records and printed sources containing data about shipwrecks, covers annual reports of the U.S. Coast Guard; the Lytle List; US Merchant Marine; Wreck Report of the Great Lakes 1886-1891; wreck info of New England, middle Atlantic coast Florida and Pacific areas; and casualty reports for various years.
- 36 Fort Jefferson National Monument, Florida: Shipwreck Study--The Dry Tortugas. Washington, Eastern Service Center, Office of History and Historic Architecture, 1971.
- \*37 Art of Shipwreck Research, The. Bruce D. Berman, Mariners Press, Boston, MA, 1976.
- \*38 Great Gales and Dire Disasters. E.R. Snow, Yankee Publishing Co., Boston, MA.
- \*39 Diving for Pleasure and Treasure. Clay Blair, World Publishing Co., 2231 W. 110th St., Cleveland, OH 44102, 1960.
- \*40 Illustrated Encyclopedia of Ships, Boats, Etc. Graham Blackburn, LC No. HVM 25B5., 1978.
- \*41 Shipwrecks of the Lakes. Captain D. T. Bowen, Freshwater Press, Cleveland, OH, 1952.
- \*42 Memories of The Lakes. Captain D. T. Bowen, Daytona Beach, FL, 1946.
- \*43 Lore Of The Lakes. Captain D. T. Bowen.
- \*44 Great Stories of The Great Lakes. Dwight Boyer, Dodd, Mead and Co., NY, 1966.
- \*45 Strange Adventures of The Great Lakes. Dwight Boyer, Dodd, Mead, NY, 1974.
- \*46 Blockade Running During the Civil War. Frances B.C. Bradlee, The Essex Institute, Salem, MA, 1925.
- \*47 Marine Salvage Operations. Edward M. Brady, 1960.
- 48 Buffalo and Erie County Historical Society, Nottingham Court, Buffalo, NY 14216.
- \*49 Sinkings, Salvages and Shipwrecks. Robert Forrest Burgess, American Heritage Press, LC No. G525 B868, 1970.
- 50 Japanese Naval and Merchant Losses During WWII by All Causes (NAVEXOSP-468).
- 51 U.S. Losses - Director, Fleet Operations
- 52 COMNAVPAC
- 53 COMNAVFE
- 54 DETROIT Historical Museum, The. 5401 Woodward Avenue, Detroit, MI 48202.
- 55 Lloyds
- 56 Imperial Japanese Navy in WWII, The.
- 57 U.S. Navy at War, 1941-1945
- 58 German, Japanese, and Italian Submarine Losses in WWII
- 59 Swedish Merchant Losses, 1914-1920
- 60 American Ship Casualties of WWI
- 61 Tenth Fleet Records (OP-374)
- 62 Naval Losses of All Nations, 9/03/39--8/15/45
- 63 Italian Naval and Merchant Losses, WWII



- 64 List of Danish War Losses, 1914-1918.
- 65 British Merchant Vessels Captured or Destroyed by Enemy Action, 1914-18.
- 66 Abstracts of Losses, 1914-18.
- 67 British and Foreign Merchant Ships Lost During WWII
- 68 List of Neutral Ships Sunk by Germany
- 69 Greek Losses - WWII
- 70 Italian Naval Losses - WWI
- 71 Spanish Merchant Losses - WWI
- 72 Netherlands Merchant Losses - WWI
- 73 Italian Merchant Losses - WWI
- 74 Maritime Declarations for Norwegian Ships, (War Losses 1914-1918).
- 75 France - Naval and Merchant Losses During WWI
- 76 Schar Reports and Mad Reports U.S. Navy
- 77 Maritime Commission (Also CNI List WWI)
- 78 Smaling Soforklaringer - Danish Ship War Losses, 1914-1918.
- 79 Naval Chronology of WWII
- \*80 Morro Castle, The. Hal Burton, Viking Press, NY, 1973.
- \*81 Shipwrecks and Marine Disasters on the Shores of the Town of Westerly, Rhode Island and adjacent waters. Margaret Woodbury Carter, D. G. Carter Westerly, RI, 1973.
- \*82 Challenge of the Sea, The. Arthur C. Clark.
- \*83 History of American Sailing Ships, The. Howard I. Chapelle, Norton and Co., 1935.
- 84 Coast Guard at War Assistance, The. The National Archives, General Services Administration
- \*85 New Jersey Shore, The. John T. Cunningham, Rutgers University Press, 1958.
- 86 Descriptive List of Treasure Maps and Charts in the Library of Congress, Donald A. Wise, Geography and Map Division, Library of Congress, 1973.
- \*87 Merchant Sail. Vol. 1-6, William Armstrong Fairburn, Fairburn Marine.
- \*88 Primer of Shipwreck Research and Records for Skindivers, including an informal bibliography listing over 300 sources of shipwreck information. Robert A. Fleming, Global Manufacturing Corporation, Milwaukee, WI, 1971.
- \*89 Wrecks Around Nantucket. Arthur H. Gardner, Gardner, Nantucket, MA, 1877.
- \*90 Pacific Graveyard, J.A. Gibbs, Jr.
- \*91 Shipwrecks in Paradise: An Informal Marine History of The Hawaiian Islands. James Atwood Gibbs, Superior Publishing Company, Seattle, WA, 1977.
- \*92 Shipwrecks Off Juan De Fuca. James Atwood Gibbs. Binfords and Mort Publishers, 2505 SE 11th Avenue, Portland, OR 97242.
- \*93 Great Gales and Dire Disasters. E. R. Snow, Yankee Publishing Company, Boston, MA.
- \*94 Great Lakes Maritime Institute, Dossin Great Lakes Museum, Belle Isle, Detroit, MI 48207.
- 95 Hangs and Obstructions to Trawl Fishing, North Carolina, South Carolina, and Georgia. University of North Carolina Sea Grant Publication. UNC SG-75-17, August 1975.
- \*96 Marine History of the Pacific NW, The H. W. McCurdy. LC No. HE752 A19H2.
- \*97 History Under The Sea, Underwater Exploration of Shipwrecks. Mendel L. Peterson, Smithsonian Institution Publication Number 7174, Washington, D.C. 1954.
- \*98 Dictionary of Disasters at Sea During the Age of Steam 1824-1962. Charles Hocking, Lloyds

Register of Shipping, London, 1969.

- \*99 Awful Calamities of December 15, 21, and 27, 1839. J. Howe, Boston, MA, 1840.
- \*100 Steamboat Disasters and Railroad Accidents in the United States. S. A. Howland, Howland and Co., Worcester, MA, 1840.
- \*101 Sea and Its Mysteries, The. William M. Hutchinson, Maston Publisher
- \*102 Narratives of Shipwrecks and Disasters. Keith Huntress. Iowa State University Press, 1973.
- \*103 Wreck Hunters, The. Roger Jefferis and Kendall
- \*104 Civil War at Sea, The. Virgil Carrington Jones, Holt Rinehart-Winston, NY, 1960.
- \*105 Mooncussers of Cape Cod. Henry Crocker Kittredge, Archon Books, Hamden, CT, 1971.
- \*106 Merchant Ships: A Pictorial Study. John H. Lapage, 1968.
- \*107 Registration of Ships by International and Inter-governmental Organization. Anthony Limitone, LC No. GC 57.2 MS No. 2.
- \*108 East of Cape Cod. Asa Cobb Paine Lombard, Reynolds Dewalt Printing, New Bedford, MA, 1976.
- \*109 Last of the Windjammers, The. Basil Lubbock, Charles E. Lauriat Co., Boston, MA, 1927.
- \*110 Vanishing Fleet, The. B. W. Luther, Jr., P.O. Box 225, Fairhaven, MA.
- \*111 Merchant Steam Vessels of the United States, 1807-1868. William M. Lytle, Steamship Historical Society of America, Mystic, CT, 1952.
- 112 Marine Digest Pacific NW, LC No. HE561 M3, 1972.
- \*113 Shipwrecks in Florida Waters. Robert F. Marx, Scott Publishing Company, Eau Gallie, FL, 1969.
- \*114 Shipwrecks of The Virgin Islands, 1523-1825. Robert F. Marx.
- \*115 Shipwrecks of The Western Hemisphere. Robert F. Marx, D. McKay and Company, 1975.
- \*116 Coastal Environment of New England, The. Robert H. Meade, New England River Basins Commission, 1971.
- \*117 Men Under The Sea. Frank Meiser.
- \*118 Middle Atlantic Underwater Council of the Underwater Society of America, The.
- \*119 Tugboat. Moran.
- \*120 Great Shipwrecks and Castaways. Charles Neider. Harper and Brothers, NY, 1952.
- \*121 Dig For Pirate Treasure. Robert I. Nesmith, The Devon Adair Company, 1958.
- \*122 SOS North Pacific: Tables of Shipwrecks Off the Washington, British Columbia and Alaska Coasts. Gordon R. Newell. Binfords and Mort Publishers, 2505 SE 11th Ave., Portland, OR 97242.
- 123 Oceanographic Atlas of the Carolina Continental Margin. John Garland Newton. O. H. Pilkey and Jo. O. Blanton, North Carolina Department of Conservation and Development, Raleigh, NC, 1971.
- 124 New York Times, The.
- 125 Texas Legacy From The Gulf: A Report on Sixteenth Century Shipwreck Materials Recovered From The Texas Tidelands. Texas Memorial Museum, Austin, TX, 1976.
- \*126 Book of Buried Treasure, The. Ralph D. Paine, Sturgis and Company, New York, 1911.
- \*127 Great Coal Schooners of New England, 1870-1909. Vol. 2, Number 6., W. J. Lewis Parker, Marine Historical Association, Mystic, CT, 1948.
- 128 History Under The Sea. Mendel Peterson, Smithsonian Publication 4538, Washington, D.C.,

1965.

- \*129 Treasure Divers Guide. J. S. Potter, Doubleday and Company, Inc. 575 Madison Avenue, NY 10022.
- \*130 Shipwrecks Around Cape Cod: A Collection of Photographs and Data Covering the Period from the late 1800's to 1973 on Cape Cod. William P. Quinn, Knowlton and McLeary, Farmington, ME, 1973.
- \*131 Great Lakes Shipwrecks and Survivals. William Ratigan, William B. Erdmans Publishing Company, Grand Rapids, MI, 1960.
- \*132 Perils of the Port of New York; Maritime Disasters From Sandy Hook to Execution Rocks. Jeannette (Edwards) Rattray, Dodd, Mead, NY, 1973.
- 133 Recreational Use Reefs in Florida, Artificial and Natural. Florida Sea Grant College Marine Advisory Program, Map 9, June 1979.
- \*134 Shipwrecks and Sea Monsters of California's Coast. Randall A. Reinsted, Ghost Town Publications, Carmel, CA, Circa 1968 (1st edition), 1975 (2nd edition).
- \*135 Adventures in Underwater Treasure Hunting. Lieutenant Harry E. Rieseberg, Frederick V. Fell, Inc., 386 Park Avenue, South, NY 10016.
- \*136 Guide To The Sunken Treasure Ships Of The World. Lieutenant Harry E. Rieseberg and A. A. Mikalow, Frederick V. Fell, Inc., 386 Park Avenue, South, NY 10016.
- \*137 Sea Of Treasure, The. Lieutenant Harry E. Rieseberg, Frederick V. Fell, Inc., 386 Park Avenue South, NY 10016.
- \*138 Shipwrecks of British Columbia. Alfred C. Rogers, J. J. Douglas, Vancouver, BC, 1973.
- \*139 Shipwreck Bay. M. Rumsey, Morrow Publications, 4163 Market Street, San Diego, CA 92102.
- \*140 Treasure Trails. 3 volumes. R. J. Santchi.
- \*141 Victory Ships and Tankers. L. A. Sawyer and W. H. Mitchell, 1974.
- \*142 Shipwrecks on Martha's Vineyard. Dorothy R. Scoville, Gay Head, MA, 1972.
- 143 Skindiving Annual, Erving Publications, Kissimmee, FL.
- 144 Skindiver Magazine, Skindiver Publications.
- \*145 Shipwrecks On Cape Cod. Isaac Small, Chatham Press, Inc., 1 Park Avenue, Old Greenwich, CT 06870, 1967.
- \*146 Marine Mysteries and Dramatic Disasters of New England. Edward Rowe Snow, Dodd Mead Company, NY, Circa 1976.
- \*147 True Tales of Buried Treasure. Edward Rowe Snow, Yankee Publishing Company, Boston, MA.
- \*148 Spence's Guide to South Carolina: Diving, 639 Shipwrecks (1520-1813), Saltwater Sport Fishing, Recreational Shrimping, Crabbing, Oystering, Clamming, Saltwater Aquariums, 136 Campgrounds, 281 Boat Landings. Edward Lee Spence, Sullivan's Island, SC 29482, Circa 1976.
- \*149 Limbo of The Lost-Actual Stories of Sea Mysteries. John Wallace Spencer, Phillips Publishing Company, Westfield, MA, 1969.
- \*150 Isle Royal Shipwrecks. Frederick Stonehouse, Harboridge Press, Marquette, MI 49855,

- 1974.
- 151 Burton Historical Collection, The. Detroit Public Library, 5201 Woodward Avenue, Detroit, MI 48202.
- \*153 Interesting and Authentic Narratives Of The Most Remarkable Shipwrecks, Fires, Famines, Calamities, Providential Deliverence and Lamentable Disasters on The Seas in Most Parts of The World. R. Thomas and A. M. Thomas, Books for Libraries Press, Freeport, NY, 1970.
- \*154 Shipwreck and Archeology. P. Throckmorton, The Atlantic Press, Little Brown and Company, 34 Beacon Street, Boston, MA 02106.
- 155 Principal Marine Disasters, 1831-1932. U.S. Coast Guard, Public Information Division, Washington, D.C.
- 156 U.S. Merchant Ship Losses December 7, 1942 Through August 14, 1945. U.S. Coast Guard, Public Information Division, Washington, D.C.
- 157 Wreck Chart of The North Atlantic Coast of America. U.S. Hydrographic Office, Bureau of Navigation, Washington, D.C.
- 158 U.S. Life Saving Service Annual Reports, Washington, D.C., Government Printing Office, 1872-1914.
- 159 U.S. Merchant Marine, 1789-1963, The. U.S. Naval Institute Proceedings.
- 160 U.S. Navy Diving Manual
- 161 U.S. Revenue Cutter Service Annual Reports, 1912-13. Washington, D.C., Government Printing Office.
- 162 U.S. Steamboat Inspection Service Annual Reports, 1871- 1934. Washington, D.C., Government Printing Office.
- 163 Wreck and Casualty Chart of the Great Lakes. U.S. Weather Bureau, Department of Agriculture, Washington, D.C., 1895.
- 164 Wreck Chart Of The Great Lakes. U.S. Weather Bureau, Department of Agriculture, Washington, D.C., 1886-1891.
- \*165 Pirate Treasure. H. T. Wilkens.
- 166 U.S. Coast Guard In WWII, The. M. F. Willoughby, U.S. Naval Institute, Annapolis, MD, 1957.
- \*167 Lake Michigan Shipwrecks, Map Of (2 parts). Midwest Explorers League, Paul W. Ackerman, 3641 N. Marshfield Avenue, Chicago, IL 60613.
- \*168 Lake Superior Dive Chart. Midwest Explorers League. Paul W. Ackerman, 3641 N. Marshfield Avenue, Chicago, IL 60613.
- \*169 Great Ship Disasters. Adolf A. Hoehling, Cowles Book Company, NY, 1971.
- \*170 Shipwrecks Of The Pacific Coast. J.A. Gibbs, Jr. A complete account of all wrecks, 50 tons and over.
- \*171 Secrets Of The North Atlantic Islands. Edward Rowe Snow, Yankee Publishing Company, Boston, MA.
- \*172 Pirates and Buccaneers Of The North Atlantic Coast. Edward Rowe Snow, Yankee Publishing Company, Boston, MA.

- \*174 Unharvested Sea, The. P. Throckmorton, The Atlantic Press. Little Brown and Company, 34 Beacon Street, Boston, MA. 02106.
- \*175 Panorama Of Treasure Hunting. H. T. Wilkens.
- \*176 Modern Treasure Hunter, A. H. T. Wilkens.
- 177 Navy Wreck List, 1954. U.S. Navy Hydrographic Office, Washington, D.C.
- 178 Wreck List, Private. Anthony J Vraim, 66 Southstate Road, P.O. Box 93, Upper Darby, PA 19082, PH. 21449- 7770.
- 179 Navy Wreck List, DMAHTC, Washington, D.C., 1975.
- 180 Dictionary of American Naval Fighting Ships, Naval History Division, Department of The Navy, Washington, D.C.
- 181 Thunder Bay Shipwreck Survey Report, The. Thomas D. Warner and Dr. Donald F. Holecek, Michigan State University.
- \*182 Primer of Shipwreck Research and Records For Skin Divers, A. Robert M. Fleming, Global Manufacturing Corporation.
- 183 Bottom Obstructions In The Southwestern North Atlantic, Gulf of Mexico and Caribbean Sea. G. Michael Russel, Abraham J. Barrett, L. Steve Sarbeck and John H. Wordlaw, NOAA Technical Report NMFS SSRF-715, Superintendent of Documents, Government Printing Office, Washington, D.C., 1977.
- 184 Bottom Fishing Obstructions, Texas, Louisiana and Gulf. G. L. Graham, Texas A&M University. Sea Grant Publication TAMU-SG-76-506, Updated Version TAMU-SG 81-501, November 1980.
- 185 Archeological Survey, An Evaluation Of The Proposed Offshore Disposal Site For The Norfolk Harbor and Channels, Steadfast Marine Inc., 6269 Leesburg Pike, Falls Church, VA 22044.
- 186 Wreck List, NUMA, Inc.
- \*187 Scuba Northeast. Robert G. Bachand. Rowe Publications, 3906 N. 69th St., Milwaukee, WI 53216, 1982.
- 188 Navy Wreck List, DMAHTC, Washington, D.C., 1982.
- 189 California Place Names. Erwin G. Guddle, University of California Press, Berkeley, 1960.
- \*190 Shipwrecks On The Chesapeake, Maritime Disasters On Chesapeake Bay and Its Tributaries, 1608-1978. Donald G. Shomette Cornell Maritime Press, P.O. Box 456, Centreville, MD 21617, (301)758-1075.
- \*191 Wrecks and Rescues Of The Great Lakes, James P. Barry 1981.
- 192 British Wreck File.
- \*193 Miscellaneous information from sources requesting copyright status.
- \*194 Yachtsman's Guide to The Bahamas (Edition No. 31, 1981)
- 195 Miscellaneous information (e.g., Loran-C rates) from non-copyrighted sources.
- 196 The Historical Maritime Group of New England, P.O. Box 351, Cataumet, MA 02534.
- \*197 Shipwrecks of South Carolina and Georgia (Volume I and II), E. Lee Spence, Sea Research Society, P.O. Drawer V, Sullivan's Island, SC 29482, 1984.
- \*198 Axis Submarine Successes 1939-1945. Jurgen Rohwer, U.S. Naval Institute, Annapolis, MD,

- 1983.
- \*199 Shipwrecks--Diving the Graveyard of the Atlantic, Roderick M. Farb, Menasha Ridge Press, Hilleborough, NC, 1985.
  - 200 Wreck List, Carroll Scuba, Ed Suarez, Jr. 2027 Suffolk Road, Suite 4, Finksburg, MD 21048. Phone 301-965 6432 (W) or 301-381-6799 (H).
  - 201 Wreck List, Jim Cummings, 200 Kane Court, Joppa, MD 21085, 1983.
  - 202 AWOIS Research Report, Aransas Pass, TX. Prepared by LCDR David Peterson, NOAA, during OPR-K120-WH-85, October-December 1985, Martin R. Mulhern, Commanding Officer (Ref: Survey H-10205/85).
  - \*203 Shipwrecks of New Jersey. Gary Gentile, Sea Sports Publications, Box 647, Belden Station, Norwalk, CT 06852, 1988.
  - 204 Sourcebook of Alaskan Shipwrecks: 1786-1932, compiled by Dale Stirling, Heritage North Publications in History No. 1, May 1984 (Revised May 1988).
  - \*205 Fishing Connecticut Waters. Tim Coleman, Two Denison Avenue, Mystic, CT 06355, 1988.
  - 206 Fisherman, The., The New England Edition, Two Denison Avenue, P.O. Box 211, Mystic, CT 06355.
  - 207 Wreck List. Terry Helmers, Volunteer Diver for Biscayne National Park, FL, 5788 SW 54 Terrace, Miami, FL 33155.
  - \*208 In Search of Shipwrecks. Jim Jenney, A. S. Barnes and Company, Inc., Cranbury, NJ 08512, 1980.
  - \*209 A Guide to Shipwreck Sites Along the Oregon Coast Via US 101. R.E. Wells and Victor C. West, Wells and West Publishers, 1166 Winsor, North Bend, OR 97459, 1984.
  - \*210 Fishable Wrecks and Rockpiles. Tim Coleman and Charley Soares, MT Publications, Two Denison Avenue, Mystic, CT 06355, 1989.
  - \*211 Unfinished Voyages, A Chronology of Shipwrecks Maritime, Diasters in the Northeast United States from 1606 to 1956. John Perry Fish, Lower Cape Publishing, Orleans, MA 02653, 1989.
  - \*212 Track of the Gray Wolf, 1942-1945. Gary Gentile, AVON BOOKS, 105 Madison Avenue, New York, NY 10016, 1989.
  - \*213 Wreck Valley and Wreck Valley Loran - C Coordinate List. Aqua Explorers, Inc., 22 Maiden Lane, Lynbrook, NY 11563, 1986.
  - 214 Fisherman, The., Long Island, Metropolitan Edition, 14 Ramsey Road, Shirley, NY 11967.
  - 215 National Fisherman, The., Journal Publications, 120 Tillson Avenue, Suite 201, P.O. Box 908, Rockland, ME 04841.
  - \*216 Shipwrecks of Delaware and Maryland. Gary Gentile, Gary Gentile Productions, P.O. Box 57137, Philadelphia, PA 19111, 1990.
  - 217 Master Hang Log, The. Van Strickler, 1304 White Marlin Lane, Virginia Beach, VA 23464, 1992.
  - 218 "Hangs" and Bottom Obstructions of the Mississippi/ Alabama Gulf. G.L. Grahm, D. Veal, and B. Hosking. Mississippi-Alabama Sea Grant Consortium, Sea Grant Publication TAMU-SG-83-505, June 1983.

- \*219 Shipwrecks Around New England, William P. Quinn, 1979, The Lower Cape Publishing Co., P.O. Box 901, Orleans, MA, 02653, 1979.
- \*220 Notebook on Shipwrecks Maryland Delaware Coast, H. Richard Moale, Family Line Publications, Rear 63 East Main Street, Westminster, MD 21157, 1990.
- \*221 Salvage From the Sea, Gerald Forsberg, Routledge & Kegan Paul, London and Henley, 1977.
- \*222 Explore Wisconsin's Shipwrecks, Kimm Stabelfeldt, Rowe Publications, 3906 N. 69th Street, Milwaukee, WI 53216, 1981.
- 223 Report of Wrecks Surveyed by USCG GENTIAN in Fifth Naval District, 1944.
- \*224 Shipwrecks of Broward County, James Dean and Steven Danforth Singer, 1984.
- 225 USN Gulf Coast Strategic Homeporting, Underwater Archaeological Investigations Gulf of Mexico and Pensacola Bay, Florida, 1987.
- 226 Survey of Fishing Vessels Operating at Ocean and Great Lakes Ports of the United States. War Department, 1941.
- 227 Wreck List, Defense Mapping Agency, Washington, D.C., 1986.
- \*228 Shipwrecks! for State of Washington, Kent Barnard, Argonaut Resources, INC., P.O. Box 743, Mukilteo, WA 98275, 1993.
- 229 Shipwrecks of the Alaskan Shelf and Shore, Evert E. Tornfelt and Michael Burwell, U.S. Department of the Interior, Minerals Management Service, Alaska OCS Region, Anchorage, Alaska, 1992.

\*Indicates documents that are known to be copyrighted and may generally be found in a library.

\*\*\*\*Indicates that the document is not indexed in the Description category. These documents are generally newspaper articles, short correspondences, telephone conversations, copies from other publications, and other information.

## Appendix 5

### AWOIS ABBREVIATIONS

Ad.Wk.-Additional Work  
AMC-Atlantic Marine Center  
AOML-Atlantic Oceanographic and Meteorological Laboratory  
APR-Air Photo Revision/Correction  
AWOIS-Automated Wreck and Obstruction Information System  
BNM-Broadcast Notice to Mariners  
BD-Bottom Drag  
BP-Blueprint  
BGE-Barge  
BS<sup>3</sup>-Bathymetric Swath Survey System  
BW-Sinkings Before World War II  
BWF-British Wreck File  
CAS-Chart Adequacy Survey (Chart Number)  
CES-Chart Evaluation Survey (Chart Number)  
CG-U.S. Coast Guard  
CGO-Cargo  
CHS-Canadian Hydrographic Service  
CGS-U.S. Coast and Geodetic Survey  
CMP-Chart Maintenance Print  
CL-Chart Letter  
COE-U.S. Army Corps of Engineers  
CPR-Coast Pilot Report (Chart number, if given)  
CPS-Canadian Power Squadron  
CT-Constant Tension Wire Drag  
D-Special Purpose Hydrographic, Reconnaissance, or Evaluation/Test Surveys (followed by survey number)  
DA- NOAA Ship DAVIDSON  
DBN-Daybeacon  
DEG-Degrees  
DI-Diver Investigation  
DM-Daily Memorandum HO Office  
DM-Digital Maps (Shoreline)  
DP-Detached Position  
DPH-Depth  
DR-Descriptive Report  
D/R-Drilling Rig  
DTD-Dated  
FD-Effective Depth (Used in conjunction with wire drag)



ED-Existence Doubtful  
ENT-Entered  
ES-Echo Sounder  
ESF-Eastern Sea Frontier Anti-Submarine Warfare Unit  
EVAL-Marine Center Evaluation (evaluation and analysis of hydrographic surveys)  
FA-NOAA Ship FAIRWEATHER  
F/B-Fireboat  
FE-Field Examination (followed by a number) - usually item investigations  
FM-Fathom  
FS-Field Sheet  
FT-Feet  
F/V-Fishing Vessel  
GCLWD-Gulf Coast Low Water Datum  
GLWD-Great Lakes Water Datum  
GP-Geographic Position  
GT-Gross Tonnage  
H-Hydrographic (Followed by Survey Number)  
HE- NOAA Ship HECK  
HYDRO.-Hydrographer  
H/B-House Boat  
HDAPS-Hydrographic Data Acquisition and Processing System  
HQ-Headquarters  
HW-High Water  
HWL-High Water Line  
IWW-Intracoastal Waterway  
L-Length  
LAT-Latitude  
LD-Least Depth  
LHNM-Lighthouse Notice to Mariners  
LL-Leadline  
LLW-Lower Low Water  
LNM-Local Notice to Mariners  
LOA-Length Over All  
LONG-Longitude  
LST-Landing Ship (Any Type)  
LT-Light  
LTR-Letter  
LW-Low Water  
LWD-Low Water Datum  
LWL-Low Water Line  
M-Meters; Miles  
MAR-Monthly Activities Report  
MI-NOAA Ship MT. MITCHELL

MIN-Minutes or Minimum  
MHW-Mean High Water Datum  
MLW-Mean Low Water Datum  
MLLW-Mean Lower Low Water Datum  
M/V-Motor Vessel  
NAD-North American Datum (followed by year)  
NANCI-New Aeronautical and Nautical Charting Information  
NAS-Navigable Area Survey  
NAVOCEANO-U.S. Naval Oceanographic Office  
ND-HQ-Naval District Headquarters  
NM-HO/DMAHC Notice to Mariners; Nautical Miles  
NMFS-National Marine Fisheries Service  
NMR-Restricted Notice to Mariners, Hydrographic Office  
NORDA-U.S. Naval Ocean Research and Development Activity  
NOS-National Ocean Service  
NT-Net Tonnage  
NTH-Notes to Hydrographer  
OBSTR-Obstruction  
O/B-Outboard  
OCGR-Old Coast Guard Records  
OPR-Operation (Followed by Project No.)  
OTEC-Ocean Thermal Energy Conversion  
PA-Position Approximate  
P/C-Pleasure Craft  
PD-Position Doubtful  
PE-NOAA Ship Peirce  
PIDC-Pleasure Island Dive Center (Gulf Shores, AL)  
PMC-Pacific Marine Center  
PMEL-Pacific Marine Environmental Laboratory  
PR-Preprocessing Report  
PROJ-Project  
PSR-Presurvey Review(Followed by Project No.)  
QC-Quality Control Inspection  
RA-NOAA Ship RAINIER  
RCNWL-Royal Canadian Navy Wreck List  
RECON-Reconnaissance  
REG NO-Registry Number of Survey  
REP-Report or Reported  
RS-Revisory Survey (followed by year)  
R/V-Research Vessel  
REV-Review; Reviewed; Revised; Revision  
RU-NOAA Ship RUDE  
S-Special Project (followed by Project Number)

SCH-Schooner  
SD-Sounding Datum; Salvage Documentation  
SEC-Seconds  
SHL-Shoal  
SHL SNDG-Shoal Sounding  
SPOR-Shoreline Plane of Reference (High Water Line)  
SR-Survivor Reports  
SS-Smooth Hydrographic Sheet  
SSS-Side Scan Sonar  
S2-200 percent Side Scan Sonar Coverage  
S4-400 percent Side Scan Sonar Coverage  
SUBM-Submarine or Submerged  
S/V-Sailing Vessel  
T-Topographic (followed by survey number, photo date, and field edit date)  
TP-Shoreline Map (followed by number, photo date, and field edit date)  
T/B-Tugboat  
TELECON-Telephone Conversation  
TNK-Tanker  
TWR-Trawler  
UP-Updated  
USACE-U.S. Army Corps of Engineers  
USCG-U.S. Coast Guard  
USC&GS-U.S. Coast and Geodetic Survey  
USCGAUX-U.S. Coast Guard Auxiliary  
USGS-U.S. Geological Survey  
USN-U.S. Navy  
USPS-U.S. Power Squadrons  
VIS-Visible  
VS-Visual Search  
W-Wide  
WD-Wire Drag  
WH-NOAA SHIP WHITING  
WK-Wreck  
YCT-Yacht

Release of National Ocean Service (NOS)  
Automated Wreck and Obstruction System (AWOIS) Data

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