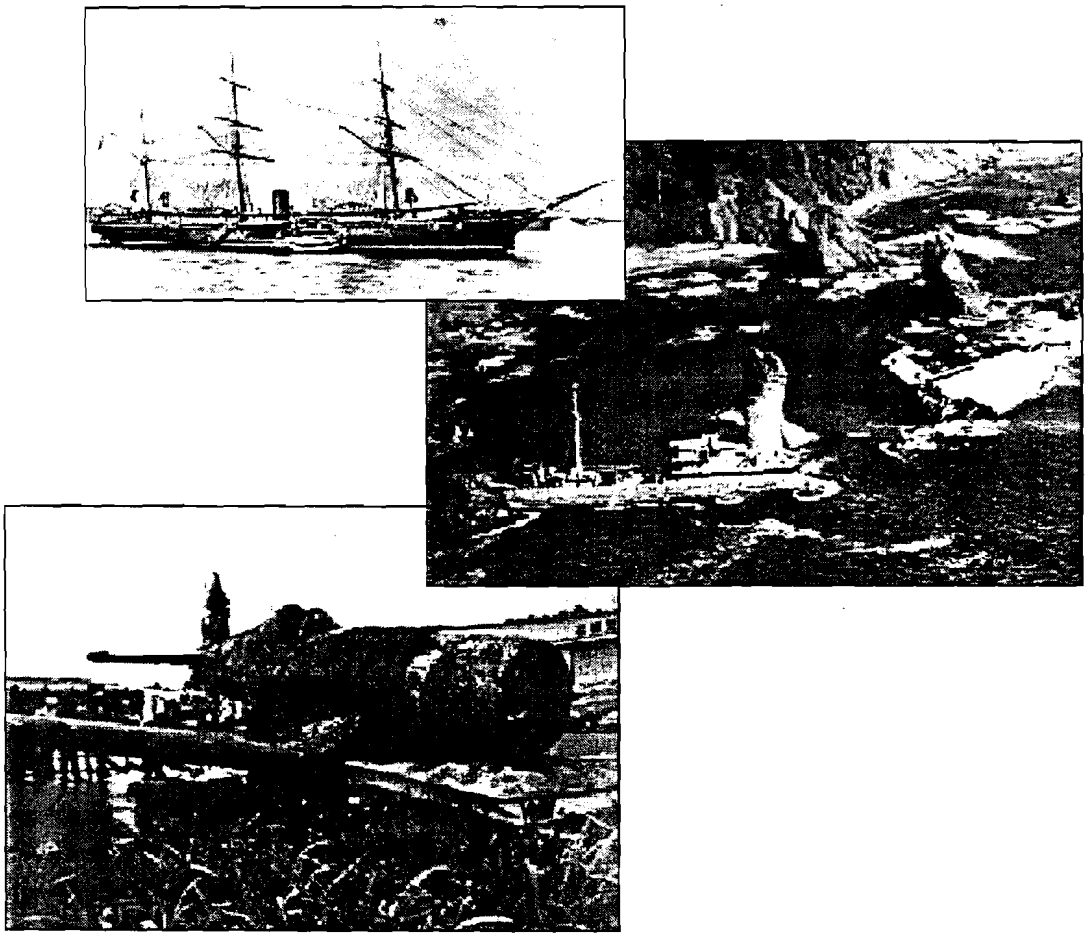
US Navy Shipwrecks and Submerged Naval Aircraft in Washington: An Overview



by

David Grant
Colt Denfeld
Randall Schalk

INTERNATIONAL ARCHAEOLOGICAL RESEARCH INSTITUTE, INC.

DECEMBER 1996

US NAVY SHIPWRECKS AND SUBMERGED NAVAL AIRCRAFT IN WASHINGTON: AN OVERVIEW

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David Grant
Colt Denfeld
Randall Schalk

prepared for

Office of Archaeology and Historic Preservation
111 21st Avenue SW
Olympia, Washington 98504-8343

International Archaeological Research Institute, Inc.
P.O. Box 51058
Seattle, Washington 98115-1058

December 1996

This document is printed on acid-free, archival bond paper. It is intended to provide a long-term record of the cultural resources of Washington State.

MANAGEMENT SUMMARY

This report is an overview of submerged US Navy shipwrecks and naval aircraft wrecks in the state of Washington. The research described herein was carried out by the International Archaeological Research Institute, Inc. (IARII) under contract to the Washington Office of Archaeology and Historic Preservation (OAHP). The project included archival research and consultation aimed at accounting and characterizing US Navy shipwrecks and submerged aircraft in, and associated with, Washington State. This report is a component of a larger effort that includes development of a management plan, completion of site inventory forms, and public outreach to disseminate the results of this study.

The Navy has a long history in the state of Washington, dating to establishment of the Puget Sound Naval Shipyard in 1891. Prior to discussing ships and aircraft lost in the state, the report summarizes general aspects of the Navy's presence and describes various naval installations, including the Puget Sound Naval Shipyard and the Naval Air Stations at Seattle, Whidbey Island, and Pasco.

Naval aircraft and shipwreck research involved the use of a combination of archival and library sources as well as consultation with knowledgeable individuals. Archival data on shipwrecks were gathered at the Ships' History Branch of the Naval Historical Center at the Washington Navy Yard in Washington, D.C. For aircraft, the Naval Aviation History Branch of the Naval Historical Center in the Washington Navy Yard was an important source of information. In addition, a number of local libraries, museums, and experts on aircraft and shipwrecks - both professional and avocational - were consulted.

Research results proved to vary from initial expectations based on information available at the beginning of the project. Fewer US Navy ships lie in Washington State waters than expected. An estimated 15 shipwrecks were anticipated at the beginning of the study but only four or five came to their final resting place in the waters of Washington State. These include the *Iroquois/Ionie* (a screw sloop of war), the *General M.C. Meigs* (troop transport), and two or three small World War II vessels. A number of Naval vessels were used as targets and sunk in international waters off the coast of Washington.

In contrast to ships, more Navy aircraft were lost in Washington waters than originally predicted. A total of 44 submerged aircraft was identified for the state. Additional aircraft may be present, but could not confirmed by sources consulted for the present study. Portions of at least eight US Navy aircraft are located in Lake Washington. These aircraft include a J2F Duck, and FG-1D Corsair, and F4F Wildcat, a TBF Avenger, an SNV Trainer, a PV-2 Harpoon, a PBM Mariner, and a PB4Y-2 Privateer. Another 36 US Navy aircraft crashed in other waters in Washington State. Two of these crashed into the Columbia River, two off the coast, five in the Strait of Juan de Fuca, and the remainder in northern Puget Sound and waters surrounding Smith Island and Whidbey Island.

ACKNOWLEDGMENTS

Many individuals assisted during the research phase of the "US Navy Shipwreck and Submerged Aircraft Study" and their help is gratefully acknowledged. However, the amount and quality of the research results would have suffered considerably without the cooperation of the following people. Mr. Victor Seele, formerly of the Pacific Museum of Flight, provided information which set the initial research on the right course. John Wulle took two hours out of his busy schedule as Assistant Attorney General to give IARII a tour of the Pearson Air Park Museum exhibits and facilities. Tom Ginsberg collated information from the various crash inventories and plotted wreck sites. The best source for information about military aircraft crashes in the Pacific Northwest is Sig Unander of Air Art Northwest. Mr. Unander shared data from his records which significantly augmented the IARII inventory of submerged US Navy aircraft. Two of the most knowledgeable people regarding submerged aircraft in Lake Washington are Robert Mester and Matt McCauley. They graciously humored David Grant with answers to his numerous phone calls. The lion's share of praise is extended to Rich Wills, however, who endured inconveniencing requests for research materials, primary documents, guidance, and logistical support.

The authors also wish to acknowledge report layout, production and editorial support provided by Joan Clarke, Roger Blankfein, Greg Burtchard, and Kimberly Wade. The effort that they have given to improving the presentation quality of this report is much appreciated.

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GLOSSARY OF ACRONYMS

AOM3c	Aviation Ordinance Man (Third Class)
AMM3c	Aviation Machinist's Mate (Third Class)
ARM2c	Aviation Radioman (Second Class)
AVH	Naval Aviation History Branch at the Naval Historical Center, Washington Navy Yard
DANFS	Dictionary of American Naval Fighting Ships
DNR	Washington State Department of Natural Resources - Aquatic Lands Division
IARII	International Archaeological Research Institute, Incorporated
IUSS	Integrated Underwater Surveillance System
NAAS	Naval Air Transport Service
NAS	Naval Air Station
NATS	Naval Air Transport Service
NHC	Naval Historical Center, Washington Navy Yard, Washington, D.C.
NRAB	Naval Reserve Air Base
NUWES	Naval Undersea Warfare Engineering Station
OAHP	Washington State Office of Archaeology and Historic Preservation
OCNMS	Olympic Coast National Marine Sanctuary
OLF	Outlying Field
USCG	United States Coast Guard
USN	United States Navy
USNR	United States Naval Reserve
VLF	Very Low Frequency
WAVES	Women Accepted for Volunteer Emergency Service

I. INTRODUCTION

In recent years, the Pacific Northwest, and the nation in general, has been experiencing a growing awareness and appreciation of shipwrecks and downed aircraft as resources of importance to the history of the United States. Despite the potential for cultural resource protection that such awareness entails, threats to these numerically limited remains appear to be increasing as well. To the present, data on submerged shipwrecks and aircraft wrecks in the state of Washington have not been adequate to meet information needs of contemporary cultural resources management. The present study takes an initial step toward rectifying some of these deficiencies. It does so by providing planning information derived from background research focused specifically on underwater US Navy aircraft wrecks and shipwrecks located in Washington State waters.

In December of 1995, the International Archaeological Research Institute, Inc. (IARII) was contracted by the Washington Office of Archaeology and Historic Preservation (OAHP) to conduct this overview of submerged naval aircraft wrecks and shipwrecks. The scope of work guiding the project called for completion of a technical report addressing results of archival research and consultation relevant to shipwrecks and aircraft crashes in Washington State waters; discussion of research methods employed to obtain this information; and development of a resource inventory. This document is intended to fulfill these initial research goals.

The larger project, of which this report is a part, is an integrated effort that includes components extending beyond material presented here. A cultural resources management plan is being prepared for submission under separate cover. Information on submerged Navy shipwrecks and aircraft wrecks gathered during the study also will be used to prepare computer files in a format compatible with the Navy's database for these classes of cultural remains. In addition, the project includes a public outreach component that will disseminate results of the overall study to a broader interested audience.

The present report focuses on first phase goals outlined above. It is organized into six sections. Following this introduction, Section II provides general background information on the Navy's presence in Washington State. It describes the project area briefly and provides an historical summary of key Washington State naval facilities. Section III describes research methods used in compiling information presented in this report. Section IV presents data on underwater Navy shipwrecks and aircraft identified through archival research, oral interviews, and consultation with informed individuals. The final section offers concluding remarks relevant to the state's submerged shipwreck and aircraft wreck resources. A history of USS *Peacock* is included as Appendix A, and Appendix B contains a summary and listing of Navy aircraft terrestrial crash sites.

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II. BACKGROUND

A. PROJECT AREA

The area of concern for the present project ostensibly includes the entire state of Washington. However, because the focus of this overview is on submerged Naval shipwrecks and aircraft, the area of concern is effectively restricted to bodies of water within the state. Washington State is distinctive for the diversity and extent of aquatic environments encompassed within its boundaries - both marine and freshwater. Four types of aquatic environments are of relevance to this study: outer coastal waters, Puget Sound (including the Strait of Juan de Fuca), freshwater lakes and large rivers.

Washington State's outer coastal waters extend offshore a distance of three miles along the Pacific Coast. This coastline changes from low-relief, sandy and shelving beaches along the southern outer coast of Washington to the rugged, rocky coastline along the western margin of the Olympic Peninsula. The continental shelf ranges in width from 15 km off the Columbia river to nearly 50 km off Cape Flattery. The shelf break is generally around 80 fathoms. The shallower waters of the outer coast are characteristically high-energy environments.

The inner coastal waters of Puget Sound and the Strait of Juan de Fuca are drowned fjords shaped by large Pleistocene glaciers. Depths can reach several hundred feet. Although currents can be strong in passes between islands, the waters of Puget Sound are generally lower energy than those of the outer coast.

Washington has numerous freshwater lakes and reservoirs. Lake Washington is the largest natural lake in the state. It was created by the same glacial processes that formed Puget Sound. Owing to both its size and the presence of Naval Air Station, Seattle (NAS Seattle) on its western shoreline, this lake has particular importance for the present study. The lake is over 200 feet deep in several places.

The final types of water bodies that are of potential relevance to the present study are the state's rivers, especially the navigable or large rivers such as the Columbia. In addition to the river channels themselves, which can be several miles in width in lower reaches, impoundments of these rivers for hydroelectric dams have created many reservoirs. Some of these reservoirs are among the largest freshwater bodies in Washington.

For aircraft, the proximity of naval air stations relative to a specific body of water influences the probability of losses in that water body. In discussions of crash site locations in a later part of this report, the reader will notice a tendency for aircraft losses to be concentrated in the areas surrounding places where pilot training occurred, and where

takeoffs and landings were most frequent. Washington's naval air stations are the subject of the following section which briefly sets forth a history of the US Navy in this state.

B. HISTORIC OVERVIEW OF NAVAL PRESENCE IN WASHINGTON

THE US NAVY IN WASHINGTON

The Navy has a long and rich history in the State of Washington. Although the Spanish, Russians, British, French, and, eventually, the Americans were all potential contenders for the domination of northwest America, it eventually fell to the British and Americans to adjust the boundary between their two territories in the Pacific Northwest. Joint occupancy of the Oregon Territory was formalized in 1818, however, the Hudson's Bay Company held a near monopoly in the lands between Russian Alaska and Spanish California by the first quarter of the nineteenth century (Barkan 1987:17). The US Navy, specifically the US Exploring Expedition commanded by Lieutenant Charles Wilkes, helped solidify America's interest in the area. Five years after Wilkes had charted the Columbia River and the waters around Puget Sound, the 1846 Treaty of Washington established the international boundary at 49° north latitude. The US Navy (e.g., the US Coast Survey) continued to play a major role in the mapping of the territory, supporting Manifest Destiny. As the friction between world powers diminished, it grew between settlers and the original peoples of the Northwest. The Indian War of 1855-1856 came to Seattle on January 26, 1856, when an allied force of Green River, White River, Puyallup, and Nisqually people attacked the settlement (Bagley 1926:165). USS *Decatur*, built as a 16-gun brig in 1838 (Pratt 1938:422), saved the blockhouse from being overrun by sending solid shot, grape, cannister, and shells into the attacker's positions (Bagley 1926:177). The contested border in the San Juan Islands and US encroachments in the Pacific held the Navy's interest in the strategic waters of the Northwest. As settlement steadily increased, Navy ships continued to visit and explore the area throughout the second half of the 1800s. These including the first ship of the "white navy", the cruiser USS *Charleston*. It was soon clear that a permanent Navy presence was desirable.

The first naval base was proposed for Puget Sound before statehood on November 11, 1889. This base, Puget Sound Naval Shipyard, was established in 1891. It served, and continues to serve, the nation as an important Pacific coast naval base. The Puget Sound Naval Shipyard made a substantial contribution to the victory in World War II.

In 1909 the second naval base, a torpedo test facility, was built at Keyport. This base has had an outstanding record and remains an active installation as the Naval Undersea Warfare Engineering Station.

Naval aviation came to Washington on a permanent basis in 1922. The first naval air base was at Sand Point, Seattle. Initially, the Navy shared the field with the Army. By 1925, however, it was solely a Navy field, and on November 22, 1928, the primitive airstrip and facilities was named Naval Air Station, Seattle. It was a valuable airfield in the 1930s. During

World War II NAS Seattle was a flight school and outfitted the new escort carriers as they were built. After many years of service NAS Seattle's flying activities ceased in July 1970 and the base was closed in 1995.

Another World War II naval airbase was situated on Whidbey Island. Here a seaplane and landplane base provided patrol and protection for Puget Sound. The Whidbey Island bases survived the base closures following the War in the Pacific. In 1967, the seaplane base on Whidbey was closed. The landplane base, Ault Field, is still an important carrier aircraft training center and a patrol aircraft base.

A third World War II naval airbase was located at Pasco, at a former municipal airport. This field, blessed with good flying weather and few nearby obstructions, became the primary flight school in Washington in 1942. At the end of the war it was no longer needed, so it was closed in 1946.

There were also Naval Auxiliary Air Stations (NAASs) at Quillayute, Shelton, and Arlington. These were commissioned airfields with limited facilities and were geared to train pilots in carrier operations. Additionally, there were Outlying Fields (OLFs) at Coupeville, Mt. Vernon, Moon Island, Bremerton, Chehalis, Newport, and Port Angeles. These fields were grass or gravel strips and functioned to support the naval air stations. They closed at the end of the war, becoming local airports.

PUGET SOUND NAVAL SHIPYARD

In 1877, a Navy officer recognized Puget Sound as a good site for a naval base. Lieutenant Ambrose Wyckoff made it a personal crusade to convince those in power to build a base there. His vision became reality in 1891 with the establishment of the Puget Sound Naval Shipyard. Lt. Wyckoff was present to negotiate purchase of 190-acres for the naval base, acquiring the land for the reasonable sum of $9,512.50.

The first construction at the shipyard was a 650-foot long and 130-foot wide drydock. It was completed in 1892 and from it the battleship USS *Oregon* departed to Cuba and the Spanish-American War.

By World War I, the Puget Sound Naval Shipyard, commonly called Bremerton for the city which grew up around it, was a major repair base. It had three drydocks by the end of the war, plus a number of new shops and facilities. The yard completed 25 subchasers, six submarines, and 11 more ships in this war (Coletta and Bauer 1985: 512).

The yard did not close between World War I and World War II. Rather, it continued to build ships, which required a fourth drydock and additional building construction.

With World War II came a huge expansion of the Puget Sound yard. This included one more drydock, shops and piers. To accommodate a huge increase in workers, new barracks and family housing were built on the base and in the local community.

The main functions of the yard were the repair of battle-damaged ships and some construction. A total of nearly 400 ships was repaired or built during the war. This included battleships, carriers, cruisers and destroyers. Thirty-one battleships were repaired, some of them more than once. Five of the eight battleships damaged at Pearl Harbor came to Bremerton for repairs (Coletta and Bauer 1985:515-516).

After the war, the yard repaired ships damaged by kamikaze attacks. In the immediate postwar years, there was a carrier improvement program and the yard upgraded a number of carriers. They had hardly finished this work when the North Koreans invaded South Korea on June 25, 1950. Within days, the Navy had carriers and bombardment forces trying to slow the enemy assault. This war returned the yard to a busy schedule.

Following the Korean War the yard modernized along with the Navy. It built new facilities for the supercarriers, conducted nuclear submarine overhauls, opened missile system repair shops, and supported long range modernization programs. The long range modernization programs were ship rebuilding efforts which extended the life of ships at much less cost than new construction. A few additional ships were built at the yard, but this was ended in the early 1970s. The yard focused on repairs, overhauls, and the maintenance of the inactive fleet (Coletta and Bauer 1985:505-521).

Today, the yard maintains the modern fleet. Located here are the Naval Reserve Fleet yard and Inactive Ship Maintenance Center for the Pacific coast.

NAVAL MAGAZINE AND NAVAL SUBMARINE BASE, BANGOR

A naval magazine was completed at Bangor in 1944. With increased demand it was upgraded to a Naval Ammunition Depot. After the war its role was reduced. This made it available for a new function and, on May 5, 1963, a Polaris missile facility was established at the former magazine. This facility was expanded into the Trident submarine base, the Naval Submarine Base, Bangor. Bangor supports the Trident fleet, a key element in the defensive posture of the United States (Coletta and Bauer 1985:41-43).

NAVAL TORPEDO STATION/ NAVAL UNDERSEA WARFARE ENGINEERING STATION, KEYPORT

In 1909, the Navy launched a search for a Pacific coast torpedo test facility. This required a locale with still waters and good transportation connections. That year, the Navy found a site meeting its requirements at Keyport, 12 miles north of the Puget Sound Naval Shipyard. The next year the land was purchased and construction begun.

The base was expanded in 1913, and in November, 1914, the Naval Torpedo Station was commissioned. It became a critical link in the testing, proofing, overhaul and production of torpedoes. During World War I, there was some further expansion. However, since World War I took place in the Atlantic, east coast facilities were more directly involved.

Keyport gained prominence in World War II. Between 1940 and 1944, the work force increased twelvefold. Over 2,000 workers, 42 percent of them women, proofed up to 100 torpedoes a day. About 7,000 torpedoes were proofed here during the war (Coletta and Bauer 1985:255).

Following World War II, there was a large drop in base activity. Most of the workers were released while the station cleaned up surplus from the war. The situation reversed with the start of the Korean War. The active Navy role in that war reinstated the need for torpedoes. After Korea, the station became more involved in research and development, though testing and proofing torpedoes continued.

Cold War and nuclear warfare needs altered the Keyport role. By 1965, the station research team and base workforce had expanded to 1,392, the most since 1945. With the rapid technological advances in undersea warfare and Vietnam War needs, the station grew even more. By 1972 the base employed 3,133 people. In recognition of its new research and development role, the base was renamed the Naval Undersea Warfare Engineering Station (NUWES). Today NUWES supports Navy missions in undersea warfare (Coletta and Bauer 1985:254-258).

NAVAL AIR STATION, SEATTLE

In 1920, foreseeing the future of commercial and military aviation in Seattle, the King County commissioners acquired 268-acres of land at Sand Point for a municipal airport. The Boeing Company, which had a contract to build military planes, was interested in the field to test their aircraft. The Navy also had an interest in the field, but failed in its early efforts to obtain funding. The Army arrived with a plane and a steel hangar. Army Reserve Officer Training Corps cadets from the University of Washington were training here by 1922 (US Navy 1992:13).

The Navy did not lose interest, however. Initially, the field was joint-use facility shared by the Navy and Army. A Navy hangar was finished in 1923. At the time, the Naval Reserve had five Curtis JN trainers and one DeHavilland observation plane (US Navy 1992: 13) at the field. On May 11, 1925 the field was designated a Naval Reserve Air Station. As part of a national effort to establish reserve bases near population centers in order to train student pilots close to home.

On November 17, 1925, Lieutenant John H. Chapman, USN, reported for duty as the first base commander. With the help of prisoners, Chapman had land cleared and converted farm buildings into barracks and the administration building.

The field was renamed the Naval Air Station, Seattle, on November 22, 1928. Many continued to call it NAS Sand Point, a misnomer which stayed with the base. The Navy worried that this unofficial name might cause mail and supplies to be misdirected to Sandpoint, Idaho (US Navy 1992:56).

By 1931, NAS Seattle was one of only five naval air stations in the country. At this time, the Sand Point station had about 14 aircraft aboard, six of them Curtis 02C Helldivers, plus Grumman SF2 scouts. Construction of support facilities continued. In 1935, the station had 17 buildings. By 1938, it was ready for regular Navy cadet training in addition to its evening and weekend reserve drills. The addition of regular Navy aviation training required still more construction, doubling the base building inventory in 1938-1939. Also assigned to the base were five squadrons of Patrol Wing Four (Pat Wing 4), each with six seaplanes (US Navy 1992: 44).

With the declaration of the national emergency on September 8, 1939, a NAS Seattle construction program was launched. The Austin Company of Seattle was awarded a cost-plus contract to build five runways, shops, barracks and other facilities. Paved runways from 3,000 to 3,700 feet long were completed in September 1941.

Cadets were trained at NAS Seattle in the first two years of the war. When the station became too crowded with reserve and regular Navy training, the reserve function was moved to NAS Pasco in July 1942. This left NAS Seattle room to train 500 cadets that first year.

In 1943, the first women sailors, (Women Accepted for Volunteer Emergency Service or WAVES), came on board. Within one year, there were 267 women working in the offices of the station. The women were part of a base population explosion. More barracks had to be built on base, and off-base housing was constructed at Cedarvale and Kirkland.

On June 24, 1943 Air Transport Squadron 5 (VR-5), a Naval Air Transport Service (NATS) unit, was established at the station. VR-5 flew cargo flights to Alaska, resupplying the naval bases there. In February 1944, the Navy Weather Central, Seattle, was formed to provide current weather forecasts for flights to Alaska and California. In addition, an Air Cargo Terminal was commissioned in June 1944. This terminal improved the resupply effort to Alaska. By the end of 1944, there were 1,800 officers and enlisted personnel at NAS Seattle. With transients and attached units the total came to 5,600. There were also 2,480 civilian workers (US Navy 1992:58).

One of the significant NAS Seattle activities was to outfit the escort carriers coming off the line at the Kaiser Shipyards. Starting in 1943, Kaiser launched an escort carrier every two weeks. Sand Point outfitted every one of them, forming 44 composite squadrons (VCs) in less than three years.

Flight training proved to be a risky undertaking and the Navy lost more aircraft in training and noncombat flights than in actual combat (Shettle 1995:5). For example, in 1943

NAS Seattle had 24 major crashes with 15 crew killed. The following year nine aviators died in crashes, not including additional lost flights in which those aboard were declared missing. The worst accident occurred after the war, on December 10, 1946, when a Marine Corps Curtiss R5C transport was lost. The transport, enroute to the station, crashed into Mount Rainier during a storm, killing all 32 Marines aboard. To make matters worse for the grieving families, the plane was not found for a year and it was too dangerous to recover the remains.

A summary of NAS Seattle water crashes suggests that Lake Washington holds fewer crashed naval aircraft than reported in local accounts. The following list comprises NAS Seattle aircraft which crashed and sank in Lake Washington from 1928 through 1952 and one additional aircraft which sank in 1956 (Naval Operational Archives, NAS Seattle histories, Aircraft Accident Summary Reports):

Date	Aircraft	Bureau Number	Outcome
8/19/28	NY-1(L)	A7175	NAS recovered
11/4/28	NY-2(S)	A7976	NAS recovered
11/15/28	NY-2(S)	A7977	NAS recovered
10/12/30	NY-2(S)	A7977	NAS recovered
8/17/42	F4F-4	4097	not recovered
8/17/42	TBF-1	00539	not recovered
1/4/43	SO3C-1	4865	NAS recovered
1/28/43	SO3C-1	4868	NAS recovered
2/9/43	F4F-4	03527	NAS recovered
2/21/43	TBF-1	?	NAS recovered
6/6/43	F4F-4	11819	NAS recovered
7/4/43	SNJ-4	10223?	NAS recovered
9/19/43	FM-1	15056	probably recovered
12/11/43	NH-1	29538	NAS recovered
2/29/44	SNV-2	52067	not recovered
6/10/44	TBM-1	24840	NAS recovered
8/2/44	SBD-5	36490	NAS recovered
5/31/45	J2F-5	00677	partially recovered
6/25/45	TBM-1C	25663	NAS recovered
9/21/45	FM-2	74633	NAS recovered
11/30/45	SB2C-5	83363	NAS recovered
6/14/47	FG-1D	88368	recovered 1984
9/4/47	PV-2	37528	not recovered
9/17/48	PV-2	37451	NAS recovered
5/6/49	PBM-5	59172	not recovered
7/29/50	FG-1D	87833	not recovered
7/30/50	FG-1D	88382	recovered 1983
11/14/50	SNB-5	51271	NAS recovered
9/10/51	FG-1D	88304	NAS recovered
7/11/52	PBY	46664	NAS recovered
8/26/56	PB4Y-2(P4Y-2)	59695	not recovered

In addition to the planes which went into Lake Washington and were not recovered, there were dumped aircraft. The number of these is not known with certainty although at least five hulks (two Wildcats and three Helldivers) were recovered by Jeffrey Hummel and Matt McCauley in the mid-1980s.

NAS Seattle did not close after the war, although there were cuts in the number of workers and air units were disbanded. The station maintained antisubmarine patrol activities, naval reserve air training, and had a repair and overhaul program. In 1946 the base population was 41 officers, 576 enlisted, and 873 civilians. Shops on the station repaired war weary planes. In 1949, 100 planes were repaired or overhauled.

Naval reserve activities expanded during the Korean War. At the close of that conflict, however, overhaul and repair work was halted. The station was reclassified as a Naval Air Reserve training base with a large drop in civilian employment.

Initially, the Vietnam War witnessed an increase in reserve use of NAS Seattle. In 1967, there were 15 squadrons and 1,415 reserve personnel on the station. Use tapered off, however, as the war continued. In April 1970, air activities were terminated on July 1, 1970, and the station became a Naval Support Activity on July 1, 1970. At that time, it became a logistical support base for naval operations. On April 1, 1982 it was renamed Naval Station, Seattle and in October 1986, Naval Station, Puget Sound. The station was closed in 1995.

NAVAL AIR STATION, PASCO

In 1928, the town of Pasco built an airstrip for use by private planes and the National Guard. Army cadets arrived in 1941 and used the field for training. It was an excellent airfield site, there was good flying weather, plenty of space, and an absence of obstructions. The Navy, too crowded at NAS Seattle, recognized the value of the field.

On July 31, 1942 the Navy commissioned the field a Naval Reserve Air Base for primary flight training. This field took pressure off NAS Seattle. By October 1942, the base had four runways, four hangars, and space for 360 officers and 3,700 enlisted men.

The aviation cadets flew N2S Kaydets, N3N Yellow Perils, NT2s, SOC Seagulls, and SNJ Texans. About 200 cadets arrived every month. Those who passed went on to Corpus Christi for intermediate and advanced training (US Navy 1945:6).

NRAB Pasco became NAS Pasco on January 1, 1943. Soon afterwards the primary training dropped off and the base turned to repair and overhaul work, and carrier air training. Aircrews also used the ten bombing ranges, a gunnery range, and strafing area associated with NAS Pasco.

There were 15 major crashes of Pasco-based aircraft. Fourteen of them were land crashes. On July 4, 1945, F6F-3 BuNo 40711 crashed and sank in the Columbia River near

Alderdale. This aircraft may have been moved by downstream currents, especially in light of periodic flooding that altered the river channel prior to reservoir impoundment (e.g., the large flood of 1948).

With reduced air activities, the military population was replaced by civilians. In May 1946, the base was placed in caretaker status; it was decommissioned on December 15, 1946 and returned to its former use as a municipal airport.

NAVAL AIR STATION, WHIDBEY ISLAND

Concern over defense and patrolling the Puget Sound area led the Navy to find a location to carry out these duties. Navy patrol planes would need to rearm and refuel at this base. Whidbey Island was selected as the best site and the land was obtained in the fall of 1941.

The airfield was commissioned on September 21, 1942. Its complement at the commissioning was 12 officers, 200 enlisted men and a Marine detachment of 50.

Constructed facilities included two airfields, a seaplane base north of Oak Harbor and a landplane field in Clover Valley. The Clover Valley field was later named Ault Field, to honor Commander William Ault, who was listed as missing in the Battle of the Coral Sea (Coletta and Bauer 1985:650).

The first aircraft at Whidbey was a PBY Catalina which arrived in December 1942. Next arrived squadrons of F4F Wildcats and PV-1 Venturas. At the end of 1943, the F6F Hellcat replaced the F4F Wildcat. In 1944, the most common plane was the SBD Dauntless. PBM Mariners were the most common aircraft at the seaplane base.

Between 1942 and September 1945, there were 28 major crashes of Whidbey aircraft plus loss of two naval vessels from the station. Twelve of the aircraft crashed and sank in water. Many of these in deep water and making hard impact rather than controlled ditching. The hard crashes would have destroyed the planes. The aircraft going into the water were:

Date	Aircraft type	Bureau Number	Outcome
3/5/43	TBF-1	05940	Sank in water near base
5/2/43	PBY-5	23904	Sank Puget Sound
8/30/43	PBY-5A	7284	Sank Crescent Harbor
9/21/43	NE-1	26258	Sank Puget Sound
12/20/43	F6F-3	25747	Sank off William Head
2/1/44	F6F-3	09026	Sank off Smith Island
3/17/44	SBD-5	28550	Sank, 3 miles N. of Ault
12/22/44	SBD-5	28268	Sank, off Partridge Pt.
1/29/45	TBM	24353	Sank, 1 1/2 mi S. Triangle Cove
3/4/45	PV-1	33414	Crash in Admiralty Inlet
6/24/45	F6F	78750	Crash near Smith Island
7/24/45	F6F	79251	Crash Puget Sound

The two naval vessels were lost in 1943 and 1944. USS *Crow* (AMC-20), a torpedo boat, sunk two miles off Smith Island on August 23, 1943. Lost on November 28, 1944 was *YP-83*, patrol boat, sank in 33 fathoms in Saratoga Passage, sunk by a torpedo accidentally dropped by a TBF.

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The seaplane base was closed as part of a 1967 Department of Defense base reduction plan. Meanwhile Ault Field got busier. In 1966, the A-6 Intruders arrived. Patrol units flew P-2 Neptunes and then P-3C Orions. With the decommissioning of air operations at NAS Seattle, naval reserve functions moved to Ault. Additionally there were tactical electronic warfare squadrons and fleet logistics squadrons stationed here.

In 1995 the base population was 10,900. Assigned to the field were A-6E Intruders, P-3C Orions, EA-6B Prowlers and EP-3Es. There was also a search and rescue capability with UH-3H helicopters. The reserve training was a central function (Naval Aviation News, April 1995: 10-15).

NAVAL AUXILIARY AIR STATIONS (NAAS) AND OUTLYING FIELDS (OLFS)

In addition to naval air stations, the Navy had limited air stations with few facilities and often less improved airstrips. If commissioned, they were Naval Auxiliary Air Stations. The more primitive fields identified for supporting use by a NAS or NAAS were outlying fields or OLFs.

NAASs were placed, in 1943, at Quillayute, Shelton, and Arlington. Carrier air training was performed at these NAASs. These fields were somewhat unique in having Army interceptor units assigned (this was also true at the OLF at Mount Vernon).

OLFs were often grass or gravel airstrips. The OLFs for Whidbey were Mount Vernon and Coupeville. An OLF at Hoquiam (Moon Island) served NAS Astoria, Oregon. Additional OLFs were at Bremerton (OLF, NAS Seattle), Chehalis, Newport, and Port Angeles.

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NAAS Quillayute was established on September 1, 1943, as an auxiliary to NAS Seattle. Escort carrier air training was conducted at the field. On September 15, 1945 it was placed in caretaker status. Later that year, on December 1, it was disestablished.

Quillayute witnessed three crashes involving the sinking of four aircraft. On April 22, 1944, a FM-1 crashed at sea. Six days later a TBM-1 crashed at sea. In a mid-air collision on October 19, 1944, two FM-2s were destroyed three miles south of Destruction Island.

NAAS Shelton was another carrier air training field. It opened on August 14, 1943 and was decommissioned on December 15, 1945. Douglas SBD-5 BuNo 28628 from Shelton crashed in water five miles south of Ault Field. Another SBD-5 crashed at Pacific Beach on February 23, 1944, but was recovered. Grumman J2F-5 BuNo 00677, which crashed in Lake Washington, was partially recovered. NAAS Shelton was disestablished on December 15, 1946.

The third NAAS was Arlington. This field opened on June 26, 1943 and was deactivated on July 1, 1946. Arlington had six land crashes and two losses in water. One fighter, F6F-3 BuNo 42703, crashed into Puget Sound on October 11, 1944. A TBF-1 (BuNo 24353) crashed in Port Susan Bay on January 29, 1945.

The OLFs were released to civilian use in 1945 and 1946. These former NAAS and OLFs became local or municipal airports.

INTEGRATED UNDERWATER SURVEILLANCE SYSTEM (IUSS), BAINBRIDGE ISLAND

Bainbridge Island has been the site of naval intelligence activities since before World War II. Located there was the listening station at Fort Ward which monitored Japanese messages. More recently, the IUSS (former SOSUS) at Bainbridge may have tracked Soviet submarines venturing close to the Bangor Trident base. These significant sites are not likely to have contributed to submerged cultural resources.

NAVAL STATION, EVERETT

The Naval Station Everett is a new facility, a homeporting base at the expanded Port of Everett. Six ships will be homeported here, including a carrier, cruisers, and frigates. Base housing is located in nearby Marysville. This is another base which is not a source of submerged cultural resources.

NAVAL TRANSMITTER FACILITY, OSO

Located near Arlington is the Naval Transmitter Facility, Oso. Built in about 1950, it is a very low frequency (VLF) transmitter. Messages to submarines are transmitted from this station, the VLF enabling the submarines to receive even when deeply submerged. This facility does not have a connection with submerged cultural resources.

III. RESEARCH METHODS

A1. ARCHIVES AND RECORDS CENTERS — SHIPS

Most of the technical information and historical information about sunken US Navy ships associated with Washington State was acquired from the *Dictionary of American Naval Fighting Ships* (*DANFS*). This comprehensive resource, occupying nine volumes, was produced and is maintained by the Naval History Division which is now the Naval Historical Center (NHC). It contains the history of every significant vessel ever in service with the US Navy. These volumes are periodically updated with new information. Information about a ship subsequent to the writing of the *DANFS* history (e.g., recent operational history, changes in status, or loss locations for wrecks and targets) was obtained from the ship's history file. Such files are kept for large vessels at the Ships' History Branch in the Naval Historical Center (NHC-SH) at the Washington Navy Yard in Washington, D.C. These files contain incomplete yearly activity reports, administrative records, photographs, newspaper articles, copies of history cards, and miscellaneous items specific to one ship. A file might have only one or two articles or contain a stack of materials up to two inches thick. The amount of information on file was not necessarily related to the significance of the vessel. Most importantly, these files contained the loss locations for several of the Navy ships sunk as targets off the coast of Washington State.

A list of 15 US Navy shipwrecks "in Washington" was supplied to IARII by the Naval Historical Center at the beginning of this project. With this list in hand, the senior author examined the *DANFS* volumes and visited the Ships' History Branch at the Naval Historical Center on March 27 and 28, 1996. Much of the information pertinent to the present inventory located in the Ships' History files were copied. Since there was insufficient time to complete a thorough examination of each file, the availability of photos on file at the Naval Historical Foundation Photo Service in the same building were also checked. Grant also acquired information from the files of USS *Peacock* and USS *Shark*, two early US Navy losses at the mouth of the Columbia River in what would become Oregon State waters.

Local resources, visited during IARII's research, included the Pacific Northwest Collection in the Special Collections division of the University of Washington's Suzzallo Library. Sources for early shipwrecks in the Northwest, available for research at the Pacific Northwest Collection, include Lewis and Dryden's *Marine History of the Pacific Northwest* which covers local maritime activities prior to 1895 (Wright 1961). Taking up where Lewis and Dryden's work stopped, *The H.W. McCurdy Marine History of the Pacific Northwest* encompasses the years between 1896 and 1966 (Newell 1966). The second volume of the *McCurdy* series covers 1966 to 1976 (Newell 1977). Although these volumes contained extensive information about civilian nautical-related topics in the Northwest, they were generally disappointing in regard to US Navy shipwrecks. The Pacific Northwest Collection

also contained a map by James A. Gibbs, Jr., titled *Shipwrecks of the Puget Sound Area.* Published by the Puget Sound Maritime Historical Society in 1955, this map contains nearly 500 shipwrecks, burnings, collisions, groundings, and beachings from the local area, but none of the US Navy vessels from this inventory were included (Gibbs 1955). The map did include, however, the grounding of the USS *Decatur* in 1856 near Port Blakely on Bainbridge Island and the burning of US Navy submarine USS *F-3* off Port Angeles in 1912, neither of which resulted in sinkings. Also included on the map were references to World War I-era hulls beached at the north end of Carr Inlet and the use of World War II-era cargo barges to form the breakwater at Everett. However, no Navy vessels are associated with these sites (Harry Middleton 1996, pers. comm.; David Dilgard 1996, pers. comm.).

B1. CONSULTATION — SHIPS

While researching US Navy shipwrecks associated with Washington State, IARII contacted several individuals. Barbara Voulgaris at the Naval Historical Center produced a manageable listing of US Navy shipwrecks associated with Washington State from the *US Navy Shipwreck Database Inventory.* This database provided the foundation for IARII's research. In an attempt to locate other existing shipwreck databases, the senior author contacted Steve Hoyt from Espey, Huston, & Associates, Incorporated, in Austin, Texas. Between 1986 and 1992, this company, in association with Dames & Moore, completed an overview of submerged cultural resources on the continental shelf off California, Oregon, and Washington for the Minerals Management Service. Unfortunately, the shipwreck database compiled during this study is located on a damaged computer disk and is presently unavailable (Steve Hoyt 1996, pers. comm.).

In an effort to locate information about US Navy shipwrecks and submerged aircraft located in the Olympic Coast National Marine Sanctuary (OCNMS), David Grant contacted Rod Fleck, the City Attorney for Forks, Washington, who is spearheading local efforts to inventory historic resources in the OCNMS; Bob Steelquist, Education Coordinator for the sanctuary; and Bruce Terrell, from the National Oceanic and Atmospheric Administration's Marine Sanctuary Division.

Helen Devine, Curator of the Bremerton Navy Museum, examined her records of US Navy ships which may have been sunk in the area and recommended IARII contact Captain Gene Davis, USCG (Ret.), at the Coast Guard Museum on the Seattle waterfront. Captain Harris was a wealth of information and shared the Museum's copies of rare books with David Grant. Captain Harris also brought the wreck of the US Navy ship, USS *General M.C. Meigs*, to the attention of IARII researchers.

Lastly, Jack Green and Ed Finney of the Naval Historical Foundation Photo Service proved a wealth of information beyond the photographs they provided; Tim Francis and Ray Mann of the Ships' History Branch answered some last minute questions.

A2. ARCHIVES AND RECORDS CENTERS — AIRCRAFT

The most comprehensive record of Navy aircraft losses prior to 1952 is located at the Naval Aviation History Branch (AVH) of the Naval Historical Center (NHC) in the Washington Navy Yard in Washington, D.C. An accounting of Navy aircraft lost in Washington State waters was largely derived from microfilm containing Aircraft Accident Summary Reports, "crash cards", on file at the AVH on the first floor of Building 157. Records of Navy aircraft accidents and crashes prior to 1952 are contained on 34 reels of 16 mm microfilm covering thousands of incidents.. Aircraft Accident Summary Reports cover any incident during takeoff, flight, landing, or taxiing which resulted in damage to the aircraft, damage to the engine, or injury to aircrew. These incidents occurred on water, on shore stations, on carriers, and in the air. They cover a full spectrum from minor damage, occurring on the ground, to multiple mid-air collisions which resulted in the destruction of several aircraft. Aircraft lost in combat are generally not contained in this record.

Aircraft records before World War II are contained in five microfilm reels covering the time period between January 1920, and July 1941. Unlike later records, which are indexed by aircraft type and date of accident, these reels contain a chronological listing of accident records for all types of Naval aircraft. Due to time constraints while in Washington D.C., IARII researchers acquired duplicate copies of these records and brought them back for examination in Seattle. These documents are included with the individual aircraft site inventory forms. Although this process was somewhat time consuming, and a large number of lost aircraft was not expected, searching through these reels represented the most efficient process for locating Navy aircraft losses in Washington State prior to World War II. Tracking down crashes from during World War II and after the war was slightly more involved.

The search for Navy aircraft downed in Washington before World War II had been a simple process which involved two long days of patient searching through four incomplete reels of microfilm. Conversely, Navy Aircraft Accident Summary Reports for incidents that occurred between 1941 and 1952 are located on 29 full rolls of microfilm at the Naval Aviation History Branch. Wading through this material, which would take up to 100 hours, would not be an efficient use of research time, nor eyesight, and another strategy was clearly needed to locate aircraft lost to Washington waters during and after World War II. Fortunately, IARII researchers had compiled a list of over 30 Navy crashes into water from this period through previous research. One of us (Denfeld) had located the majority of these through review of air and administrative operational histories at the Naval Operational Archives. The base histories for Naval Air/Auxiliary Stations Arlington, Pasco, Quillayute, Seattle, Whidbey Island and Astoria, Oregon, were examined. Denfeld noted the World War II histories are generally very complete with details on crashes and recovered planes. The pre-World War II period is poorer. Also, after World War II, the historical record keeping was more sporadic. No histories were maintained for 1952-1957. Histories were restarted in 1957, but are very general with few details on crashes. Denfeld also consulted some of the air unit histories. For example, the World War II Patrol Wing Four history was reviewed and it did contain a complete listing of lost aircraft and known or presumed locations, however,

none were in Washington State. There were too many air units assigned to Washington airfields to review all of them. David Grant had reports of several additional Navy aircraft losses from a small file about submerged aircraft in the Seattle area which he compiled over several years prior to the beginning of the present US Navy Shipwrecks and Submerged Aircraft Inventory. Another, larger file was examined at the Office of Counsel, Naval Base Seattle at Bangor. Some of the most time-saving materials in this file were requests for information about submerged Navy aircraft from private parties requesting permission to salvage aircraft. These individuals had done considerable research and the results of their efforts were most helpful.

Newspaper clippings made up much of Grant's personal file and the file at the Office of Counsel. These files included a few articles about recoveries of specific Navy planes from Lake Washington and several general newspaper articles about the search for and recovery of submerged historic resources in western Washington. Newspaper articles about submerged resources are inherently inaccurate and, in some instances, sensational. Often the only source for information for reporters are private individuals and organizations which have been active in recovery, or attempted recovery, of submerged cultural resources. There is a great deal of mistrust in diving and salvage circles and accurate information is not shared readily. Many of the parties involved have ulterior motives for the information disseminated to the press. The number and "value" of submerged resources, especially aircraft, has been greatly exaggerated on occasion. Misinformation is also a way to throw potential commercial competitors, or souvenir hunters from the sport diving community, off the trail. The media also has a difficult time presenting the accurate letter and number combinations of Navy aircraft types. The PBM, PBY, and PB4Y-2 designations are especially susceptible to these errors. Although inaccuracies do exist in the printed media, a core of truth can be garnered through a comparison of the many articles the subject generates.

Aircraft Accident Summary Reports from 1941 to 1952 are indexed by aircraft type and date of accident, so it was a simple task to locate the appropriate records when both of these pieces of information were already known. If the date of accident was not known, but the bureau number was recorded, the Aircraft History Card would indicate the strike date for that aircraft. Aircraft History Cards follow the aircraft throughout its service lifetime. These cards are filed by bureau number on 16 mm microfilm at the AVH. The accident could usually be located by proceeding backwards from the strike date. Aircraft lost to accidents were struck at the end of the week or month of the incident. Other cases, especially those lost during periods of many accidents, might have been postponed until the next month to be struck from the record. In this manner, IARII's research was able to account for two Navy aircraft, representing two types, lost in Washington waters prior to World War II; 33 aircraft, representing ten types, lost during the war; and nine aircraft, representing five Navy types, lost after the war prior to 1952.

Upon returning from Washington, D.C., 11 additional potential aquatic crash reports were acquired from a regional database of aircraft wrecks compiled by Mr. Sig Unander of Cornellius, Oregon. Unander has a home-based business which markets aviation artwork and has been actively researching and visiting terrestrial crash sites in the Northwest for several

years. For the past 11 years, Mr. Unander has actively maintained a file of known aircraft wrecks on land and in water and reports of missing aircraft. These data were compiled from a variety of sources and in many instances are incomplete or do not contain advanced documentation (e.g., Aircraft Accident Summary Reports).

While at the AVH, IARII researchers felt they were missing Navy aircraft lost in Washington; however, without the crash date and type of aircraft, or at least a bureau number, searching through the microfilm would have been an inefficient way to find them. Mr. Unander's file, which presently consists of three-by-five index cards, proved that the research strategy missed some crashes. Indeed, no single archival resource, including the AVH files, holds a complete accounting of lost Navy aircraft. Even after many years of compiling information on World War II and Korean era aircraft losses in the Northwest, new accounts are still being discovered by Unander.

Three types of Navy aircraft which had not previously been known to have crashed in Washington waters were included in Mr. Unander's list. The remainder represented previously known types. Rich Wills, at NHC, took time out of his schedule to acquire the crash cards for these aircraft. A total of seven previously unknown submerged Navy aircraft lost prior to 1952 were confirmed and accounted for in this way. Two reports provided by Unander were accurate, though the aircraft had been recovered. The remaining two reports were incomplete and could not be confirmed through Aircraft Accident Summary Reports.

B2. CONSULTATION — AIRCRAFT

Numerous individuals were contacted by IARII personnel while researching downed naval aircraft in and around Washington State. Some were able to provide useful information through one interaction only, while others were contacted on numerous occasions throughout the research phase of this project and continued to supply pertinent data.

Persons associated with aviation-oriented museums represented several of the initial contacts made by IARII researchers. Victor Seele, one of the founders of the Pacific Museum of Flight, was crucial in helping to identify all of the players associated with submerged Navy aircraft in Lake Washington. Dennis Parks, curator of the museum, and William Rademaker, Jr., provided information about alleged aircraft in Lake Washington and the status of Navy aircraft presently on display at the facility. From the National Museum of Naval Aviation in Pensacola, Florida, Buddy Macon, Don Carunchio, Hill Goodspeed, and Karen James shared information about submerged Naval aircraft in Washington and suggested research directions. John Wulle, Assistant Attorney General for the State of Washington and co-founder of the Pearson Air Park Museum in Vancouver, Washington, was consulted on several occasions via telephone. He suggested research materials, clarified the status of certain aircraft in Lake Washington, and made suggestions pertinent to the development of a management plan. On April 18, 1996, Mr. Wulle gave the senior author a tour of the facilities at the Pearson Air Park Museum and its storage and restoration facilities.

Civilians working for the US Navy were also extremely helpful. Howard Thomas and Ken Exum, Public Affairs Officers for NAS Whidbey and NAS Seattle respectively, initially steered IARII researchers to efficient research direction. Judy Conlow allowed Grant to examine an extensive collection of materials relating to submerged Navy aircraft in Lake Washington on file at the Office of Counsel, Naval Base Seattle at Bangor, Washington. Ms. Conlow also provided materials from the file which have proven invaluable during the completion of this report. Other invaluable materials include the Aircraft Accident Summary Reports on file at the Naval Aviation History Branch of the Naval Historical Center. Roy Grossnick and Judy Walters were more than accommodating during the important but extensive process of retrieving these primary documents.

Individuals from assorted governmental agencies included Susan Karren from the National Archives at Sand Point, Tim Smith from the Alaska SHPO, Newell Lee from Washington Department of Transportation-Aviation Division, and Jim Makauchi from the Civil Air Patrol based at McChord Air Force Base. Tom Lubbesmeyer checked the Boeing archives for early Boeing aircraft which may have been lost to Washington waters.

Various interested parties from the private sector were contacted to gain information about submerged Navy aircraft and the terrestrial crash sites of Navy aircraft around the state. Again, some of these individuals were contacted on several occasions. In order of increasing number of contacts, these individuals are as follows: R.E. Bateman, from the Committee for Recovery and Restoration of Naval Aircraft from Lake Washington; Larry Webster, from the Quonset Air Museum; Gary Larkins, from the Institute of Aeronautical Archaeological Research; R.A. Hoffman, of the Marlin/Mariner Association; Sig Unander, from Air Art Northwest; Matt McCauley, previously active in aircraft search and recovery in Lake Washington; and Robert Mester, of Maritime Ventures, Incorporated, Underwater Atmospheric Systems Incorporated, and Historic Aircraft Preservation Incorporated. Finally, Peter Bowers, co-author of the indispensable book *United States Navy Aircraft since 1911* (Swanborough and Bowers 1990), gave IARII permission to use three-view line drawings of aircraft from the book.

IV. RESEARCH RESULTS

A. NAVY SHIPWRECKS ASSOCIATED WITH WASHINGTON STATE

There have been surprisingly few US Navy ships lost in Washington (Table 1) despite a "bad start" and a century of active Navy involvement immediately following statehood. The initial Navy experience with the Pacific Northwest did not seem to bode well for the future. Two US Navy vessels were lost to the Columbia River bar during the first official American surveys of Pacific Northwest waters (Gibbs 1950:77-81). The first of these was lost in 1841 when the US Navy Exploring Expedition, under Lieutenant Charles Wilkes, arrived to sound and chart the waters along the Pacific Northwest coast and inland waters. Under the command of Captain William L. Hudson, the US Navy brig *Peacock* struck a sand bar at the mouth of the Columbia River on July 18, thus becoming the first Navy shipwreck in the Northwest[1]. Five years later, another Navy survey vessel met a similar fate when it was dispatched to chart the treacherous Columbia. After barely navigating the bar upon entering the river, the US Navy survey schooner USS *Shark* grounded on Clatsop Spit, while leaving the river along the present Oregon side, and was broken up during the night of September 10, 1846[2].

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[1] USS *Peacock* - The second Navy sloop of war with the name *Peacock* was built at the New York Navy Yard in 1828. After sailing to the Far East on two occasions, the vessel joined the Wilkes Exploring Expedition of the South Atlantic and South Pacific. After leaving the Sandwich Islands, she arrived at the mouth of the Columbia River in mid-July, 1941 (*DANFS*, Volume V). Her captain had only inaccurate charts and put her hard aground while attempting to cross the Columbia River Bar. All attempts to free the vessel failed and, with her hull breached and breaking up, the crew abandoned the ship early the next morning. When Lieutenant Wilkes arrived in USS *Porpoise*, he chartered the American vessel *Thomas H. Perkins* and placed the *Peacock*'s crew aboard. They completed charting the mouth of the Columbia, including the wreck of their old ship.

The most accurate location of the wreck site is offered by the original chart produced by the expedition in 1841, however, it is difficult to correlate the land forms on the map with modern references with any accuracy (Gibbs 1950:40). The wreck site probably lies just outside Washington State waters and is included in Oregon's Shipwreck Database (Leland Gilson 1996, pers. comm.). It may seem odd that, although the inventory contains Navy vessels which lie far of the coast of Washington State in international waters, it does not include the *Peacock*, which is much closer. However, those Navy vessels which lie in deep water far off the coast do not have any better association for the NHC's management considerations than Washington State. The *Peacock* is associated with Oregon.

[2] After the *Shark* broke up, pieces were carried across bar and washed ashore landed on beach to the south of Tillamook Head. A large portion of the wreckage contained the cast capstan and a cannon (Gibbs 1950:79-81). Artifacts from the *Shark*, including a cutlass, are on display at the Columbia River Maritime Museum in Astoria, Oregon (James Delgado 1996, pers. comm.). The cannon, actually a carronade, was responsible for the naming of Cannon Beach and confirmed *Shark*'s strong association with Oregon.

Although US Navy activity continued to grow in the area with such notable occurrences as the USS *Decatur*'s defense of the settlement of Seattle in 1856, the founding of the Puget Sound Naval Shipyard at Bremerton in 1891, and the establishment of the torpedo testing facility at Keyport in 1909, no other Navy ships were lost for some time. After the inauspicious beginnings at the mouth of the Columbia River, nearly a century would pass until the loss of the next substantial US Navy vessel due to accident. The loss of small yard craft and launches may have gone unnoted at the various shore stations around the Puget Sound area but, with shipwrecks in the Northwest numbering over 500, the US Navy has had a remarkably good record overall.

The 15 original vessels designated as lost in Washington according to the US Navy shipwreck database inventory were as follows: *Addison County*, *Accentor*, *Armstrong County*, *Bugara*, *Crow*, *Gibson County*, *Hughes*, *Ionie*, *Iroquois*, *Lyon County*, *Menhaden*, *Pensacola*, *Saguanash*, *Warrick*, and *YC-970*. This number dropped to 14 when it was noted that the *Iroquois* and *Ionie* were the same vessel. The list decreased to 13 when a review of the *Menhaden*'s history file indicated that this submarine was scrapped by a private salvage company in Portland, Oregon. Through further review of the Ship's History files, and consultation with veterans from the *Hughes*, IARII ascertained that the destroyer *Hughes* was sunk as a target near the Farallon Islands in California, and that the LST *Gibson County* was sunk as a target off the west coast of Baja California. Of the 11 remaining names, *Addison County*, *Accentor*, *Armstrong County*, *Lyon County*, *Pensacola*, and *Warrick* were all towed far off the Washington coast and sunk as targets in international waters. Although destined for the same fate, the submarine *Bugara* sank under tow to the disposal area. Her sinking, over eight miles northwest of Cape Flattery, is within waters claimed by the Federal Government but is outside waters claimed by the State of Washington. The only loss location discovered for the large tug, *Saguanash*, is somewhere off the Northwest Coast. This ship was almost definitely lost outside of state-owned waters. The most historically significant ship on the original list, the *Iroquois/Ionie*, was beached at Discovery Bay west of Port Townsend and burned by wreckers in the early 1900s. The *Crow* and *YC-970*, both lost in 1943, were the only vessels from the original list which actually sank in Washington State waters. By reviewing the operational history for NAS Whidbey Island, Denfeld discovered a reference to *YP-83* which was supposedly lost to a torpedo accident on November 28, 1944, and Captain Gene Harris, USGC (Ret.), brought the spectacular wreck of the *General M.C. Meigs* to the attention of David Grant. These two losses doubled the number of known US Navy vessels sunk or wrecked in Washington State waters (Fig. 1).

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2 (cont.)

James Gibbs' book *Pacific Graveyard* includes the wreck of the *Dolphin*. According to Gibbs, this ship was a 10-gun, US Navy brig which wrecked on Clatsop Spit in 1852 (Gibbs 1950:250). According to *DANFS*, the first *Dolphin* served in the Revolutionary War, the second was built in 1821 and served in the Pacific until she was sold in December, 1835, and the third *Dolphin* was burned by Union Forces at Norfolk to keep her from falling into Confederate hands. Perhaps the ship Gibbs discusses was the second Dolphin after her sale to the civilian market.

Table 1. US Navy Shipwrecks Associated with Washington State.

Name	Number	Type	Built	Lost	Displace-ment (tons)	Length	Beam	Draft	Location	Comments
Prior to World War II										
Iroquois/Ionie	N/A	Screw Sloop of War	1859	1910	1,488	198 '	33' 10"	13'	Diamond Point	Gutted/Beached/Burned on Beach
During World War II										
Crow	AMc-20	Minesweeper (wood seiner)	1935	1943	190	71' 11"	20' 6"	5' 1"	2 mi off Smith Island	Sunk by TBF practice torpedo
YC-970	YC-970	Open Lighter (scow)	?	1943	?	97'	?	?	Puget Sound	Sunk while in use for construction
YP-83	YP-83	Yard Patrol (yacht)	?	1944?	?	?	?	?	Northern Puget Sound	Unconfirmed "Yippie Boat"
After World War II										
Addison County	LST-31	Landing Ship, Tank	1943	1955?	3,960	328'	50'	14' 1"	Off Washington Coast	Probably sunk in international waters
Accentor	LCIL-652	Landing Ship Infantry, Lge.	1944	1958	387	159'	23' 8"	5' 8"	48°18.3N, 126°01.3W	Sunk as target in international waters
Armstrong County	LST-57	Landing Ship, Tank	1943	1956	4,080	328'	40'	11' 2"	Off Washington Coast	Probably sunk in international waters
Bugara	SS-331	*Balao* Class Submarine	1944	1972	1,526	311' 9"	27' 3"	16' 10"	48°26.8N, 124°46.5W	Sunk while being towed to target area
General M.C. Meigs	AP-116	Troop Transport	1944	1972	11,450	622' 7"	75' 6"	25' 6"	48°16'51"N, 124°40'56"W	Grounded/broke up while under tow
Lyon County	LST-904	Landing Ship, Tank	1944	1959	1,625	328'	50'	14' 1"	47°55.6N, 127°00.5W	Sunk as target by submarine
Pensacola	CA-24	*Pensacola* Class Cruiser	1929	1948	9,100	585' 8"	65' 3"	15' 2"	48°12N, 127°01W	Sunk as target after Bikini tests
Saquanash	YTB-288	*Onockatin* Class Tug	1944	1946	415	110'	29'	11' 4"	Off Northwest Coast	Sunk by accident - location vague
Warrick	AKA-89	Attack Cargo Ship	1944	1971	13,910	473' 1"	63'	26' 4"	Near *Pensacola?*	Sunk as target in 1,400 fathoms

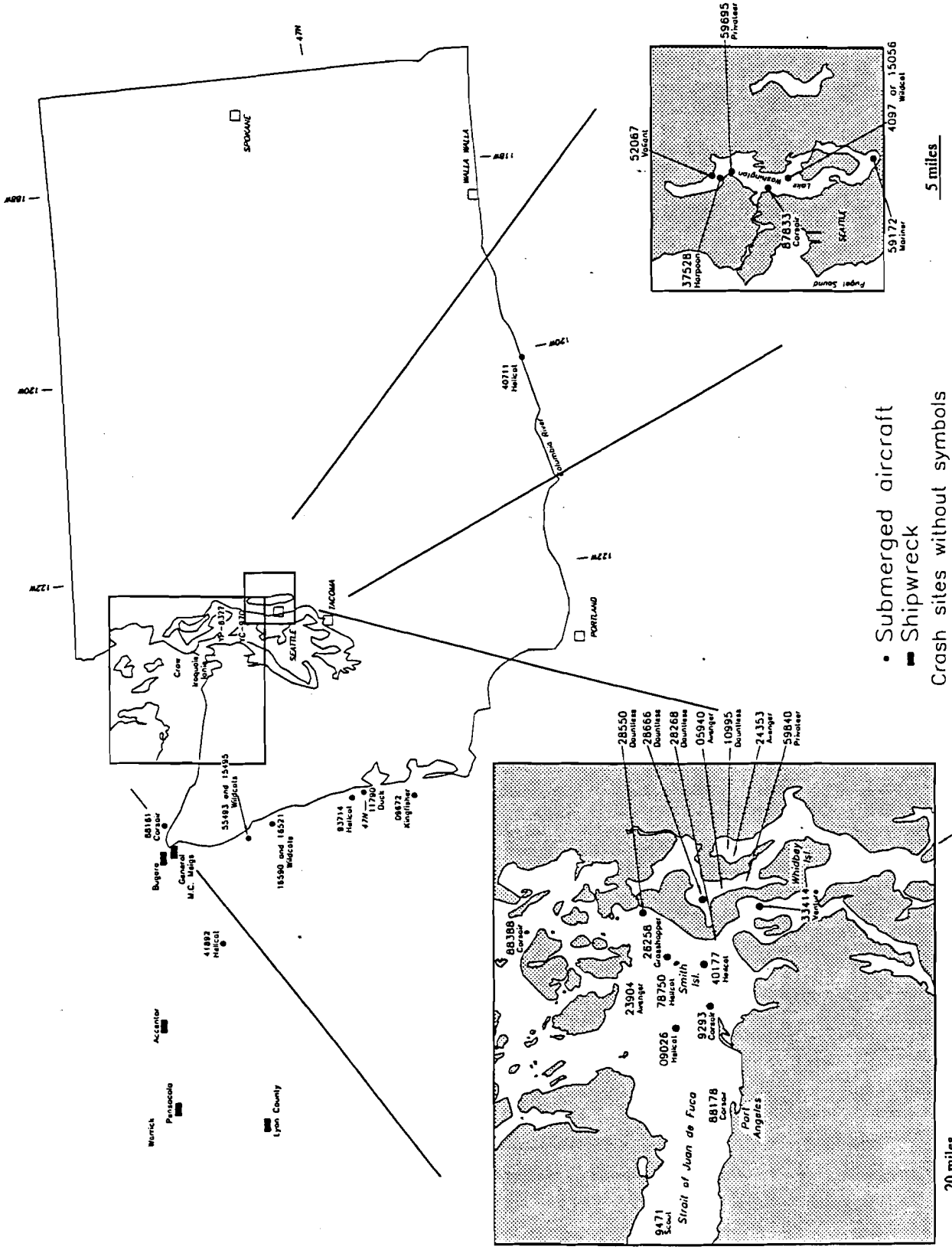
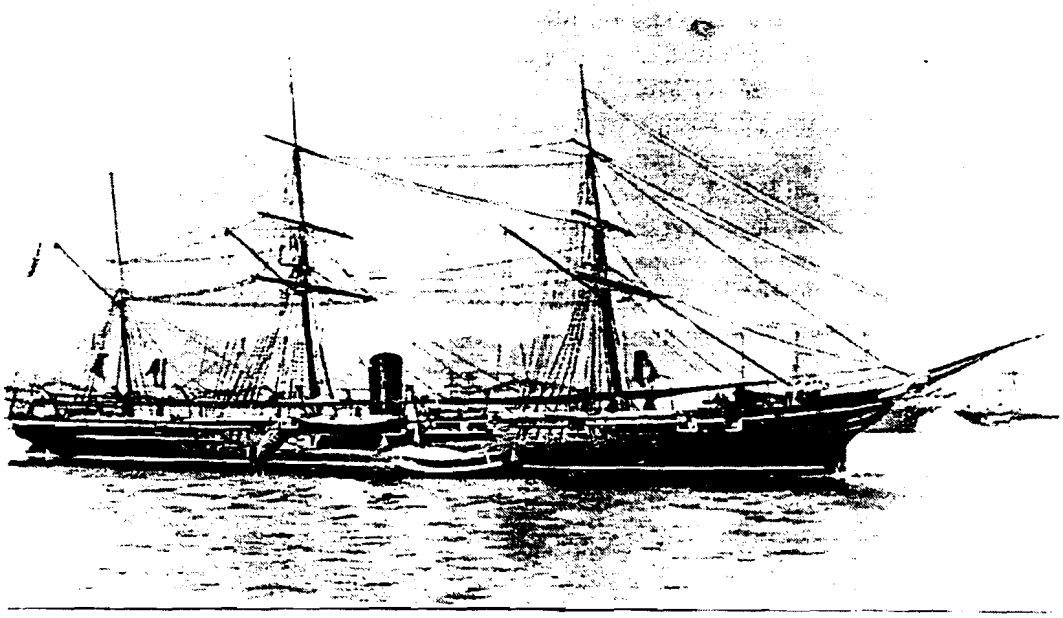


Figure 1. Location of US Navy shipwrecks and submerged aircraft of Washington State.

Originally, we envisioned the chapter on US Navy shipwrecks to include the following categories: nineteenth century shipwrecks, twentieth century historic shipwrecks (1900-1945), and twentieth century modern shipwrecks (1945-1995). In practice, however, US Navy shipwrecks did not fit well into these subdivisions. First, aside from the USS *Peacock* and USS *Shark*, the archival overview did not reveal the loss of any US Navy vessels of consequence in Northwest waters during the nineteenth century. Second, the only vessel lost during the first half of the twentieth century, the USS *Iroquois/Ionie*, was a nineteenth century-era vessel which was strongly associated with that era even though it technically ended its Navy career early in 1910. Finally, most of the vessels are associated with World War II and Korea and were sunk after their useful service ended. Accordingly, the *Iroquois/Ionie* is covered in its own subcategory; the two or three small vessels lost during use in World War II in a second section, and the nine remaining US Navy vessels lost or sunk after World War II are inventoried in alphabetical order in the third section.

A NINETEENTH CENTURY-ERA US NAVY SHIP IN WASHINGTON

USS *IROQUOIS* (*IONIE*)



UNITED STATES STEAMER IROQUOIS.

Displacement: 1,488 tons.
Length: 198 feet.
Beam: 33 feet 10 inches.
Draft: 13 feet.
Speed: 11 knots.

Armament: Removed prior to sinking.
Class: Miscellaneous auxiliary - hospital ship.
Rig: Bark
Sister ships: *Dacotah, Mohican, Wyoming.*
Honors: Numerous.
DANFS: Volume VIII.

The screw sloop of war, USS *Iroquois*, was launched at the New York Navy Yard on April 12, 1859, and commissioned on November 24 of the same year. Under Commander J.S. Palmer, she left New York for the Mediterranean on January 19, 1860, to protect American interests. US citizens and property in Palermo were threatened by fighting between Italian nationalist and French forces on Sicily. Caught in a bid to unify a foreign country, *Iroquois* would soon be fighting forces seeking to break apart her own. Upon arriving in New York on June 15, 1861, *Iroquois* was sent immediately to the Caribbean to search for the Confederate commerce raiders *Jeff Davis* and *Sumter*. Briefly cornering *Sumter* at Martinique, the Confederate privateer slipped away with the help of French officials.

In 1862, *Iroquois* received orders to assist Flag Officer D.G. Farragut in his attack on New Orleans. The South's largest and wealthiest city, New Orleans was also the key to the Mississippi Valley. Two defensive works on Ship Island, Forts Jackson and St. Philip, guarded the city. Arriving in late March, *Iroquois* was witness to the start of a devastating barrage from mortar boats on April 16, 1862. With the defenses softened by a week's worth of pounding, *Iroquois* and the other ships which made up the Third Division exchanged heavy fire with the forts as they passed them. After New Orleans fell, the city was followed by the Louisiana capital, Baton Rouge, on May 8, 1862. *Iroquois*, with *Oneida*, took the city of Natchez, Mississippi, five days later on their way to the Confederate stronghold of Vicksburg. Once again, Union ships slipped past formidable defensive works supported by the firing of the heavy mortar boats. Although the shore batteries put up a lively defense, *Iroquois*, with Farragut aboard, came through the action on June 28, 1862, with little damage. She stayed in the area for a month to assist in the bombardment of the city. During this time she engaged the ram CSS *Arkansas* and supported the attempted expedition against Vicksburg via the shallow Yazoo River. The *Iroquois* hit open water again in early September as she entered the Gulf of Mexico. Under a new captain, M.T. Nichols, she was to aid in the blockade of southern commerce. Instead, trouble with the boiler forced the ship to proceed to New York. Arriving on October 2, 1862, she was decommissioned for winter repairs.

Recommissioned on January 8, 1863, under Commander Henry Roland, she again sailed into open seas to convoy the monitor USS *Weehawken*. Seeing her charge safely to Newport News, *Iroquois* joined the North Atlantic Blockading Squadron off North Carolina. She helped capture *Kate* on July 12, 1863, and captured the blockade runner *Merrimac* two weeks later. After several long months of blockade duty, she was decommissioned once again for winter repairs in Baltimore.

Under new command for 1864, Iroquois was recommissioned on 31 March and headed for the North Atlantic and then the Mediterranean. Commander Christopher R.P. Rodgers led the *Iroquois* in the grand effort to locate the successful Confederate raider CSS *Shenandoah*. Ordered around South America to the Pacific, *Iroquois* was at Singapore when the war back home ended. She sailed for home in July, 1865, and was once again decommissioned in early October.

Recommissioned on January 7, 1867, she sailed for Japan and duty with the Asiatic Squadron under Commander Earl English. She returned home after protecting American interests during local conflicts in Japan and transported the foreign ministers on their rounds. She was decommissioned at League Island, Pennsylvania, on April 23, 1870.

Iroquois was recommissioned on August 23, 1871, and operated on the East Coast, with Commander H.A. Adams, until she received orders to rejoin the Asiatic Fleet. Sailing to the Mediterranean, through the Suez Canal, and into the Indian Ocean, she operated around Japan and China until ordered home. Arriving in San Francisco on July 1, 1874, she was once again decommissioned for repairs at the end of the month.

Finally recommissioned on April 12, 1882, J.R. Sands in command, *Iroquois* patrolled on Pacific station and called at South America, Hawaii, Australia, and numerous Pacific islands. In the spring of 1885, she supported the Marine Corps landings at Panama to protect American business interests during the revolution which was occurring there. Decommissioned for repairs once again on March 6, 1888, and recommissioned June 19, 1889 she was destined for an eventful trip. Shortly after leaving Samoa, two days before Christmas, 1889, one of her piston rods broke and damaged the engine. With a large propeller dragging in the water, the captain, Joshua Bishop, made sail for Hawaii. The stricken ship was driven off course by contrary winds and a typhoon. Missing Hawaii, the vessel proceeded north and west until finally spotting land three days before the half rations of hard tack and weevils ran out. She was towed into Port Townsend on March 10, 1890. The vessel had been lost at sea for 80 days. Memorial services had already been held for some of her crew and, since she arrived only one day after the monthly mail packet had departed Port Townsend, the Navy and grieving relatives had to wait for word of her salvation.

After 10 sporadic years on Pacific station, she returned to Mare Island, California, and was decommissioned for the seventh time on May 12, 1892. She was transferred to the Marine Hospital Service until she was recommissioned on 13 December, 1898. She sailed under Lieutenant Charles Pond for her last open-ocean tour in the Pacific. Decommissioned again in Honolulu, Hawaii, on June 30, 1899, she was transferred again to the Marine Hospital Service. Her name was changed to *Ionie* on November 30, 1904 and she was struck from the Navy registry on August 26, 1910.

The previous material was all gathered from *DANFS*, Volume VIII, and the records for the *Iroquois* on file at the Ships' History Branch of the Naval Historical Center at the Washington Navy Yard. By contacting the Jefferson County Historical Society in Port

Townsend, Washington, David Grant located additional information about the disposition of the *Iroquois*. Museum assistant Marge Samuelson photocopied a page of James G. McCurdy's 1937 book, *By Juan de Fuca Strait*, which contained the following passage on page 100:

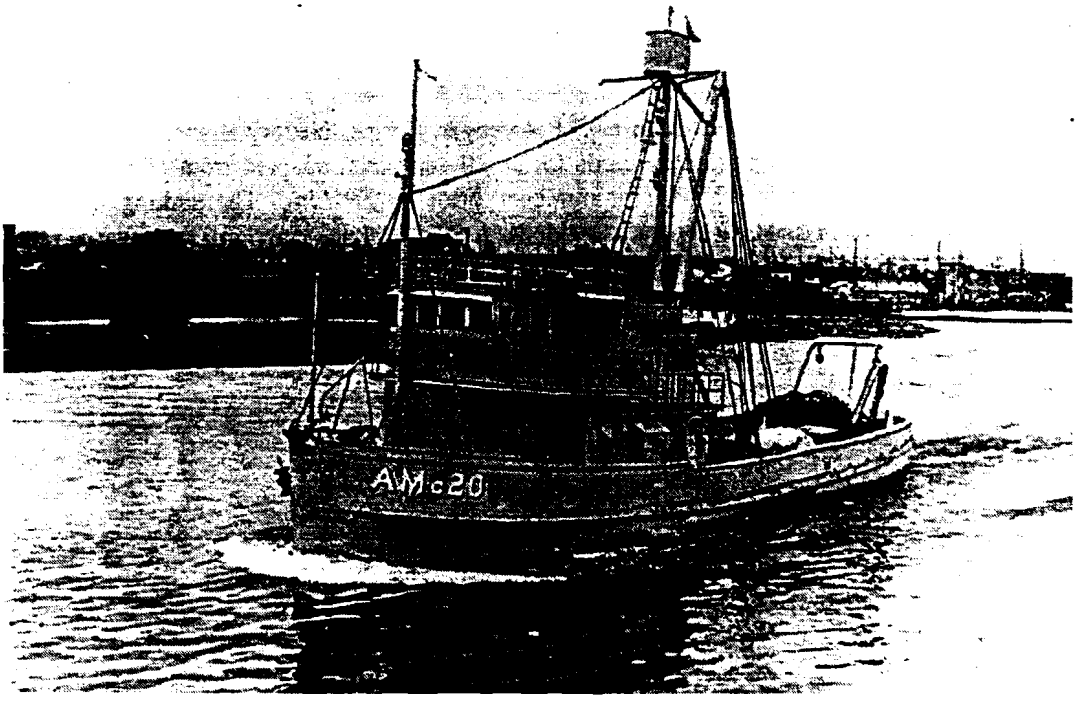
> *Quarantine regulations of rather a primitive nature had been in vogue for years on Puget Sound under the supervision of the Marine hospital service and it had been customary to fumigate vessels in the bay with sulphur pots when they were suspected of harboring disease germs or of being overrun with rats, especially when coming from an infected port.*
>
> *In the spring of 1893 the wooden hulk Iroquois was moored in the harbor as a receiving ship. This venerable war ship, a relic of Civil War days, had outlived her usefulness and had been turned over to the navy mechanics who had torn out her vitals, leaving only an oaken shell.*
>
> *While anchored in the harbor, a roof was built over her main deck, punctured with numerous sky-lights and ventilators. The fore and after decks were left as promenades.*
>
> *On June 13, 1893, the sum of $28,546 was appropriated by Congress for the establishment of a quarantine station at Diamond Point, at the entrance to Port Discovery Bay.*
>
> *This station was completed six months later and Dr. S.B. Conover, the acting quarantine officer, was placed in charge. The historic Iroquois was towed to Diamond Point, and after some years was beached and burned by wreckers.*

The passage states that the *Iroquois* began to be used as a receiving ship in the spring of 1893. This is consistent with her first stint as a hospital ship, however, having her "vitals" removed is not consistent with her later recommissioning and use in 1889 and 1890. This more likely occurred when she limped into Port Townsend with a destroyed engine after her 80-day ordeal in the winter of 1889/1890. According to the history file, sometime after 1895 she was determined unfit for sea service but was then recommissioned in 1898 for her six month swan song tour in the Pacific. With all of the various de- and recommissioning it is not surprising that some confusion exists in the ship's records. In the end, it seems she was destroyed on the beach at Diamond Point at the mouth of Discovery Bay. Whether any ship material remains depends on how thorough the wreckers were in their work.

US NAVY SHIPS LOST IN WASHINGTON STATE DURING WORLD WAR II

USS *CROW* (AMc-20)

Displacement: 190 tons.
Length: 71 feet 11 inches.
Beam: 20 feet 6 inches.
Draft: 5 feet 1 inch.
Speed: 9 knots.
Class: Coastal Minesweeper.
Armament: Two (2) .50 caliber machine guns; one (1) .30 caliber machine gun.
DANFS: Volume I.



The USS *Crow* was built by Al Larson as the wooden purse seiner SS *Jadran* at Terminal Island, California in 1935. She was purchased by the Navy from her owner, Martin Joncich, on November 5, 1940, for $48,700. She was converted to a coastal minesweeper at Maritime Shipyards, Inc., in Seattle. Never fully commissioned, the *Crow* held an "in service" status with the Thirteenth Naval District from February 4, 1941. Under Lieutenant, junior grade M.S. Erdahl, USNR, she conducted minesweeping exercises and operations in the Seattle area until she was sunk by accident on August 23, 1943. Much later, an official press release about the incident was given from the Navy Department to "press and radio" and is included in *Crow*'s history file. Dated October 6, 1945, the release gives some detail:

> *MEMO TO THE PRESS:*
> *The Coastal minesweeper USS CROW sank in Puget Sound, August 23, 1943, with no loss of personnel after the ship was struck by an erratic run of an exercise non-explosive torpedo from a TBF. Prompt efforts failed to control the damage and the ship went down within seven minutes after being hit.*

The *Crow* was stricken from the Naval Registry on April 8, 1944, when salvage of the vessel was abandoned after several months of effort by Arthur McCray Salvaging. The history card for this vessel, on file at the Ships' History Branch of the Naval Historical Center, states that she was lost in 40 fathoms of water in the Strait of Juan de Fuca but gives no further detail on loss location. The operational history for Whidbey Island states that the *Crow* was sunk two miles off Smith Island.

The operational history also contains a report of *YP-83* being sunk by accident in Saratoga Passage by a torpedo dropped from a TBF Avenger. Ships' History Branch at the Naval Historical Center contains no history cards for small yard craft adapted from civilian yachts, or "yippie" boats, like the *YP-83* for numbers prior to *YP-156*. The sinking in Saratoga Passage may have been a separate incident or a mistaken report of the *Crow* incident. It seems unlikely that two vessels were sunk in such a similar fashion but perhaps multiple losses were not out of the question for the type of torpedo practice that occurred.

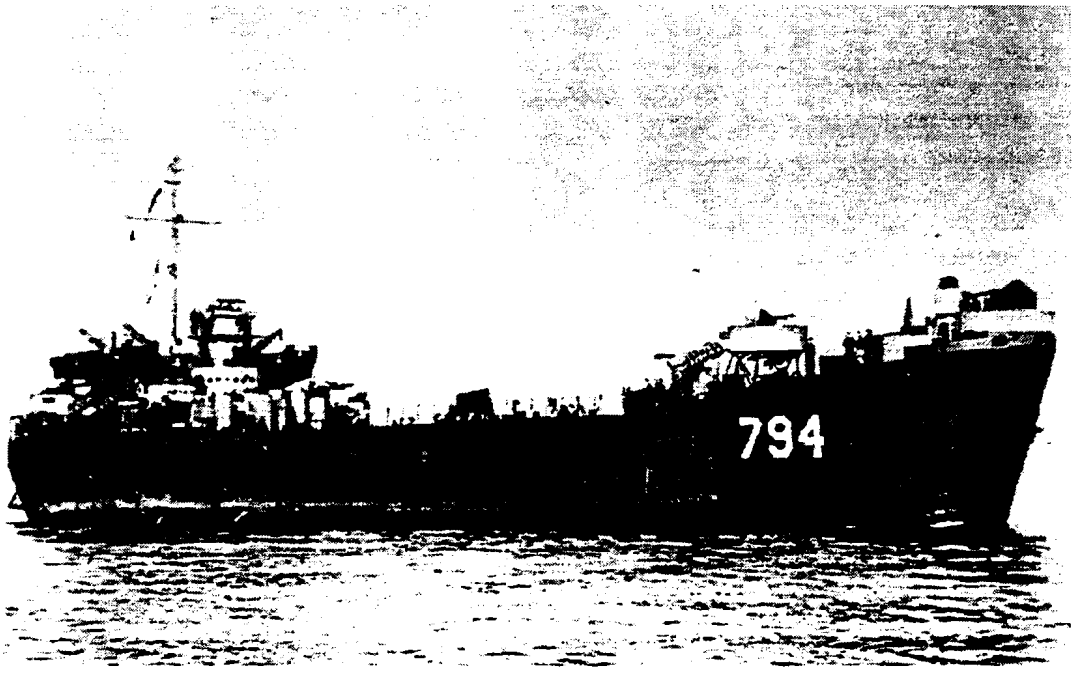
YC-970

Length: 97 feet.
Type: Open Lighter.

Very little was learned of this craft. Such a small craft did not warrant her own history file, but there is a history index card on file at Ships' History Branch. According to this card, she was an open lighter (ex-scow #10) which sank in Puget Sound while employed by the Puget Sound Bridge and Dredge, Co. She was taken over on February 7, 1943 while in Kodiak, Alaska, and then commissioned by the Navy the next month. Although still assigned to the 17th Naval District in Alaska, she was employed in the Puget Sound area when she sank on August 4, 1943; she was stricken on May 16, 1944. A press announcement was evidently released by the Navy on October 2, 1945, but IARII has not yet located any civilian newspapers articles which detailed the incident or give a loss location.

US NAVY VESSELS LOST OR SUNK AS TARGETS AFTER WORLD WAR II

USS *LST-31/ADDISON COUNTY* (LST-31)[3]



Displacement: 3,960 tons.
Length: 328 feet.
Beam: 50 feet.
Draft: 14 feet 1 inch.
Speed: 11.6 knots.
Complement: 119.
Armament: Six (6) 40-mm guns; twelve (12) 20-mm guns; two (2) .30 caliber machine guns; ship-to-shore rockets (optional).
Class: (Landing Ship Tank) LST-1.
Honors: Five (5) battle stars for World War II service.
DANFS: Volume I (Part A).

The island hopping campaigns of the Pacific Theater had spawned a large array of landing craft and ships which could offload their cargo of men, vehicles, and other equipment directly on the beach. The smallest of these were the amphibious LVTs (Landing Vehicle, Tracked), also known as alligators, buffaloes, or Amtracs, which could crawl over shallow

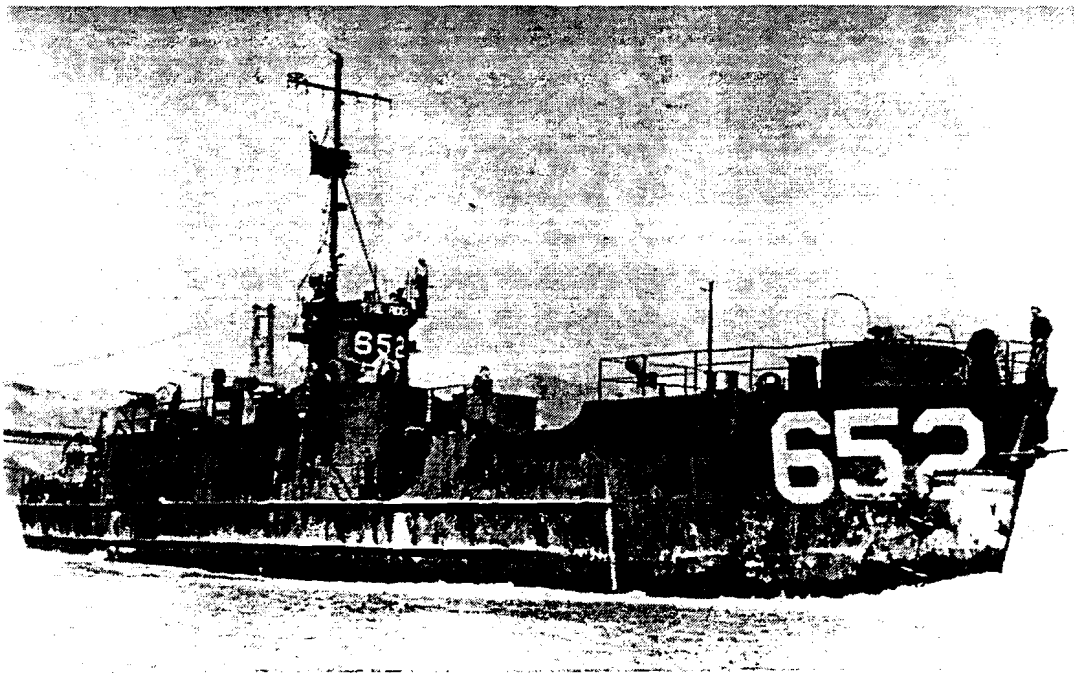
[3] Photo below is an example of the LST type.

reefs and beaches on tracks to deliver troops ashore. Only slightly larger were the LCP (Landing Ship, Personnel), LCVP (Landing Craft, Vehicle and Personnel), and LCM (Landing Craft, Mechanized) "Higgins boats". Two other types represented medium sized landing craft. These were the LCT (Landing Craft, Tank) and LCI (Landing Craft, Infantry). The largest of these types of vessels were the oceangoing LST (Landing Ship, Tank) and the enormous LSD (Landing Ship, Dock) which could accommodate most of the smaller sizes of landing craft. The ability to carry troops, vehicles, tanks, equipment, cargo, and other landing craft made the LST one of the most effective of these work horses. Four LSTs are represented in this inventory and are the most numerous type of submerged Navy ship associated with Washington State. All of these craft were sunk as targets after their useful service was over.

The particular tank landing ship covered in this section was known simply as *LST-31* until she was named *Addison County* one month before being struck from active service in August, 1955. *LST-31* was built by Dravo Corporation in Pittsburgh, Pennsylvania, in the spring of 1943 and launched on June 5, 1943. Sailing to New Orleans, she received her full commission and commanding officer, Lieutenant John Schneidau, Jr., USNR, on July 21, 1943. In the summer of 1943, *LST-31* participated in shake-down and beaching exercises in the Caribbean and Gulf of Mexico before passing through the Panama Canal to join the Pacific Fleet in San Diego late in the summer. She left the West Coast after a month and arrived in Pearl Harbor at the end of October. She quickly prepared to sail with the 5th Amphibious Force to the Gilbert Islands for the assault on Makin Island and unloaded troops and equipment in that operation on November 20, 1943. Returning to Pearl Harbor, *LST-31* underwent repairs and alterations and took part in training exercises in preparation for the invasion of the Marshall Island chain. Throughout 1944, *LST-31* carried troops and supplies in the assaults against Kwajalein and Eniwetok in the Marshalls and Saipan in the Marianas, where she also acted as a hospital ship. After the summer campaigns, *LST-31* sailed back to the West Coast for repairs. After spending the early winter in California, she sailed to Seattle in late-February, 1945.

After additional repairs, the ship traveled to Pearl Harbor and then Okinawa, where it provided logistical support for troops fighting there in May. During the months of June, July, and August 1945, *LST-31* transported supplies and troops between the Philippines and Okinawa to prepare that island for the assault against the Japanese home islands. After Japan capitulated on August 15, 1945, occupation forces were needed in Japan. Gathering troops and equipment from various ports in the Philippines for this purpose, *LST-31* weighed anchor in Tokyo Bay on September 15, 1945. In an effort to rebuild the Japanese infrastructure, the LST was stripped of armament, decommissioned on January 8, 1946, and transferred to the Japanese Merchant Marine. Operating under Japanese control for the next two years, she was returned to United States in May 1948, and berthed in Bremerton. *LST-31* was named *Addison County* shortly before she was struck from the Navy list on August 11, 1955. She was subsequently sunk as a target. The specific location for the sinking of this LST was not included in *DANFS* or in the ship's history file, however, it seems likely this craft was towed to international waters off of the Washington Coast like the other target vessels.

USS *LCIL-652/LSIL-652/* USS *ACCENTOR* (AMCU-15)



Displacement: 387 tons.
Length: 159 feet.
Beam: 23 feet 8 inches.
Draft: 5 feet 8 inches.
Speed: 14.4 knots.
Complement: 40.
Armament: Five (5) 20-millimeter guns.
Class: Landing Ship Infantry, Large (LCI(L)-652).
DANFS: Volume I (Part A).

The original *Accentor* was a coastal minesweeper which served on the East Coast through World War II and was struck from the Navy list soon after the war ended. The light infantry landing craft, *LCIL-652*, later *Accentor*, was built at Barber, New Jersey by the New Jersey Shipbuilding Corporation. Launched on July 13, 1944, *LCIL-652* was commissioned six days later. *LCIL-652* went through shakedown training in the summer of 1944 and joined the Pacific Fleet in the fall. She operated through various rear areas during the last year of the war and on until the summer of 1946. Placed out of commission on July 19, 1946, *LCIL-652* was placed on inactive status with the Columbia River Group of the Pacific Reserve Fleet. Renamed *LSIL-652* while inactive, she was later slated for conversion to an underwater mine locator ship and given the name *Accentor* (AMCU-15) on March 7, 1952. *Accentor* was assigned to Bremerton for reconditioning and conversion but this never took place. She reverted to *LSIL-652* on 1 July, 1954, and remained inactive until she was struck

from the Navy list on September 18, 1956. Two years later, as part of fleet reduction, she was sunk as a target on the August 13, 1958. She went under at 1301 hours, roughly 70 miles off Cape Flattery at Latitude 48° 18.3N, Longitude 126° 01.3W.

USS *LST-57/ARMSTRONG COUNTY* (LST-57)[4]

Displacement: 4,080 tons.
Length: 328 feet.
Beam: 40 feet.
Draft: 11 feet 2 inch.
Speed: 11.6 knots.
Complement: 119.
Armament: Eight (8) 40-millimeter guns; ship-to-shore rockets (optional).
Class: (Landing Ship Tank) LST-1.
Honors: One (1) battle star for World War II service.
DANFS: Volume I (Part A).

Just like the *Addison County*, the *Accentor* began her life with a simple designation for a name, *LST-57*. Also like the *Addison County*, *LST-57* was built at Dravo Corporation of Pittsburgh and was sent to New Orleans for commissioning and for shakedown in the Gulf of Mexico. She was launched on December 4, 1943, and fully commissioned on January 15, 1944. Unlike the *Addison County*, however, *LST-57* would see action in the Atlantic as well as the Pacific Ocean. Leaving the warm waters of the Gulf, *LST-57* proceeded to New York City and Davisville, Rhode Island, to prepare to join a convoy for Britain. The crew could not have had a better choice of passengers and cargo for the treacherous convoy through the cold sub-infested North Atlantic. They took on two Navy doctors, 40 corpsmen, and 358 tons of pontoons. Finally leaving Halifax, Nova Scotia, on March 29, 1944, after recovery and steering equipment problems and a collision with a harbor tug, *LST-57* and the convoy encountered more problems at sea. They immediately encountered dense fog and ice floes soon after the fog cleared. Early in the morning of April 6, 1944, the German submarine *U-302* torpedoed two merchantmen on the LST's port side. HMS *Swale* sank the U-boat and other ships picked up the survivors. After unloading her cargo, *LST-57* was kept busy between various ports in southern England as preparations for D-Day proceeded. On June 2, 1944, the ship was loaded with six tanks, several 155 mm guns, and a mix of Army personnel. On D-Day, *LST-57* delivered her first load to Utah Beach in the American sector of the Normandy Beachhead. For the next several months, she ferried vital supplies across the English Channel and by autumn was delivering Allied casualties and German prisoners of war.

On April 16, 1945, *LST-57* left for repairs in the United States and then through the Panama Canal to the war in the Pacific. Leaving Pearl Harbor on August 9, 1945, for the Marshall Islands, she received word of the Japanese capitulation. Like the *Addison County*,

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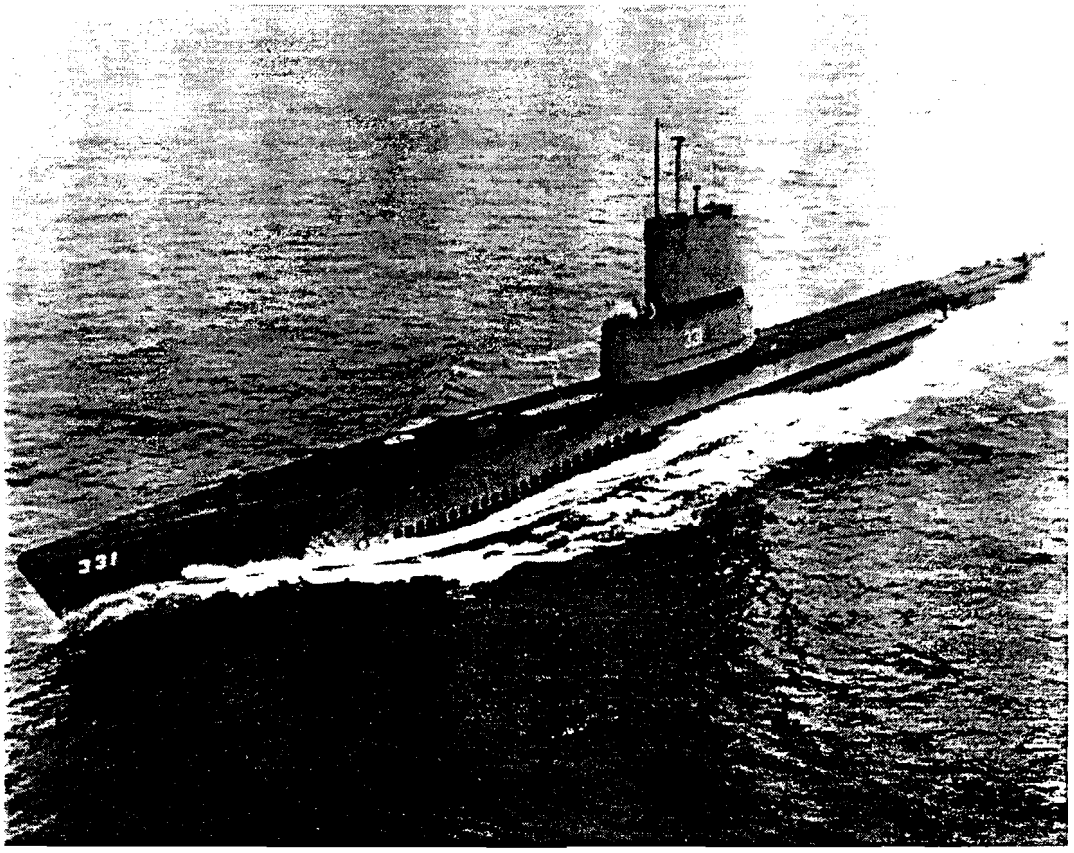
[4] See "USS *Addison County*" photo for example of the LST type.

this LST provided logistical support for the occupation of Japan for the next several months and, after being decommissioned on January 24, 1946, she was operated by a Japanese merchant crew. Her designation while in this service was *Q-028*. Returned to the US Navy, *LST-57* was assigned to the Pacific Reserve Fleet in Tacoma, Washington, in November, 1950. She stayed inactive up to and after July 1, 1955, when she was officially named *Armstrong County* (LST-57). On September 21, 1955, she was struck from the list of Naval Vessels and sunk as a target off the coast of Washington the following year.

USS *BUGARA* (SS-331)

Displacement: 1,526 tons.
Length: 311 feet 9 inches.
Beam: 27 feet 3 inches.
Draft: 16 feet 10 inch.
Speed: 20.3 knots.
Complement: 66.
Armament: One (1) 5-inch gun; 10 (10) 21-inch torpedoes.
Class: *Balao* Class Submarine.
Honors: Three (3) battle stars for World War II service.
DANFS: Volume I.

The *USS Bugara* (SS-331) was launched on July 2, 1944, from the Electric Boat Company in Groton, Connecticut. She was commissioned on November 15, 1944, with Commander A.F. Schade in charge. Between February and August, 1945, *Bugara* completed three war patrols in the Flores, Java, and South China Seas and the Gulf of Siam. Although the first two patrols were uneventful, while on her third patrol, in the Gulf of Siam, she was tasked with disrupting the trade between Bangkok and Singapore. She boarded and sunk 57 junks and other small craft during this period after removing their non-Japanese crews. She encountered one Japanese ship, manned by a Chinese crew, being attacked by Malay pirates. According to the ship's history on file at the Ships' History Branch of the Naval Historical Center, "*Bugara* rescued the Chinese, sank the Japanese ship, and then disposed of the pirates." The meaning of "disposed" was not elaborated upon. The Japanese capitulation of August 15, 1945, occurred near the end of this third patrol and the submarine called on Australia and the Philippines before sailing to San Diego in January, 1946. Repairs were effected during this time and much of the original crew was discharged or received new orders. *Bugara* spent the next several years in operations throughout the Pacific Ocean and Bering Sea and was sent to Korea on two occasions to support the operations in that war. In the summer of 1951, the *Bugara* entered the Pearl Harbor Naval Shipyard for "guppy" conversion to a Fleet Type Snorkel Submarine with a streamlined sail in place of the old bridge and conning tower. The submarine participated in training and fleet exercises throughout the Pacific into the 1960s. The *Bugara* was eventually brought to Puget Sound where she was stricken from the Register of Naval Vessels on October 1, 1970.

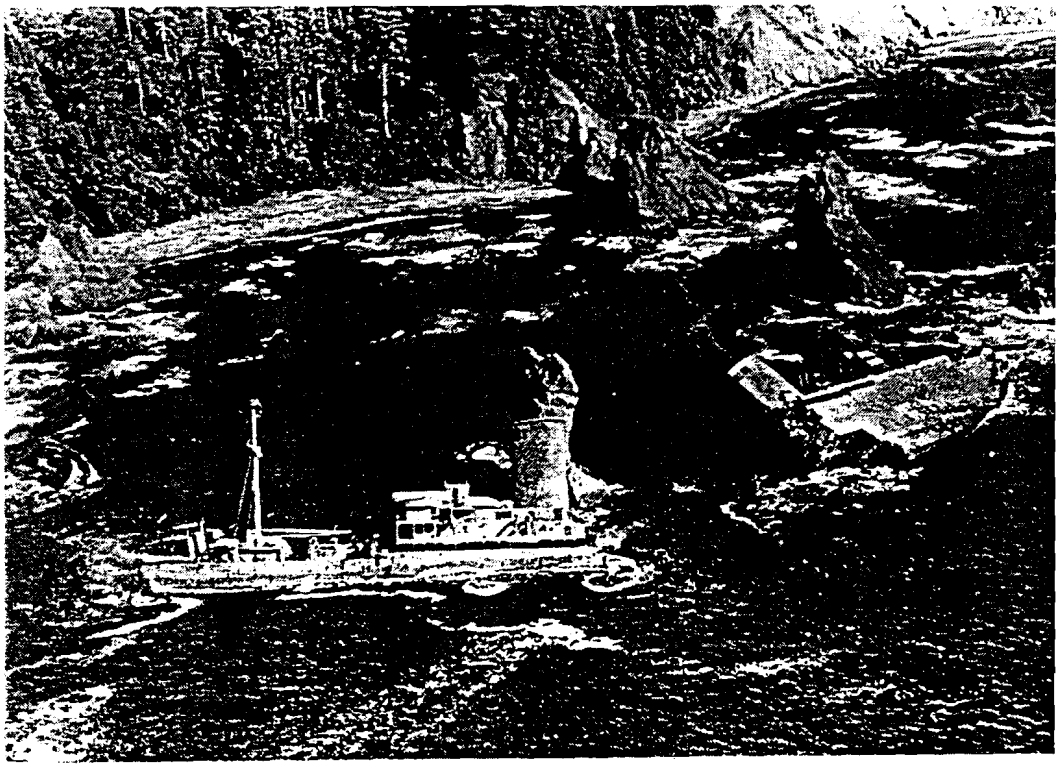


The *Bugara*, along with the USS *Warrick* (see below), was authorized for disposal as a target for live-warhead evaluations of the Mark 48 torpedo in March, 1971. These tests were to be conducted during the following summer. After removal of potentially hazardous materials, the submarine was being towed by the *Cree* to the disposal area, roughly 100 miles off Cape Flattery, when she took on water and sank in the early morning of June 1, 1972. The Bugara disappeared below the surface at Latitude 48° 26.8N, Longitude 124° 46.5W, 3.8 miles at bearing 335.2° (true north) from the Coast Guard light on Tatoosh Island. The charts for this location indicated a depth of 165 fathoms. Luckily, no one on the tow vessel was injured when the bitter end of the tow cable slipped out of the brake and ran free.

USS *GENERAL M.C. MEIGS* (AP-116)

Displacement: 11,450 tons.
Length: 622 feet 7 inches.
Beam: 75 feet 6 inches.
Draft: 25 feet 6 inches.
Speed: 21 knots.
Complement: 418 crew; 5,289 troops.
Armament: Four (4) 5-inch guns; sixteen (16) 1.1-inch guns; twenty (20) 20-millimeter guns.

Class: *General John Pope* class troop transport.
Honors: Six (6) battle stars for Korean War service.
DANFS: Volume III.



Wreck of transport *General M. C. Meigs* on the Washington coast, September, 1972.
Jim Davis Photography

The *General M.C. Meigs* was launched on March 13, 1944, from the Federal Shipbuilding and Drydock Company in Kearny, New Jersey. Commissioned by the Navy on June 3, 1944, her first captain was a Coast Guard man, Captain George W. McKean, and she was manned by a largely Coast Guard crew through World War II. *General M.C. Meigs* made numerous round-trip passages between the United States and the Mediterranean during the war. On her third trip, between September 18 and October 8, 1944, she carried 5,200 troops of the Brazilian Expeditionary Force to Italy. After the war she joined the "Magic Carpet" fleet tasked with bringing happy, but numerous, troops back to the United States from the Mediterranean, India, and Japan. On March 4, 1946, she was turned over to the Wartime Shipping Administration for transfer to the American President Lines, Ltd. and conversion to a civilian passenger ship in the Pacific.

When war broke out in Korea, *General M.C. Meigs* was taken from the Maritime Commission and assigned to the Military Sea Transport Service. With a civilian crew, she completed 19 voyages to the Far East during the Korean War and continued with troop-rotation cruises after the armistice was signed on July 27, 1953. She was transferred to the

Maritime Administration on October 1, 1958, and joined the National Defense Reserve Fleet at Olympia, Washington where she remained "mothballed" until January, 1972. When the Olympia Reserve Fleet was phased out between 1971 and 1972, the *Meigs* was reassigned to the last West Coast reserve fleet at Suisun Bay near San Francisco.

On her way to San Francisco, she was being towed by the Navy rescue tug USNS *Gear* (T-ARS-34) when the cable parted at approximately 3:00 AM on January 9, 1972. Adrift in heavy seas ten nautical miles west of Cape Flattery, the *General M.C. Meigs* could not retrieved by the crew of the *Gear* and started slowly working her way to the rocky shoreline in a Force 8 gale. Coast Guard attempts to land personnel on board to drop her anchors were unsuccessful and the wind and seas drove her on to the rocks at 11:00 AM, seven nautical miles south of Cape Flattery (Newell 1977:124). Soon after grounding, she broke in half against a pinnacle roughly 200 m off what became known as Wreck Cove south of Portage Head (Clark et al. 1973:794). Spilling nearly 50 barrels (2,000 liters) of fuel oil from her center tanks, she also lost her cargo of steel lifeboats, several drums of solvents, other material destined for the reserve fleet, and a small Navy harbor tug which had been chained to her deck. The name of this Navy tug has not been ascertained. As personnel from the Navy, Washington Department of Ecology, and Environmental Protection Agency were dispatched to the scene to clean up the spill of bunker oil and guard the wreck, the destruction of the *General M.C. Meigs* and her cargo raised numerous questions. One of which was why the *Gear* proceeded in the face of a Force 8 gale (Newell 1977:124). The Coast Guard does apparently not investigate accidents involving Navy vessels unless asked to do so by the US Navy. They were not asked to do so in this instance.

Salvage experts were called to the scene after the worst of the weather subsided in mid-January, but salvage efforts were postponed indefinitely (Clark et al. 1973:795). In late-February the fantail broke off and was carried closer to shore. The wreck of the *General M.C. Meigs* has since broken up against the jagged rocks south of Cape Flattery and nothing remains visible above the surface of the water (Bob Steelquist 1996, pers. comm.).

USS *LYON COUNTY* (LST-904)[5]

Displacement: 1,625 tons.
Length: 328 feet.
Beam: 50 feet.
Draft: 14 feet 1 inch.
Speed: 12 knots.
Complement: 119.
Armament: Eight (8) 40-millimeter guns; twelve (12) 20-millimeter guns.
Class: (Landing Ship Tank) LST-511.
Honors: One (1) battle star for World War II service.
DANFS: Volume IV.

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[5] See "USS *Addison County*" photo for example of the LST type.

Another product of Dravo Corporation, this tank landing ship shared the same design features as the other LSTs we have examined and, like them, was only given a simple designation, *LST-904*, for most of her active service. Launched on December 23, 1944, *LST-904* was commissioned one month later under Lieutenant James L. Randles, Jr. Following a similar shakedown in the Gulf of Mexico as the previous two LSTs, she steamed through the Panama Canal to Pearl Harbor and duty in the Pacific Theater. Departing for Eniwetok, Guam, and Saipan on April 16, 1945, she spent the spring tramping between these locations before arriving at Okinawa in early summer to support the efforts to secure that island. Departing the waters off Okinawa in on July 10, 1945, she steamed for the Marianas, Guam, Iwo Jima, and Saipan, where her crew received word of the Japanese capitulation on August 15, 1945. After the hostilities ceased, she carried occupation troops to the home islands of Japan from Okinawa and the Philippines. Leaving Japanese waters in late 1945, *LST-904* arrived at Pearl Harbor on January 21, 1946, and thence to San Francisco for an early-February arrival. Operating along the West Coast, she was eventually placed in reserve with the 19th Fleet. She was decommissioned on November 15, 1946, and sent to the Pacific Reserve Fleet in the Columbia River. *LST-904* was named *Lyon County* on July 1, 1955, and remained inactive until the Secretary of the Navy released her for use as a target on October 20, 1958. Stricken from the Naval Register on November 1, 1958, she was towed to Bremerton where she awaited final disposal. On May 13, 1959, the submarine USS *Capitaine* (SS-336) fired torpedoes into the side of the LST and she sank in 1,280 fathoms of water at Latitude 47° 55.6N, Longitude 127° 00.5W, far off the Washington coast.

USS *PENSACOLA* (CA-24)

Displacement: 9,100 tons.
Length: 585 feet 8 inches.
Beam: 65 feet 3 inches.
Draft: 15 feet 2 inches.
Speed: 32 knots.
Complement: 653.
Armament: Ten (10) 8-inch guns; four (4) 5-inch guns; six (6) 21-inch torpedoes; 40- and 20-millimeter anti-aircraft mounts.
Class: *Pensacola* class cruiser.
Honors: Thirteen (13) battle stars for World War II service.
DANFS: Volume V.

Another venerable veteran of World War II was sunk in a spectacular fashion far off Washington's coast. The heavy cruiser USS *Pensacola* (CA-24) can best be described as a workhorse of the Pacific War. *Pensacola* was built by the New York Navy Yard and launched on April 25, 1929. She was commissioned on February 6, 1930, under Captain Alfred Howe. For the first half of the 1930s, she operated along the Eastern Seaboard and in the Caribbean. She transferred to the Pacific Fleet and for the next five years operated throughout the Pacific Ocean from Alaska to Guam.

The beginning of World War II found the *Pensacola* bound for Manila, but she was rerouted to Australia upon hearing the news of the attack on Pearl Harbor. In February, 1942, she joined Carrier Task Force 11, built around the carrier *Lexington*. She helped guard *Lexington* against enemy aircraft near the Solomon Islands until the carrier *Yorktown* joined the task force in early March. On March 10, 1942, the *Lexington* launched her aircraft in a surprise strike over the Owen Stanley Mountains in New Guinea against Lae and Salamaua. After patrolling briefly with the *Yorktown*, *Pensacola* returned to Pearl Harbor.

Pensacola joined *Enterprise* as she steamed out of Pearl Harbor for the fateful Battle of Midway. This battle resulted in the destruction of four Japanese carriers and marked the high-water mark of the Japanese Empire. After the battle, *Pensacola* was one of many ships which attempted, to no avail, to assist the badly damaged *Yorktown*. She returned to Pearl Harbor in mid-June.

Pensacola joined the screen around carriers *Saratoga*, *Hornet*, and *Wasp* as they steamed to support the assault on Guadalcanal. After *Saratoga* was damaged and *Wasp* sunk by enemy torpedoes, *Pensacola* and the *Hornet* task force rendezvoused with *Enterprise*. The combined force met the enemy in the Battle of Santa Cruz Islands on October 26, 1942, and turned back a Japanese attempt to recapture Guadalcanal. *Pensacola* participated in

another engagement two weeks later which became known as the Naval Battle of Guadalcanal. Two weeks after that, just before midnight on November 30, 1942, a task force of destroyers and cruisers, including *Pensacola*, engaged the enemy north of Guadalcanal. The fierce Battle of Tassafaronga ensued and *Pensacola* became one of four cruisers struck by Japanese torpedoes. Hit amidships, she burned throughout the night and into the next day. Her fires finally out, she made emergency repairs in Tulagi Harbor. One-hundred-twenty-five of her crew were dead. She again sailed to Pearl Harbor for extensive repairs.

Pensacola emerged from the Pearl Harbor Navy Yard on November 8, 1943, nearly a year after the battle in which she was damaged. She was just in time to support the costly troop landings on Tarawa and for two months *Pensacola* patrolled the supply lines to the Gilbert Islands. The fight for the Marshall Islands began in late January and February, 1944, and *Pensacola* was present to help destroy enemy coastal positions. She was also present in the carrier raids against Palau, Yap, Ulithi, and Woleai. Steaming for colder waters, *Pensacola*, and a cruiser/destroyer task force, attacked enemy positions in the Kuriles. Leaving Alaskan waters on August 8, 1944, she sailed for the Marianas via Pearl Harbor.

In October and November, she was involved in actions at Wake Island, Marcus Island, the Bonin Islands, Ulithi, the Philippines, and Saipan. Throughout December, 1944, and January, 1945, she fired on Iwo Jima to prepare for the assault and stayed on to offer direct fire support during and after the landings there in late February, 1945. After Iwo Jima was secured, she continued on to Okinawa and helped suppress enemy positions during the first two weeks of April and narrowly escaped two torpedo attacks during the operation. She departed for California and then to Adak, Alaska, where she received word of the end of hostilities. Like many other allied ships, she stayed on to support the occupation of Japan into 1946.

After 15 years of active and eventful duty, *Pensacola* was sent to Bikini Atoll for what was believed to be her last service. Operation "Crossroads" atomic bomb tests at Bikini Atoll were scheduled for July, 1946, and she was slated to be a target. On July 1 and July 25, 1946, she was rocked by the Able and Baker detonations. Damaged and radioactive, she was towed to Kwajalein Atoll to be decommissioned on August 26, 1946, and turned over to Joint Task Force One for radiological and structural studies at Bremerton, Washington (Delgado et al. 1991:173).

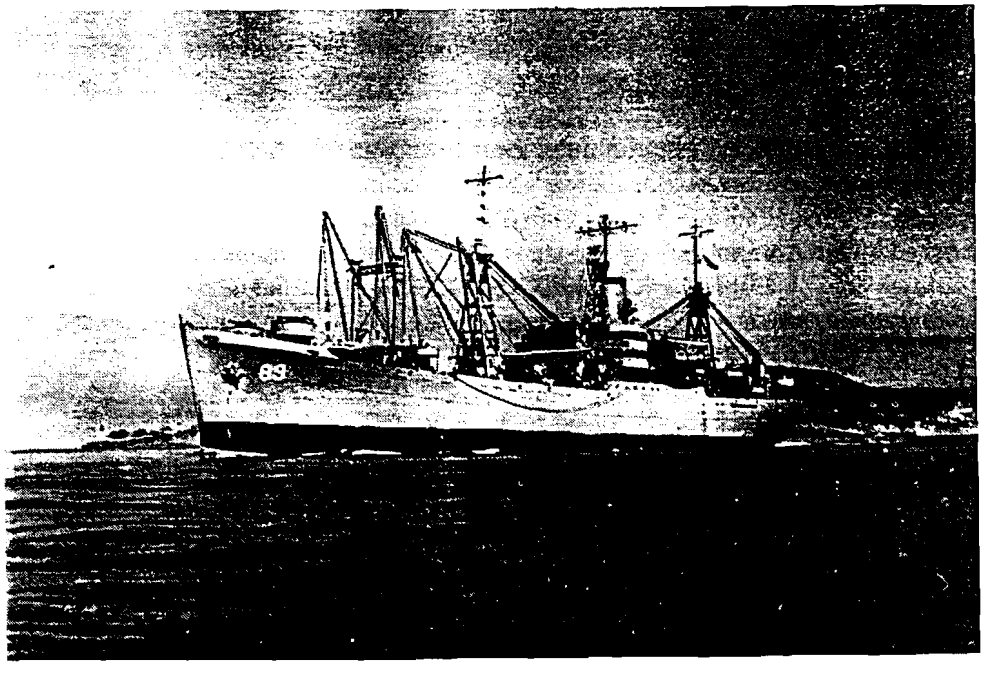
Too "hot" to scrap, *Pensacola* was towed to about 90 miles from Cape Flattery, in the middle of a designated Navy explosive testing area, and set adrift. The heavy cruiser was targeted by one other cruiser, three aircraft carriers, and sixteen destroyers. To attain the maximum amount of practice to aircrews and surface-ship gunners, she was shelled and bombed for over six hours. After repeated hits from the cruiser's 5-inch guns, the order was given to loose a torpedo from the destroyer *William C. Lawe*. Struck in the bow, she nosed slowly down and sank into 8,400 feet of water at 2:25 PM on November 10, 1948. She sank below the surface at Latitude 48° 12'N, Longitude 127° 01'W at nearly the center of the Navy's explosive testing and disposal area.

USS *SAGUANASH* (YTB-288)

Displacement: 415 tons.
Length: 110 feet.
Beam: 29 feet.
Draft: 11 feet 4 inches.
Complement: 10.
Class: *Onockatin* class tug.
DANFS: Volume VI.

Built as hull number YT-288 at Everett Marine Ways, Inc., in Everett, Washington, the USS *Saguanash* was reclassified YTB-288 before launching on June 6, 1944. After she was completed on July 26, 1944, *Saguanash* served along the Washington coast until steaming for the central and south Pacific. She worked with Service Squadron 2 throughout the remainder of the war and returned to the West Coast. The tug did not survive long enough to be deactivated for, on November 7, 1946, she sank by accident off the Northwest Coast. *Saguanash* was struck from the Naval Register on November 21, 1946. IARII research was unable to locate further details about the sinking of the USS *Saguanash* (YTB-288) from her file in the Ships' History Branch of the Naval Historical Center.

USS *WARRICK* (AKA-89)



Displacement: 13,910 tons.
Length: 473 feet 1 inch.
Beam: 63 feet.
Draft: 26 feet 4 inches.
Speed: 16.5 knots.
Complement: 366.
Armament: One (1) 5-inch gun; eight (8) 40-millimeter guns; twelve (12) 20-millimeter guns.
Class: *Andromeda* class attack cargo ship.
Honors: Two (2) battle stars for World War II service and one (1) battle star for Korea.
DANFS: Volume VIII.

Originally named *Black Prince*, the USS *Warrick* (AKA-89) was built at the Moore Dry Dock Company in Oakland, California. Purchased and commissioned by the Navy simultaneously on November 30, 1944, the *Warrick* sailed for her shakedown cruise under Lieutenant Commander Ernest J. Grey, USNR. After working out the bugs in California waters, *Warrick* steamed for the South Pacific. Transporting troops, cargo, and vehicles between numerous Allied ports, she discharged landing craft at the first landings on the Philippines and the bloody assault on Iwo Jima. Transferring cargo to Iwo Jima was especially challenging due to rough seas and *Warrick* sustained damage from her own lighters. After Iwo Jima, the attack cargo ship continued to perform vital support duties in the Marianas, the Solomon Islands, Tulagi, Guam, Manus, Florida Island, New Guinea, New Caledonia, and the Philippines.

After World War II, she continued tramping around the Far East to support occupation of Japan and Korea. She also participated in Operation "Magic Carpet" by returning discharged G.I.s to home. The flow of G.I.s home subsided, then reversed, when the North Korean People's Army swept into South Korea on June 25, 1950. *Warrick* was once again active in transporting troops and cargo to hostile areas. Although she was not present at the landings at Inchon, she made several cross-Pacific trips during the Korean War and continued to serve the Pacific Fleet after that conflict. Placed in reserve at Astoria, Oregon, *Warrick* was decommissioned on December 3, 1957, struck from the Naval Register on July 1, 1961, and transferred to the civilian Maritime Administration. She was subsequently transferred back to Navy custody on April 20, 1971, for use as a target. *DANFS*, Volume VIII, states that she was towed 100 miles off Cape Flattery and sunk in 1,400 fathoms of water by a torpedo from the submarine USS *Trigger* (SS-564). Both the ship's history file and *DANFS* give the date as May 28, 1971, but neither offers the location of the sinking. It is very likely the *Warrick* was sunk very near the *Pensacola* at Latitude 48° 12'N, Longitude 127° 01'W. NOAA charts indicate a depth of 1,400 fathoms near the middle of the same Navy explosive and testing area in which the *Pensacola* was sunk. Regardless, both ships are well outside of Washington State waters when they were sunk.

B. US NAVY AIRCRAFT LOSSES IN WASHINGTON STATE WATERS

Aircraft and water have had a dubious relationship in the Northwest from the start. During Seattle's very first flying exhibition on March 12, 1910, pioneer aviator Charles Hamilton lost control of his Curtiss biplane and crashed into a small lake at The Meadows racetrack. Four years later, Bill Boeing watched as a Glenn Martin aircraft, which he and Navy lieutenant George Westervelt had acquired while designing their first plane, plunged into the waters of Lake Union near the first Boeing building (Bauer 1990:15). The number of aircraft to be claimed by Lake Washington was foreshadowed when an Army air service officer was rescued from drowning 200 yards north of Sand Point field where he had ditched the MB-3A he was testing for Boeing (*Seattle Daily Times* [*SDT*], September 14, 1922). The waters of western Washington have claimed over 80 civilian and military aircraft and the recent loss of an Airlift Northwest helicopter off of Bainbridge Island indicates that they will continue to do so.

The Northwest must have appeared inhospitable to early aviators. The hills of the Puget Sound Trough were covered with trees and, although much of the forest around the Seattle vicinity had been cut by the early years of the century, often jagged slashes and large stumps remained. Piloting a fragile aircraft on a cross-country flight with few airfields to choose from, an early pilot might have viewed the water as the lesser of two evils if his plane ran into difficulties. It is not surprising, especially in view of George Westervelt's early involvement, that many of the first aircraft built in the area were designed for water and naval applications, including the first Boeing plane, the Boeing and Westervelt (B&W 1). Boeing designed and built several of their own models and produced other designs under contract for the US Navy during World War I. The company survived the post-war slump by building furniture, boats, and other aircraft under contract for the Army and Navy. Most of the early Boeing-produced planes built for the US Navy were floatplanes and some of these ended up under the water instead of on top of it.

An examination of the first five microfilm reels containing Navy Aircraft Accident Summary Cards revealed 93 incidents in Washington State between July 17, 1924, and May 15, 1941. Table 3 lists US Navy submerged aircraft associated with Washington. Figure 1 depicts the locations of submerged planes in Washington State waters. The incidents included engine trouble, forced and hard landings on land and water, taxiing accidents on land and water, collisions between aircraft on the ground and in mid-air, collisions between aircraft and surface vessels, carrier crashes, pilot errors, propeller-related injuries, and one case in which a parked plane was badly mauled by a runaway tractor. Of these incidents, 50 represented water-related accidents not associated with carrier landings. The majority of water-related incidents involved seaplanes. Utilized for training and administrative duties at Navy installations Sand Point and Bremerton, seaplanes were also launched by catapult from cruisers and battleships which operated in the Northwest. On 18 occasions these aircraft sank or capsized during landing, taxiing, or during retrieval. One aircraft, a Curtiss SOC-2, hit a

Table 2. US Navy Submerged Aircraft Associated with Washington State.

Single Seat Fighter Aircraft

Area	Model	Type	BuNo.	NAS	Crash Date	Loss Location	Present Location	Reel #	Comments
J.D.F.	O3U-3	Corsair	9293	N/A	8/23/37	Juan de Fuca	5m NE Dungeness	3	attached to USS Nevada- sank in 70 fathoms
L.W.	F4F-4	Wildcat	4097	Seattle	8/17/42	Lake Washington	in situ	13	Collision w/ Avenger 00539
L.W.	F4F	Wildcat	?	Seattle	?	Lake Washington	in situ?		47°36.81N, 122°15.27W (4097 or 15056)
L.W.	F4F-4	Wildcat	15056	Seattle	9/19/43	Lake Washington	?	13	heading south from Juanita Beach
P.C.	FM-2	Wildcat	55493	Quill.	7/25/45	off Quillayute	in situ	18	pilot not recovered
P.C.	FM-1	Wildcat	15495	Quill.	4/22/44	off Quillayute	in situ	15	sunk in 16 fathoms
P.C.	FM-2	Wildcat	16590	Quill.	10/19/44	3 mi. south Destruction Island		15	collision w/FM-2 #16521
P.C.	FM-2	Wildcat	16521	Quill.	10/19/44	3 mi. south Destruction Island		15	collision w/FM-2 #16590
S.I.	F6F-3	Hellcat	40177	Whi.	11/5/43	Juan de Fuca	in situ (collision)	6	5 mi. NW of S.I. collided w/RCAF P-40
S.I.	F6F-3	Hellcat	09026	Whi.	2/1/44	Juan de Fuca	in situ	6	sank 12 miles west of Smith Island
P.S.	F6F-3	Hellcat	42703	?	10/11/44	Puget Sound	in situ	6	air unit LAG-49 Ens. James Seery
P.C.	F6F-3	Hellcat	41892	?	5/20/45	off Cape Flattery	in situ	7	48°20'N, 125°20'W
S.I.	F6F-5	Hellcat	78750	Whi.	6/24/45	Juan de Fuca	in situ	7	near Smith Island (VF 51)
C.R.	F6F-3	Hellcat	40711	Pasco	7/4/45	Columbia River	in situ	7	opposite Alderdale on Oregon side of river?
P.S.	F6F-5	Hellcat	79251	Whi.	7/24/45	Puget Sound	in situ	7	(VF 41) crash P.S.
P.C.	F6F-5	Hellcat	93714	Whi.	3/15/49	off Taholah	in situ	8	pilot drowned while swimming to shore
N.P.S.	FG-1D	Corsair	88388	Seattle	8/4/47	Rosario Straits	in situ	13	F4U?-wheels up landing;
J.D.F.	FG-1D	Corsair	88161	Seattle	9/19/48	off Neah Bay	in situ	13	1/4 mile north of Neah Bay
J.D.F.	FG-1D	Corsair	88178	?	9/8/49	off Port Angeles	?	13	water off P.A.--see missing plane list
L.W.	FG-1D	Corsair	87833	Seattle	7/29/50	Lake Washington	L.W./Pearson	13	47°38.06N, 122°16.38W (collision w/88382)
C.R.	FG-1D	Corsair	76535	JAX	10/19/50	Columbia River	partial	13	some of aircraft recovered but not pilot

Single Engine Trainer/Bomber/Scout

Area	Model	Type	BuNo.	NAS	Crash Date	Loss Location	Present Location	Reel #	Comments
J.D.F.	SF-1	scout	9471	?	9/12/37	Juan de Fuca	in situ	3	gunner sucked out of plane(killed) pilot okay
N.P.S.	SBD-4	Dauntless	10701	Whi.	4/14/43	Whidbey Island	in situ	22	no locational information
N.P.S.	SBD-5	Dauntless	10995	Seattle	8/19/43	Saratoga Passage	in situ	22	50 fath.-crew/plane not recovered
N.P.S.	SBD-5	Dauntless	28666	Whi.	11/21/43	1 mi. off Oak Har.	?	22	formation dive- comments "demolished"

N.P.S.	SBD-5	Dauntless	28550	Whi.	3/17/44	3 miles north of Ault Field		22	in deep water
L.W.	SBD-5	Dauntless	36490	Seattle	8/2/44	Lake Washington		22	probably recovered
N.P.S.	SBD-5	Dauntless	28268	Whi.	12/22/44	off Partridge Point		22	pilot and crew lost
L.W.	TBF-1	Avenger	00539	Seattle	8/17/42	Lake Washington .	in situ?	13	Collision w/ Wildcat 4097 (scant crash card)
N.P.S.	TBF-1	Avenger	05940	Whi.	3/5/43	off Oak Harbor	?	33	crashed on night landing- not recovered
N.P.S.	TBF-1	Avenger	23904	Whi.	8/5/43	15 miles northwest of Whidbey		33	in water
P.C.	TBM-1	Avenger	24741	Quill.	4/28/44	Crash at Sea	in situ	33	pilot picked up
N.P.S.	TBF-1	Avenger	24353	Whi/Ar.	1/29/45	1.5 miles south of Triangle Cove		33	disintegrated (VC-4)
L.W.	SNV-2	Valiant	52067	Seattle	2/29/44	Lake Washington	in situ	32	47°42.36N, 122°15.12W cloth/wood
S.I.	NE-1	Grasshopper	26258	Whi.	9/21/43	0.5 miles NE of Smith Island		27	pilot not recovered, in plane
P.C.	OS2U-3	Kingfisher	09672	?	3/12/44	8 miles off Willapa Bay	?	27	Crew "died from exposure"
P.C.	J2F-5	Duck	11790	Tongue	4/3/43	2 miles off Copalis Beach	partial	24	fuselage recovered, wings/floats sunk
L.W.	J2F-5	Duck	00677	Seattle	5/31/45	Lake Washington	partial	24	forward portion float sunk pilot not recovered

Twin Engine Bombers/Patrol

Area	Model	Type	BuNo.	NAS	Crash Date	Loss Location	Present Location	Reel #	Comments
P.S.	PBY-5	Catalina	04470	Whi.	5/2/43	6 miles southwest of Mukilteo	in situ	25	sank in 100 fathoms
N.P.S.	PBY-5	Catalina	7284	Whi.	8/30/43	Saratoga Passage off Oak Harbor	in situ	25	partially recovered
N.P.S.	PV-1	Ventura	33414	Whi.	3/4/45	Admiralty Inlet	scattered	27	crashed in water near Greenbank
L.W.	PV-2D	Harpoon	37528	Seattle	9/4/47	Lake Washington	in situ	27	47°41.6.2N, 122°15°6"W (bomb?)
L.W.	PBM-5	Mariner	59172	Seattle	5/6/49	Lake Washington	in situ	17	47°30.412N, 122°12.822W

Four Engine Bombers

Area	Model	Type	BuNo.	NAS	Crash Date	Loss Location	Present Location	Reel #	Comments
N.P.S.	PB4Y-2	Privateer	59840	Whi.	9/19/50	Saratoga Passage	in situ	25	None of seven crew recovered
L.W.	PB4Y-2	Privateer	59695	Seattle	8/26/56	Lake Washington	in situ	N/A	47°40.5.7N, 122°14.5.3W (POST-1952)

sailboat in Elliot Bay and flipped over. Another pilot failed to retract his wheels into the Grumman amphibious float fixed to his Vought O3U-3 Corsair before attempting a water landing and also flipped his aircraft. Because these aircraft were specifically equipped with one or more floats, even when fully submerged they tended to stay near the surface where they could be recovered. In instances where the floats were damaged, the aircraft were usually recovered from water 50 feet deep or less. A search of archival records covering over 20 years of Navy aircraft incidents in Washington State located only two instances where aircraft were not recovered. These aircraft were a Vought O3U-3 Corsair and a Grumman SF-1.

A valuable reference source for this report has been *United States Navy Aircraft since 1911* (Swanborough and Bowers 1990). The line drawings of aircraft presented below were adapted with permission from this source (Peter Bowers 1996, pers. comm.). Technical information on aircraft types was compiled from a comparison of *United States Navy Aircraft since 1911*, *Jane's Fighting Aircraft of World War II*, *The Rand McNally Encyclopedia of Military Aircraft, 1914-1980* by Enzo Angelucci (1981), *US Navy Aircraft, 1921-1941* by William Larkins (1961), and several *Wings* television programs. Since many of these sources contained similar information, discrepancies were easily identified.

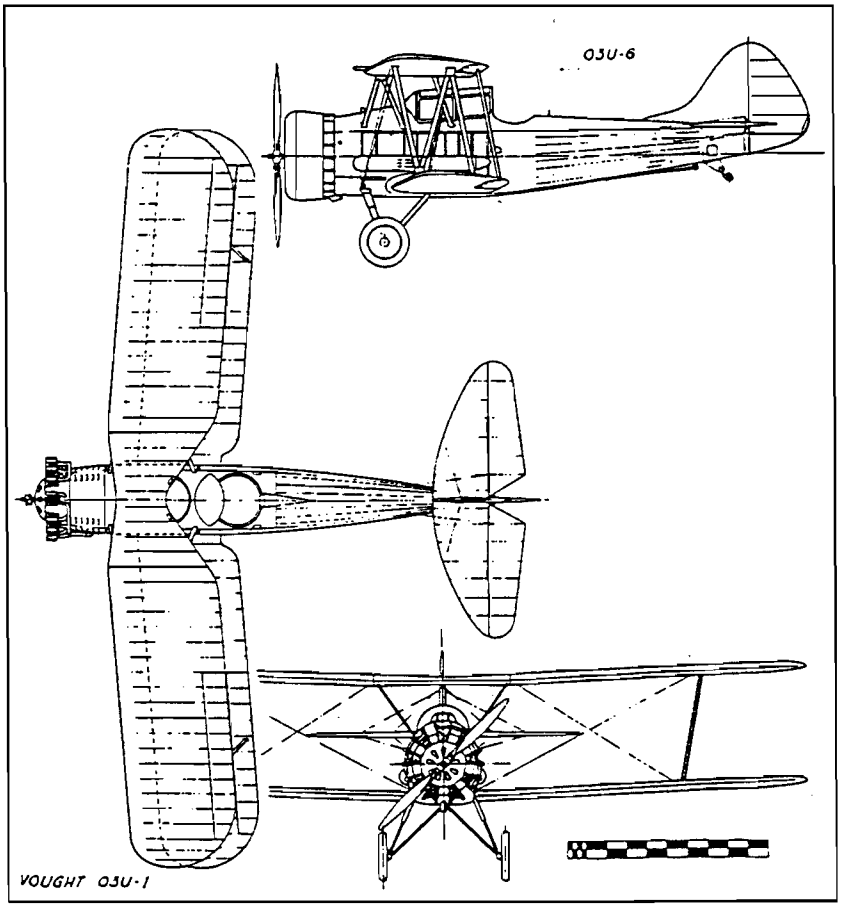
The Aircraft Accident Summary Reports include information about the date, time, and place of accident as well as aircrew involved, unit, hours experience, aircraft type, and bureau number. These cards include trouble analysis summaries of each incident. These summaries are presented exactly as shown on the cards because they often contain nuances of language, Navy terms and abbreviations that, in some instances, will allow the reader to arrive at their own interpretation of vague statements. They also contain information pertinent to the expected condition of submerged aircraft, associated human remains, whether or not recovery was initiated, and/or the probability of unused fuel and ordnance still on board the aircraft.

SINGLE ENGINE AIRCRAFT LOST IN WASHINGTON PRIOR TO WORLD WAR II

VOUGHT O3U-3 CORSAIR[6]

The Vought O3U-3 Corsair developed out of the O2U Corsair. The O2U was the first aircraft purchased by the US Navy from the Vought company, who would later design the famous F4U Corsair, and the first to be powered by what was to become a famous engine, the Pratt & Whitney Wasp (Angelucci 1981:157). These biplanes had fabric-covered wings, fuselage, and tail surfaces on a metal frame. Aluminum cladding in front of the pilot's cockpit protected the fuselage aft of the radial engine. Little changed from the last models of

[6] All aircraft line drawings to follow are adapted with permission from Swanborough and Bowers 1990 *United States Navy Aircraft Since 1911*.



O2Us, the O3U-1 could be fitted with the new Grumman amphibious float which equipped the O3U-3 lost in Washington. The O3U-2 model was powered by the Pratt & Whitney R-1690 Hornet engine and was redesignated SU-1 for a scouting role by the Navy. The O3U-3 Corsair reverted back to the use of the Wasp engine and sported a new, rounded rudder which added 20 inches to the plane's length. A short engine cowling was also standard equipment on the O3U-3. Beginning to be delivered in June, 1933, by 1935 74 O3U-3s found service on carriers, shore stations, and cruisers and battleships as catapult-launched aircraft.

Corsair (O3U-3)

Manufacturer: Chance Vought Corporation, East Hartford, Connecticut.
Type: Observation biplane.
Accommodation: Pilot and observer.
Power plant: One (1) 550 horsepower Pratt & Whitney R-1340-12.

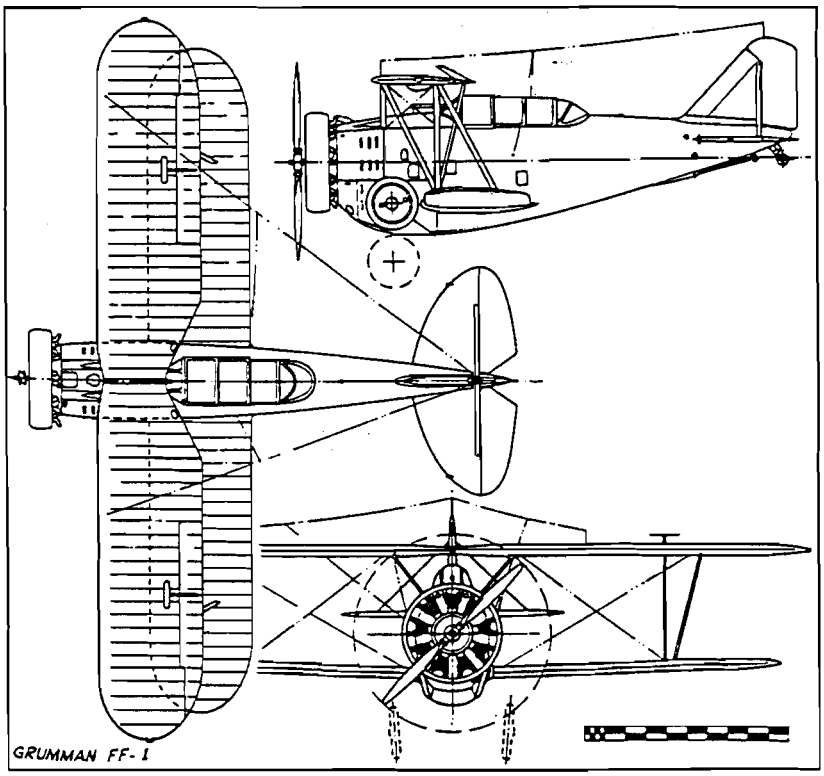
Dimensions: Span, 36 feet; length, 27 feet 3 inches; height, 11 feet 6 inches; wing area, 337 square feet.
Weights: Empty, 2,938 pounds; gross, 4,451 pounds.
Performance: Maximum speed, 164 miles per hour at sea level; climb, 4.2 minutes to 5,000 feet; service ceiling, 18,000 feet; range, 650 statute miles.
Armament: One (1) fixed forward-firing .30 caliber machine gun; two flexible .30 caliber machine guns in rear cockpit.

1. One example of this aircraft lies in Washington State waters. The O3U-3 Corsair BuNo 9293 was attached to the USS *Nevada*'s VO Squadron 1 when the mishap occurred. On August 23, 1937, Aviation Cadet Victor E. Schatz, and his passenger, Aviation Machinist's Mate 2nd Class William Hectis, were taking part in towed-target individual battle practice (IBP) between Smith Island and Dungeness Spit. The following description comes from the Aircraft Accident Summary Report:

> *Summarized account of accident: Pilot was making approach for IBP (Free Machine Guns) described in OGE, Phase B, Run 2 for VO-VS seaplanes. Towing plane was proceeding on straight course in level flight, speed 90 K, altitude 3000 feet. Firing plane was maneuvering at 70 knots to cause target sleeve to pass underneath firing plane from port quarter to starboard bow. Apparently the firing plane was too low and settling as it passed over tow-line because it appears as a plausible explanation that the propeller cut the tow line about the instant the sleeve came out from under the left lower wing. This apparent release of the tow sleeve directly in front of the left wing coupled with the settling action of the plane allowed the left wing to run into the sleeve in such manner as to cause sleeve to become fouled on or inboard of left wing interplane struts. The result of this increased drag was an immediate very steep left spiral which the pilot was unable to overcome with the use of ailerons, rudder, or engine, etc., and which rapidly developed into a vicious vertical inside spin. The pilot did not recover from the spin and the plane struck the water without change of attitude although the pilot jumped successfully at 1000 feet altitude. For reasons undetermined, the gunner did not jump although he was told to do so by the pilot twice, once when the plane was in the steep spiral and again very shortly afterwards at the time the plane commenced the spin. The pilot was rescued by the tow plane while the other firing plane landed alongside the crashed plane. The latter was sticking tail up out of water but sank within four minutes of the crash. The gunner was seen floating clear of the plane but immersed about two feet under the water. The gunner of the second firing plane dived into the water in a vain attempt to recover the crash victim who sank from sight before the swimmer reached him.*
> *Damage: Plane a total loss - sank in 70 fathoms of water.*
> *Injury to Personnel: Pilot - Shock and back injury*
> *Gunner - Killed*

The casualty report for this incident states that the accident occurred in "San Juan de Fuca Strait, 5 mi. N.E. of Point Dungeness, Wn (US Navy Casualty Branch 1962)." This report also confirms that neither the airplane nor Hectis' body were recovered, although a search was conducted by the Coast Guard.

GRUMMAN SF-1



The early 1930s witnessed the first association between the US Navy and Grumman Aircraft Engineering Corporation. The Grumman name would become synonymous with carrier-borne aircraft, but the company's first effort involved the development of a float for landplane/seaplane conversions (see above). On April 2, 1931, Grumman signed a contract to produce a prototype two-seat fighter for the US Navy. The all-metal, pot-bellied XFF-1 biplane was notable for its landing gear design. The wheels were retracted almost vertically into recesses in the fuselage just forward of the lower wing. This same design survived in the F3F single-seat fighter and in the famous F4F Wildcat of World War II fame. The XFF-1 was the first Navy fighter to have retractable landing gear and an extended canopy which enclosed both the pilot and gunner. A second prototype, the XSF-1, was reconfigured for use as a two-seat scout. Twenty seven FF-1 ("Fifi") fighters and 33 SF-1 scouts were produced for the Navy. With the advent of improved aircraft for fleet service, both models were assigned to naval reserve units (NRUs) in 1936.

Grumman SF-1

Manufacturer: Grumman Aircraft Engineering Corporation, Bethpage, Long Island, NY.

Type: Carrier-based scout.
Accommodation: Pilot and observer/gunner.
Power plant: One (1) 700 horsepower Wright R-1820-84.
Dimensions: Span, 36 feet 6 inches; length, 24 feet 6 inches; height, 11 feet 1 inch; wing area, 310 square feet.
Weights: Empty, 3,250 pounds; gross, 4,828 pounds.
Performance: Maximum speed, 207 miles per hour at 4,000 feet; initial climb, 2.9 minutes to 5,000 feet; service ceiling, 21,000 feet; range, 921 statute miles.
Armament: One (1) fixed forward-firing .30 caliber machine gun; two flexible .30 caliber machine guns in rear cockpit.

1. It was during use by a naval reserve unit that a Grumman SF-1, BuNo 9471, and its gunner, Technical Sergeant John F. Bilsborrow USMCR, came to grief over Washington. The pilot, Captain Joseph P. Adams USMCR, and Bilsborrow were flying from Naval Reserve Air Base, Seattle on September 12, 1937, when the incident occurred:

> *Summarized account of accident: About forty minutes after taking off, the pilot noticed flames breaking forth from the engine section, sweeping back outside of fuselage to the vicinity of the after cockpit. He immediately instructed the mechanic in the rear cockpit to jump. He then felt a jar on the plane, looked back and observed that the mechanic was out and the parachute opened. The fire subsided, evidently due to the action of the fire extinguisher. The pilot started a spiral with the reported intention of landing alongside of the mechanic. At an altitude of about 1,000 feet, fire again broke out and the pilot jumped. His parachute opened and about twenty minutes later he was rescued from the water by a civilian tug summoned to the spot by accompanying aircraft.*
>
> *It is believed that the jar on the plane felt by the pilot, was undoubtedly the impact of the mechanic against the tail surfaces of the plane. The opinion is supported by the statement of the pilot of the accompanying aircraft, who observed the mechanic rise in his seat immediately after the outbreak of the fire, his parachute streaming from the cockpit and passing beneath the tail surfaces of the airplane. It is believed that the action of the parachute dragged the mechanic from his cockpit and threw him against some part of the tail surface. The plane, after having been abandoned by the pilot, dove into the water at a point about two miles from Port Townsend Light.*
>
> *Damage: Plane, Crashed in deep water and sank. Unrecovered.*
> *Injury to Personnel: Pilot; None.*
> *Passenger; Death due to impact with plane and immersion.*

Because both the pilot and gunner were Marines, the Navy aviation casualty lists do not include the incident. It seems likely that the open parachute would have facilitated the recovery of Bilsborrow's body, whether on land or water, but this is not certain. The records referenced by IARII do not mention whether his body was recovered.

For the 20 year period before World War II, these aircraft were the only two encountered during examination of the archival record which were not recovered from Washington waters. As noted previously, several aircraft sank during this period but were all

recovered. Of these aircraft, several were sufficiently damaged to be broken up for salvageable parts. Several other Navy aircraft from this time period crashed in extremely shallow water or on land. The majority of these were also salvaged as most involved low impact speeds. Three aircraft, a N2C-1, a OJ-2, and a PM-1, were demolished after diving into the ground. These crashes were all at airfields so it is probable that the crash locations were cleared. Another Navy aircraft, a PM-1, crashed three miles north of Goose Island, British Columbia near Tuft Rock. The Navy casualty reports list the death of Leland Pinkham, Fireman 1st Class, US Naval Reserve, who piloted a plane which crashed near Aberdeen, Washington, on June 14, 1936 (US Navy Casualty Branch 1962). There were no records of this incident in the Aircraft Accident Summary Reports so it is likely the man was piloting a civilian aircraft. Finally, the Aircraft Accident Summary Reports account for operationally lost aircraft but do not cover aircraft or aircraft parts which may have been intentionally dumped into the water. Accounting for aircraft or parts discarded in this manner would involve a search of daily logs from shore stations, aircraft carriers, and heavy cruisers and battleships equipped with catapult-launch seaplanes which operated in Washington waters for a 20 year period, with no guarantee of results.

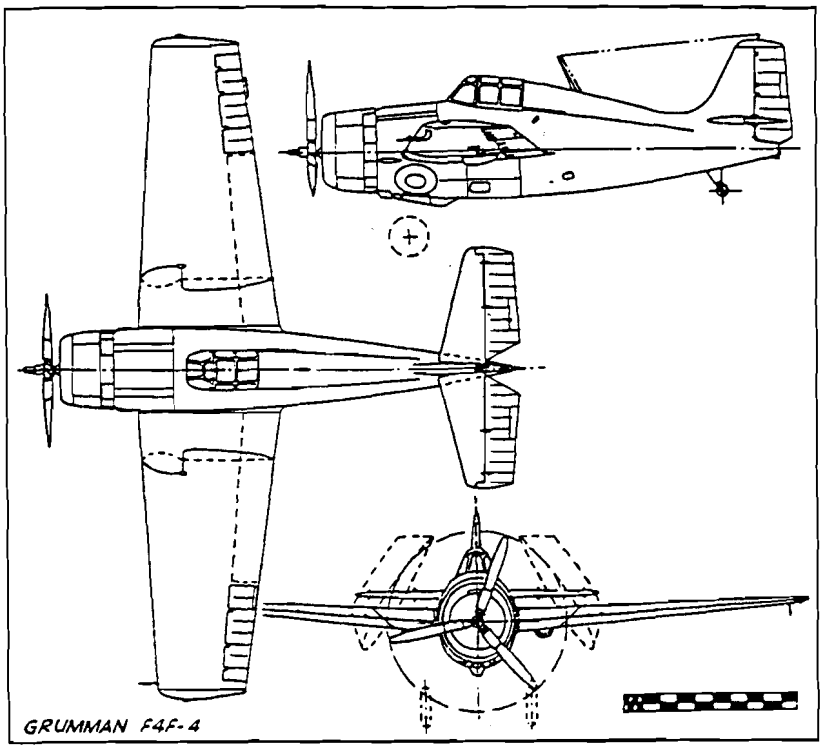
LOSSES IN WASHINGTON STATE WATERS DURING WORLD WAR II

SINGLE ENGINE AIRCRAFT

The beginning of World War II brought a predictable boom in aviation of all types around the Pacific Northwest. Existing Army and Navy air fields were upgraded and numerous auxiliary fields sprang up across the area. The numbers of aircraft taking to the air increased dramatically from the very beginning of the war as fear of a Japanese attack brought an immediate increase in coastal patrols. Flight training of all sorts brought many inexperienced pilots into the air as did gunnery, bombing, and torpedo practice. Administration and ferrying flights increased tenfold between all of the new military stations and new products from companies such as Boeing needed to be flight tested. As the sheer volume of flights increased, so to did the numbers of flights over water, especially for Navy aircraft. The advent of larger, heavier, faster and more powerful Navy aircraft, and a relative decrease in the number of floatplanes in use, insured that many water-related incidents resulted in sinkings.

GRUMMAN F4F-4 WILDCAT, GENERAL MOTORS FM-1 and FM-2 WILDCAT

The Grumman Wildcat was the only Navy fighter to see first-line service throughout the entire duration of World War II. Inferior in flight characteristics to its principle nemesis. the Mitsubishi A6M Zero, the superior armament, rugged construction, and teamwork enjoyed by Wildcat pilots lessened the disparity. Although the kills were largely bombers and transports, the chubby Wildcat shot down nearly seven enemy aircraft for every loss of



its own. For the first half of the war in the Pacific, the Wildcat was the US Navy's primary carrier-based fighter. The design's simplicity and strength made it ideal for carrier operations and, after it had been largely succeeded by its larger brother, the F6F Hellcat, the Wildcat's small size guaranteed its continued employment on small escort carriers.

The F4F design began as a biplane. In 1935, the Navy decided to make the switch from biplane to monoplane fighters and ordered such a design from the Brewster Aeronautical Corporation. Not entirely convinced of the monoplane concept, the Navy asked Grumman to draw up a successor to its F3F biplane fighter just coming into service with the fleet. Initial development of the XF4F-1 showed that it could not equal the performance of the Brewster monoplane and was barely better than the late-model F3Fs. The Grumman engineers split the difference between the two wings of the biplane design and produced the XF4F-2 monoplane fighter. The design continued to utilize the same fuselage-mounted landing gear as had been perfected on the FF/SF-1s (see above) and F3Fs. Although the XF4F-2 was slightly faster in its competition with the Brewster XF2A-1, engine problems led the Navy to select the Brewster. However, the Grumman design showed promise and the Navy contracted for the XF4F-2 to be rebuilt, after a crash, as the XF4F-3. With increased wing span, redesigned tail surfaces, and most importantly, a 1,200 horsepower, supercharged Pratt & Whitney Twin Wasp engine, the design was finally superior to the Brewster and the Navy ordered 54 of the newly-named Wildcats in August 1939. The US Navy was not the first to receive the new plane, however, as the British Navy began flying the plane in the

summer of 1940, named the Martlet I, as part of an order placed by France before the beginning of the war. A total of 380 F4F-3s and F4F-3As was produced by Grumman.

The production numbers of the F4F-3s were vastly outpaced by the 1,168 examples of the F4F-4. Early operations illustrated the need for increased numbers of aircraft on the carriers. Experiments with wings tips that folded straight up to decrease the amount of deck space needed by an aircraft had already been tried. With an ingenious single-pin hinge design, which he perfected with a rubber eraser and a straightened paper clip, Leroy Grumman designed a wing for the Wildcat which would tuck up against the side of the fuselage like a bird's wing. The folding wing, incorporated into the F4F-4, meant that nearly twice as many Wildcats could be carried in the same amount of deck space.

With the Japanese attack on Pearl Harbor, designs were rushed from the drawing boards to production. One of these was Grumman's new fighter, the F6F Hellcat. With Hellcat design and production already underway early in 1942, Grumman needed room. Accordingly, manufacture of the Wildcat was transferred to Eastern Aircraft Division, a group of five factories previously producing civilian cars for General Motors Corporation. Just one month before, this company had been tasked with building the new Grumman Avenger torpedo-bomber. With many parts supplied by Grumman, Eastern Aircraft received a contract for 1,800 Wildcats, of which 1,060 were built. Though identical to the F4F-4, the Eastern Aircraft product was designated the FM-1, F being the Navy's designation for Grumman and M for General Motors. The final variant of the Wildcat, the General Motors FM-2, became standard equipment on allied escort carriers with its improved take-off performance. Between all three models, nearly 8,000 Wildcats were produced.

Wildcat (Grumman F4F-4, General Motors FM-1)

Manufacturer: Grumman Aircraft Engineering Corporation, Bethpage, LI, NY. General Motors Corporation, Eastern Aircraft Division, Trenton, Bloomfield, and Linden, NJ.
Type: Carrier-based fighter.
Accommodation: Pilot.
Power plant: One (1) 1,200 horsepower Pratt & Whitney R-1830-86.
Dimensions: Span, 36 feet; length, 28 feet 9 inches; height, 11 feet 10 inch; wing area, 260 square feet.
Weights: Empty, 5,785 pounds; gross, 7,952 pounds.
Performance: Maximum speed, 318 miles per hour at 19,400 feet; cruising speed, 155 miles per hour; initial climb, 1,950 feet per minute; service ceiling, 34,900 feet; range, 770 statute miles.
Armament: Six (6) fixed forward-firing .50 caliber machine guns in Grumman F4F-4, four (4) fixed forward-firing .50 caliber machine guns in General Motors FM-1.

Wildcat (FM-2)

Manufacturer: General Motors Corporation, Eastern Aircraft Division, Trenton, Bloomfield, and Linden, NJ.
Type: Carrier-based fighter.
Accommodation: Pilot.
Power plant: One (1) 1,350 horsepower Wright R-1820-56.
Dimensions: Span, 36 feet; length, 28 feet 11 inches; height, 11 feet 5 inches; wing area, 260 square feet.
Weights: Empty, 5,448 pounds; gross, 8,271 pounds.
Performance: Maximum speed, 332 miles per hour at 28,800 feet; cruising speed, 164 miles per hour; initial climb, 3,650 feet per minute; service ceiling, 34,700 feet; range, 900 statute miles.
Armament: Four (4) fixed forward-firing .50 caliber machine guns. Two 250 pound bombs or six (6) five-inch rockets.

Six Wildcats were lost in water in Washington State during World War II. Three of these were the result of mid-air collisions and all six were involved in incidents which resulted in fatalities. All six are presented below in chronological order of incident.

1. On August 17, 1942, Ensign James Kinsella, piloting F4F-4 Wildcat BuNo 4097, collided with Grumman TBF-1 Avenger BuNo 00539 over Lake Washington.

> *Analysis: Four torpedo planes were making a simulated group torpedo run at 200 knots. Three fighters were attempting to oppose this run. They made an attack from ahead at about 300 knots. Pilot of F4F-4 #4097 held his attack too long to effect a safe recovery and collided with TBF-1 #00539. Fighter pilot zoomed about 700 feet and bailed out. Torpedo pilot made a crash landing in water and he and the turret gunner managed to get out before the plane sank.*
> *Purpose of flight: Tactics - K*

This unfortunate accident resulted in the death of the Avenger's ventral gunner, Bernard J. Viscovich, Aviation Machinist's Mate 3rd Class (AMM3c), who was not recovered from the aircraft before it sank. The Wildcat involved in this incident sank and is presently on the bottom of Lake Washington. A Grumman F4F-4 Wildcat is also the center of a current custody battle in the Ninth District Federal Court between the US Navy and Robert Mester of Historic Aircraft Preservation, Inc.[7] According to a newspaper story from the summer of 1995 about the legal case, the Wildcat (not identified by Bureau Number in the article) is "largely intact and is restorable to flying condition (General Aviation News & Flyer, June 23, 1995)." The article states that the Wildcat crashed into the lake after a mid-air collision in 1942. The pilot bailed out and was rescued while the other plane "landed safely." The depth of the aircraft is given in the article as 180 feet deep but no other locational information was

[7] On October 4, 1996, the Honorable Thomas S. Zilly ruled against the plaintiff, Historic Aircraft Preservation, Inc., and established that the United States owns the Wildcat at the bottom of Lake Washington.

given. In light of the article, it seems likely this suit relates to F4F-F Wildcat (BuNo 4097). However, if the aircraft wreck is as intact as one is led to believe in the article, it may have resulted from the following incident.

2. Another Wildcat, BuNo 15056, was lost over Lake Washington one year later. Ensign Arthur Furfey experienced engine trouble on September 19, 1943, and crashed three miles south of Juanita Beach.

> *Analysis: Engine failure, cause undetermined*
> *Plane was first observed at about 1500 feet, with engine cutting out, headed south. Plane crashed about three miles away, engine still cutting out and emitting black smoke. Accident was caused by internal failure of engine reduction gearing believed to have been caused by too close fitting between reduction gear pinion and shaft.*

It is not entirely clear from the crash report whether this aircraft crashed into the lake or on shore. Three miles south of Juanita Beach is one of the widest spots in Lake Washington, north of the present Evergreen Point Floating Bridge, but the aircraft may have impacted on the east shore. The cause of the accident was determined to be power plant failure, a fact which may have been determined from eyewitness accounts, but specific causes for the failure presented in the summary point to a possible recovery and examination of the aircraft and engine. An examination of the Trouble Analysis Board Report, from which the Aircraft Accident Summary Reports are derived, may clarify this question. The Navy aviation Medical Officer Reports (MORs) from this date may also show whether the pilot and/or plane were recovered, and if indeed they did go down in the lake. The largest civilian newspaper, *The Seattle Times*, did not run a story on this crash at the time. Such reports may clarify the ultimate disposition of this aircraft. According to Robert Mester, this Wildcat, BuNo 15056, was recovered after the incident (Robert Mester, pers. comm.). Another Wildcat, BuNo 3527, which crashed on February 9, 1943, was recovered shortly after it crashed in Lake Washington only to crash again on land at a later date.

On September 20, 1991, Robert Mester registered a Grumman F4F-4 Wildcat in Lake Washington with OAHP. The Submerged Historic Archaeological Resource Registration Form, on file at OAHP, Olympia, as Submerged Resource File #10/45KI427, gives the aircraft's location as Latitude 47° 36' 8.1"N, Longitude 122° 15' 2.7"W at a depth of 172 feet west of Medina. According to Robert Mester, the aircraft was in poor condition. The port wing was missing and it was possible the entire engine and mounts were missing. Also, the fuselage was twisted 60° from normal aft of the cockpit. On the basis of this description, OAHP determined that the aircraft did not have sufficient integrity to be eligible for listing in the National Register of Historic Places. The reported location for this aircraft, five statute miles south of Juanita Beach, may be consistent with the eyewitness reports of the crash of BuNo 15056, however, it is also consistent with the reported crash location of BuNo 4097 (Matt McCauley 1996, pers. comm.). Although this aircraft may be BuNo 4097, its reported condition is not consistent with that given in the newspaper article for the aircraft which is the subject of the lawsuit and the article in General Aviation News & Flyer. However, an aircraft which had been in a mid-air collision and impacted with the lake after

its pilot had bailed out (BuNo 4097) would have seemingly received more damage than an aircraft (BuNo 15056) with the pilot still aboard trying to fly it, and possibly ditch it, with a malfunctioning engine. Again, IARII has not yet confirmed if BuNo 15056 crashed in the lake or on shore, nor if the pilot's body was recovered from the site.

The Pearson Air Park Museum in Vancouver, Washington, has on display three items recovered from a Wildcat in Lake Washington. One of these is the empennage or aft fuselage of a Wildcat. The vertical stabilizer, which would display the Bureau Number, and horizontal stabilizers were not present. The tail cone was also missing. The fuselage section was missing a considerable portion of the port side which would have been just aft of the port wing. Two smaller items include a radio and oxygen cylinder. These items may have come from the crash site of BuNo 4097, BuNo 15056, if it is in the lake, another Wildcat crash yet unidentified by IARII, or, in the case of the empennage, from an unrecorded Wildcat intentionally dumped in the lake. These items are on temporary loan to the Museum from Robert Mester.

Robert Mester stated that the empennage in Pearson Air Park did not come from the site, 45KI427, he registered with OAHP, and that the piece exhibited evidence of burning (Robert Mester 1996, pers. comm.). This indicated to him that the piece had been used for fire fighting practice at NAS Seattle and then intentionally dumped into the lake by the Navy. The hulks of two Wildcats and three Helldivers were recovered from the lake in the 1980s by Jeffrey Hummel and Matt McCauley. One of the Helldivers had been the center of a custody battle in the Ninth District Federal Court between the US Navy and Hummel and McCauley. In early 1984, these two young divers located several aircraft hulks in 150-foot-deep water off Juanita Beach, northeast of Sand Point. These hulks had apparently been stripped of their engines, avionics, wings, tail surfaces, and other salvageable gear, burned repeatedly in fire-fighting drills, and then dumped into the lake off a barge. When Hummel and McCauley removed a SB2C-1A Helldiver hulk, BuNo 75552, from the lake early in 1984, they were taken to court by the Justice Department on behalf of the US Navy. In 1985, the federal judge presiding over the case, Hon. John Coughenauer, ruled that the Navy's treatment of the particular Helldiver constituted intentional abandonment of the aircraft. This allowed Hummel and McCauley to bring up four more hulks in 1987 and sell the parts to private parties. The judge did make clear to Hummel and McCauley, however, that operationally lost aircraft, or parts from operationally lost aircraft, were still the property of the US Navy and could only be salvaged if such an operation were approved by the US Navy. They promised the judge that they would not remove any operationally lost aircraft from the lake and have not done so (Matt McCauley 1995, pers. comm.).

3. Water definitely claimed the next Wildcat. On April 22, 1944, Ensign Robert McGowan, flying FM-1 Wildcat BuNo 15495, crashed into the Pacific Ocean off of Quillayute and sank in 16 fathoms.

Analysis: Crashed at sea. Probable cause drowned when failed to extricate self from sinking plane after apparently successful forced landing in water.
Pilot while on a fixed gunnery flight had complete engine failure at 5000' while flying with other aircraft of the firing group. Good radio contact with the flight leader was established and the pilot was verbally given suggestions for revival of the engine, but to no avail. The pilot made a good water landing into the wind. The aircraft was reported to have stayed afloat for about 7 seconds. The pilot did not get out of cockpit. No abnormal behavior of the engine was noted by other pilots of the same plane during the past two days. The aircraft had been properly serviced prior to the gunnery flight. Witnessing pilot said he [McGowan] hit swell head-on. - was a power-on landing.
Aircraft sunk in 16 fathoms. Not recovered.

4. & 5. The next two Wildcats, both FM-2s, collided and were lost at Latitude 47° 38'N, Longitude 124° 28'W, approximately three miles south of Destruction Island off the coast of Washington. The date was October 19, 1944. Ensign Dwight Cochenour, flying FM-2 BuNo 16590, collided with Ensign Grover Consford, flying FM-2 BuNo 16521 resulting in the death of Consford.

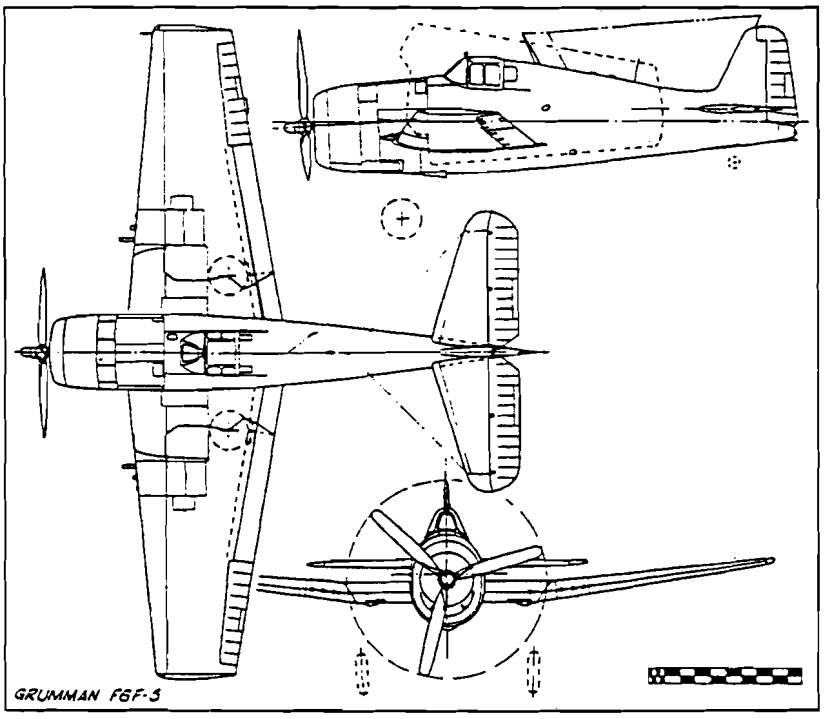
Analysis: 1) Collision during joinup
2) #4 man lost sight of no. 3 and joined up in #3 position. No. 4 wedged in from below and collided in turn.
Eight FM-a's on a routine camera gunnery flight, were flying parallel to the coast line between LaPush, Wash., and Destruction Island. The flight was approximately two miles from the shore line. One plane was acting as the target and the other seven planes were split-up into a four plane division and a three plane division. The target plane was about 8,000 feet and being bracketed by the two division's planes who were at about 9,500 feet. Both divisions had completed one run when the flight leader notified the flight to reverse course. While reversing course, the two planes in the second section of the first division collided in mid-air. None of the six witnesses actually saw the planes collide, but did see the planes falling toward the water. Both pilots bailed out and landed within about 100 yards of each other. COCHENOUR rec'd minor head injuries. CONSFORD is still missing.
ADM. Report:
that during a course of rendezvous with his division after a camera gunnery run. Ens. Consford's airplane collided with that of his wingman; that Ens. Consford bailed out of his airplane and lost consciousness for reasons unknown a few seconds after his parachute opened; that he remained unconscious until he hit the water, that he sank immediately.
ComFair, Seattle:
Ens. Cochenour displayed poor judgment in failing to keep his leader in sight in a gunnery run and for joining up in tight formation on leading division. Apparently Ens. Consford came up from below and behind and attempted to force himself into the #3 position. Ens. Cochenour should have left a space between himself and the #2 man for his leader.

The crash card for Ensign Consford simply reads "Mid-air collision with COCHENOUR." Each pilot was assigned equal blame for the accident.

6. The last water-related incident involving a Wildcat was equally unfortunate. Ensign Lamar Fitzpatrick and his FM-2 BuNo 55493 were missing off the coast of Quillayute on July 25, 1945, a month before the end of the war.

> *FITZPATRICK took off at 1415 in a flight of 11 FM-2's and 8 TBM's for a tactics flight. Gunnery runs were simulated on TBM's in an area west of NAAS, Quillayute, Washington. At 1510 FITZPATRICK was last observed when he joined up in formation on Robison. Between the time of 1510 to 1530, we presume that FITZPATRICK crashed at sea. No observations were made which would in any way aid in determining the cause or nature of the accident.*
> *RECOMMENDATIONS:*
> *Aircraft missing, presumably down at sea, recommend strike after 90 days.*

GRUMMAN HELLCAT (F6F-3, F6F-5)



Air supremacy over the Pacific was finally achieved in 1943 when the two best carrier-based fighters of the war, the Vought F4U Corsair and the Grumman F6F Hellcat, appeared in numbers. Unlike the Corsair, which was a pre-war design which saw extended use after the conflict ended, production of the Hellcat, though extensive, was limited to the war years. Carrier-based Hellcats shot down nearly 4,947 enemy aircraft in a three year period, and scores by land-based Navy and Marine units pushed this number over 5,000, representing nearly three-quarters of all Navy fighter kills.

The Hellcat came as a natural progression from the Wildcat. By the middle of 1941, pilot experience with the early Navy monoplane fighters, the Wildcat and Brewster Buffalo, and feedback from the war in Europe, gave Grumman designers the information they needed to design an outstanding carrier-based fighter. The Navy contracted for three prototypes, the first of which, the XF6F-1, flew on June 26, 1942. The XF6F-3, with a larger engine, flew a few weeks later. The new aircraft was larger and more powerful than the Wildcat, but still incorporated the same simple, rugged construction and space-saving folding wings which had marked the success of its predecessor. Full production began of the F6F-3 Hellcat in the summer and fall of 1942 with deliveries to the front beginning early the next year. The Hellcat saw its first action with the USS *Yorktown* during an attack on Marcus Island on August 31, 1943. Deliveries of a new model, the F6F-5, began the next year. This differed from the F6F-3 by having a redesigned engine cowling, improved windshield, new ailerons, stronger tail surfaces, thicker armor for the pilot, and a new gloss paint. Over 12,000 Hellcats were produced during the second half of World War II. Many of the later models saw use in the post-war years with Navy, Marine, and Reserve units. During the Korean War, numerous Hellcats were used as target drones and several were filled with explosives and directed against North Korean targets via remote control.

Hellcat (Grumman F6F-5)

Manufacturer: Grumman Aircraft Engineering Corporation, Bethpage, LI, NY.
Type: Carrier-based fighter.
Accommodation: Pilot.
Power plant: One (1) 2,000 horsepower Pratt & Whitney R-2800-10W.
Dimensions: Span, 42 feet 10 inches; length, 33 feet 7 inches; height, 13 feet 1 inch; wing area, 334 square feet.
Weights: Empty, 9,238 pounds; gross, 15,413 pounds.
Performance: Maximum speed, 380 miles per hour at 23,400 feet; cruising speed, 168 miles per hour; initial climb, 2,980 feet per minute; service ceiling, 37,300 feet; range, 945 statute miles.
Armament: Six (6) fixed forward-firing .50 caliber machine guns or two (2) 20 millimeter cannon and four (4) .50 caliber machine guns.

With well over 12,000 of these planes produced, it is not surprising that more Hellcats were lost in Washington state waters during the war than any other type. Five Hellcats were lost in the Strait of Juan de Fuca and northern Puget Sound, one was lost 30 miles due west of Cape Flattery, and one sank in the Columbia River opposite Alderdale. Another Hellcat sank in Canadian waters off William Head on the southern tip of Vancouver Island.

1. The first Hellcat lost in Washington was the result of a mid-air collision five miles northwest of Smith Island. Lieutenant, junior grade (jg) Paul Donhowe was piloting F6F-3 Hellcat BuNo 40177 when he collided with a Canadian fighter on November 5, 1943.

Analysis: Midair collision F6F-3 with plane believed to be RCAF Warhawk. Pilot was division leader at the time of accident and engaged in division tactics. Several Canadian fighters, made runs on the division using an altitude advantage of three or four thousand feet. While the F6F was in a steep, climbing turn, one of the attacking fighters collided with him, the port wing striking just aft of the cockpit. The Canadian fighter did not lose his wing but did spin in after the pilot bailed out. The tail of the F6F slowly twisted off, the pilot bailed out and then plane crashed into water.
[Note:] Could not find the pilot. Wasn't wearing new type chute with life boat attached. He did have on a life jacket, however.

Blame for this accident was assigned to the RCAF pilot. Neither aircraft was recovered.

2. Three months later another Hellcat pilot lost his life in the same vicinity. Although the crash card simply gives the loss location as "at sea", Colt Denfeld found that the operational history for NAS Whidbey Island noted that this aircraft was lost 12 miles west of Smith Island. On February 1, 1944, Ensign Vernon Spalding, flying F6F-3 BuNo 09026, was pulled to his death after attempting to land on the carrier USS *Casablanca*.

Analysis: Crashed while attempting to land aboard USS CASABLANCA. Arresting wire carried away causing plane to veer to left and go overboard just aft of barrier.
[Note:] Carrier qualification flight. Normal landing, but #5 pendant pulled loose causing plane to go over side. Pilot left cockpit but seemed to be fouled in his life raft lanyard.

3. The waters near Smith Island claimed another pilot and Hellcat on October 11, 1944. Ensign James Seery, flying from NAAS Arlington, crashed F6F-3 BuNo 42703 two miles southeast of the island.

Analysis: Flew into water from steep diving turn after tail chasing.
Aircraft was flying #2 position in tail chase following the leader. Pilot executed a right aileron roll at an altitude of approx. 7,000 ft. On completion of the roll the plane was seen to leave the rest of the formation and enter a steep diving turn to the left. It crashed into the water in an almost vertical dive after having made one and one-half turns to the left. Crash boats recovered the oxygen bottle and small pieces of aircraft. Pilot's body was not recovered.
adm report opinion: during tail chase, pilot put plane into a steep diving spiral at 7,000 ft & failed to recover. Failure to jump was probably due to continued effort to regain control. RH

4. The following F6F-3 Hellcat, BuNo 41892, sank 30 miles west of Cape Flattery but did not take its pilot with it. This aircraft sank on May 20, 1945, at Latitude 48° 20'N, Longitude 125° 20'W.

The pilot [Ensign Kenneth Warren] was flying a regularly scheduled navigation hop and had just changed course and given the lead to his wingman Ens. G.F. JOHNSTON when accident occurred. Ens. WARREN was flying on port beam of Johnston 400-500 distant. Pilot states he looked down at his radio receiver to tune

it and shortly afterwards heard a loud noise and felt the aircraft shudder. When he looked up, his windshield was covered with oil and propeller windmilling; he had lost all power. Pilot locked and tightened shoulder straps, opened hood, and made a full stall, flap and wheels up water landing. Section leader did not see Warren crash, but missed him shortly afterwards and reversed course in time to see tail of plane sink into the water. Ens. Johnston circled Warren and watched him climb into life raft. Johnston carried out correct air-sea rescue procedure and Warren was picked up by PBY-5A from NAAS Quillayute, Wash. after 55 minutes in the water. Prior to the time of the accident all engine instruments were indicating normal readings. Warren was flying 100 - 150 feet above the water at 150 knots indicated with 1700 RPM. There were no witnesses to the accident and in view of the fact that Warren had sufficient time to check shoulder straps, open canopy hood, and make a full stall landing, it is possible that serious engine failure might have occurred. However, the trouble board's opinion is that while pilot was looking down to adjust radio, he nosed down slightly causing his propeller to hit the water and unconsciously pulled back on stick gaining sufficient altitude to adjust shoulder straps and open hood. The ceiling in vicinity of the accident was 1500 feet and the pilots should not have been flying as low in that area as they were. The trouble board assigns 100% pilot error to this accident, deeming that the pilot hit the water while his head was in the cockpit.

RECOMMENDATIONS

Pilot again briefed on proper procedure for navigation hops.

CO

This pilot is extremely lucky to be alive. Although the old adage of playing with fire undoubtedly will prevent a re-occurrence with this particular pilot, firm disciplinary action has been taken. Incidentally, the surface of the ocean was almost calm. Where have we heard that before.

5. On June 24, 1945, Lieutenant (jg) Alfred Bell crashed F6F-5 BuNo 78750 into the Strait of Juan de Fuca.

BELL was making a glide bombing run on a towed spar. The water while not glassy was only slightly rippled by a wind of from four to five knots. He commenced his dive at from 9,000 to 10,000 feet and at approx. pull out altitude was seen to go into a violent roll. He made in the neighborhood of five turns before striking the water. The pilot ahead and the one following witnessed this phenomena [sic]. They state that the rotation could have been a violent spin but appeared to have been turning too fast and in a nose down attitude. If not a spin structural failure such as opening of gun covers or jettisoning of hood striking pilot could have produced the results described.

MATERIAL FACTORS:

F6F gun covers are prone to opening in air either because of poor work on part of ordnanceman in properly buttoning them down or because cover is old and in poor shape. At 300 knots this opening causes a terrific rolling moment to be put on the airplane. Another material defect could have been the hood breaking loose or one of the panels thereof striking the pilot rendering him unconscious.

RECOMMENDATIONS:

Pilots have been rebriefed on the dangers involved in low pull-outs especially over smooth water. They have also been warned of the danger involved when high speeds are reached with gun cover insecurely fastened.

Neither the plane nor pilot were recovered after this accident.

6. The following Hellcat may have technically crashed within Oregon, and may have in fact been recovered, but is included here because neither of these circumstances have been positively determined. Lieutenant (jg) Paul Lorah crashed F6F-3 BuNo 40711 into the Columbia River, opposite Alderdale, Washington, during gunnery practice on the Fourth of July, 1945.

> *Pilot was towing a banner 20 feet long and 3 feet wide with a 900 foot tow rope. At an altitude of 7,000 feet over the gunnery range the pilot experienced a sudden and violent vibration of the aircraft. The oil pressure had dropped to 50 lbs. per/inch. Within 30 seconds the engine started missing and 30 seconds later the engine froze completely. Pilot states the instruments all read normal. Cylinder head temperature was 200°, oil temperature was 90° and fuel pressure 17 lbs., but the oil pressure was only 50 lbs when checked last. Immediately the pilot jettisoned the tow and made a normal "wheels up" water landing in the Columbia River. The loss of the aircraft limits any investigation as to the cause of engine failure. White smoke was seen streaming from the engine which would indicate the lubrication system fouled in some way. The Board meeting rules this accident caused by complete engine failure due to a cause or causes unknown.*
> *MATERIAL FACTORS:*
> *Engine failure- Cause undetermined.*
> *RECOMMENDATIONS:*
> *Condition of aircraft prohibits investigation.*
> *Aircraft cannot be raised from river bed until Oct.*

The final line of this report would seem to indicate that this aircraft was recovered during low water in late summer and autumn of 1945. However, no further notes pertaining specifically to the power plant were later added to this card. This may mean the aircraft was not recovered and re-examined or that the card was simply not updated. The end of the war was fast approaching during this crash and the problems of demobilization and surplus equipment may have precluded any attempt at salvage in the fall of 1945. If this aircraft were not recovered it is very likely that the currents of the then free-flowing Columbia may have moved the Hellcat downstream. A large flood occurred just three years after this crash which may have moved the plane if it were not fixed to the bottom via siltation, snagging, or some other agent.

7. It is likely that this last Hellcat was never recovered. On July 24, 1945, Ensign Barber Wilhoit rode F6F-5 BuNo 79251 into a high-speed dive into the waters of Admiralty Inlet.

> *A division of three planes on an authorized tactics flight, of which Ens. Wilhoit was a member, had just completed a simulated strafing attack. During recovery from the attack, and while at an altitude of approximately 500 feet Ens. Wilhoit attempted to execute a slow roll. His airplane fell out of this maneuver and was observed to*

hit the water in a high speed dive. To date only pieces of wreckage of this aircraft have been recovered.

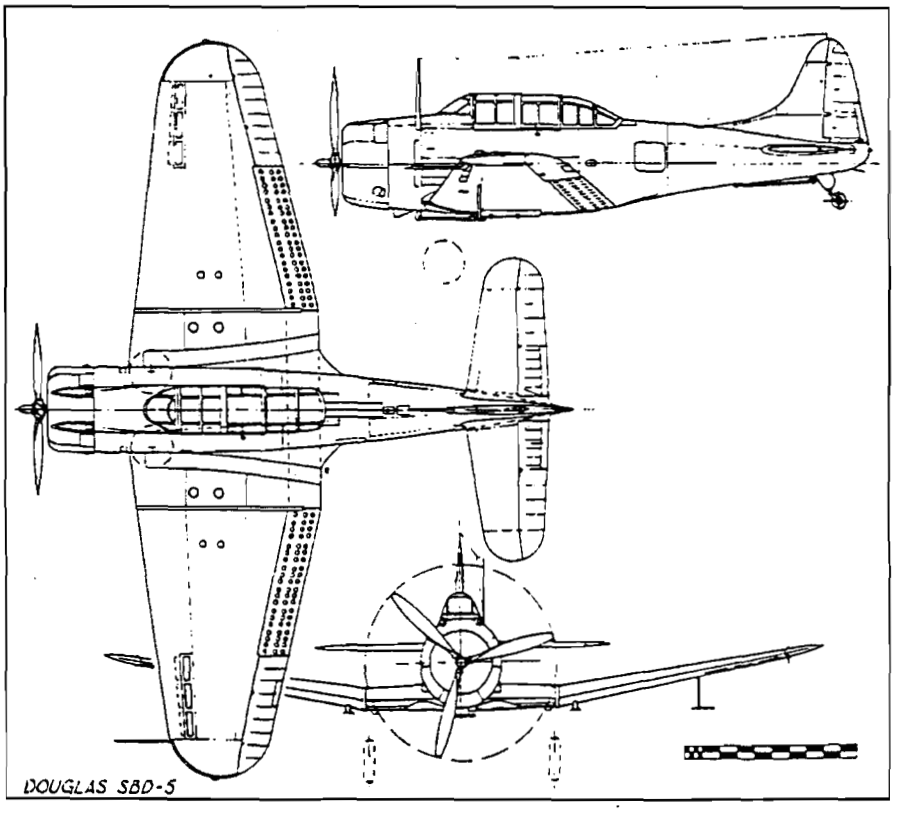
RECOMMENDATIONS:

The board recommends that the pilots be repeatedly warned of the dangers of stunting at low altitudes.

CO

This regrettable incident is an example of the dangers of flat hatting. The pilots error resulted in his death and the striking of the airplane. No disciplinary action can be too harsh in dealing with pilots guilty of dangerous flying at low altitudes.

DOUGLAS SBD-5 DAUNTLESS



The most famous Navy bomber of World War II was the SBD Dauntless. Although the "Slow But Deadly" Dauntless dive bomber was considered outdated even before the war began, this airplane sank more enemy ships than any other weapon in the US arsenal and helped win the most important naval battle of the Pacific by leaving four Japanese fleet carriers smashed and sinking at Midway. While supposedly more sophisticated dive-bombers were still in their growing pains, the Dauntless survived through many model variants and continued to give excellent service throughout the war. The Army even put the dive bomber to use on land as the A-24 Banshee.

Douglas inherited the early stages of the SBD from Northrop Corporation, which had been operating as a Douglas-backed but independent company since 1932. By the time Douglas took over Northrup in 1938, the marginally successful BT-1, notable for its perforated dive flap/dive brakes, had been redesigned twice over as the XBT-2. The latest XBT-2 was virtually a different airplane from the BT-1 and, coinciding with the change in management, it went into production as the SBD-1. The first orders for SBD-1s and SBD-2s were placed by the Marines and Navy. Many of these early SBDs were destroyed at Pearl Harbor. Three days after the attack, an SBD-2 from USS *Enterprise* sank the first Japanese surface vessel of the war. Not surprisingly, more Dauntlesses were rushed to service in the form of the SBD-3, which had a more powerful engine, protective armor, and self-sealing wing tanks. Reaching a production total of 2,409, the SBD-5, with 200 more horsepower than its predecessors, was the most common version of the Dauntless. When the last SBD-6s were produced in 1944, over 5,000 Dauntlesses had been built.

Dauntless (SBD-5)

Manufacturer: Douglas Aircraft Company, El Segundo, California, and Tulsa, Oklahoma.
Type: Carrier-based scout/dive bomber.
Accommodation: Pilot and observer/rear gunner.
Power plant: One (1) 1,200 horsepower Wright R-1820-60.
Dimensions: Span, 41 feet 6¼ inches; length, 33 feet; height, 12 feet 11 inches; wing area, 325 square feet.
Weights: Empty, 6,675 pounds; gross, 10,855 pounds.
Performance: Maximum speed, 245 miles per hour at 15,800 feet; cruising speed, 144 miles per hour; initial climb, 1,190 feet per minute; service ceiling, 24,300 feet; range, 1,100 statute miles.
Armament: Two fixed forward-firing .50 caliber machine guns; two flexible dorsal .30 caliber machine guns. Up to 1,600 pounds external bombs under fuselage and two 325 pound bombs under wings.

At least 10 Douglas Dauntlesses have crashed in Washington. Six of these crashes were in water, one in Lake Washington, and five around Whidbey Island. Although out of chronological sequence, we will present the Lake Washington crash first because it seems likely that this aircraft was recovered.

1. On the afternoon of August 2, 1944, Chief Aviation Pilot (CAP) Thomas Molloy crashed a Dauntless SBD-5, BuNo 36490, into Lake Washington after taking off from NAS Seattle at Sand Point.

Analysis
G-3 - Spun on takeoff climb.
P11 Eng. fail. Undetermined
R11 Seat gave way, pilot drowned. 1415

Pilot made a normal take-off after previous attempts; climbed to approximately 200' and started a turn to the left; then dropped off on the left wing and hit the water in a nose-down attitude. When recovered from lake, pilot was found strapped in the cockpit with safety belt and shoulder straps intact. The seat had given away to allow his head to hit forward part of cockpit.

The apparent recovery of this aircraft is in question. The subject of the sentence, "When recovered from lake, pilot was found strapped in cockpit...", is not clear. Was it the plane, with pilot, or only the pilot that was recovered by divers? The only remarks about the aircraft was that it was "completely demolished" and 25 percent of the blame was assigned to pilot error, and the remaining 75 percent was assigned to power plant failure. The cause of the engine failure was undetermined. This means the aircraft was either not recovered, the engine was too badly damaged for internal inspection, no analysis was made of the engine once it was recovered with the plane and pilot, or the information was never put on the card. If the pilot took off to the north of Sand Point and veered left before crashing, the plane would have sunk near shore and could have been easily recovered. Any other direction would have carried the plane into deep water. The area around Sand Point has been intensively surveyed for downed aircraft and no mention of an SBD has been found in any of the accounts about sunken aircraft in Lake Washington. Matt McCauley believes the pilot and plane were recovered over a one or two day period after the crash (Matt McCauley 1996, pers. comm.). No information was located in contemporary civilian newspapers which would help clarify the disposition of this aircraft.

The following five SBD Dauntlesses were not recovered from the waters surrounding Whidbey Island.

2. Pilot, Ensign Robert Haggerty and Aviation Radioman Third Class (ARM3c) George Taylor, died when SBD-4 BuNo 10701 crashed off Whidbey Island on April 14, 1943.

During a routine dive bombing training flight pilot entered a normal dive which became overly steep. He them commenced corkscrewing to get on the target and delayed his pull-out until at an extremely low altitude. He was unable to recover and crashed into the water.

The location for this incident is given simply as NAS Whidbey Island. The brevity of the report and the fact that the aircraft was struck from the record seems to indicate that the plane was not recovered.

3. Dauntless SBD-5 BuNo 10995 crashed and sank on August 19, 1943. Ensign William Bitter and ARM3c Joe Reaves died during this incident.

Ens. Bitter was the pilot of one of a division of nine SBD's engaged in division dive bombing tactics at Saratoga Passage, where a maneuvering target was being bombed. Ens. Bitter pushed over into a dive, released his bomb, started to pull out and then rolled sharply to the left in a spin. Diving flaps were open during the dive. Plane spun into water and sank immediately. From all indications Ens. Bitter

started his pull out too low, stalled, and fell off into a spin at too low an altitude to recover before crashing. There was no indication of any engine or structural failure.
[Note:] Flaps were open. Opinion is that pull out attempted too low and was therefore too violent.

The location for this incident was given as Everett, Washington. The card states that the aircraft sank in 50 fathoms of water.

4. Ensign Ashley J. Welton died on November 21, 1943, when he crashed SBD-5 BuNo 28666 into Saratoga Passage during dive bombing practice one mile from Oak Harbor.

Analysis: Failed to recover from formation dive.
Plane went into a normal dive and evidently crashed due to a series of progressive stalls during the pull-out.
Adm report: Normal recovery was apparently started but plane was then seen to roll or spin violently to the left, effect at least a partial recovery, and then spin to the right, entering the water in a right turn attitude.

The accident report states simply that the aircraft was "demolished" but says nothing of recovery.

5. Two more aircrewmen died when their SBD-5, BuNo 28550 crashed off Whidbey. The incident occurred on March 17, 1944, and involved Ensign Joseph Arnett and Aviation Ordnance Man Third Class (AOM3c) Jack Burton.

Crash in water.
Pilot took off on flight involving division tactics. About 24 minutes later he entered a "Split S" maneuver. After three over-corrections in an attempt to recover, he crashed into deep water about 3 miles west of Ault Field resulting in a complete loss of plane and crew. The last previous flight of subject aircraft, on the morning of the 17th, had no discrepancies report. 120 hour check including structural inspection was conducted 4th of March. 25.1 operational hours had been flown since check. Pre-flight check on date of accident showed no discrepancies.
[Note:] Progressive spins out of attempted pull-out.

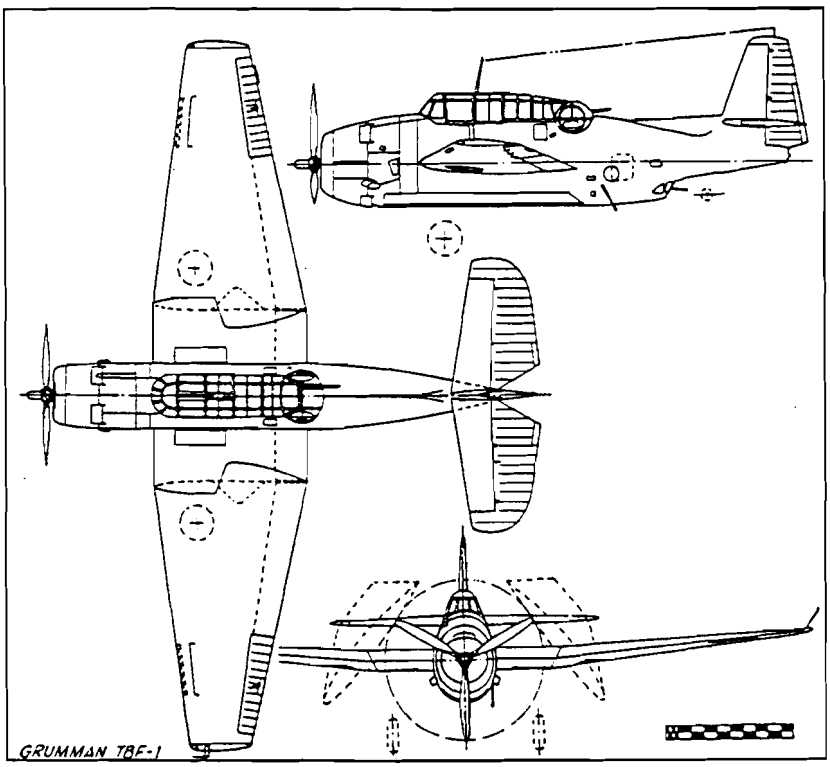
The trouble analysis board recommended striking this aircraft.

6. The water west of Whidbey Island claimed another Dauntless and her crew on December 22, 1944. Chief Aviation Pilot E.J. Whitehouse and ARM3c G.N. Kutche were in a SBD-5P BuNo 28268 when they spun in two miles west of Whidbey Island.

D-15- Spin from 2000 feet.
Und: Spun while reeling in wire after tow shot off.
Believed SBD inadequate for towing.
Plane was on a low level (2000') towing mission and the tow reel operator was evidently in the process of reeling in wire, after the target had been shot off, when the accident occurred. The only eye-witnesses were two inexperienced observers

(Naval Armed Guard personnel aboard a merchant ship) approximately four miles distant. They reported that the plane went into a left spin at approximately 1500 feet after dipping its wings from side to side and that four complete turns were made before it struck the water nose first and sank in a few seconds. It is the board's opinion that the plane's altitude was probably closer to 2000 ft because of the number of turns in the spin, the statement of the range officer for the gunnery school, and because of squadron towing doctrine for this aircraft. Two wing tanks, two Mark 7 Mod 6 anti-aircraft tow targets, and one Mark 2 life raft (Uninflated) were found floating at the scene of the crash. There were no survivors. The board does not consider that enough information is available to assign responsibility for the accident which may have been the result of the pilot's error, or of material failure resulting from fouling of the tail surfaces by the tow wire, or jamming of controls for unknown reasons.

GRUMMAN TBF-1 AVENGER, GENERAL MOTORS TBM-1 AVENGER



The Grumman TBF torpedo-bomber was given the name Avenger after the attack on Pearl Harbor. From an inauspicious beginning at the Battle of Midway, when five out of the six Avengers engaged were shot down, to the end of the war, the design was the Navy's primary carrier-based torpedo-bomber. With total production nearing 10,000 aircraft, the Avenger was to remain operational in fleet service in various roles until 1954. The large aircraft continued the successful folding Sto-wing design from the Wildcat/Hellcat fighters.

The crew of three included the pilot, who operated one or two .50 caliber machine guns in the cowling, a dorsal gunner, who manned another .50 caliber gun in a revolving turret, and the bombardier, who also operated the radar in later models and, if necessary, a ventral .30 caliber machine gun aft of the weapons-bay. Unlike earlier designs, this weapons-bay allowed the Avenger to completely enclose its torpedo or bomb load.

Looking to replace their outmoded TBD Devastator, the Navy contracted Grumman, and others, to develop prototypes for a new torpedo-bomber early in 1940. The XTBF-1 first flew on August 1, 1941, and although Grumman's experience had previously been limited to Navy fighters and not this type of aircraft, they won the design competition. The first production TBF-1 was delivered in January, 1942, and 144 more torpedo-bombers, with the new name Avenger, were delivered in the next six months. Winning the Navy contract was a coup, but Grumman already had its hands full producing Wildcats and its new fighter, the Hellcat. It needed help. Production of civilian cars was shut down the day after Pearl Harbor and five idle General Motors plants were reconfigured to produce planes. Soon the Eastern Aircraft Division of General Motors became a second source for Wildcats and Avengers. Grumman produced 2,290 new builds of the TBF-1 and Eastern completed 2,882 TBM-1s and 4,664 TBM-3s, for a total of 9,836 Avengers. Flown by the United States, Britain, and New Zealand during the war, Avengers continued to equip the flying services of many countries, including Japan, after the war.

Avenger (Grumman TBF-1, General Motors TBM-1)

Manufacturer: Grumman Aircraft Engineering Corporation, Bethpage, LI, NY. General Motors Corporation, Eastern Aircraft Division.
Type: Torpedo-bomber.
Accommodation: Pilot, turret gunner, bombardier/gunner.
Power plant: One (1) 1,900 horsepower Wright R-2600-20.
Dimensions: Span, 54 feet 2 inches; length, 40 feet 11½ inches; height, 16 feet 5 inches; wing area, 490 square feet.
Weights: Empty, 10,080 pounds; gross, 15,905 pounds.
Performance: Maximum speed, 271 miles per hour at 12,000 feet; cruising speed, 145 miles per hour; initial climb, 1,430 feet per minute; service ceiling, 22,400 feet; range, 1,215 statute miles.
Armament: One (1) fixed forward-firing .50 caliber machine gun; one (1) .50 caliber machine gun mounted in dorsal turret; one (1) ventral flexible .30 caliber machine gun. One torpedo or up to 2,000 pounds in weapons-bay.

At least six Avengers have crashed in Washington State. One crash site lies in the Olympic Mountains, 22 miles southeast of Port Angeles, and the rest lie underwater off the Pacific Coast, in Lake Washington, or near Whidbey Island.

1. While making a simulated group torpedo run, TBF-1 BuNo 00539 was hit over Lake Washington on August 17, 1942, by F4F-4 Wildcat BuNo 4097 flown by James

Kinsella (see above). Both aircraft crashed into the lake. The pilot of the Wildcat bailed out and the pilot and turret gunner of the Avenger, Ensign F.W.M. Janney and AOM3c Charles Price escaped from their downed aircraft. Sadly, the ventral gunner, AMM3c Bernard Viscovich was either trapped, unconscious, or too badly injured to escape from the sinking plane. The analysis report included on the Avenger's crash card simply includes the following: "Mid-air collision. See James J. Kinsella accident card." The only remark about the aircraft was that it "Sunk in Lake Washington." No further locational information was included. There was also no mention of a recovery of Viscovich's body.

2. Ensign William Francis Hull crashed TBF-1 BuNo 05940 off the field at Oak Harbor on the evening of March 5, 1943. Neither Ensign Hull nor his aircraft were recovered.

> *Upon returning to field, pilot decided to circle the field and make a second approach. His second approach was too high and he was given instructions to go round again. Hull maintained hi altitude and climbed to about 300 feet. He started a left turn after flying across the field and the plane was observed to lose altitude rapidly and crash into the water.*
> *[Note:] Could have been disorientation.*

3. On August 6, 1943, another TBF-1 BuNo 23904 experienced engine difficulties after leaving Clover Field on Whidbey Island and ditched into Rosario Strait. The pilot, Lieutenant Anthony Kolonie, and three other crew members, ARM3c W.O. Upton, AMM3c E.L. Mitchell, and ARM3c G.E. Rockwell, all escaped before the Avenger sank in deep water.

> *While pilot was leading a flight of four TBF-1 planes on a scheduled flight practicing low level bombing, encountered engine trouble and crash landed his plane in the water at the south end of Rosario Straits. At the time of the accident, the plane had been in the air about two hours and fifteen minutes. Fifteen minutes prior to the forced landing, Lt. Kolonie switched to the full right wing tank. The engine operated normally after the change and then the fuel pressure gauge dropped to zero and the engine cut out. He switched on the emergency fuel pump and then not getting pressure, switched to other tanks in an effort to get pressure. The right wing tank was full and the center main tank had only been used about 15 minutes at take-off, but for some undetermined reason the pressure failed to rise. At the time the engine cut out, the plane had about 1000' of altitude. After checking the throttle position and mixture control, he turned on his transmitter and prepared to make a forced landing in the water. He instructed the crew of his intentions and brought plane down with wheels retracted and in a tail low attitude. The plane remained on the surface about 30 seconds, long enough for pilot and crew to emerge and launch life raft. Plane sank in 45 fathoms of water and strong tidal currents preclude salvage.*

The report includes the following remark: "Plane sank in 45 fathoms - Salvage operations not attempted." Unused fuel may still exist in the tanks of this aircraft.

4. Another Avenger crew escaped without the loss of lives on April 28, 1944, when the fuel system on TBM-1 BuNo 24741 failed 60 miles west of Quillayute. The crew consisted of pilot, Ensign Thomas Graham, AMM3c Carl Albert, and ARM3c Leland Christensen.

> *Analysis: Crashed at sea. Reason unknown.*
> *Crash occurred on routine training navigation flight, flown at 4-500; after 50 min. of operation. Power settings were 2200 rpm at 24" hg. (91 octane) Engine began backfiring with force enough to close throttle, then when throttle was applied gradually the engine continued backfiring, but to a less degree. There was not enough power available to sustain flight. During descent fuel tank was changed to 100 octane fuel, and emergency fuel pump operated. Pilot reports that partial power was available until the plane crashed. The passengers reported smelling the smoke and fumes of the partially burned fuel. This engine had a prop change in November, following a nose over incurred during an excessive ground-runup at the chocks. The log books show no further apparent damage than the propeller. It has operated 226.6 hours since that accident. A routine 60-hr. check was performed 5.9 flying hours prior to crash. It is the opinion of the trouble board that loss of power was probably due to faulty operation of an intake valve.*
> *Remarks:* *Recommend striking.*
> *Aircraft sank in 760 fathoms.*
> *Not recovered.*

From the last part of this report it seemed likely that this aircraft might never be encountered again. However, Bob Mester (pers. comm.) relates an account about an Avenger that was brought up in a dragger net off the coast of Washington approximately two years ago and apparently spoke with several individuals involved. Apparently, one or more machine guns were removed from the aircraft before it was dumped back in the water by the fishing boat crew. The Coast Guard was possibly involved with confiscation of the guns when the fishing boat returned to harbor. The Coast Guard stations on the coast were contacted about this incident, as well as the Bureau of Alcohol, Tobacco, and Firearms, but no confirmation was obtained. There is a high rate of personnel change at the Coast Guard stations and the people involved may have been reassigned. Whether or not this incident involved a Navy Avenger, BuNo 24741 being the only listing IARII researchers have yet identified off the coast, it illustrates the danger to these fragile aircraft as the continental shelf and inland waters are utilized more intensively by quite destructive fishing techniques like dragging.

5. Ensign Robert Axelrod and his crew, radioman ARM3c Parley Baldwin, and turret gunner AMM3c Joseph Cooper, were all killed instantly when TBF-1C Avenger BuNo 24353 slammed into glassy water in Port Susan, East of Camano Island. The incident occurred on January 29, 1945.

> *Prior to starting a glide bombing run in division, pilot became separated from the formation (of four (4) planes), making it necessary for him to make an individual run. Witnesses have stated that his dive was steeper and faster than that of the formation. At a low alt., pilot was seen to start a recovery, but pulled out only to about a 30 deg. angle and dived into the water in that altitude. At approx. 300 feet*

alt. an object was seen to become separated from the plane and to land short of the plane. It is impossible to determine whether this was the pilot, a hatch from either the turret or the cockpit, or a piece of fairing or cowling. The speed on impact is estimated at over 350 knots.

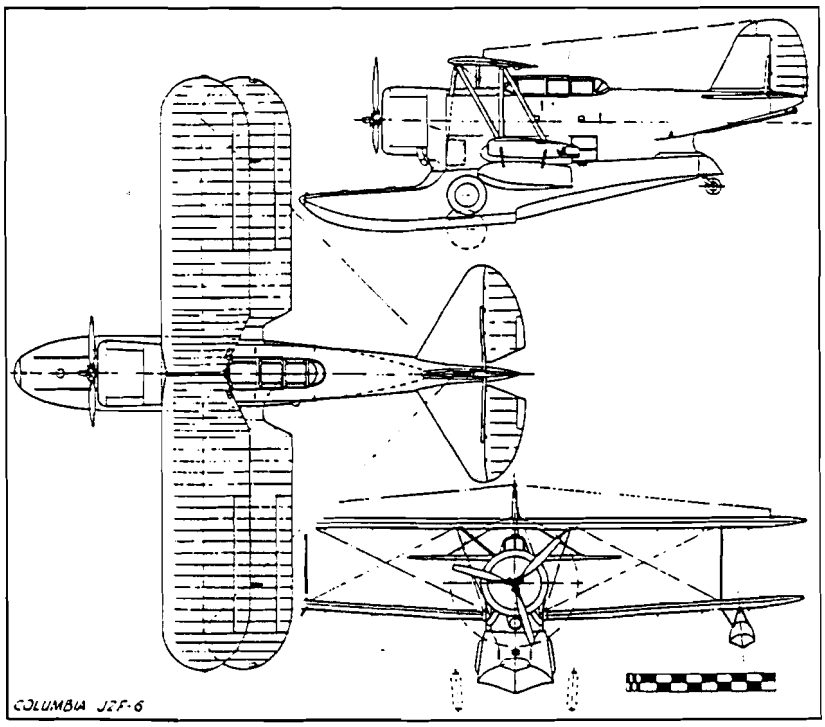
The water around the target was calm and glassy. This may possibly account for an error of judgment in the pull out alt. The plane was demolished to such an extent that it is not possible to determine whether or not a structural failure occurred, prior to the crash.

In view of the lack of information, the A.A.B. is unable to arrive at a decision as to the immediate cause of the accident. 20% of the cause is attributed to pilot error, from making a steeper than normal dive, and for starting the recovery too low. It is the opinion of the board that the maximum speed and/or acceleration were slightly exceeded.

Damage Description & Remarks: Aircraft and engine completely demolished.

Smooth water seems to be at least partially to blame in many of these "glassy landing" incidents. The north end of Port Susan consists of shallows and mud flats from the outflow of the Stillaguamish River and the report seems to indicate that the "demolished" aircraft was recovered, but, if the plane did impact at a speed of 350 knots, it is not unreasonable to expect that some material may have escaped recovery.

GRUMMAN J2F-5 DUCK



The Grumman company had successfully entered the Navy floatplane market by developing an amphibious float which could be attached to other types of aircraft like the Vought O3U Corsair. While developing their FF-1 fighter, Grumman decided to make an entire amphibious aircraft which combined features of the new fighter, proven designs from other companies, and their amphibious float. The XJF-1 prototype first flew on April 24, 1933, and production models were flying with 700 horsepower Pratt & Whitney R-1535-62 engines in just under a year. These first planes were delivered to the Coast Guard and to the Navy to act as utility and observation aircraft and to provide ship to shore communication. The next model, the J2F-1, exhibited a shorter cowling and did away with an inter-aileron strut between the wings. Small changes accompanied the next three model types. Near the end of 1940, the threat of war brought expansion to the Navy and an order of 144 J2F-5s to Grumman. The new design had a longer cowling which formed to the fuselage, a 950 horsepower Wright R-1820-50 engine, and, most importantly, official confirmation of the popular name "Duck". After Pearl Harbor, production of the Ducks was transferred to Columbia Aircraft Corporation on Long Island, New York.

Duck (J2F-5)

Manufacturer: Grumman Aircraft Engineering Corporation, Bethpage, LI, NY.
Type: Utility amphibian.
Accommodation: Pilot, observer, and optional radio operator.
Power plant: One (1) 950 horsepower Wright R-1820-50.
Dimensions: Span, 39 feet; length, 34 feet; height, 15 feet 1 inch; wing area, 409 square feet.
Weights: Empty, 4,300 pounds; gross, 6,711 pounds.
Performance: Max. speed, 188 miles per hour; cruising speed, 150 miles per hour; initial climb, 1,500 feet per minute; service ceiling, 27,000 feet; range, 780 statute miles.

At least two J2F-5 Ducks have crashed in Washington State. Together, they resulted in the deaths of four aircrewmen and the striking of one of the aircraft. Both aircraft were recovered but some material sank and was not retrieved.

1. On April 3, 1943, J2F-5 BuNo 11790 departed NAS Tongue Point near Astoria, Oregon. Ensign Preston Sprunger, AMM1c James Hodgen, and ARM3c Jack Hendricks, were all killed when their aircraft mysteriously went down two miles off Copalis Beach, Washington.

> *Plane departed NAS Tongue Point with 190 gals of gas, a Mk. VII Tow Reel, and a crew of three on a towing mission for Anti-Aircraft Training Center, Pacific Coast, Wash. Communication between the plane and NAS Tongue Point was excellent. At 1025 the plane transmitted the following message, "I am shifting my receiver to AATC 2134 and voice". This procedure was in compliance with an established procedure of this unit which called for a shift of listening frequency when the plane passed the entrance to Gray's Harbor. The plane failed to reach its destination as scheduled and AATC was unable to establish communication with the plane at any time. AATC then called the detachment headquarters and informed them the*

aircraft had not arrived and that they could not establish communication with them. Search for the aircraft was then begun (1055). The plane was washed up on Copalis Beach, Wash., and two bodies recovered from the surf.
Remarks: Strike. Recovered fuselage, engine and majority of equipage. Wings and wing tip floats sank in deep water.

Most of the fuselage was obviously recovered shortly after this incident but the wings and stabilizing floats may still remain off Copalis Beach if they were not carried away by currents. The crash card indicates that two bodies were recovered from the surf but does not mention the third crewman. It is possible he was still with the fuselage because the report indicates three fatalities and no missing personnel.

2. The next incident also resulted in a fatality and incomplete recovery of the aircraft. On May 31, 1945, William T. Hall, Jr., was soloing a J2F-5 Duck (BuNo 00677) and practicing water takeoffs and landings on Lake Washington.

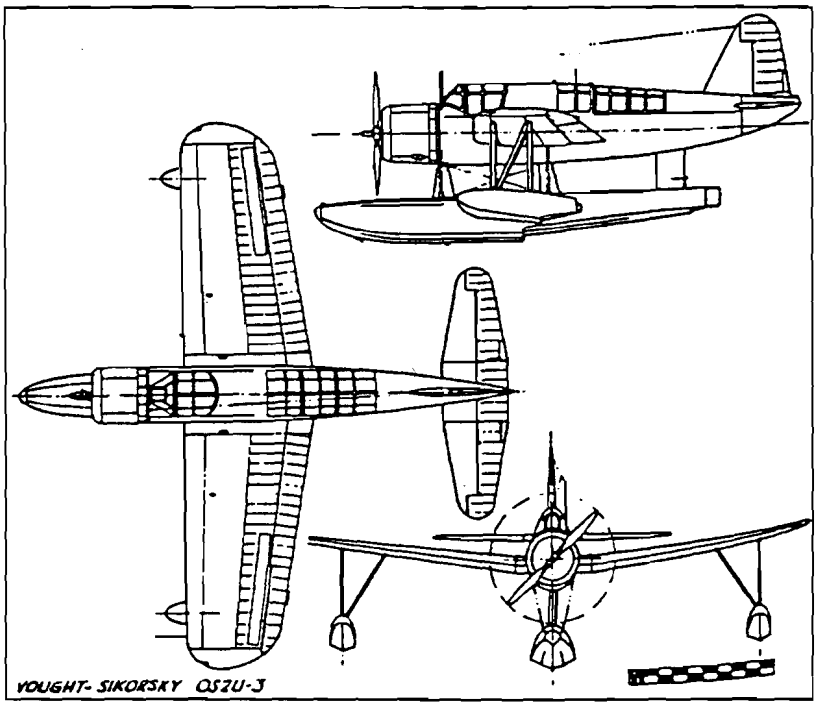
Pilot was cleared by Operations, NAS, Seattle, on an authorized flight to practice water landings on Lake Washington. Since visual observation of the crash and the preceding events was meager, information has largely been received by playback of NAS, Seattle, Control Tower recordings. These records substantiate the fact that the pilot had made a series of takeoffs and landings. At 1440, the pilot requested permission to make a water landing and was given clearance, but no "ROGER" was received by the tower. The next pertinent transmission came at 1444 from Lt. C. Welling, pilot of another J2F in the vicinity, who reported that a "Duck" had nosed up in the water. This is the first the tower knew of the accident so that four and one half minutes are unaccounted for.

The only eye witness states that he judged the plane was taking off at the time of the crash. This opinion is corroborated by the position of the throttle, prop control, and mixture control, which were all in takeoff position. The photographs prove conclusively that the accident was not a water loop as the wings and tip floats are undamaged.

According to the statement of Lt. Welling, he saw Hall swimming in the water, but before he could maneuver into position for a rescue, he lost sight of Hall. All efforts to recover the body have been unsuccessful. Nor has the portion of the hull that was torn off been recovered, which fact makes a positive assessment of the responsibility impossible.
DAMAGE DESCRIPTION AND REMARKS: Hull torn off from sta. 4 up to chine forward to Sta. 2F. then up to fuse. Engine mount, propeller, Glass in left windshield, Left exhaust stack, etc.

Since no one observed the accident from the tower it was not determined if the accident was due to "porpoising" during takeoff, collision with an underwater obstruction, or a weakened main float. No shoulder harness was fitted to this aircraft and the board speculated that Hall may have received a head injury which prevented him from continued swimming. No crash boats were on patrol in the area and this caused an unnecessary delay in reaching Hall. The forward portion of the float likely remains on the bottom of Lake Washington one-and-one-half miles "opposite" the former position of the tower at Sand Point.

VOUGHT OS2U-3 KINGFISHER



The Vought Kingfisher became the most popular small observation and scout plane for the Navy in World War II. Building on their previous experience with float biplanes, the Vought-Sikorsky Company incorporated the new technique of spot welding into the prototype of their new float monoplane, the XOS2U-1. Fifty-four production models of the OS2U-1 reached the Navy in 1940 and 158 OS2U-2s were delivered before the beginning of the war. Vought was already delivering some of its newer model version, the OS2U-3, prior to the outbreak of hostilities. It would deliver 1006 planes to Allied service before production ceased in 1942. The OS2U-3 differed from the previous models through increased fuel capacity, offered by additional wing tanks, and better armor protection for the crew.

Kingfisher (OS2U-3)

Manufacturer: Vought-Sikorsky Division, United Aircraft Corporation, Stratford, Connecticut.
Type: Observation/scout.
Accommodation: Pilot and observer/gunner.
Power plant: One (1) 450 horsepower Pratt & Whitney R-985-AN-2.

Dimensions: Span, 35 feet 11 inches; length, 33 feet 10 inches; height, 15 feet 1 inch; wing area, 262 square feet.
Weights: Empty, 4,123 pounds; gross, 6,000 pounds.
Performance: Maximum speed, 164 miles per hour at 5,500 feet; cruising speed, 119 miles per hour at 5,000 feet; service ceiling, 13,000 feet; range, 805 statute miles.
Armament: One forward-firing fixed .30 caliber machine gun and one flexible rear .30 caliber machine gun.

1. On March 12, 1944, Ensign Otto Pace and ARM3c Melvin Mayer, died after they crashed OS2U-3 Kingfisher BuNo 09672 eight miles west of Willapa Bay on the Washington Coast.

> *Pilot was flying lead plane in a two plane section of a routine scouting mission. Altitude 2000 feet in a straight and level flight about 12 miles from shoreline. At 1955, pilot of #2 plane in the formation saw Ens. Pace, in the lead plane, make a normal 180° turn to lose altitude and descend into the wind making a normal water landing. Plane was seen to turn to the left upon striking the water. Due to darkness, no activity was seen from the plane after it entered the water. Plane floated about 4 minutes with wing lights on for 3 minutes of the time the plane remained afloat. During the time, the #2 plane circled the scene of the landing, about 40 minutes, no activity was seen from the personnel of the plane in the water.*
>
> *Circumstances preventing inspection of the plane or an interview with the crew, this trouble board would like to point out the possibility of the pilot failing to shift to his reserve gas tank when he used up his main gas tank supply. Plane was in the air sufficient time to have used up the gas in the main tank. Wing plane flown by Ens. Hunt ran out of gas on the main tank about ten minutes following Ens. Pace's water landing.*

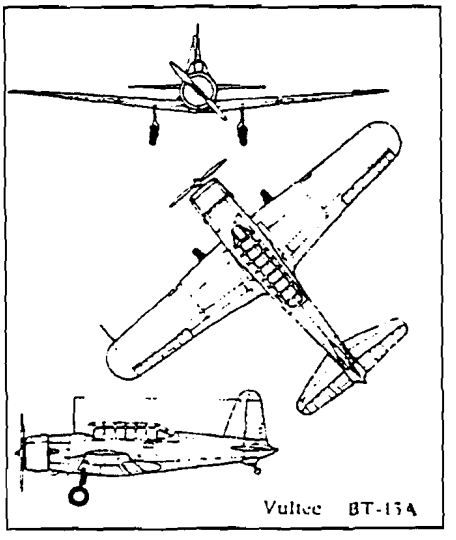
The remarks simply indicate a "strike" for this aircraft but "Dead from exposure" was hand written under each of the two crewmen's names. Perhaps the bodies were recovered at a later date.

VULTEE SNV-2VALIANT

Not all of the Navy aircraft lying submerged in Washington State waters are combat or observation aircraft. Following the success of the North American AT-6 Texan advanced trainer, Vultee Aircraft, Incorporated, designed a smaller basic trainer known as the BT-13 Vultee Valiant. The Navy acquired 1,350 of the BT-13s and BT-13As which were then given the Navy designation SNV-1. The 650 SNV-2s, equivalent to the BT-13B, differed only in the addition of a 24-volt electrical system. All of these types were powered by Pratt & Whitney R-985 Junior Wasp radial engine. A total of 11,537 Valiants were produced between September, 1939, and August, 1944, to meet the training needs of the Army and Navy.

Valiant (SNV-2)

Manufacturer: Vultee Aircraft, Incorporated.
Type: Trainer.
Accommodation: Student pilot and instructor.
Power plant: One (1) 450 horsepower Pratt & Whitney R-985 Junior Wasp.
Dimensions: Span, 42 feet 2 inches; length, 28 feet 9 inches; height, 12 feet 5 inches.
Weights: Empty, 4,360 pounds.
Performance: Maximum speed, 166 miles per hour; service ceiling, 16,500 feet; range, 516 statute miles.



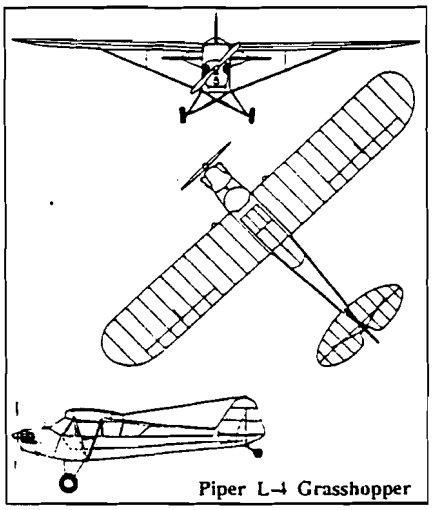
1. Lieutenant (jg) Carter Parry did not impress his instructor, L.S. Nitka, when he put them into the drink a mile north of Sand Point on Lake Washington. He was flying Vultee SNV-2 Valiant BuNo 52067 when he was forced down on February 29, 1944.

> *Reports indicate pilot came in high on emergency landing due to incipient engine failure, overshooting runway 32-R, attempted to go around again and engine cut out entirely, resulting in forced water landing approx. 1 mile north of NAS Seattle.*
> *Remarks: Airplane and engine not recovered. Total loss.*

This aircraft lies upside down on the bottom of Lake Washington due north of Sand Point at Latitude 47° 42' 36"N, Longitude 122° 15' 12"W. The location is southwest of Holmes Point on the east shore of the lake north of Champaign Point and Juanita Point. According to Robert Mester, and Historical Aircraft Preservations, Inc., who submitted the location and remote images of the aircraft to the Washington State Office of Archaeology and Historic Preservation (OAHP) on December 4, 1990, the SNV-2 lies in water 127 to 131 feet deep. The material submitted by this group is on file at OAHP in Olympia, Washington, as Submerged Resources File #7/45KI424. The aircraft has fixed landing gear and what was

believed by Robert Mester to be a fabric covered empennage when he dived on the site. The fabric covering of the control surfaces had disappeared but the non-metal material covering the fuselage aft of the cockpit was intact although apparently extremely fragile. The aircraft was originally believed to be a Vought SB2U-3 Vindicator due to its profile and non-metallic skin. The acting Washington State Historic Preservation Officer (SHPO), Jake Thomas, determined through consultation with an expert in aviation history that this aircraft was an SNV. As supplies of strategic metals like aluminum became prioritized, later models of the BT-13/SNV incorporated many wooden structural elements in their construction, including plywood panel skins (Gault 1992:39; Sig Unander 1996, pers. comm.). What was thought to have been rotted fabric may have been decomposed plywood skin. Because this type of aircraft was "well represented in existing collections and not associated with specific historic events" the OAHP determined that the aircraft was not eligible for listing on the National Register of Historic Places.

PIPER NE-1 GRASSHOPPER



Another non-combat aircraft lost in Washington was the Piper NE-1 Grasshopper. A military version of the popular Piper Cub, the Grasshopper was designated L-4 by the Army and NE-1 by the Navy. These aircraft were used for observation, liaison, and at elimination training bases during World War II. Of the 5,500 built, the Navy acquired 230 as NE-1s and 20 NE-2s. They also acquired 100 HE-1s, later renamed AE-1, capable of carrying one stretcher case in a specially designed hinged compartment in the top of the fuselage.

Grasshopper (NE-1)

Manufacturer: Piper Aircraft Corporation.
Type: Observation and liaison.
Accommodation: Pilot and passenger.
Power plant: One (1) 65 horsepower Continental O-170-3 air-cooled 4-cylinder .
Dimensions: Span, 35 feet 3 inches; length, 22 feet 3 inches; height, 6 feet 8 inches.
Weights: Gross, 1,100 pounds.
Performance: Maximum speed, 95 miles per hour; service ceiling, 9,300 feet; range, 190 statute miles.

1. On September 21, 1943, Ensign Benjamin Davis was killed when he crashed a NE-1 BuNo 26258 near Smith Island. His passenger, AMM3c Carl Peterson, escaped.

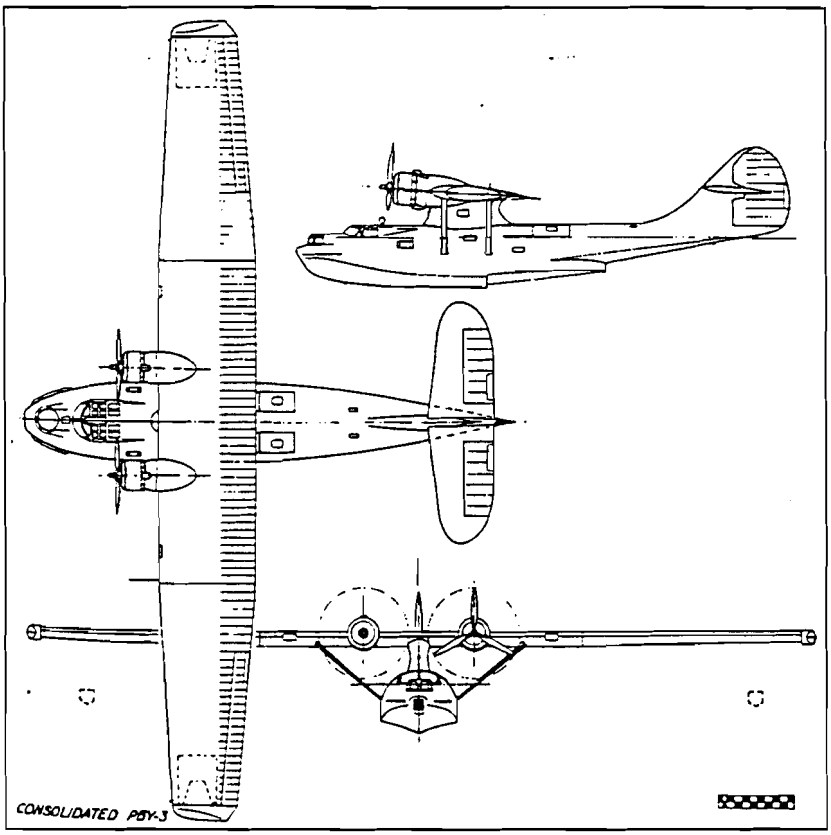
> *Analysis: Low altitude - tight turn.*
> *Aircraft sank in Puget Sound approximately ½ mile NE of Smith Island and was not recovered.*
> *From Administrative Report:*
> *Pilot took off on scheduled torpedo retrieving mission in company with one other NE-1. While chasing a torpedo, the plane lost flying speed while in a tight turn and dived into the water nose first. The accompanying NE-1 airplane seeing the crash flew over to observe it. The accompanying plane then followed standard procedure in summoning aid. The plane sank shortly after the boats arrived on the scene of the crash. The plane appeared to be intact after the crash. The passenger, although bruised about the head, attempted to get the pilot out of the plane without success.*

The plane was struck and the pilot listed as missing.

TWIN ENGINE AIRCRAFT

Although not as numerous as single-engine aircraft, the large twin-engine patrol-bombers lost to Washington waters offer some of the most visually impressive submerged cultural resource sites in the state and readily capture the public's attention. In a situation where a smaller plane might be salvaged soon after it sank, more often than not the logistics of recovering large planes precluded their recovery. Hence, it is reasonable to assume that these large planes rest at, or very near, the location where they came to rest on the bottom over 50 years ago.

CONSOLIDATED PBY-5 CATALINA



At least two examples of the most famous flying boat in aviation history lie deep underwater in our state. The Consolidated PBY Catalina was not the largest or the fastest flying boat, but it was the most successful and most liked by the crews. Like the Dauntless, the Catalina was a pre-war design, already considered old at the beginnings of hostilities, but was worked hard throughout the duration of the war. The design's reliability, range, lifting power, and rugged endurance more than made up for its shortcomings in performance. Above and beyond their primary role as a patrol-bomber, the Catalina flying boats provided long-range reconnaissance, undertook air/sea rescue duties, flew as night bombers, escorted convoys, employed torpedoes and depth charges against enemy ships and submarines, towed gliders, provided every sort of administrative duty and delivered mail, freight, and passengers. Britain, Canada, Australia, the Netherlands, the Soviet Union, and other allied countries utilized the American plane in every theater of the war. Numerous other countries continued to use surplus aircraft for many years after the war ended and examples are still providing service today.

The Catalina, or Consolidated Model 28, stemmed from the XP3Y-1 which had been ordered by the US Navy in October, 1933. Building on their previous experience with biplane flying boats, Consolidated designed a clean, high-winged monoplane with unique, retractable stabilizing floats which raised up to form the wing tip when in flight. Based upon the flight of the XP3Y-1 prototype on March 28, 1935, the Navy broadened the design's mission to patrol-bombing and ordered 60 newly designated PBY-1s. With the fuselage a combination of boat and plane construction concepts, and the wing incorporating metal and fabric construction, it was a labor-intensive airplane to produce. The massive main wing spar, holding 1,750 gallons of fuel, was perched on top of a large central spar and mated to light, fabric-covered outer wings. The integrity of the hull/fuselage was tested by filling it up with water and carefully checking for leaks. With the success of the first design, three more production models were added in 1937, the PBY-2, PBY-3, and PBY-4. With the war in Europe came more orders and the improved PBY-5 was added in 1940. the British dubbed the design Catalina and the name stuck. An amphibious version of this aircraft, the PBY-5A, was first produced in 1941. The retractable wheels on this aircraft decreased the range and speed but increased the versatility. Like all aircraft which stayed in production over a long period, the PBY evolved and produced many variants. The two definitely lost in Washington represent the following examples.

Catalina (PBY-5)

Manufacturer: Consolidated Aircraft Corporation, San Diego, California.
Type: Patrol-bomber, flying-boat.
Accommodation: Crew of seven to nine.
Power plant: Two (1) 1,200 horsepower Pratt & Whitney R-1830-92 radials.
Dimensions: Span, 104 feet; length, 63 feet 10 inches; height, 18 feet 6 inches; wing area, 1,400 square feet.
Weights: Empty, 17,526 pounds; gross, 34,000 pounds.
Performance: Maximum speed, 189 miles per hour at 7,000 feet; cruising speed, 115 miles per hour; climb rate, 690 feet per minute; service ceiling, 18,100 feet; range, 2,990 statute miles.
Armament: Two (2) flexible .50 caliber machine guns; two (2) flexible .30 caliber machine guns; Up to 4,000 pounds of bombs, torpedoes, or depth charges.

Catalina (PBY-5A)

Manufacturer: Consolidated Aircraft Corporation, San Diego, California and New Orleans, Louisiana.
Type: Patrol-bomber, flying-boat and amphibian.
Accommodation: Crew of seven to nine.
Power plant: Two (1) 1,200 horsepower Pratt & Whitney R-1830-92 radials.
Dimensions: Span, 104 feet; length, 63 feet 10 inches; height, 20 feet 2 inches; wing area, 1,400 square feet.
Weights: Empty, 20,910 pounds; gross, 35,420 pounds.
Performance: Maximum speed, 175 miles per hour at 7,000 feet; cruising speed, 113 miles per hour; climb rate, 620 feet per minute; service ceiling, 13,000 feet; range, 2,350 statute miles.
Armament: Two (2) flexible .50 caliber machine guns; three (3) flexible .30 caliber machine guns; Up to 4,000 pounds of bombs, torpedoes, or depth charges.

Consolidated PBY Catalinas are one of the types of aircraft that have generated considerable public interest in regards to sunken aircraft within the state. This was especially true for Lake Washington which, according to some reports, contained three to four PBMs and "several PBYs", one of which was supposedly observed just off the south end of Mercer Island on its nose between two trees. The remains of some of the aircrew are supposedly visible in this aircraft *(San Francisco Examiner & Chronicle [SFEC],* February 15, 1981). Navy divers had originally reported that the Martin PBM Mariner was caught in an "underwater forest", thus prohibiting recovery, so perhaps the two accounts are related. According to Larry Allen of the Underwater Historical Research and Recovery Foundation (UHRRF), the PBY reported to be between the trees sank in 1946. Some of the accounts of PBYs in the lake, especially in the news media which repeatedly misidentify aircraft types, were undoubtedly the result of confusion surrounding the PB4Y-2 BuNo 59695 submerged off of Sand Point, while others may have been attempts to stir up potential investors for salvage efforts. Wishful thinking may have also contributed to erroneous accounts. The microfilm records of Aircraft Accident Summary Reports only contain reports of PBY accidents which occurred between July 1, 1941, and December 31, 1943. The two incidents which resulted in sinkings both occurred in the summer of 1943 and other accidents undoubtedly occurred in Washington. One or more of these may have resulted in a sinking. Matt McCauley believes their are no PBYs in Lake Washington although at least two crashed on its surface. He believes one of these crashes resulted in fatalities and the sinking of a PBY in the northern, shallow area of the lake. The shallow depth facilitated recovery of the aircraft (Matt McCauley 1996, pers. comm.). Lake Washington may contain PBYs, or portions of PBYs, due to operational loss or intentional dumping that IARII researchers were not able to discover. The following reports represent the only two confirmed PBY losses located in the archival record.

1. The following incident occurred on the morning of May 1, 1943, six miles southwest of Mukilteo. The crash resulted in the loss of PBY-5 BuNo 04470 and one

crewman, ARM3c L.J. Malicoat. The student pilot, S.C. Eland, instructor, Lieutenant Bert Nolan, and five other crewman were injured.

> *Student pilot was practicing blind landings and takeoffs under the hood. Takeoff was made, plane became airborne at 65 knots and was in a climbing attitude. With an altitude of less than 100 feet, the student, Lt(jg) S.C. Eland, pushed forward on the yoke dropping the nose; simultaneously the instructor, Lt. Nolan, decreased manifold pressure and the plane dropped, crashing into the water. Plane sank within five minutes.*
> *Remarks: Total loss. Sank in 100 fathoms of water.*

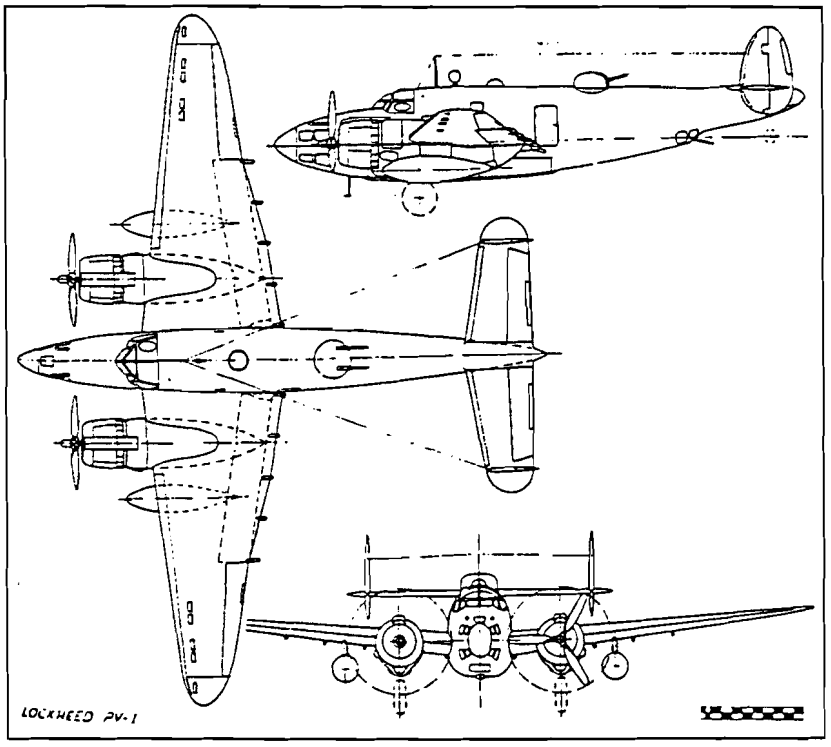
Although the rest of the crew received fractures, lacerations, and injuries caused by submersion, L.J. Malicoat, ARM3c, was listed as missing and presumed dead. It seems likely that Malicoat remained in the plane but this is not certain. For management purposes, it should be assumed that human remains are still associated with this aircraft.

2. Although one man died, the rest of the crew of the amphibious PBY-5A BuNo 7284, which crashed in a spectacular accident in Saratoga Passage off Oak Harbor, were lucky to escape with their lives. This aircraft was flown by Lieutenant (jg) R.J. Watkins and the incident occurred on August 30, 1943.

> *Analysis: Crashed while making night landing.*
> *Pilot took off in company with 3 other PBY-5As at about 1941. At about 2140 due to changing weather conditions, decision was made to discontinue night flying and Watkins was cleared for final water landing. On his first approach he made contact with the water but was not satisfied with the landing and resumed flight, continuing in the landing circle and making a second approach. On the second approach the plane made two distinct bounces, and upon making contact with the water the third time, was in a nose down attitude and crashed. Plane broke in two just forward of the wheel wells, and the entire wing in one section was torn off at the tower. The forward section sank immediately and the wing shortly thereafter. The hull, from the break just forward of the wheel wells aft, remained afloat and was salvaged.*

Again, it is not clear whether the remains of the crewman who died, ARM3c Emmett Covey, are still associated with the forward section of the aircraft which sank. He is not listed as missing and "FO" is the only note associated with his listing. Further research is needed to ascertain the status of Covey's remains relative to the remaining wreck of BuNo 7284.

LOCKHEED PV-1 VENTURA



A series of military aircraft was derived from the commercial designs of Lockheed (Vega) Aircraft Division. The Hudson, derived from the Lockheed 14 Electra, was first used by the RAF for naval reconnaissance. Although they had problems, over 2,000 Hudsons were employed in advanced training, observation and liaison duties. The British pushed for improvements and a larger, more powerful aircraft, based on the Lockheed Lodestar, was first flown as the PV-1 Ventura prototype on July 31, 1941. The Ventura closely resembled the twin-tailed Hudson but could carry more than twice as many bombs. This test was followed with an order for 400 aircraft. The US Navy became interested in proven land-based designs for over-water patrols in light of early encounters with enemy fighters and other drawbacks of flying boats. Hence, North American B-25 Mitchell bombers became Navy PBJs, Convair B-24 Liberators became PB4Ys, and the Lockheed Lodestar became the Navy PV-1 Ventura. Receiving 1,600 examples, the Navy put the PV-1 Ventura to use as a patrol and liaison aircraft throughout the war. Although large numbers were employed, the nose-heavy design was generally hated by the aircrews who flew in them.

Lockheed Ventura (PV-1)

Manufacturer: Lockheed (Vega) Aircraft Division, Burbank, California.
Type: Patrol-bomber.
Accommodation: Crew of four or five.
Power plant: Two (1) 2,000 horsepower Pratt & Whitney R-2800-31 radials.
Dimensions: Span, 65 feet 6 inches; length, 51 feet 9 inches; height, 11 feet 11 inches; wing area, 551 square feet.
Weights: Empty, 20,197 pounds; gross, 31,077 pounds.
Performance: Maximum speed, 312 miles per hour at 13,800 feet; cruising speed, 164 miles per hour; climb rate, 2,230 feet per minute; service ceiling, 26,300 feet; range, 1,660 statute miles.
Armament: Two (2) .50 caliber machine guns each in nose and dorsal turret; two (2) flexible .30 caliber ventral machine guns. Six 500 pound bombs or one torpedo in bomb bay; up to two (2) 1,000 pound bombs under wings.

Numerous PV-1s were employed in Washington during and just after the war for coastal patrol, training, and administrative duties. Many of these flights took these aircraft over rugged Northwest terrain and at least five PV-1 Venturas have crashed on land in Washington. One long-missing Ventura, BuNo 34673, and her crew of six, was discovered by a hiker on Mount Baker in October, 1994 (*Seattle Post-Intelligencer [SPI]*, October 19, 1994:sec B3). One PV-1 crashed into water in Washington during World War II.

1. The following incident occurred on March 5, 1945, and resulted in the deaths of six Navy personnel. Piloting PV-1 BuNo 33414, Lieutenant Standlee Ward and his crew were engaged in rocket attacks on land targets in the Lake Hancock Rocket Range on the narrow middle of Whidbey Island when catastrophic material failure occurred.

> *Lt. Ward and crew were on a subcaliber rocket firing flight originating from NAS. Whidbey Island. This was Lt. Ward's third rocket flight of the day and the beginning of his 30 deg. dive angle work. On his first 30 deg. angle dive, which was a dummy run, he received a "mark" at 1500 yards slant range from the range officer operating the "harp" - a dive angle measuring device. He commenced pullout shortly after receiving "mark". He had 400 feet altitude over the target. As it passed the target the aircraft was assuming level flight with a slight settling, when the starboard wing failed and carried away knocking off the empennage. According to range officer's testimony the flight had been normal in all respects until the wing carried away. Flames enveloped the fuselage and the aircraft rolled to the right and went into the water approximately 1000 feet offshore. It continued to burn, sinking in approximately three (3) seconds. Pieces of fuselage skin, fairings and other debris were scattered along the flight path from target to shoreline. The starboard wing came off outboard of engine nacelle at outer edge of center panel and was found on beach at water's edge. The flap and horizontal stabilizer were found in driftwood back of beach, approximately 50 feet from wing.*

The actual loss location is somewhat problematical. Lake Hancock lies at a section of Whidbey Island that is less than one-and-one-half-miles across. It seems likely that what is left of this aircraft lies 1,000 feet off the target range, which is located on the west side of island. However, the operational history of NAS Whidbey, examined by Denfeld, indicates that this aircraft was lost in Admiralty Inlet, which lies to the west of the thin island, near Greenbank, which lies on the east side of the island. The summary report did not mention the direction of the flight. The pilot and two other crewmen were listed as missing and presumed dead and the three other crewmen were listed as dead. The report did not state whether or not the majority of the airframe was eventually recovered and it should be assumed, pending more information, that human remains are associated with the wreckage from this crash.

US NAVY AIRCRAFT LOST IN WASHINGTON WATERS BETWEEN 1945 AND 1952

Although fear of a Japanese attack against the West Coast of America had considerably decreased since the first tense months of World War II, coastal patrols continued until the end of hostilities. With development of the atomic bomb, a secret to all but a few, all branches of the military proceeded under the expectation of a prolonged and costly campaign for the Japanese home islands. Administrative and ferrying flights, flight training and testing, and all manner of gunnery and bombing practice continued unabated. The end of the war resulted in a decrease of military flights in Washington, but the Navy still had many reasons to continue their air operations in the first years of the Cold War. First and foremost, many aircraft which had seen combat in the Pacific came back to naval air stations along the West Coast for processing and this kept the amount of flying at a high level. Immediately after the war, advanced piston-engine designs, developed for the invasion of Japan, and new jet aircraft were tested and worked into the Navy's arsenal. The war had also brought about the development of many new technologies which needed testing in the air. Finally, Northwest stations took up a significant position in the continued training of Navy and Marine Reserves aircrews after the war, many of which were to see action again in the Korean War. The level of activity in the skies over Washington in the years after the war was vastly different from that of pre-war days.

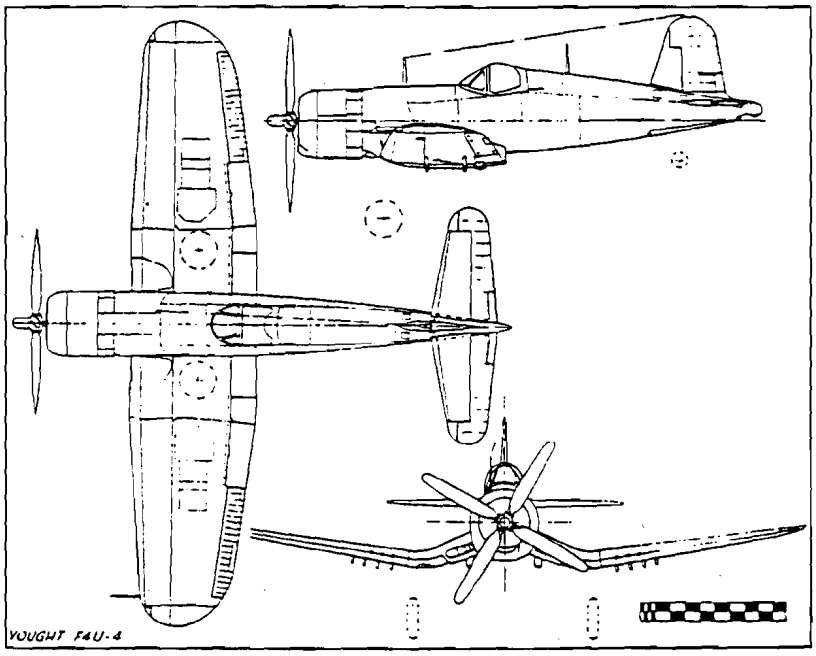
SINGLE ENGINE NAVY AIRCRAFT

GRUMMAN F6F-5 HELLCAT

Although most of the Hellcats lost in Washington State waters were lost during the war, at least one crashed after the war. The description of the Grumman Hellcat, and the F6F-5 model, are located above.

1. On March 15, 1949, ADC William F. Lossman, was on a deployment of two F6F-5 Hellcats and one P2V-2 Neptune from NAS Whidbey. After approximately 15 minutes of flight time, while off of Port Angeles, Lossman reported that he was having trouble with his fuel system, could not switch fuel tanks, and was on his reserve tank. The original flight path was to proceed out of the Strait of Juan de Fuca then turn south towards Astoria, Oregon. The pilot opted to continued on this path and ran out of fuel near Taholah on the Washington Pacific Coast. He ditched his aircraft approximately 200 yards off shore near a rocky area of the beach. The other planes in the flight observed the Hellcat floating for approximately 90 seconds and observed Lossman swimming for the shore in rough surf. A life raft was dropped by the Neptune but Lossman was not observed again. On April 6, 1949, Lossman's body was recovered on the beach. The aircraft, BuNo 93714, was not recovered. The depth and type of bottom at this wreck site are expected to significantly affect the condition of this aircraft.

GOODYEAR FG-1D CORSAIR



Although many new carrier-based piston-engine fighters, such as the Grumman F8F Bearcat, and ground attack aircraft, such as the Martin AM Mauler and Douglas AD Skyraider, had been developed at the end of World War II, one of the most successful post-war aircraft was a pre-war design: the Vought F4U Corsair. Originally designed as a fighter, this famous airplane prolonged its operational history by proving its worth as a versatile dive-bomber and ground attack aircraft. In response to a US Navy request for a new carrier-based fighter design in early 1938, Vought designers developed the V-166. This model was accepted for testing as the XF4U-1 and first flew on May 29, 1940. On October 1 of the

same year, the XF4U-1 became the first American fighter to exceed 400 mile per hour. The basic idea behind the concept was to mate the largest engine then under development, the Pratt & Whitney XR-2800 Double Wasp, with the smallest possible airframe. The powerful engine drove a huge propeller, at 13 feet 4 inches diameter, and the fuselage needed to be high off the ground to give the big prop room to spin. Such a high fuselage would have necessitated tall landing gear unsuitable for the hard landings anticipated for the carrier-based design and the trademark inverted gull wing was specifically designed to compensate for this. The addition of fuel tanks in the forward fuselage pushed the cockpit aft, resulting in decreased visibility for the pilot. This factor led to a delay in Navy acceptance of the design as a carrier-based fighter. Carrier pilots needed good visibility and the more conventional F6F Hellcats provided it. Although reluctant to use the Corsair on carriers, the Navy issued them primarily to land-based Marine units who took the planes into operations against the Japanese for the first time in the spring of 1943. The British immediately began employing the Corsairs on carriers and worked out a curving landing approach to keep the deck in sight of the pilot for the longest period possible before touchdown. In light of favorable land-based Marine and British carrier use, the US Navy finally began operational use of the Corsair on carriers in early 1945.

To increase production, contracts for the Corsair were placed with the Brewster and Goodyear companies. Their products were similar to the F4U-1 and were named the F3A-1 and FG-1 respectively. The Goodyear FG-1D included a raised cockpit hood and a water injected engine, but was otherwise identical to the Vought F4U-1. Nearly 12,700 Corsairs were built by these three companies between 1938 and December, 1952, and over 500 major engineering changes and 2,500 minor alterations followed the design's evolution. The Corsair was extensively used in Korea in a fighter and ground-attack role and by Navy Reserve units as an advanced trainer into the late 1950s.

Corsair (FG-1D)

Manufacturer: Goodyear Aircraft Corporation, Akron, Ohio.
Type: Carrier-based fighter.
Accommodation: Pilot.
Power plant: One (1) 2,000 horsepower Pratt & Whitney R-2800-8W.
Dimensions: Span, 41 feet; length, 33 feet 4 inches; height, 16 feet 1 inch; wing area, 314 square feet.
Weights: Empty, 8,982 pounds; gross, 14,000 pounds.
Performance: Maximum speed, 417 miles per hour at 19,900 feet; cruising speed, 182 miles per hour; initial climb, 2,890 feet per minute; service ceiling, 36,900 feet; range, 1,015 statute miles.
Armament: Six (6) fixed forward-firing .50 caliber machine guns.

Of all the submerged Navy aircraft in Washington, the FG-1D Corsairs have received the most public interest due to the recovery of two FG-1Ds from Lake Washington. The first Corsair, BuNo 88382, was recovered on August 11, 1983. Piloted by Commander Ralph Milleson, USNR, this aircraft was involved in a mid-air collision with another FG-1D

on July 29, 1950. The Corsair's gull wings became a temporary catamaran as Milleson ditched the plane roughly 300 yards to the north of the Sand Point shoreline while the other pilot, Ensign Stanley Hayes bailed out of his FG-1D, BuNo 87833, which subsequently crashed into the lake and is still scattered along the bottom off Madison Park (see below). Milleson's plane was recovered by California-based Air Marine Salvage and was restored by John Lane's Air Power Unlimited of Jerome, Idaho, and the Seattle Museum of Flight's facility at Paine Field for a cost of approximately 400,000 dollars. The engine was replaced by one originally slated to go to the conflict in French Indochina and the missing tail cone was re-fashioned from plastic (William Rademaker, Jr. 1996, pers. comm.). The aircraft is presently located in the Museum of Flight and is one of their most popular displays. The second Corsair recovered from the lake crashed three years before Milleson's incident. Ensign Perry Bray, piloting FG-1D(BuNo 88368, lost power due to fuel starvation and was unable to return to the field when he ditched his Corsair roughly one-and-one-half miles north of Sand Point. This aircraft was recovered from the lake exactly 37 years after the incident on June 14, 1947. This aircraft was acquired by the USS *Yorktown* CV-10 Association and Foundation and is presently on display on the famous aircraft carrier in Charleston, South Carolina. In one interesting note, the crash card for this aircraft states that the aircraft sank in 156 feet of water and, "as no decompression chambers are available, divers are not permitted to dive to that depth". This sentence may have some implication for salvor claims that the Navy abandoned aircraft because it refused to recover them. Recovery of aircraft deeper than 150 feet may not have been an option at the time of the accidents. At least four other FG-1Ds, including Hayes' plane, have sunk in Washington waters and not been recovered. The partial remains of another FG-1D may still remain in the Columbia River but it is not clear if this wreckage is on the Washington or Oregon side of the river.

1. Two months after Ensign Bray ditched the plane that would eventually make it to the USS *Yorktown*, Navy Reserve Lieutenant Ralph Kirkland put his Corsair into Rosario Strait. The following incident occurred on August 4, 1947, and resulted in the striking of FG-1D BuNo 88388.

> *ANALYSIS - Pilot, on routine miniature bombing flt over Puget Sound, had completed his bombing runs & was circling target at approx 300' alt. when his engine cut out. He had been airborne one hr. at that time. Pilot states he moved mixture control from auto-lean to auto-rich & turned on emergency fuel pump. Fuel selector, on main, was not changed to reserve. Pilot pumped throttle & while doing so engine caught momentarily. Pilot made good water landing & climbed out & clear altho a/c sank almost immediately on coming to rest. PBY, summoned from NAS, Whidbey by pilot of 2nd a/c in flt made rescue approx 20 min after ditching.*

No further locational information was available for this accident from the Navy records.

2. Another Corsair was lost on September 19, 1948, due to inexplicable fuel system failure over water. First Lieutenant J.R. Knowles USMCR was flying FG-1D BuNo 88161 when he was forced to ditch into the Strait of Juan de Fuca one-quarter mile north of Neah Bay.

ANALYSIS: Pilot was participating in gunnery flt consisting of 8 planes in the gunnery area NAR 8, NW of Neah Bay, Wash. After completing a# of runs, all ammunition being expended, flt proceeded to rendezvous. Pilot was next to the last one to join up with flt. He was near the flt when his engine quit. He immediately went over his emergency checkoff list. Fuel quantity gauge read 0, fuel pressure 0. About lt[?] min prior to time of the engine quitting, gauge read about 115 gals. The fuel selector switch was on reserve tank. Emergency fuel pump was switched on. Pilot stated he flew the entire flt on reserve tank but did try the main tank position of the fuel selector switch & then back to reserve after the engine quit. Pilot prepared to land in water as he was losing altitude rapidly. He double checked all switches & emergency checkoff list rebriefing each item with the flt leader by radio. He landed in Straits of Juan de Fuca about ¼ mile off shore near Neah Bay.

3. Nearly one year later, on September 8, 1949, Lieutenant Commander William Flateboe mysteriously disappeared 20 miles west of Port Angeles during a night flying exercise over the Strait of Juan de Fuca. The violence at which the plane rolled led witnesses to believe some form of structural failure had happened to FG-1D BuNo 88178.

ANALYSIS: Pilot departed this station [NAS Seattle] at approx 2100 on 8 Sept. on a VFR flight plan with the intention of joining up on a two plane section that had departed approx. ten minutes earlier. After joining the section pilot was in formation for several minutes then advised LTJG Miller that he was leaving the formation and would see them in a few minutes. Pilot was seen flying near the formation for the next few minutes and after making a pass under the formation LTJG Miller saw his lights revolve violently to the left and go out. Upon thorough investigation of the facts available the AAR board has been unable to determine the cause of this accident.

4. This Corsair has already been mentioned above. Ensign Stanley Hayes was piloting the aircraft that collided in mid-air with Ralph Milleson's plane over Lake Washington on July 29, 1950. After Milleson's prop cut into the top of Haye's FG-1D, BuNo 87833, fuselage aft of the cockpit, Hayes bailed out of the stricken plane. Hayes was largely uninjured but his aircraft continued into Lake Washington. The scattered remains of this aircraft were brought to the attention of the Washington State Office of Archaeology and Historic Preservation in 1991 by Robert Mester and Historical Aircraft Preservations, Inc. The registration of this site is located in Washington OAHP Submerged Resources File #9/45KI426. According to the Submerged Historic Archaeological Resource Registration Form this group submitted, the wreck of this aircraft lies south of Madison Park on the west shore of Lake Washington in 90 to 110 feet of water. The remains of this aircraft are reported to be spread out over a 100 yard area at Latitude 47° 38' 06"N, Longitude 122° 16' 38"W. The empennage of the Corsair was recovered by Robert Mester and is presently next to the Pearson Air Park Museum in Vancouver, Washington. Other Corsair material, most likely from BuNo 87833, including a propeller hub, a damaged propeller blade fragment, a Very pistol, and a tail cone are on display inside the museum.

5. On October 18, 1950, FG-1D BuNo 76535, piloted by Lieutenant Edward Slovek, was seen to crash into the Columbia River three miles northeast of St. Helens, Oregon, during a ferrying flight from Salem, Oregon. The US Navy dragged the river after pieces of the wreckage were apparently picked up in a fishing net. Divers recovered the engine and at least one wing two days later, but other portions of the aircraft and Slovek's body were not recovered (Unander 1990). According to the crash card for this incident, the pilot became disoriented while flying through a smoke cloud and became separated from the lead plane.

> *Witnesses on shore of Columbia River agree that Slovek's a/c emerged from cloud base at approx. 400' & dove into river, heading in NWly direction. A/c exploded on contact. Salvage of a/c was completed but no trace of body was found to date. It is believed that Slovek became disoriented while following Collins into cloud & lost control of a/c, resulting in fatal crash.*

According to Sig Unander, in addition to the pilot, some material from the aircraft was not recovered from this crash site (Unander 1996, pers. comm.). The Columbia River is oriented in a nearly North-South direction in this area and the boundary line between Oregon and Washington runs closer to the east (Washington) side. Any remains associated with this wreck may be in Oregon waters.

TWIN ENGINE AIRCRAFT

LOCKHEED PV-2 HARPOON

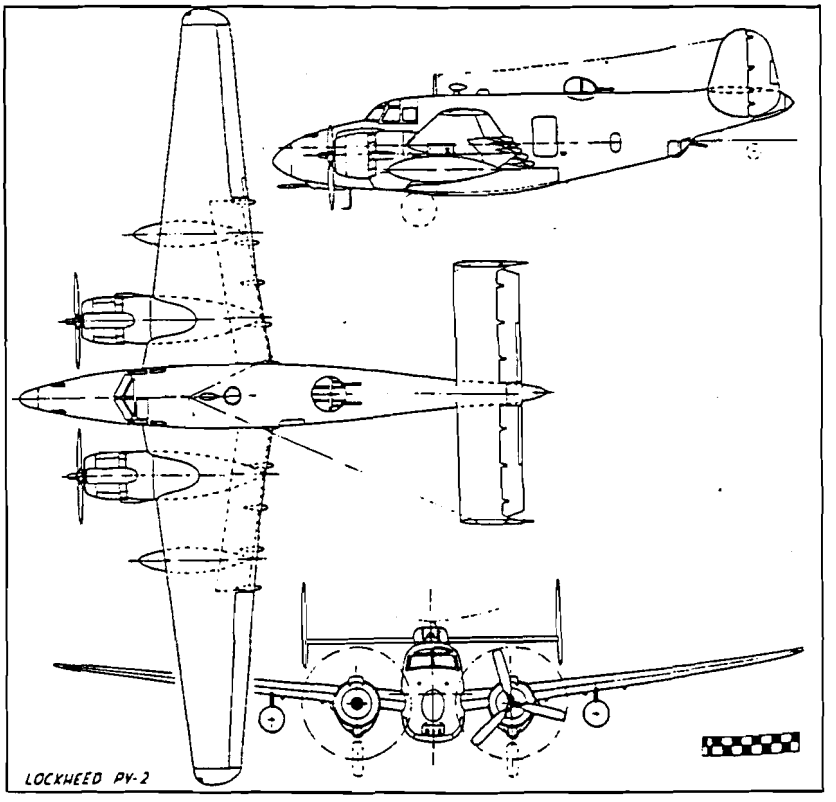
The PV-2 Harpoon grew out of the PV-1 Ventura design as a long-range version and was similar in overall appearance. The Harpoon shared the same power plant and twin tailed configuration of the Ventura but had longer constant-taper wings, a rectangular tailplane, larger vertical stabilizers and rudders, increased fuel capacity, increased armament, and a larger bomb-bay to completely enclose a torpedo. The new improvements did not make the Harpoons any more popular with their crews. Some Harpoons saw action on the last year of the Pacific campaigns but saw most of their use in the hands of US Navy Reserve units after the war.

Lockheed Harpoon (PV-2)

Manufacturer: Lockheed (Vega) Aircraft Division, Burbank, California.
Type: Patrol-bomber.
Accommodation: Crew of four or five.
Power plant: Two (1) 2,000 horsepower Pratt & Whitney R-2800-31 radials.
Dimensions: Span, 74 feet 11 inches; length, 52 feet; height, 11 feet 11 inches; wing area, 686 square feet.
Weights: Empty, 21,028 pounds; gross, 36,000 pounds.

Performance: Maximum speed, 282 miles per hour at 13,700 feet; cruising speed, 171 miles per hour; initial climb rate, 1,630 feet per minute; service ceiling, 23,900 feet; range, 1,790 statute miles

Armament: Five (5) fixed forward-firing .50 caliber machine guns nose; two flexible .50 caliber machine guns in each dorsal turret and ventral mount. Up to four (4) 1,000 pound bombs internal and two (2) 1,000 pound bombs under wings. Subcaliber rockets could also be fitted under the wings as well as two Tiny Tim rockets mounted internally.



1. On September 4, 1947, Ensign Richard Donelson, and his co-pilot, Lieutenant Raymond Soelter ditched a PV-2 Harpoon roughly 1,000 yards north of the end of the Runway at Sand Point. The Aircraft Accident Summary Report for this incident lists the aircraft as PV-2 BuNo 37528.

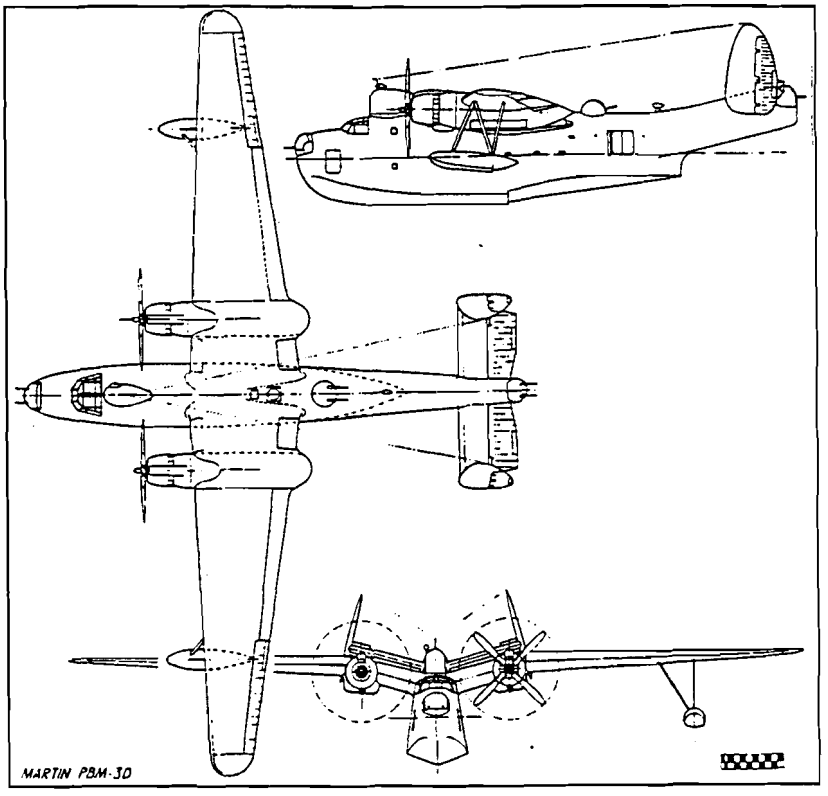
ANALYSIS: Pilot stated controls were checked prior to taxiing & worked satisfactorily. Before takeoff run pilot set elevator tab at 5° nose up position,. During takeoff run pilot states that tail was slow in lifting & that he rolled nose down tab # of degrees unknown. Tail raised satisfactorily & to aid in becoming airborne pilot rolled tab towards nose up position, # of degrees were not checked. A/c did not respond to movements of elevator control altho pilot states that he could feel pressure on control indicating that elevator was functioning normally...There

were many eye witnesses of this accident & all agree that spd of a/c at last of run was more than sufficient for takeoff. Switches were out at end of runway, flaps were lowered, wheels remained extended and a/c was ditched approx 1000 yards off end of runway in Lake Wash. When a/c left runway it had between 0 & 3' altitude and gained approx 20' after flaps were lowered. A/c hit in 3 pt attitude & was reported by pilots & witnesses to have skipped 3 times before nosing up. This is of interest as wheels were extended & witnesses reported a/c skipped off wheels & not fuselage. A/c was fueled to 800 gals. & 200 lbs of sand was placed in aft section giving satisfactory center of gravity. Inves disclosed that this a/c had reputation for controls being sloppy. This discrepancy had never been reported. Actual cause of accident cannot be determined as a/c was never recovered.

This aircraft is one of the well known wrecks in Lake Washington. As part of a request for a Right of First Refusal for an excavation and removal permit made by Robert Mester, and Maritime Ventures, Inc., the location of this aircraft, remote sensing images, and video documentation were forwarded to the Washington State Office of Archaeology and Historic Preservation (OAHP) on July 7, 1988. This material is on file at OAHP in Olympia, Washington, as Submerged Resource File #2/45KI403. This aircraft rests at a depth of 144 feet at Latitude 47° 41' 6.2"N, Longitude 122° 15' 6"W. The Harpoon is oriented in a nearly vertical position buried nearly 11 feet into the silt up to the cockpit. The condition of this aircraft is reported to be good. Robert Mester believes this aircraft is a rare PV-2D "strafer" model of which only 33 to 35 were built. This aircraft differed from the standard Harpoon by having a reconfigured nose which held eight fixed forward-firing .50 caliber machine guns instead of the usual five. Because the nose is buried in the mud, the aircraft's "unique tail configuration and the location of the belly windows" led Maritime Ventures, Inc., to this conclusion in a letter written to then acting Washington State Historic Preservation Officer, Jake Thomas, on October 14, 1988 (Mester 1988). According to the same letter, the US Navy verified the PV-2D from the bureau number as one that had been retrofitted as this unique model. On the basis of the rarity of the "D" model, the aircraft was deemed eligible for listing on the National Register of Historic Places and the State Register of Historic Places. However, according to the Aircraft Accident Summary Report for this incident, the model of aircraft was given only as PV-2 with no "D" subdesignation. The bureau number, BuNo 37528, falls within a run of serial numbers from 37065 to 37534 given by the Bureau of Aeronautics to PV-2 models. The first sub-series of PV-2Ds was given bureau numbers between 37535 and 37550 (Swanborough and Bowers 1990:289; Danby 1977:30). The production of 73 of these "D" models (BuNos 37551 to 37623) was canceled. It is possible this aircraft, BuNo 37528, was retrofitted as a "D" model and that this was not indicated on the Aircraft Accident Summary Report. A total of 533 Harpoons was manufactured.

According to John Wulle of the Pearson Air Museum Park in Vancouver, Washington, a 500 pound bomb lies on the bottom near the aircraft. It is not known whether this is a dummy practice bomb or not (John Wulle 1995, pers. comm.). The Aircraft Accident Summary Report for the incident gives the purpose of the flight which resulted in the loss of this Harpoon simply as "bombing". It gives no detail about the status of the ordnance on board the aircraft. A navigator's sight gauge and a glass cockpit window from the Harpoon are on loan to the Museum from Robert Mester.

MARTIN PBM-5 MARINER



Another twin-engine aircraft on the bottom of Lake Washington which has generated considerable interest over the last twenty years is a Martin PBM-5 Mariner flying-boat. The Glenn L. Martin Company of Baltimore, Maryland, first began producing flying-boats for the US Navy in the late 1920s. At first these were other company's designs but, by producing these planes, Martin gained the know-how to develop its own plane. A rivalry had built up between Martin and Consolidated and, in 1937, Martin designers came up with the Model 162 to directly challenge Consolidated's PBY Catalina design. The Model 162 had a deep hull, twin tail, and gull wings. Martin built a quarter-scale model to test the design and the Navy ordered a full-scale prototype on 30 June, 1937. The XPBM-1 featured retractable stabilizing floats and a flat tailplane with twin fins. When dihedral was incorporated into the tailplane, the tail fins canted in towards each other and gave the prototype a distinctive look which survived into production. The first 20 Mariner PBM-1s, and single PBM-2, went into service with the Navy in 1941. The first PBM-3s, with permanently fixed floats, began to appear early in the war and represented the principal model produced during the war years. Later PBM-3s were equipped with radar in a large housing above and aft of the cockpit. The radar housing became standard in the PBM-5, which was the final wartime production version of the Mariner. A total of 589 PBM-5s was built out of the 1,289 Mariners produced overall during the war. Post-war production increased these numbers to 627 PBM-5s of

1,366 total Mariners. Thirty-six amphibious PBM-5As were produced after the end of hostilities and these represented the last of the Mariner line. No PBM-4s were produced.

In some respects the PBM outperformed the PBY, but not enough to replace the design, and Mariners were used to supplement the ubiquitous Catalinas. Mariners sank 10 of the 29 enemy submarines sunk by US Navy flying boats during World War II.

Mariner (PBM-5)

Manufacturer: Glenn L. Martin Company, Baltimore, Maryland.
Type: Patrol-bomber, flying-boat.
Accommodation: Crew of nine.
Power plant: Two (1) 2,100 horsepower Wright R-2,800-34 radials.
Dimensions: Span, 118 feet; length, 79 feet 10 inches; height, 24 feet 10 inches; wing area, 1,408 square feet.
Weights: Empty, 32,840 pounds; gross, 56,000 pounds.
Performance: Maximum speed, 211 miles per hour at 16,100 feet; climb rate, 450 feet per minute; service ceiling, 19,800 feet; range, 2,480 statute miles.
Armament: Two (2) flexible .50 caliber machine guns in power-operated nose and dorsal turrets; one (1) .50 caliber machine gun in tail turret; two (2) flexible .50 caliber machine guns on either side of waist; up to 4,000 pounds of bombs, torpedoes mines, or depth charges.

1. On May 6, 1949, Lieutenant Ralph W. Frame, his co-pilot B.F. Nicholls, and five other crew members were involved in a taxiing accident which resulted in the sinking of Martin Mariner PBM-5 BuNo 59172 at the south end of Lake Washington near the Boeing-Renton seaplane ramp. The crew had just flown the plane from Sand Point to the Navy plane storage center at the north end of the Boeing-Renton plant when the incident occurred. While proceeding to the ramp the plane was turned towards pilings by a gust of wind. A piling tore off the starboard stabilizing float and wing tip causing the plane to dip to that side despite efforts to increase power to keep the crippled wing out of the water. Apparently, members of the crew even got on the opposite wing to balance the aircraft (R.A. Hoffman 1996, pers. comm.). The Mariner turned over and sank after her crew escaped into a life raft. The aircraft came to rest on its back in approximately 80 feet of water in an area of active siltation from the mouth of the Cedar River. The pilot made a note in his logbook next to the aircraft's bureau number: "Sank this one (R.A. Hoffman 1995, pers. comm.)."

> *SPEC. ERRORS - Failure to analyze thoroly probable changing wind conditions in immediate vicinity of approach area. 2)Failure to takeoff all power after sharp veering toward obstructions.*
> *ANALYSIS - In view of existing wind conditions & surrounding terrain & obstructions, the type of approach to make is considered to be pilot's decision & choice made is considered to be sound. However, pilot apparently failed to analyze thoroly probable changing wind conditions in the immediate vicinity of approach & ramp area. By time sharp veering to port occurred, approach had progressed to*

point where safe exit to port was no longer considered feasible by use of power. After sharp veering occurred, pilot applied full power to stbd engine which increased radius of turn toward obstructions.
SPEC. EQUIP - Life jackets & life raft operated satisfactorily & effectively.
CO - Instructions have been issued that no power approaches will be made on Boeing-Renton Seaplane Ramp when on shore winds are in excess of 12 kts.

Interest in recovery of the Mariner by private parties reaches back to 1955 when Lyon McCandless, one of the first scuba divers in the area, learned of the sunken aircraft. One of the members of his Boeing carpool was an eyewitness to the sinking and informed Mr. McCandless of the approximate loss location. For several years in the early 1950s the area was the location of a very large log boom which covered the site. Mr. McCandless did not feel it was safe to dive under the log boom and never returned to search for the aircraft (Lyon McCandless 1996, pers. comm.). According to Matt McCauley, a scuba diver named Anderson may have been one of the first civilians to see the Mariner when he located it in 1972 (Matt McCauley 1996, pers. comm.). Naval Base Seattle maintains a file of correspondence, newspaper clippings, photos, maps, and legal documents related to submerged aircraft in Lake Washington which stacks about eight inches thick. A large part of these materials relate to the Mariner. By the early 1980s, a 15-year long paper trail had been generated regarding proposed recovery of the aircraft and more was yet to come. A flurry of activity surrounding the Mariner occurred in 1980-1981 and another in 1991. To the frustration of many, neither resulted in the recovery of the Mariner.

In 1980, a group of scuba divers, many of them Boeing employees, began efforts to recover the PBM. Led by Larry Allen, the divers formed the non-profit Underwater Historical Research and Recovery Foundation (UHRRF) and actively searched for submerged aircraft in Lake Washington. The groups primary interest revolved around the recovery of the Martin Mariner and for several months in 1980 and 1981 the group made numerous dives on the site. With recovery in mind, UHRRF personnel removed silt from inside the inverted aircraft fuselage and overburden from the top of the wings. Near the mouth of the Cedar River, this location is an area of active deposition. Numerous small materials were recovered from the site including two of the .50 caliber machine guns, which were turned over to the Navy EOD for demilitarization. UHRRF envisioned recovery of the aircraft for the Museum of Flight located at Boeing Field, the Confederate Air Force, or other interested parties. However, the National Museum of Naval Aviation (NMNA) at Pensacola, Florida, expressed its desire for the aircraft and received a priority claim on the Mariner. UHRRF personnel claimed the Navy was "stealing" the aircraft which they had been preparing for recovery without offering compensation for their time upwards of 22,000 dollars the group claimed to have spent. The Navy did not envision compensating the group for unauthorized work and unauthorized recovery of materials from the site. This conflict caught the interest of the local news media which willingly facilitated a "PR" battle. In the fall of 1981, UHRRF reluctantly acknowledged the NMNA claim to the aircraft and turned over to the Navy over 100 items which had been removed from the site. Apparently, these items were sent to Pensacola on December 9, 1981, and are still held at the NMNA to be reintroduced to the PBM for display sometime in the future. IARII was unable to locate any

of the former members of UHRRF during the research phase of this report. A glass "porthole" hatch and another all-metal hatch are presently on display at the Pearson Air Park Museum in Vancouver, Washington. The Mariner's sextant may also be at the museum but was not on display. Two of the large side hatches from the Mariner were reportedly melted down for aluminum scrap (Robert Mester 1996, pers. comm.).

In early 1982, a loose coalition of interested parties formed the Committee for Recovery and Restoration of Naval Aircraft from Lake Washington (CRRNALW). Made up of members of the Pacific Trading Company, the Pacific Museum of Flight, the 13th Naval District Harbor Clearance Unit, UHRRF, and Naval Aviation Museum Foundation, the group met at least once to discuss recovery of the PBM and other Navy aircraft in the lake. For a brief period this aircraft was referred to in correspondence between interested parties as BuNo 59174. The PBM-5 Martin Mariner was not raised in the early 1980s. This was likely due to logistical and financial obstacles.

Early in 1989, Robert Mester of Maritime Ventures, Inc., requested and was granted a Right of First Refusal by OAHP for salvage of what was then believed to be a PBM-3 resting at Latitude 47° 30' 3.4"N, Longitude 122° 12' 8.8"W. On the basis of this information, OAHP created an inventory form for this site, 45KI404, and created Submerged Resource File SR#3 at OAHP in Olympia, Washington. In May of the same year, Maritime Ventures, Inc., updated the documentation to correctly identify the Mariner as a PBM-5. However, the bureau number, BuNo 98610, was misidentified. Maritime Ventures also expressed their concern at the interest by other parties in its recovery.

In August, 1990, the Navy Mobile Diving and Salvage Unit 522 (MDSU 522) of Seattle began work on the plane as a training exercise for reserve divers. The plane was apparently to be recovered for display at the NMNA. The exercise involved training in underwater survey and mapping techniques and removal of silt from over and around the aircraft. During a strenuous dive to remove silt from the wing with a 10-inch suction pump and a fire hose, a reserve MDSU diver, 37 year old Ted Gunhus, experienced breathing difficulties and requested to return to the surface. During ascent, Mr. Gunhus lost consciousness and was brought to the surface where CPR was administered before being transferred to Virginia Mason Hospital's recompression chamber. Gunhus' condition deteriorated 24 hours after being admitted to the intensive care unit and he died on the afternoon of August 27, 1990. An autopsy revealed that Gunhus had experienced a heart attack while working on the bottom due to a pre-existing heart condition.

Maritime Ventures, Inc., learned of the recovery effort through media coverage of the incident and contacted the Navy to inform them of the right of first refusal certification issued to the group by the OAHP. The conflict came to the attention of the local media who, once again, covered it eagerly. The situation prompted Jake Thomas, SHPO, to write a letter to the Chief of Naval Operations expressing his concerns regarding unresolved legal issues pertaining to dredging permits, Section 106 compliance, and ownership of the aircraft in light of the Federal Abandoned Shipwreck Act of 1987 and Washington State statutes on

Archaeological Sites and Resources. The Navy MDSU ceased organized efforts at recovery of the aircraft.

The Mariner/Marlin Association, a group of veterans who served on Martin flying boats during and after World War II, are presently seeking to finally recover the Mariner. They wish to again utilize the Navy MDSU to recover the aircraft. They hope to transport the aircraft to Baltimore, Maryland, the home of Martin/Marietta and the Mariner, or to the NMNA in Pensacola, Florida for restoration[8]. The group is in possession of video documentation of the aircraft which was produced in 1994 under contract by Robert Mester's company, Underwater Atmospheric Systems, Inc., for the National Museum of Naval Aviation. The video apparently shows some damage to the port wing tip of the aircraft, where she struck the piling, and other damage.

Activity around the aircraft in the early 1980s may have resulted in some damage to the aircraft during recovery efforts of the UHRRF or from other sport divers or souvenir hunters. In August, October, and December of 1981, Navy divers visited the aircraft to survey the site and compiled the results in a report titled, *Technical Feasibility of Salvaging the PBM-5*, on file at the Office of Counsel, Naval Station Puget Sound at Bangor. This survey was conducted during active recovery efforts of the UHRRF team and possibly other parties. When the Navy divers first visited the site, about nine feet of the inverted aircraft extended up out of the silt and two of the starboard hatches were open. These allowed access to the inside of the aircraft. The tail of the aircraft was still completely buried during the first dive in August and less than a foot of blade from each engine's propeller blade visible above the sediment. Divers also located the port stabilizing float lying detached in the mud. The thick "belly" of the fuselage was intact as was the majority of the exposed skin. By December, UHRRF divers had removed approximately two to three feet of mud from around the fuselage and had dug deeper holes over the engines and near the starboard access hatch. The bottom of the twin vertical stabilizers and the tail turret were exposed. A nearly two-by-two foot section of fabric had been torn from the port rudder and the starboard rudder exhibited a two-foot-long tear in the cloth fabric. The fragile fabric covering the tail rudders, which may have been preserved in the mud up to 1981, has since completely rotted away

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[8] Naval Reserve Mobile Diving and Salvage Unit One's Detachment 522 (NRMDSU-1 Det 522) of Naval Station Everett and a number of participating NRMDSU detachments from outside Washington worked to recover the Mariner from the bottom of Lake Washington between August 19 and October 19, 1996. The project was conceived to 1) provide training for MDSU personnel and 2) to recover the historic PBM-5. While the project was successful in its training goal (over 500 dives were conducted) it was not successful in raising the Mariner. The tail section separated and broke into three sections during an attempt to free the upside-down aircraft from the bottom silt. Salvage operations were suspended immediately. Navy personnel decided to seal openings in the remaining portion of the aircraft (e.g., original access doors and the break at the tail) with mesh screens to deny access to divers. The separate tail fragments were turned over to the NMNA for long-term storage. The condition and status of the site as it now stands is presently under consideration, including one proposal to develop the site into an underwater historic wreck preserve. An archaeological assessment of the site and the attempted recovery is presently under development at the NHC and the results will be available in 1997.

exposing the internal framework (Mester 1994). The Navy divers were also unable to locate the loose port stabilizing float they had observed in August, 1981. This float is somewhat problematic because contemporary reports of the sinking indicate that the starboard float and wing tip were damaged in the collision with the piling, not the port side. The aft portion of the float which may still be attached to the aircraft is damaged according to both the Navy surveys of 1981 and the Underwater Atmospheric Services, Inc., survey of 1994. More information is necessary to clarify the status and disposition of the stabilizing floats.

It is clear that increased activity around the site, and two incomplete recovery attempts, have been detrimental to the condition of the aircraft. Increased exposure of the aircraft has made the skin more susceptible to damage from the environment, anchors, divers, and the hoses and other equipment utilized to remove overburden from the site. Trapped gases from scuba divers may have exposed the interior of the fuselage to an increased level of corrosion as well.

In a situation similar to the one involving PBYs, more than one Martin Mariner has been reported in Lake Washington. Indeed, one list, generated by Larry Allen and UHRRF, lists the locations of five PBMs in the lake! Two of these reportedly ran into each other north of Mercer Island. Some of the newspaper articles contain reports of a white PBM in the lake. According to Robert Mester, this aircraft was reportedly used in some capacity by Admiral Chester Nimitz. One newspaper article about the material at the Pearson Air Park Museum states that the Very signaling pistol is from Chester Nimitz's personal "YBM [sic] Mariner bomber (*Portland Oregonian [PO]* April 12, 1994)." Another newspaper article reports a PBM at a depth of 110 feet that was associated with Admiral William "Bull" Halsey. A thorough search through the Aircraft Accident Summary Reports on microfilm might locate incidents which resulted in the sinking of another PBM in the lake. IARII researchers located one incident on microfilm which resulted in a PBM being stricken after a hard landing on the south end of Lake Washington. On February 20, 1949, Lieutenant Commander Elmer Mann, put PBM-5 BuNo 59254 down hard on the lake and apparently split the hull (Matt McCauley 1996, pers. comm.). Neither the windshield wipers nor the radio altimeter were functioning and a light rain decreased the visibility of the glassy water. Although a "Strike" was indicated on the Aircraft Accident Summary Report for this incident, it does not mention anything about the aircraft sinking. However, the similar report for BuNo 59172 also did not indicate anywhere on the card that the Mariner, which is known to be in the lake, actually sank.

Privateer (PB4Y-2)

Manufacturer: Consolidated Vultee Aircraft Corporation (Convair), San Diego.
Type: Patrol-bomber.
Accommodation: Crew of 11
Power plant: Four (4) 1,350 horsepower Pratt & Whitney R-1,830-94 radials.
Dimensions: Span, 110 feet; length, 74 feet 7 inches; height, 30 feet 1 inch; wing area, 1,048 square feet.
Weights: Empty, 37,485 pounds; gross, 65,000 pounds.
Performance: Maximum speed, 237 miles per hour at 13,750 feet; cruising speed, 140 miles per hour; initial climb rate, 1,090 feet per minute; service ceiling, 20,700 feet; range, 2,800 statute miles.
Armament: Twelve (12) flexible .50 caliber machine guns in waist and power-operated nose, dorsal, and tail turrets; up to 1,600 pounds of bombs.

1. Seven crewmen died when a PB4Y-2S Privateer plummeted into Saratoga Passage on September 19, 1950. The aircraft, BuNo 59840, piloted by Lieutenant (jg) S.C. Topolski, also contained the following personnel: Lt. D.S. Bed, Lt(jg) L.W. Schmidt, ADE2 David Candler, ADE2 James Cook, AI1 Edgar Monell, and ADC Vernon Alexander.

Plane was observed descending out of control and in a slow spin. It was first observed at an altitude of 3000-4000 feet and appeared intact and not on fire. No one was seen attempting to leave the plane during its descent. No survivors were seen in the water.

Plane was first observed NE of Coupeville airstrip climbing on a SE course. Rate of climb appeared to be fairly constant and high (est. 700' per min or more). Rate of climb was almost parallel with vapor trails made by an unidentified fighter type a/c 30 seconds earlier.

PB4Y maintained its heading and rate of climb to an altitude estimated at 7500' and 4 mi SE of Coupeville tower. At this point the a/c appeared to stall out on the left wing with nose traveling from a nose-high attitude to a nose down and a left hand spin developed. The a/c completed 3 tight turns to the left, out of control and losing altitude rapidly. At an altitude of 2500' the spin slowed and the nose of the a/c was raised to about a 20° nose low attitude. Then a slow, almost flat spin, developed to the left for three quarters of a turn. At the end of the first three turns and during the flat spin, the nose of the aircraft seemed to have been pulled up abruptly and the a/c appeared to have a sinking effect. It appeared that the pilot attempted to recover to a normal horizontal attitude without completely stopping the spin to the left.

After completion of three-quarters of a flat turn, the left wing and nose dropped suddenly and a very tight left spin developed. (That is when the surge of power was heard to have been applied.) The nose dropped to a nose low altitude of 70° or more.

Three additional turns were observed. On the first of these turns the a/c appeared to begin breaking apart. That is, unidentified parts could be seen falling free of the plane. I believe these to be the control surfaces.

These last three turns were very steep and tight. In fact so steep that I am not too sure that the aircraft wasn't in a slight inverted spin.

At the end of three turns the a/c disappeared from view behind the trees surrounding the strip. When last observed the wings and tail section were still intact. At no time was any explosion of any kind observed.

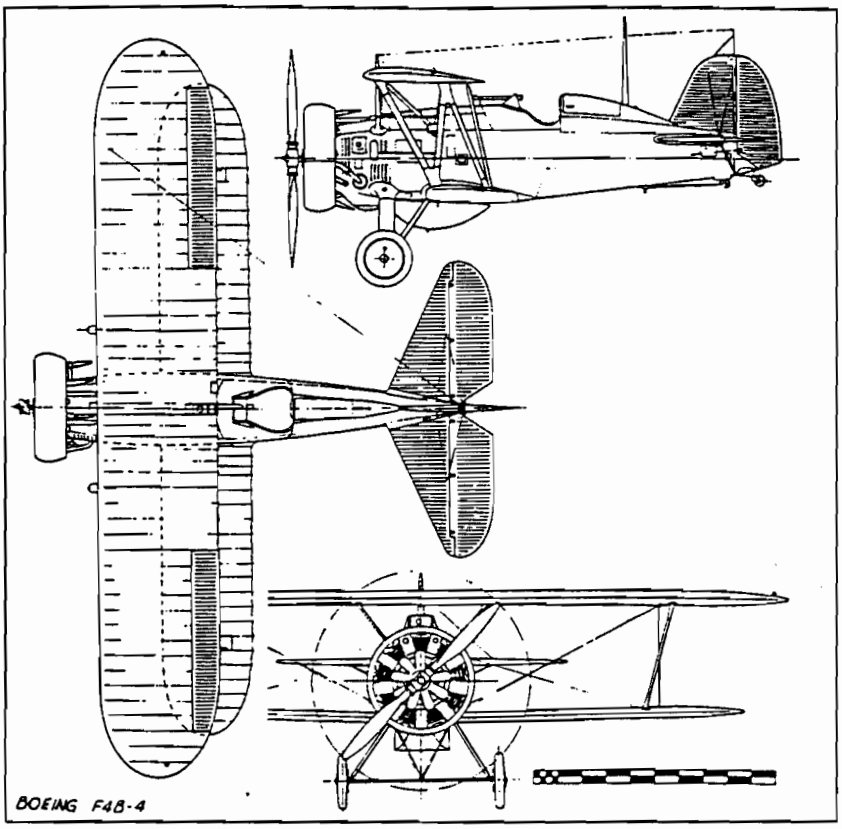
No further information about the aircraft or crew were indicated in the report. It is unknown if any of the victims of this tragedy were ever recovered or if any wreckage was observed on the water.

Another Privateer represents one of the most well known Navy aircraft in Washington waters. On August 26, 1956, PB4Y-2 Privateer BuNo 59695, probably a redesignated P4Y-2, crashed into Lake Washington at Latitude 47° 40' 5.7"N, Longitude 122° 14' 5.3"W off the west side of Sand Point (Mester 1988b). This aircraft is a popular target for side-scan sonar testing and display because it rests upright on its landing gear on a flat bottom at a depth of 147 feet and provides dramatic results. An aborted Navy attempt to recover this aircraft resulted in the removal of the two inboard engines soon after the crash. According to Robert Mester, the aircraft was in good condition, with many of the .50 caliber machine guns still in place, at the time of his registration of the site with OAHP in 1988. The site is designated OAHP SR#1/45KI402. Because this incident occurred in 1956, information surrounding the incident is on file at the Naval Safety Center and not at the Aviation History Branch (AVH) of the Naval Historical Center. According to Roy Grossnick at AVH, it will be difficult to retrieve these documents because of legal issues surrounding witness statements in these more recent reports (Roy Grossnick 1996, pers. comm.). This is one of the best known aircraft in Lake Washington but it is not included in the present inventory because of the difficulty accessing the official account of its crashing, and since the incident occurred after the 1952 cut-off date for this project.

UNCONFIRMED NAVY AIRCRAFT

With estimates of submerged aircraft in Lake Washington reaching up to 109, it is not surprising that there are many unconfirmed reports of aircraft in the lake. Besides civilian types, including a Republic SeaBee removed from the lake by Robert Mester in 1991, there are reports of Army, Army Air Corps, and Air Force planes resting on, or in, the sediment at the bottom of Lake Washington. Two Lockheed P-38 Lightnings and the remains of their pilots are included in some of the unconfirmed lists of aircraft in the lake. There are other reports of a Boeing B-17 Flying Fortress, a Boeing P-26 Peashooter, a Douglas DC-6, a Curtiss P-46, a Douglas C-118 Liftmaster, a Consolidated B-24 Liberator, and a Stearman-Boeing Kaydet in the lake. In an enthusiastic use of numbers, rumor also holds that many Grumman aircraft, including an A-6, an F-6, an F-7, an F-8, an F-9, and a Douglas AD-1 Skyraider are also in the waters off Sand Point. A P2V has also been mentioned in the literature as being in the lake, this may be a Neptune which was lost after the period we have examined, but is likely due to a mistaken designation for the PV-2 Harpoon. Although IARII did not research any purported non-Navy aircraft, it seems likely that most of the Navy aircraft reports are due to mistaken identity or inflated numbers of aircraft actually in the lake, aircraft which did crash in the lake but were recovered, reports of intentionally abandoned hulks, or simple wishful thinking and exaggeration. Reports of sunken aircraft are readily shared, regardless of their accuracy. This is especially true of rare and valuable aircraft like the Boeing P-26 Peashooter reported to be north of Sand Point.

Persistent reports of one particular rare and valuable Navy aircraft type, the Boeing F4B-4 metal biplane fighter, have been widely repeated and publicized. One to three Boeing F4B-4s have been reported in Lake Washington. When the first reports of F4B-4s in the lake began is not exactly clear, however, Gary Larkins brought a side-scan sonar to the area in 1978 and carried out a 40-day survey of the lake bottom and located 21 aircraft (Gary Larkins 1996, pers. comm.). In addition to the now well known aircraft in the lake, including the two FG-1Ds which were removed, Mr. Larkins stated that he had possibly found up to three F4B-4s, but that the identity was not absolutely confirmed due to the depth of water and siltation over the sites. In 1980, the activities of Larry Allen and the UHRRF began to be reported in the local papers, much of this attention was focused on the conflict over the PBM but also on other submerged aircraft and shipwrecks alleged to be on the bottom of Lake Washington. The group claimed to have researched local newspaper accounts, Navy Aircraft Accident Summary Reports, operational histories, tower records, and other available records. They stated that they had spoken with Navy and Coast Guard personnel, eyewitnesses, and other "old timers" in the area. According to Larry Allen, this research indicated that 109 civilian and military aircraft had ditched in the lake between 1935 and 1943 (*Journal-American [JA]* February 22, 1982:A1-A2). Larry Allen stated that he had located 25 of these aircraft with side-scan sonar. Two of these were F4B-4s, touted as possibly the most valuable aircraft in the lake due to the demand for this type by museums.



There were many parties interested in the reports of F4B-4s, including the Pacific Museum of Flight which was very interested in the alleged Boeing-built fighters. Carl Eurick's company, Marine Services Underwater, Inc., Doug Logan's I.D. Logan Salvage and Recovery, and Gary Larkins sought to recover potentially valuable aircraft from Lake Washington pending Navy approval. According to Larry Allen and Brian Henderson, of Underwater Specialists, F4B-4 BuNo 9028 which sank on July 21, 1941, and F4B-4A BuNo 2510 which was lost on August 9, 1942, were both in the lake. All of the parties involved were very tight-lipped about the alleged location of these aircraft. The general consensus of other interested parties at the time held that a map of submerged aircraft given to the Navy and the OAHP by the Larry Allen's group, the UHRRF, was less than accurate. Indeed, the very existence of F4B-4s in the lake was questioned. Robert Mester and John Wulle contend that sometime after this period of activity an F4B-4 was removed from the lake and a month later they heard about the restoration of an F4B-4 in California (Robert Mester 1995, pers. comm.; John Wulle 1996, pers. comm.). Robert Mester believes that the F4B-4s were located in Lake Washington during the search for the drowned son of a wealthy Seattle family, the Ackerleys, in the late 1930s or early 1940s. According to Robert Mester, one of these aircraft was dredged up accidentally and destroyed while the other aircraft may have been removed in a clandestine fashion from the lake in the mid-1980s (Robert Mester 1996, pers. comm.). Matt McCauley was active in the lake in the mid-1980s and he does not believe any F4B-4s existed in the lake, let alone were salvaged (Matt McCauley 1996, pers.

comm.). Matt McCauley also thinks the story of these F4B-4s was generated during the hunt for Ben Bullitt, the son of another wealthy Seattle family. When Ben Bullitt jumped off his yacht for a late-night swim in 1980, he disappeared and was never seen again. The Bullitts hired local commercial divers and others equipped with side-scan sonar equipment to search for their son. One of the divers reported that he had seen a biplane in the lake but did not record its location because it was not of interest to him. Matt McCauley suggests that stories of the F4B-4s may have sprung up during that time and that such stories are not reliable (Matt McCauley 1996, pers. comm.).

The microfilm records at the AVH contain the Aircraft Accident Summary Reports for F4B-4 aircraft for 1941 and 1942. Incidents involving F4B-4s before or after these two years may be in the microfilm but not indexed. Many of the F4B-4s were used for radio control research and as radio controlled target aircraft in the early 1940s. Some of these were ex-Army P-12s which were given an "A" subdesignation to signify their former Army status (Bowers 1989:189). One Aircraft Accident Summary Report was located for F4B-4 BuNo 2510 in calendar year 1942. This incident occurred in Seaford, Delaware and involved a pilot, William Tucker, who ran into difficulty when the fuel lines clogged. Pilots would often fly in the planes to evaluate radio control gear. If they ran into trouble they would sometimes rip the radio control gear out and attempt to regain control of the situation manually as one pilot did while flying F4B-4 BuNo 9029 over Maui on 21 July, 1941. Although the records on F4B-4 accidents are incomplete, they do cover the years in which the aircraft in Lake Washington were supposed to have gone down. However, if the aircraft were being flown completely by radio control there may be a slight chance the inquiry would not have generated an Aircraft Accident Summary Report. In March, 1996, Gary Larkins stated that he was skeptical about the existence of F4B-4s in Lake Washington because, if they had been lost while being radio controlled, the Navy would have wanted to recover the aircraft. This was not necessarily because of the value of the obsolete plane, but because of the radio gear itself (Gary Larkins 1996, pers. comm.). However, if Navy policy dictated that dives in Lake Washington beyond 150 feet were forbidden, due to a lack of recompression/decompression equipment, the planes may have been beyond reach. The case of the alleged Navy Boeing F4B-4s, and the motives of all of the interested parties, remain a mystery to the IARII research team.

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V. CONCLUSIONS

The research phase of the US Navy Shipwrecks and Submerged Aircraft Study has proven to be an interesting and unique experience. Perhaps due to the nature of the subject matter, IARII researchers were met with very positive responses on almost all fronts. Many of the private individuals were contacted because of a pre-existing interest in shipwrecks or aircraft and were understandably interested in and eager to help with the project. The response from representatives of large, private for-profit companies, non-profit museums, and state and federal agencies was positive as well. On several occasions, individuals took time to assist simply because they were interested in the project, and because the issues were substantially different from those they encountered on a regular basis. Periodic local media coverage has also helped to sustain public interest in the subject of shipwrecks and, in particular, aircraft in Lake Washington.

At the beginning of the project, it was unclear how such a wide variety of planes, ships and wreck sites could be integrated into an efficient research effort. The situation was clarified by limiting the study to US Navy assets. Many of the primary documents needed for such an overview are readily available at one location which is, not surprisingly, the center of US Navy History.

By virtue of being underwater, US Navy shipwrecks and submerged aircraft research is made both more interesting and more difficult. Submerged sites are difficult to locate and may be more difficult to protect than their terrestrial counterparts. Sunken ships and aircraft are very attractive destinations for those in the sport diving community. Souvenir hunting has always been associated with scuba diving. In Western Washington, this generally is limited to the scavenging of bottles and other scattered relics. However, as sport diving increases in popularity in western Washington, and more divers come from out of state, pressure on submerged resources also increases. A diver, who might have left the same item *in situ* a few years ago, may now remove artifacts or material from a site simply before someone else does. This perception by the sport diving community and competitors, such as for-profit salvage firms, has obvious negative connotations for submerged cultural resources. Private salvage firms often operate with a sense of heightened mistrust of both the sport diving community, salvage competitors, and bureaucratic interference. Hence, accurate primary information generated by amateur and professional divers about condition, location, and, indeed, the very existence of submerged sites can be difficult to acquire for an overview such as this.

The above difficulties notwithstanding, we have been able to assemble a substantial body of information on the location and character of US Naval ships and aircraft associated with Washington State waters. Below, research for each are summarized independently.

CONCLUSION — SHIPS

Fewer US Navy ships lie in Washington State waters than originally anticipated. Of the 15 vessels provided by the *US Navy Shipwreck Database Inventory*, only two definitely lie within state waters, *Crow* and *YC-970*. The site of the deliberate wrecking of the *Iroquois/Ionie* after it was beached would be considered to be in state waters if it lies below mean high tide (Lee Stilson 1996, pers. comm.). Another US Navy ship grounded on a state beach and presently rests within waters of the Olympic Coast National Marine Sanctuary. This ship, the *General M.C. Meigs*, was added to the inventory during research as was the unconfirmed sinking of the *YP-83*. Hence, four, possibly five, vessels permanently ended their US Navy careers in Washington State. Only one vessel, the submarine *Bugara*, was lost in federal waters off the coast of Washington, prior to the establishment of the Olympic Coast National Marine Sanctuary. Six other vessels were towed out off Washington to be sunk in international waters. *Addison County*, *Accentor*, *Armstrong County*, *Lyon County*, *Pensacola* and *Warrick* were towed from Washington and sunk. The exact location of the *Saguanash* remains a mystery though her reported loss off the Washington Coast was probably in federal or international waters. Of the 15 original vessels, it was determined that the *Hughes* and *Gibson County* were sunk off the coasts of California and Baja California respectively and *Menhaden* was scrapped in a Portland shipyard.

Fewer US Navy shipwrecks occurred in Washington during the 1800s than was initially expected. Beyond the *Peacock* and *Shark*, wrecked at the mouth of the Columbia River in 1841 and 1846 respectively, no nineteenth-century US Navy ships were lost in that century. A nineteenth-century-era vessel, the *Iroquois/Ionie*, was deliberately wrecked, but only after her useful life came to a close in the early 1900s. What remains of one of the most historically significant US Navy ships to be associated with Washington State can only be determined from field observations.

Very scant information was gathered about the two or three US Navy vessels which sank by accident during World War II. Wartime censorship may have obscured the paper trail which could have shed more light on these incidents. More intensive research efforts may ultimately disclose the location, and/or existence, of these wreck sites. Most of the sunken World War II-era Navy ships associated with Washington State were World War II-era types which were lost, grounded, or sunk intentionally after their useful service life had ended. Unlike most aircraft losses, the larger, slower ships often had surviving crew, witnesses, or time to radio their last locations. It is likely that such information (e.g., the loss of the location of the *Saguanash*) can be gleaned from the labyrinthine medium of governmental and military records with further effort.

Locational information is best for World War II ships which were sunk as targets. It is clear, however, that target vessels were invariably sunk far outside waters which would fall under the jurisdiction of Washington State OAHP or the Aquatic Lands Division of the Department of Natural Resources.

Without intruding on specific topics to be discussed in detail in the management plan, several issues regarding US Navy shipwrecks covered in this inventory are apparent. First, accurate loss locations were discovered for only six of the 13 US Navy vessels included in this. Specific locations for three target ships and three, or four, vessels lost to accident or intentional wrecking could not be found. This information may be difficult to locate. Second, those vessels sunk as targets are no longer the responsibility of Washington State agencies but still should be considered for US Navy management purposes. Accordingly, they were included in the inventory. Third, with the possible exception of the *Iroquois/Ionie*, it is unlikely that any of the US Navy vessels technically in Washington State waters will be eligible for listing on the National Register of Historic Places. The two or three small vessels lost during World War II were not historically significant and the *General M.C. Meigs* and the venerable *Iroquois/Ionie* suffer from a lack of integrity, although the latter has the potential to be an archaeological site. Fourth, while subject to damage, vessels are less susceptible to catastrophic destruction from currents, fishing gear, anchors, and the like than the more fragile sunken aircraft. It is also doubtful that any of the vessels would be looted or salvaged. Too deep for sport divers, the target ships were undoubtedly stripped of any materials which would warrant expenditure by a commercial salvage operation. The two, or three, small US Navy vessels sunk during World War II may be threatened if their location is known, but it is possible that they also are protected from looting and salvage by depth.

CONCLUSION — AIRCRAFT

In retrospect, the most thorough method of accounting for all the Navy aircraft lost in a given state (prior to 1952) would be to read through the entire 34 reels of Aircraft Accident Summary Reports on file at the Aviation History Branch. For a state like Washington, this would require approximately 100 person-hours to accomplish. States like Florida, California, or Hawaii, with long, intense histories of Naval aviation, would require more effort to acquire hard copies of the reports. Other inland states would require less research time.

In order to document aircraft losses thoroughly, the entire collection of Aircraft Accident Summary Reports would need to be examined regardless of the anticipated number of wreck sites. Gaps should be anticipated in these records, (e.g., PBY reports) which would preclude a total accounting of Navy aircraft wreck sites, submerged and terrestrial, for a given state. The information needed to fill such gaps and confirm uncertain reports should come from the operational histories. These histories also contain information about post-crash recoveries and other useful items which may not be indicated on the Aircraft Accident Summary Reports. The unconfirmed loss of the *YP-83* and the general loss location of the *Crow*, for example, were acquired from operational histories during research on aircraft crashes.

Unlike ships, more unrecovered US Navy aircraft are present in Washington waters than initially expected. The numbers were, however, far lower than popular estimates. Of the 44 aircraft documented on Accident Summary Reports, three or four may be removed from the IARII inventory with further research. These, undoubtedly, will be replaced by

others which were not found during the present project. It is difficult to estimate how many unrecovered, submerged US Navy aircraft may have been overlooked, but this number would not be surprising. For example there were two incomplete reports from Sig Unander's database alone which may be confirmed with additional research.

Intentionally dumped aircraft further complicate the issue of submerged Navy planes. Although it may never have been Navy policy to dispose of unusable aircraft and/or parts by disposing of them in water, this activity did occur. The hulks of at least five US Navy aircraft, for example, were intentionally sunk in Lake Washington. It seems likely that aircraft and aircraft parts also were disposed of in this way. However, without a thorough survey of the bottom of Lake Washington, it will never be known for certain.[9] Compounding the issue further is the disposal of damaged aircraft and parts from Navy ships. US Navy carriers, for example, have had aircraft lost and damaged during operations in Washington State waters. Other aircraft were damaged while employed by cruisers and battleships prior to and during World War II. Accordingly, it seems likely that damaged aircraft or parts may have made their way to the bottom of state waters from these sources.

US Navy aircraft in Lake Washington have received particular attention in the past several years. A large part of this is, no doubt, due to that lake's proximity to Seattle, but other factors are involved. The perceived monetary value of aircraft in the dark waters of the freshwater lake has added to an atmosphere of hype, exaggeration, and mistrust. At times, numbers of aircraft in the lake circulated by the media exceeded the expected numbers of submerged aircraft for the entire state. Indeed, the estimates of US Navy aircraft in the lake, nearly 40, approach the total number of US Navy aircraft included in the IARII inventory for all of Washington. Media stories about the activities of salvors, or hopeful salvors, often raised more questions than they answered.

Based on current research results, we are certain that there are at least portions of eight US Navy aircraft in Lake Washington: one forward portion of a float from a J2F Duck, one scattered FG-1D Corsair which has had material removed, one F4F-4 Wildcat, one SNV-2 Valiant trainer, one TBF-1 Avenger, one PV-2 Harpoon, one PBM-5 Mariner, and one PB4Y-2 Privateer which entered the lake after the period covered by this inventory. The existence of a second F4F-4 Wildcat is questionable, as is the existence of a SBD-5 Dauntless which was probably recovered soon after crashing. These last two aircraft are included in the inventory pending further information.

It is interesting to note that Lake Washington has received the lion's share of attention despite the modest number of documented crashes. Thirty-seven US Navy aircraft were included in the inventory which did not crash in Lake Washington. Of this larger total, two went into the Columbia River, seven are off the coast, and five crashed in the Strait of Juan de Fuca. The remainder of the aircraft crashed in northern Puget Sound and in waters around Smith Island and Whidbey Island. With the possible exception of aircraft in the Columbia River, it is highly unlikely that any of these aircraft were ever recovered.

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[9] Similar materials may have been disposed of off Whidbey Island.

Unlike US Navy ships, which have written histories, researching the background of a particular aircraft takes considerable effort due to the itinerant nature of their service assignments. For example, an aircraft may have been associated with historic events or persons during World War II, only to be later lost during a routine flight after passing through different units and/or stations or carriers. Research about extant examples is also necessary to ascertain the rarity of a given type and/or modifications or special equipment associated with an aircraft. Integrity of crashed aircraft is also an important issue. Many of the aircraft in this inventory entered the water at high speed and were broken apart by impact. The rapid introduction of cold water to hot engines sometimes damaged these components as well. Some of the US Navy aircraft in Washington State waters went down with some or all of their aircrews. As a result, human remains are likely still associated with some crash sites. With a few exceptions, most planes also entered the water with fuel in their tanks and/or live ordnance. In addition to environmental deterioration, these aircraft are susceptible to damage by fishing gear, anchors, dredging, and other human activities. The aircraft in Lake Washington are especially vulnerable to looting by divers.

Clearly, there are many issues associated with rare and historic aircraft and ships which have implications for National Register eligibility and management. We hope that the present document has been of some use in clarifying the character of these classes of cultural remains, and in pointing out some of the ways in which research and management practices can be refined further. IARII looks forward to examining them in detail in the forthcoming management plan.

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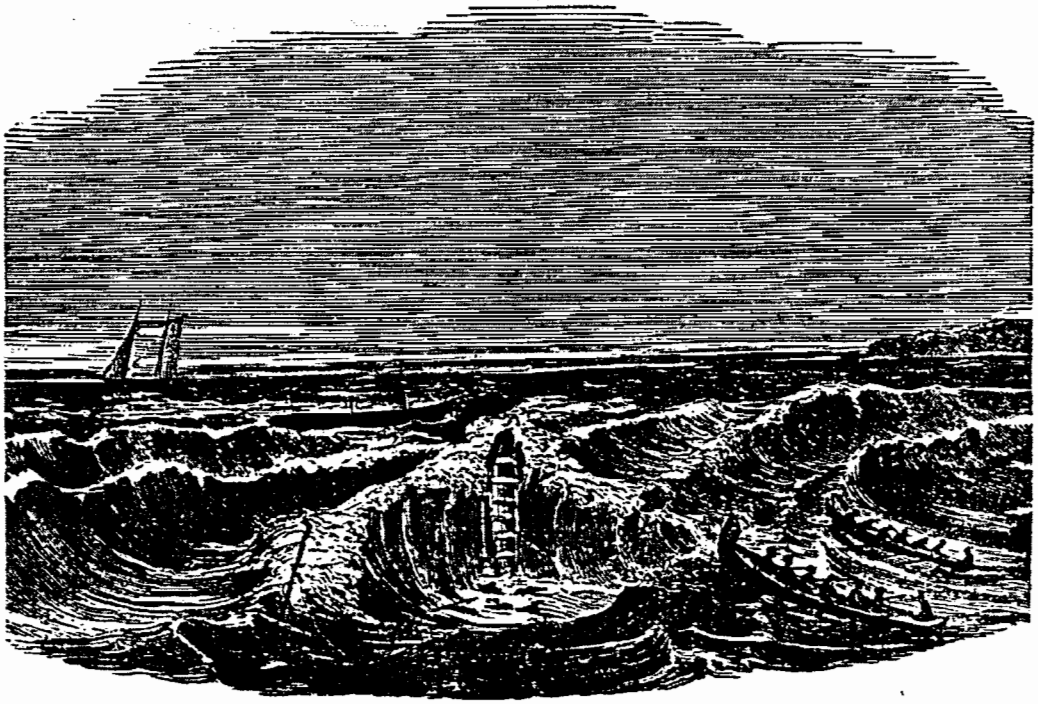
APPENDIX A

USS *PEACOCK*



THE WRECK OF THE UNITED STATES SLOOP OF WAR PEACOCK.

Displacement: 559 tons.
Length: 118 feet 9 inches.
Beam: 31 feet 6 inches.
Draft: 15 feet 6 inches.
Armament: 22 guns (removed during wreck).
Rig: Ship-rigged.
Honors: United States Exploring Expedition (US Ex. Ex.).
DANFS: Volume V

The first USS *Peacock* was built at the New York Navy Yard in 1813. This sloop of war made three cruises before the end of the War of 1812, helped root out pirates in the West Indies, and finally cruised the Pacific before she was decommissioned and broken up in 1828. The second *Peacock* was born the same year. Because Congress provided funds for repair but not for construction, a new sloop of war designed by Samuel Humphreys and also built at

New York was given the same name to avoid the legal red tape of authorization (Chapelle 1949:357; Barkan 1987:25). The commandant of the yard reported *Peacock* "has been thoroughly repaired and is now equal to a new ship." She was built for $93,063 and was ready for service on November 1, 1828. Designed specifically for a surveying and exploration expedition to the South Seas, the *Peacock*'s first cruise was instead to the West Indies when the US South Seas Exploring Expedition was canceled. Under commandant R.E. McCall, *Peacock* sailed the Caribbean from September 26, 1829, to April 25, 1831. Peacock departed New York again on March 8, 1932 for Brazil, and then to the Far East on a diplomatic mission. During this trip the first formal agreement between the United States and an oriental power was signed by Hon. Edmund Roberts and representatives of Siam. Sailing to Arabia, Roberts also negotiated a treaty with the Sultan of Muscat. Returning again to New York, *Peacock* was laid up from May 31, 1834, to April 25, 1835, before joining USS Enterprise for a return to the Far East under Commander C.K. Stribling and Commodore E.P. Kennedy. During this second cruise, she was nearly lost on a coral reef at the mouth of the Persian Gulf. The crew was able to extricate the ship after 61 tense hours by throwing guns and other heavy objects overboard. Limping home, *Peacock* was laid up for repairs at Norfold on November 2, 1837.

Ten years had elapsed since USS *Peacock* was constructed to take part in America's first surveying and exploring expedition. Its supporters argued that such an expedition would bring prestige to the new nation and lay the foundation for an empire to rival the older European states. Others argued it was simply a waste of money (Barkan 1987:5). By the time the voyage was finally approved, funded, and prepared, most of the original vessels were worn out. Renamed the United States Exploring Expedition (US Ex. Ex.), six vessels under Lieutenant (courtesy rank, Captain) Charles Wilkes left Hampton Roads on August 18. 1838. Lieutenant William L. Hudson commanded *Peacock* and her compliment of 19 officers, 85 enlisted men, 11 marines, and three members of the Scientific Corps. In addition to *Peacock*, sailing that day were sloop of war USS *Vincennes*, the brig USS *Porpoise*, the schooners USS *Sea Gull* and USS *Flying Fish*, and the store ship USS *Relief* (Barkan 1987:25-26). The squadron sailed for Madeira, the Cape Verdes, Rio de Janeiro, and finally Cape Horn. Wilkes took four ships to explore Antarctic waters. After eight weeks in the Antarctic, the expedition reunited in Valparaiso, Chile. During this time the Peacock traveled south until heavy ice floes forced it back. Having lost the *Sea Gull* without a trace somewhere off False Cape Horn, and having sent the slow *Relief* back home, the US Ex. Ex. now consisted of four ships as it headed to the Samoan Islands in the fall of 1839. While the northern hemisphere experienced the winter of 1840, Wilkes took advantage of the southern summer to sail again to Antarctica and explore 1,600 miles of the Antarctic Coast. Two months later, the ships sailed to Fiji. The Fiji survey was a low point in the heretofore peaceful expedition. In retaliation for the murder of the crew of an American merchantman. *Charles Dogget*, in 1834, Wilkes took a Fijian chieftain named Vendovi hostage. After this affair, the expedition lost two members, one of which was Wilkes' own nephew, while they bartered for food with Malolo Islanders. Approximately sixty Fijians were killed during Wilkes' angry retaliation (Barkan 1987:23). The expedition moved on to the Sandwich (Hawaiian) Islands, where it stayed from September to December, 1940, and then briefly back to Samoa and the Society Islands early in 1841. At this point the expedition split.

Wilkes, with *Vincennes* and *Porpoise*, left early for the Columbia River leaving *Peacock* and *Flying Fish* to proceed later.

Looking to chart the waters of the Columbia River, Wilkes arrived at Cape Disappointment on April 28, 1841. Wilkes aborted his attempt to cross the treacherous bar and instead proceeded north to the Strait of Juan de Fuca and the more tranquil waters around Puget Sound. Wilkes' party spent three months mapping and naming the landmarks and inland waters of what would become western Washington before bad news hastened its exit. A variety of factors had contributed in delaying *Flying Fish* and *Peacock* in the South Seas. Wilkes had left orders for the ships at Astoria but they were long overdue by the middle of July and he feared them lost at sea. On July 27, 1841, Wilkes' fears were partially vindicated when he received word that the *Peacock* had been lost on the Columbia River bar (Barkan 1987:77).

Still under William L. Hudson, *Peacock*, with *Flying Fish*, arrived at the mouth of the Columbia River on July 18, 1841. Although the weather was good, ebbing tide kicked up breakers all along the bar and Captain Hudson had only inaccurate charts given to him by Captain Josiah Spaulding of the merchant ship *Lausanne* (Gibbs 1950:77). After several attempts, the lookout aboard *Peacock* spotted a break in the continual surf which the officers were confident was a safe channel in the sandbars (Barkan 1987:77). Five minutes into the rough waters, the *Peacock* struck bottom. With her hull pounding on the hard sand, part of the crew manned the pumps while the others jettisoned the cannon, shot, stores, and excess cargo in an effort to free the ship (Gibbs 1950:78; Barkan 1987:80). By using the port anchor, the crew managed to turn the bow west towards the open sea to better face the onslaught of waves. When the anchor chain parted, the *Peacock* spun again to yaw broadside in the surf (Gibbs 1950:78). A frightful night passed for the crew as the hull began to come apart, the pumps clogged, and rising waters and heavy surf prohibited any escape in the ship's launch. By daybreak the hull had split and abandonment became the only option. Thankfully, the early morning also brought relatively calmer seas and the launch began to ferry the cold and exhausted crew to the northern (Washington) shore. Although ten men nearly drowned when the little boat capsized on the second trip, no seamen were lost in the wreck (Barkan 1987:80; Gibbs 1950:78). Captain Hudson was the last to leave and carried the ship's articles and navigation instruments from the stricken vessel. USS *Peacock* broke up the next day (July 20, 1841) and scattered wreckage along the shore.

Word of the wreck spread and the crew of *Peacock* and *Flying Fish*, which successfully crossed the bar, were soon living in a tent city outside the main settlement in Astoria (Barkan 1987:80). Upon arriving, Wilkes was pleased that there was no loss of life and publicly congratulated Hudson for saving the crew, however, Wilkes' journal recorded his disapproval of Hudson's decision to attempt a crossing when he did (Barkan 1987:80). Wilkes was able to complete the survey of the Columbia river by chartering the American schooner *Thomas H. Perkins* and placing *Peacock*'s crew aboard her. By early September, 1941, the work was completed and the expedition split up once again to rendezvous in Hawaii. Back together, with the new ship *Oregon* to replace *Peacock*, the first voyage of

exploration sponsored by the American government sailed home through the Pacific, Indian, and Atlantic Oceans to arrive in New York on June 10, 1842 (Barkan 1987:83).

The wreck of the *Peacock* has been included as an appendix because it has not been determined if the wreck site is in Oregon or Washington waters. *Peacock* wrecked on the north, or Washington, side of the mouth of the Columbia. *Peacock* gave its name to the spit of land which runs out from Cape Disappointment and was certainly not the last unfortunate vessel to run aground there. Although Peacock Spit runs out from the Washington side, much of the lowest reaches of the Columbia is below the border with Oregon. Although early bar pilot maps and more recent popular books present maps containing the wreck site of *Peacock*, some clearly on the Washington side and some on the Oregon side, the most accurate map of the wreck of the *Peacock* is undoubtedly from Wilkes' original survey in 1841. However, this map does not include land that has subsequently built up behind breakwaters and jetties running out from Cape Disappointment and it is difficult to correlate the map with modern reference points with accuracy. Unfortunately, rough triangulation places the original wreck site directly at the border instead of clarifying the issue. This question may be answered with further research or through location of the wreck site. The recent discovery of the wreck of the Hudson's Bay ship *Isabella*, lost 11 years before *Peacock* at the south end of Sand Island, indicates that some of *Peacock* may yet be located (Delgado 1995). However, although the entire mouth of the Columbia is often violent, the wreck of *Peacock* would appear to be in an area of higher energy than the *Isabella*. The *Isabella* had worked her way into the sand as she began to break up and was finally pulled into deeper waters by a storm. In contrast, *Peacock* was reported to have broken up under pounding waves and scattered wreckage along the shoreline. This wreckage may have represented only the upper elements of the ship and a considerable portion of the hull may still lie buried in the shifting sands of Peacock Spit. Heavy items such as the cannon and shot may still mark the original site of grounding and possibly hull remains. It is unknown if any of these items were recovered soon after the wreck. Further research and/or on site inspection may be able to provide answers. Numerous vessels of all sizes, anchors, cargo, equipment, fishing gear, and sundry other objects have been lost at the mouth of the Columbia River and a magnetometer survey of the potential wreck site may have to contend with considerable background "noise" in the target area. However, the discovery of such a historically significant ship may justify the effort.

APPENDIX B

NAVY AIRCRAFT TERRESTRIAL CRASH SITES IN WASHINGTON STATE

At the request of the Naval Historical Center, information was compiled on Navy aircraft terrestrial crash sites in the state of Washington. We were able to obtain lists of crash sites in Washington and Oregon from the Washington State Department of Transportation, Aviation Division, and from its sister agency in Oregon. Two other US Air Force lists of terrestrial crash sites, one generated in 1966 and the other in 1979, were provided by Pat Macha of Wreck Finders, Incorporated. All Navy aircraft, or potential Navy aircraft, crash sites were compared across these lists. This information was then used to acquire Aircraft Accident Summary Reports from the microfilm records at the Naval Aviation History Branch (NHC-AVH).

Several individuals have been involved with aircraft crash sites in the Northwest for years. Many of these continue to acquire wreck site information, and several have noted inaccuracies on the state inventories such as site location (Sig Unander 1996, pers. comm.). Mr. Unander, of Air Art Northwest in Cornellius, Oregon, is most knowledgeable about terrestrial military crash sites in the Pacific Northwest. He maintains a data base of over 300 aircraft wrecks and frequently receives new information about the status of these sites. David Mahre from Yakima, Washington, is another individual who has developed a database of crashed aircraft in Washington. Mr. Mahre acquired 19 rolls of microfilm from the NHC-AVH and searched through them all to identify local wrecks. He was particularly interested in potentially-recoverable aircraft which may have gone down in water at low speed. A Mr. Bill Compton excavated materials from a disposal pit of interred aircraft wreckage at NAS Pasco several years ago. Mr. Compton stated that he might be able to locate some of the Bureau Numbers of the aircraft represented by the wreckage (Bill Compton 1996, pers. comm.). Unfortunately, Mr. Compton was contacted too late in the project for this information to be relocated and incorporated into this document. IARII researchers had also hoped to contact Bob Eaton, who has apparently visited many of the crash sites in Washington, but were unable to locate him.

During research on the terrestrial crash sites, David Grant was contacted by Mr. Ted Darcy who wished to sell information from his aircraft crash database. There are many crashes which occurred at or very near airfields which were not included in the inventory because they were cleaned up soon after crashing. The types of wreck sites pertinent to this project are terrestrial sites from Navy crashes in Washington prior to 1952 that are likely to have material remaining at or near the point of impact. While knowledgeable local sources estimated the total number of these types of sites to be between 40 and 50, Mr. Darcy estimated the number to be 123 sites (Ted Darcy 1996, pers. comm.). This large discrepancy

was a concern to IARII researchers but there was no way to check the applicability of these listings to this project without purchasing them. Unfortunately, the value assigned to much of this information was beyond the budgetary parameters of this project. However, Mr. Darcy kindly provided accurate information about aircraft which crashed in Lake Washington which allowed David Grant to correct a list of these aircraft provided in the main body of the technical report. Mr. Darcy's database is well known as one of if not the most complete databases available for those researching aircraft wreck sites. For example, he has entered all of the Navy's Aircraft Accident Summary Reports into his computerized database. The HNC may wish to acquire more information about this source.

Acquiring information about aircraft wreck sites on land or in water is an ongoing process. Knowledgeable individuals like Sig Unander who have been collecting information on aircraft wrecks in the Northwest for years continue to add "new" listings to their databases. For example, while researching terrestrial crash sites David Grant contacted David Mahre and he had listings for three "new" potential underwater naval aircraft sites in Washington waters. As anticipated, many incomplete accounts of terrestrial aircraft wrecks were encountered while research proceeded for Appendix B. After examination, some of these accounts were rejected or confirmed and added to the inventory. However, many of the incomplete accounts could not be confirmed due to insufficient or erroneous information. A missing, incomplete, or incorrect date or Bureau Number is enough to stop research into a potential crash site even if the type of aircraft is known. Other crash sites could not be confirmed because the records for particular types of aircraft are missing from the HNC-AVH records (e.g., PBY microfilm reports for 1945). While we are confident that we have accounted for most of the terrestrial naval aircraft crash sites with extant wreckage, we were not able to complete or confirm several listings. All of the information available for these listings is presented as part of Table B-1 and are not chronicled as text entries.

NAVY AIRCRAFT WHICH CRASHED ON LAND IN WASHINGTON STATE PRIOR TO 1952

SINGLE ENGINE AIRCRAFT

GRUMMAN/GENERAL MOTORS WILDCAT (F4F-4, FM-1, FM-2)[10]

During World War II, Wildcat fighters made by Grumman Aircraft Engineering Corporation (F4Fs) and Eastern Aircraft Division of General Motors (FMs) often flew from Washington's naval air stations. Many Wildcats were lost to mechanical failure and pilot error and at least five remain in the state's waters. Twice that many Wildcats ran into trouble over land, crashed, and have left some materials at the wreck site. These are listed below.

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[10] See description of the Wildcat on page 52 in the technical report.

Table B-1. US Navy Aircraft Terrestrial Crash Sites.

US Navy Aircraft Terrestrial Crash Sites						
Model	Type	BuNo.	NAS	Crash Date	Loss Location	Comments
Single Engine Aircraft						
FM-1	Wildcat	15269	Seattle	10/23/43	4723N 12313W	mid-air with 15270
F4F-4	Wildcat	03426	?	1/23/44	near Ryderwood	terrestrial impact
F4F-4	Wildcat	05077	?	1/23/44	near Ryderwood	terrestrial impact
FM-1	Wildcat	15218	Pasco	5/17/44	near Pasco	mid-air over Pasco
F4F-4	Wildcat	11910	Pasco	5/17/44	near Pasco	mid-air over Pasco
FM-1	Wildcat	55202	Pasco	7/20/44	near Pasco	mid-air, exploded, other landed
FM-2	Wildcat	15989	Arlington	7/22/44	three miles north of NAAS Arlington	crashed and exploded
FM-2	Wildcat	47092	Arlington	2/8/45	4907N 12133W	wreck and pilot found in 1950
FM-2	Wildcat	55216	Seattle	7/18/45		5 miles west of Tacoma
F6F-3	Hellcat	08994	Seattle	10/17/43	near Tacoma	
F6F-3	Hellcat	42137	?	5/15/44	12 mi. East of Moses Lake	demolished & burned
F6F-3	Hellcat	42741	Arlington	8/21/44	4808N 12216W?	mid-air with 42710
F6F-3	Hellcat	42710	Arlington	8/21/44	4808N 12216W?	mid-air with 42741
F6F-5	Hellcat	70539	Pasco	9/19/44	near Franklin Auxiliary Field, Pasco	failed to pull out of shallow dive
F6F-3	Hellcat	42889	Pasco	9/21/44	15 mi. 6° from Pasco	hit 500' hill near target at night
F6F-3	Hellcat	42751	Pasco	11/13/44	4604N 11746W	near Dead Man's Peak in Blue Mts.
F6F-5	Hellcat	78111	Seattle	10/19/48	4748N 12202W	southwest of Monroe
F4U-4	Corsair	81109	Seattle, USMC	12/27/45	4600N 12226W	Lt. Walling walked into Cougar Store
F4U-4	Corsair	81527	Seattle, USMC	12/27/45	4626N 12116W	Lt. Winner, found in 1952, marked
FG-1D	Corsair	88348	Seattle	8/23/47	Redmond	crashed and burned in Redmond
F4U	Corsair	88301	Seattle	9/1/48	Cascades	ran out of gas over mountains, pilot bailed
SBD-5	Dauntless	28558	Seattle	7/2/43	Bothell, 3 miles N/NE of NAS Seattle	pilot bailed, no other crew
SBD-5	Dauntless	28763	Whidbey Island	2/24/44	9 miles SE of Wickersham	David Grant McBride, Jr. gunner
SBD-5	Dauntless	36638	Seattle	2/15/45	4725N 12116W	Many requests for extant wreckage
TBF-1?	Avenger	2-3-1-4 ?	Whidbey Island?	6/16/43?	22 mi. South East of Port Angeles	may be plane missing from Whidbey
NE-1	Piper	26260	Island	8/10/43	4822N 12219W	pilot died two days later, AMM3c ok

Twin Engine Aircraft						
PV-1	Ventura	33142	?	5/14/43	4733N 12313W	southeast corner of Olympic Mts.
PV-1	Ventura	34673	Whidbey Island	8/29/43	7,500' level of Mt. Baker	hiker discovered wreck in 1994
PV-1/PV-2?	?	?	?	?/?/44	4757N 12313W	northeast corner of Olympic Mts.
PV-1	Ventura	33380	Whidbey Island	1/14/45	4820N 12105W	visible from air (marked)
PV-1	Ventura	49459	Whidbey Island	11/29/45	4610N 12200W	material still on Mt. St. Helens in 1988
R5O-6	Lodestar	39361	?	8/19/43	4830N 12100W	ran out of fuel over N. Cascades
JM-1	Marauder	66654	Whidbey	2/14/45	4817N 12206W	
R5C-1	Commando	39528	San Diego, USMC	12/10/46	4652N 12147W	wreck & 32 Marines still on Rainier
PBY-6A	Catalina	63999	Seattle	9/16/46	4812N 12153W	8 killed, flew into mountain in low visibility
Four Engine Aircraft						
PB4Y-2	Privateer	59821	Whidbey	7/22/47	4820N 12237W	crashed on landing approach

Potential, Incomplete, or Unconfirmed Navy Terrestrial Crash Listings

Model	Type	BuNo.	NAS	Crash Date	Loss Location	Comments
?	?	?	?	?/?/40s	4702N 12350W	unknown if Navy Plane
?	?	?	?	?/?/40s	4652N 12221W	unknown if Navy Plane
?	?	?	?	?/?/40s	4606N 11856W	unknown if Navy Plane
?	?	?	?	?/?/42?	4808N 12216W	Navy plane parts (from Hellcat mid-air?)
?	2 engines	?	?	8/24/43	near Port Angeles,	5 dead
?	?	?	?	10/4/43	near Pysht	8 dead in "Navy wreck"
F6F	Hellcat	?	?	?/?/43	4801N 12154W	Not easily visible (unmarked)
?	Wildcat?	5247	?	?	between Snake River and Eureka	BuNo 5247 is Stearman not F4F/FM
?	?	?	?	?/?/44	4801N 12314W	crashed and burned
FM-2?	Wildcat?	55071?		6/20/44	15 mi. SW of Pasco above Umatilla	not able to locate/inaccurate data
PBY	Catalina	?	?	8/2/45	4800N 12311W	unconfirmed (no 1945 PBY cards)
PBY/PB4Y	?	?	?	?/11/45	4803N 12201W	Visible from air (unmarked)
SNJ-5	Texan	84856	Seattle	11/4/46	Local from Seattle NAS, WA	missing aircraft, misidentified on DOT?
SNJ-5	Texan	90586	Seattle	3/11/49	Local flight, Seattle NAS, WA	missing aircraft, misidentified on DOT?

1. Very little information is available on General Motors FM-1 Wildcat BuNo 15269 which crashed after a mid-air collision with FM-1 Wildcat BuNo 15270 on October 23, 1943. It was piloted by Ensign George Waren Brown assigned to squadron VC-66. Ensign Brown parachuted to safety and the pilot of the other Wildcat was able to bring his plane down with a badly damaged propeller. BuNo 15269 crashed near Hood Canal and wreckage may still be visible at 47° 23' N, 123° 13' W.

2. The next two Wildcats disappeared near Ryderwood after encountering bad weather on January 23, 1944. The two-plane flight was led by Lieutenant Raeburn John Crowe flying Grumman F4F-4 Wildcat BuNo 03426.

> *Board finds that pilot, on a routine formation ferry flight, entered an area of bad rain storms, and is still reported as missing. The board is of the opinion that 50% of the cause is due to the error in judgment of the flight leader for neither turning back or landing at an available airport when the weather became very bad. 15% is due to poor judgment on the part of the pilot; namely, temporary poor reaction due to psychological effects of strain and responsibility. 10% poor technique due to lack of recent instrument flying experience. Lt. Crow had experienced 4.2 hours instrument flying in the previous three months.*
> *Commander Fleet Air, Seattle- Endorsement*
> *The subject flight was released on a Contact Flight Rules clearance. When the weather encountered on the flight was worse than anticipated and it became apparent that flight would be unable to continue under contact rules, the Squadron Commander should have returned to the place of departure. It is believed that he exercised poor judgment in delaying his decision to return until the weather became extremely poor.*

3. Lieutenant Crowe's wingman was Ensign William Joseph Schieche who was flying Grumman F4F-4 BuNo 05077.

> *While on routine formation ferry flight, pilot entered an area of bad rain storms and is still missing. Board is of the opinion that 50% of the cause is due to the error in judgment of the flight leader for neither turning back or landing at an available airport, when the weather became very bad. 15% is due to error on the part of the pilot for following the flight leader into a cloud bank cover over unknown mountainous terrain. 10% is due to lack of recent instrument flying experience. Ens. Schieche had had no instrument flying in three months previous to the accident.*

IARII researchers were unable to determine if either of these aircraft, or their pilots, were ever located. The area around Ryderwood has been developed very little, although logging has undoubtedly occurred. No Wildcat wreck sites are indicated near the town on any of the available lists of aircraft wreck sites.

4. Two more Wildcats were lost to a mid-air collision while pulling out of a combat maneuver near NAS Pasco on May 17, 1944. Ensign William Arnstean Long was killed during the collision or when his General Motors FM-1 BuNo 15218 exploded and burned upon crashing.

At about 1540, Ens. Long crashed fatally after colliding in mid air with #32961 piloted by Ens. Misner. The collision occurred 8 ½ miles bearing 010 deg. true from the NAS Pasco, Wash. at an altitude of approximately 9000'. At the time of the accident, seven Avengers and 8 Wildcats were engaged in simulated combat maneuvers during a scheduled fighter direction flight. Four Wildcats, including that piloted by Ens. Misner were "defending" the formation of Avengers while the remaining four fighters including that piloted by Ens. Long were "attacking". Prior to the collision, Ens. Misner was maintaining after low close cover position at 9 o'clock relative to the bombers and approximately 500-1000 feet above. Interception was made by the attacking sections and the first section of two aircraft made a high side run on the bombers from 3 o'clock. Ens. Misner countered this attack. Ens. Long wing man of 2nd attacking section, broke off from his section leader, followed behind the first attacking section, and made an individual approach to the bombers from about 5 o'clock. Meanwhile Ens. Misner after countering run of first attacking section, was making a sharp left turn and pulling up to regain his defensive position at 3 o'clock relative to the bombers. Ens. Long, after breaking off his attack, was pulling up in a right turn when the collision occurred. Ens. Long's port wing struck Ens. Misner's starboard wing, shearing off both wings. Both aircraft exploded and burned on crashing.
NOTES:
Ad. Rept. opinion Ens. Long pressed home attack too closely, did not break soon enough and probably failed to exercise sufficient vigilance.

5. The other Wildcat involved in this incident was Grumman F4F-4 BuNo 11910 which was piloted by Ensign Philip Misner. Ensign Misner jumped to safety with only head abrasions and bruises but his aircraft was completely destroyed. It is unknown whether material from the crash sites of these two aircraft was recovered by Navy personnel after the incident.

6. Another mid-air collision during combat training occurred near NAS Pasco on July 20, 1944, and resulted in the destruction of General Motors FM-1 Wildcat BuNo 55202. The pilot of this aircraft, Ensign George H. Houser, jumped from the aircraft and received a bruised arm and scratched face.

On a routine flight in the evening, the aircraft piloted by Ens. Houser ran into another aircraft piloted by Ens. Dunning. Houser was closing on Dunning and apparently over-ran him. His propeller chewed off the horizontal stabilizer on the port side, plus part of the fuselage and the lower portion of the rudder. When the accident occurred, both planes were at 7000 feet. Houser, not being able to maintain flight, bailed out at approximately 3000 feet. Plane exploded on impact with ground. Ens. Dunning landed his plane safely--well done, considering condition of tail assembly.

The remarks section of the Aircraft Accident Summary Report contains the phrase "exploded with impact of ground" and "strike". No other information about the condition of the crash site was obtained during archival research.

7. The last Wildcat to crash on land in 1944 was General Motors FM-2 Wildcat BuNo 15989. This aircraft was piloted by Ensign Charles Howard Garrett when it crashed for unknown reasons approximately three miles north of NAAS Arlington on July 22, 1944.

> *Pilot took off on a routine training flight in #15989, with Ens. J. C. Hyde in another FM-2. The plane crashed about 3 miles north of Arlington and burned. The only other available information is Lieut. Peterson's statement which is attached.*
> *Peterson's Statement:*
> *I was looking out of a window in the flight office on the west side of hangar building when I saw a plane in a high speed dive of about 45° at about 1500 feet. The plane pulled up sharply and after executing a flat wingover plunged behind the tree line at a 90° angle. Almost immediately a huge billow of black smoke appeared and rose to between 4 and 5 thousand feet. I concluded that the plane had crashed and exploded. I ran down to base operations after failing to get them by phone to report the crash. The operations officer was receiving a report of the crash when I arrived.*
> *NOTES:*
> *Looks like hi-speed stall. RH*

8. Ensign Frank LaGrande, USNR, died on February 8, 1945, while leading another plane during a simulated instrument flight. LaGrande was flying General Motors FM-2 Wildcat BuNo 47092 when the incident occurred.

> *Pilot took off at 0945 in company with Ens. M. R. Bilkert, whose mission was to practice a simulated instrument flight, in an FM-2, with the windshield and canopy covered with green lumaric material. Pilots mission was to guide the instrument plane, protecting it from collision with other aircraft and keeping it within the assigned training area. The two planes were in radio communication with each other for this purpose.*
>
> *During the flight pilot allowed the instrument plane to climb up through a broken overcast at 1200 feet and then to fly or drift out of the assigned area and into mountainous terrain, south east of Naval Auxiliary Air Station, Arlington, Washington. The two (2) planes leveled off at 5000 feet altitude, over the overcast which subsequently closed in solid. After completion of a period on instruments, (about 25 minutes) Ens. Bilkert passed the lead to the pilot and indicated he was to lead back to the base. Pilot assumed the lead and continued on their course of 273 deg. true, until over a hole in the overcast. He then started a let down through the hole and a turn to port, recovering on course 103 deg. true still letting down. At this point the planes entered thick broken clouds (altitude 2000 feet) and Ens. Bilkert, seeing another hole to his right, left the lead plane and spiraled down through it. He came out under the overcast at 1100 feet altitude, just clearing trees. He then turned to course 303 deg. true which took him over NAAS, Arlington in about 3 minutes. While en route to NAAS, Arlington Ens. Bilkert called to pilot on the radio and told him not to let down any lower. Pilot answered saying that he was in the overcast at 1600 feet altitude and was climbing. He did not return to base, and no further contact by radio could be made. Searches throughout the area have not revealed any trace of wreckage or other clues to the position of the lost plane.*

It is the opinion of the AABoard that pilot LaGrande crashed into a mountain, immediately after making his last radio transmission. It is also the opinion of the board that the accident would have been prevented that of keeping[sic] the instrument plane within the assigned area.
OTHER:
At NAAS, Arlington the ceiling was 1200 feet broken, visibility 10 miles. The mountains southeast of the base are as high as 7000 feet.
NOTES:
Remains recovered and identified 28 August 1950 near location of prolonged search, had hit a mountain.

The remains of the pilot and aircraft were located in 1950 at 48° 07' N, 121° 33' W in the foothills of the Cascade Mountains on Devil's Thumb southeast of Arlington. The engine and aircraft were "totally demolished".

9. General Motors FM-2 Wildcat BuNo 55216 collided with an Army AT-6 during an unauthorized simulated gunnery run on the Army aircraft on July 18, 1945. Both the pilot of the Wildcat, Lieutenant William Thomas Gleason, USNR, and the instructor in the AT-6 were killed..

FM-2 #55216, piloted by Lt. W. T. Gleason took off from NAS, Seattle, one minute after an AT-6 #81413 piloted by Lt. G. W. Taylor on a routine familiarization flight. At 1103 five miles west of Tacoma, Washington, the FM-2 was observed to make a simulated gunnery run on the AT-6, from a position approximately 600' above and ahead. The pilot of the FM-2 misjudged and collided with the AT-6 on the after part of the fuselage, knocking the passenger, 2nd. Lt. H. C. Merry out of the cockpit, carrying away several parts of the AT-6 tail assembly and severing the FM-2 port wing. The FM-2 went down in a steep spiral and crashed; the AT-6 went straight down and crashed. The pilot of the FM-2 did not attempt to leave the airplane and was killed in the crash. The passenger of the AT-6 was killed by the FM-2 propeller when planes collided. The pilot of the AT-6 parachuted to safety.
RECOMMENDATIONS:
It is recommended that copies of this report be published at all flying activities.

The damage description and remarks stated that both aircraft were completely demolished when they fell from the sky five miles west of Tacoma. This area has seen extensive development since World War II and it is likely the wreckage was cleaned up soon after the incident or in the ensuing years. No wreck in this area is indicated on any of the available lists of terrestrial crash sites.

GRUMMAN HELLCAT (F6F-3, F6F-5)[11]

The Grumman F6F Hellcat is the descendant of the Grumman F4F Wildcat and incorporated the most successful features of the Wildcat in a larger and more powerful

[11] See description of the Hellcat on page 59 in the technical report.

design. Together, Wildcats and Hellcats make up more than a third of all the Navy aircraft which crashed on land in Washington.

1. On the night of October 17, 1943 Ensign Billy DeWeese Steward successfully bailed out of Grumman F6F-3 Hellcat BuNo 08994 when it prematurely ran out of fuel on a cross country flight. Steward was unknowingly flying with his landing gear down which increased his fuel consumption.

> *Fuel exhausted in hour and three quarter night cross country flight. Wheels did not retract and pilot was unaware of fact. 250 gallons fuel aboard.*

This aircraft does not show up on any of the available lists of known terrestrial crashes. There is a "strike" indicated in the remarks section of the Aircraft Accident Summary Report but no other information is known about the crash site of this aircraft. It may have been located and removed soon after the incident or, if it crashed near Tacoma, the site may have been cleaned up by now due to development.

2. Very little information is available to describe the crash of F6F-3 Hellcat BuNo 42137 on May 15, 1944. The Aircraft Accident Summary Report simply gives the location as NorPac (North Pacific) and that the purpose of the flight was not a combat mission. The aircraft belonged to VF-9 but no name was given for the pilot. This wreck is among crash sites provided by the Aviation Division of the Washington Department of Transpiration Washington (DOT). It is listed as 12 miles east of Moses Lake and has the words "demolished and burned" in the comments section. Although the status of this wreck is unknown, the site may be in an intensively-farmed area.

3. A mid-air collision between two Hellcats claimed the lives of two naval aviators on August 21, 1944. The accident occurred ten miles west of NAAS Arlington and involved Ensign James H. Sexton, flying F6F-3 BuNo 42741, and Ensign John F. Klawitter, Jr., flying F6F-3 BuNo 42710. The Aircraft Accident Summary Report for Ensign Sexton contains the description of the incident.

> *Aircraft crashed after colliding in mid-air with #42710. Cause is unknown. After questioning civilian, non-flying witnesses it is believed that part of left wing and part of tail of #42710 were sheared off and that this aircraft crashed in an inverted flat spin, catching fire on impact and partially burning before being extinguished. Sexton was seen by two witnesses to abandon the aircraft at a very low altitude. His parachute had been released by the rip cord but had insufficient time to open and he apparently was killed instantly when his body struck the ground about fifty feet from the crash of the aircraft.*
> *RECOMMENDATIONS:*
> *Further indoctrination given to all pilots in plane type.*
> *REMARKS:*
> *Part of left wing and tail assembly missing. Aircraft landed in inverted flat spin, catching fire on impact and partially burning.*

4. The Aircraft Accident Summary Report for Ensign Klawitter relies on the previous description.

> *Mid-air collision with #42741.*
> *REMARKS:*
> *Completely demolished by impact and resulting fire.*
> *Body disrupted by force of impact.*

The Washington DOT database contains a listing of "Navy plane parts" at 48° 08' N, 122° 16' W. No other information is included with this listing except that the crash date may have been in 1942. It seems likely that the material at this site is related to the collision of the two Hellcats. The coordinates are roughly six miles west of NAAS Arlington in the midst of five lakes. Development around the shores of the lakes may have eliminated the original impact site.

5. Ensign Howard Edward Cummins was killed on September 19, 1944 when he failed to pull F6F-5 BuNo 70539 out of a shallow dive near Franklin Auxiliary Field at Pasco.

> *On Sept. 19, 1944, Ens. Howard E. Cummins was on a division tactics flight which involved coordinating a rocket attack with a masthead bombing attack. Ens. Cummins was flying wing on LtComdr. N. N. Houck and they were taking the part of the rocket bombers. LtComdr. Houck and Ens. Cummins opened out considerably in order to spread imaginary enemy fire. Houck dove slightly before Cummins and crossed the target a second or so ahead of him. The rocket dives were made at approximately 40°. Cummins was seen to start his recovery from his dive by Lt (jg) A. M. Larsen, whose statement is part of this report. Having taken his eyes off of Cummins to look for Houck, Larsen looked back to Cummins just in time to see him hit the ground in a shallow dive.*
> *Since the plane was completely wrecked and since no person actually observed the accident from the beginning, the trouble board is unable to determine the cause. An investigation of the wreckage gave no indication of any particular material failure before the plane hit the ground. The control surfaces were all found in the general area of the wreckage. The board is forced to classify the accident as indeterminate.*
> *REMARKS:*
> *Complete destruction of aircraft and engine.*

It seems likely that this wreckage was collected after the accident but this has not been confirmed.

6. Another fatal accident involving a Navy Hellcat out of Pasco occurred just two days after Ensign Cummins was killed. Grumman F6F-3 Hellcat BuNo 42889 was being flown by Ensign Ward Robert Heath on September 21, 1944 when the incident happened.

> *On 21 September 1944, Ens. Ward. R. Heath, was engaged in a night strafing flight, flying the 7th of 8 planes, F6F-3, BuNo. 42889. After the last run, the leader of the flight ordered a rendezvous south of the target. Ens. Heath still being in the 7th*

position during the dive. When the rendezvous was effected at about 2050, it was discovered that Heath was missing from the formation, this fact being reported at that time.

At 2040 a report was received at NAS Operations from Lt (jg) Joseph F. Noonan, A-V(N), whose house is located about 15 miles NE of the NAS, that he had heard a plane flying low over his house in a northerly direction and shortly thereafter had heard a crash. The engine sounded normal at this time. He could not estimate the distance but could give a fairly accurate estimate of the direction of the crash. A search instituted immediately after this report was unsuccessful and the location of the crash was not discovered until daylight the next day.

It was found that Ens. Heath had flown into a low hill rising about 500' above the surrounding flat land and had struck in a flat attitude, the path of initial impact being marked by a shallow ditch about 75' long. Parts of the plane were scattered for almost ½ mile in a straight line, Ens. Heath's body being found still strapped to the seat at a point about half way along this line. Death was instantaneous.

The plane itself was too badly damaged to allow determination of whether or not the pilot had control at the time of the crash but all control surfaces were found in the vicinity. From this and from the fact that the plane did strike in a level attitude plane[sic]. Also he had made no attempt to jump, the safety belt and shoulder harness still being fastened. The seat was separated entirely from the rest of the plane, the shoulder harness lock having been broken off and being in the unlocked position. A ball peen hammer was found at the scene, this having evidently been in the plane although there is no evidence of its having been jammed in controls.

Because of the complete destruction of the plane, it has been impossible to arrive at any conclusion as to a possible material failure although what evidence there is points against it. Any assignment of the cause of the accident to pilot error can be based only on supposition, some possibilities being that the pilot developed vertigo or tried to rendezvous on some light on the ground or simply dropped too low in joining up on the other planes in the flight. However, the trouble board feels that the amount of evidence is too small to make a definite assignment of responsibility and finds the cause of the accident to be undetermined.

NOTES:

Partial recovery from strafing run. Probably too low on pullout. Hit 500 foot hill near target at night. Possible vertigo.

Adm. Report Opinion:

Pilot failed to gain sufficient alt. to clear hill, the existence and locality of which he should have been well aware.

REMARKS:

Aircraft and engine totally destroyed.

The wreck occurred 15 miles from NAS Pasco at a bearing of 60° based on true north. Although the status of this site is unknown, the plane's remains may have been cleaned up since no wreckage is indicated in this area on available lists of crash sites.

7. On November 13, 1944, Ensign Norman Jacobs, USNR, left NAS Pasco for a routine engineering flight and never returned to base. Jacobs was flying Grumman F6F-3 Hellcat BuNo 42751.

Pilot took off on a routine engineering flight. He was instructed to remain in the vicinity of the field because he was flying singly. He was not seen or heard from after that time. When he failed to return at the end of his fuel range, search operations were initiated without results to date.

Although the cause of this accident is unknown, the crash site was located on June 17, 1945, at 46° 04' N, 117° 46' W in the Blue Mountains. According to Sig Unander's database the wreck was located near Dead Man's Peak and was destroyed by the Navy shortly after it was located. The wreck site is apparently located on an "intake trail" on a watershed boundary. Also according to Sig Unander's database the wings, tail, and engine were still on site in 1987 and part of Jacob's body is reportedly buried at the site. The .50 caliber machine guns have apparently been removed by civilian souvenir hunters. The landing gear was removed by Bob Eaton in 1987.

8. On October 19, 1948, Lieutenant Commander Lilburn A. Edmonston crashed his Hellcat southwest of Monroe, Washington, during a local acrobatic flight out of NAS Seattle. Edmonston was flying F6F-5 BuNo 78111 when he was killed.

Pilot took off on local VFR flight plan to do acrobatics in the approved area which lies west of the station in the Hood Canal Area. This flight was overdue at 1530 & control tower attempted unsuccessfully to establish radio contact. At 1635 3 aircraft commenced search of acrobatics area but approaching darkness prevented adequate coverage. By this time all local search & rescue facilities were alerted, including McChord Air For. & Coast Guard. The evening of 19 Oct. local radio broadcast stations were asking for any info regarding this plane. Several reports of crash were received from people in the area in which a/c was finally found & several officers from CAG-21 drove immediately to the area to interview these people in an attempt to localize the scene. Reports proved to be fairly consistent in that a powerful engine was heard, flying low, followed by an explosion & plop. One person described characteristic F6F whistle or whine.

From all indications a/c hit left wing 1st in high spd 15-20° dive. Manner in which the alder trees are broken appears that a/c had left wing down about 45°. It bounced & hit again twice more before the remaining parts came to rest. From the point of initial impact to where body & cockpit section were found was distance of 281 yds. A/c was completely demolished. There is nothing to indicate that an attempt was made to bail out because of some material failure in the air. Yet, due to the obvious high spd & angle of impact & nature of terrain, there is nothing to indicate that an attempt at forced landing was being made.

NOTES:

Collision with trees-undetermined. Probably preoccupied with cockpit.

This aircraft crashed at 47° 48' N, 122° 02' W. The status of this site is unknown.

VOUGHT/GOODYEAR CORSAIR (F4U-4, FG-1D)[12]

The Vought-designed F4U Corsair eventually became one of the most successful fighters in the Navy's arsenal. An excellent fighter, this versatile aircraft saw extended service after World War II as a ground-attack aircraft in Korea. Many Corsairs came back through Washington at the end of World War II and nearly all of the Corsairs which crashed on land or water in Washington are from the post-war period.

1. On December 27, 1945, First Lieutenant F. T. Walling, USMCR, bailed out of Vought F4U-4 BuNo 81109 after encountering poor conditions while ferrying his Marine Corps Corsair between NAS Seattle and Portland. On the same day, the bad weather caused the loss of another Marine Corps Corsair and its pilot on the same route (see following listing).

> *1st Lt. Walling cleared from NAS Seattle, Wash. for AAB Portland, Oregon, at 1036 PST. 27 Dec. 1945 with an inaccurate weather forecast received two hours previously. According to the pilot, instrument conditions were first encountered above Toledo, where he circled for approx. 10 mins. attempting in vain to find a clear area in any directions. Intercepting a weather report announcing above CFR minimums at Toledo and Portland, the subject pilot proceeded on instruments until about ten miles northwest of the former town. From here on conditions grew progressively worse until the pilot again found himself surrounded by adverse weather just below St. Helens. After climbing to 18,000 ft in a vain attempt to break clear, with radio reception no longer functioning, Lt. Walling decided to bail out, which he did successfully. The aircraft was totally demolished in the ensuing unwitnessed crash, approx. a mile and a half north of Yale, Wash. No further damage to persons or private property was incurred.*
> *DAMAGE DESCRIPTION & REMARKS:*
> *Aircraft and engine completely demolished.*

This is crash site is indicated at 46° 00' N, 122° 26' W on the DOT list of aircraft wreck sites in Washington. These coordinates would put the wreck just north of Lake Merwin due east of Yale. Although the Aircraft Accident Summary Report card gives the wreck site a mile and a half north of Yale this is close enough to be the same wreck. However, according to Sig Unander's database this aircraft crashed two to three miles northeast of Cougar. Having bailed out, Lieutenant Walling had apparently walked into the Cougar General Store the next day. Sig Unander had also heard the report from a reliable source of another Navy wreck in the area. All of these reports may be related to the same accident or the confusion may be generated by two separate crash sites in the same area. Sig Unander interviewed individuals who had visited the crash site soon after the incident and they stated that the aircraft hit with such force that it partially buried itself. Apparently, there was not much left of the aircraft. The present status of the crash site of BuNo 81109 is unknown

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[12] See description of the Corsair on page 47 in the technical report.

2. The same weather conditions that caused Lieutenant Walling to bail out of his Corsair also caused First Lieutenant Hale E. Winner, USMCR, to disappear on the same day. Winner was flying F4U-4 BuNo 81527.

> *On 27 Dec. 1945, pilot cleared from NAS Seattle, Wash., to AAB Portland, Ore. From report by 2dLt. Roger A. Ives, in company with subject pilot, it was learned that light to heavy rain & smoke with variable ceiling (500-3000') was[sic] encountered from Seattle to Toledo. 5 miles south of Toledo both pilots climbed into overcast to avoid hills in area. Lt. Ives continued on to Portland breaking out at approximately 800', 10 miles north of field, without further contact with Lt. Winner, who is missing as of this date.*
> *This area between Seattle & Portland is very mountainous a short distance to east, with rolling hills & heavily wooded country. Terrain extends from sea level to hills of 3000' & Mts. to 9000' with Mt. Rainier at 14,409. Thoro search by Army & Navy rescue units has been conducted with negative results.*

This aircraft and its pilot were listed as missing but the crash site was located and marked at 46° 26' N, 121° 16 W in 1952. According to Sig Unander's database, the site was found on September 3, 1952, approximately 20 miles west of White Swan in McCormick's Meadow on the Yakima Indian Reservation. The site was located by Leo Ohms of White Swan while he was on a cattle roundup and a Navy investigative party determined it was Lieutenant Winner's plane by the flight plan. They apparently cut the bureau number from the wreckage. It appeared that the aircraft had come straight down and hit a large rock. Tree limbs covered the wreckage. These materials were collected, gathered in a pile, and painted yellow to indicate that the wreckage had been found. Dave Mahre visited the site and believed that the aircraft hit at a 70° angle. An arm-length-deep hole is still apparent at the point of impact and the dirt had been pushed forward in the shape of the aircraft in plan view (David Mahre 1996, pers. comm.).

3. A third Corsair was lost on August 23, 1947, resulting in the death of Lieutenant (junior grade) Andrew H. Brynestad, USNR. Bymestad was flying Goodyear FG-1D Corsair BuNo 88348.

> *Pilot, practicing combat fighter tactics, engaged squad companion of same flight in dog fight. Approximate altitude at start of maneuvers, was 8000'. After number of passes pilot got on tail of other plane, an F6F-5. Vertical left hand turns were made with both a/c "hanging on their props" only slightly above stalling speeds. Pilot had flaps down during part of maneuvers & it is not know whether he later retracted them. Pilot remained on the other's tail for several turns during which altitude was lost down to 23 or 24 hundred feet above terrain. At his point pilot's FG stalled & whipped upright to level position. He regained control at approximately 2000' heading north and commenced another left turn in an apparent attempt to regain his advantage over the F6F. He completed about 90° of turn. stalled & spun to left. Plane spun 1¼ to a heading of south & crashed into trees at approximately 30° angle relative to ground. A/c exploded & burned on impact & pilot's body was badly burned before recovery. Farmers reached scene within seconds & Redmond*

Volunteer Fire Dept. arrived within 10 min. but were unable to immediately penetrate fire to recover body.
The altitude of 2300' to 2400' was determined after careful interrogation of all eye witnesses. Altho there was variance in estimated altitude, all witnesses agreed that a/c made at least one complete turn in spin. Several eye witnesses reported a/c was brought to level flight attitude at tree top level but immediately nosed over again into trees. This would indicate last minute recovery with possible blackout as result of violence of recovery.
SPEC. EQUIP - Crash was too severe for shoulder harness to be of any value.

No wreck is indicated on any of the available listings of terrestrial aircraft crash sites. The wreckage was probably cleaned up but this has not been confirmed.

4. On September 1, 1948, Lieutenant (junior grade) Carlton G. Conkey forgot to switch to the reserve tank on Goodyear FG-1D Corsair BuNo 88301 and was forced to bail out.

Pilot was returning to Seattle from Spokane in flight of 16 a/c. He was flying wing position of a 2 plane section. Approx 25 mi NE of Seattle, at 5000' his plane started sputtering for a short period & than stopped completely.

Pilot used the emergency fuel pump without success in an attempt to start the engine. Pilot did not switch tanks from the main to the 50 gals reserve. This was determined by his own admission, both verbal & in his written statement. All other planes of the flight had approx the 50 gals reserve tank remaining available at time Conkey bailed. Conkey left a/c at an altitude of approx 2000'.

Flight leader was unaware of the emergency condition because Conkey had switched his radio from interplane frequency to the Navy tower frequency before any other member of his flight had made the change. This fact eliminated any instruction that could possibly be given to Conkey.

The wreck of this aircraft is not indicated on any of the available listings of aircraft crash sites in Washington. It is unknown to IARII researchers if this aircraft was relocated.

DOUGLAS DAUNTLESS (SBD-5)[13]

The Douglas SBD Dauntless was the most famous carrier-based Navy bomber from World War II. Although already considered outdated by the beginning of the war, the Dauntless was well liked by its crews who used the plane to sink more tonnage of enemy shipping than any other weapon in the Navy's arsenal. At least six Dauntlesses crashed into Washington waters during World War II. Although several Dauntlesses crashed on takeoff or landing, three Dauntless accidents may have produced crash sites where material may still exist at the point of impact.

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[13] See description of the Dauntless on page 64 in the technical report.

1. On July 2, 1943, Ensign George F. Stockham bailed out of Douglas SBD-5 Dauntless BuNo 28558 during high altitude acrobatic training.

> *While at about 7000 feet, pilot attempted to execute an Immelman. Plane lost speed at top of turn and fell off into an inverted spin. Pilot's attempts to recover from the inverted spin followed recommended procedure but were entirely unsuccessful and he bailed out at 1000 feet. He landed in a tree, and fell thru it, being blinded momentarily by the branches, striking the ground and suffering injuries to his back. Plane fell into a wooded area and was demolished.*

No wreck site is indicated on any of the available lists of crash sites. It is likely that this wreck site was cleared since the plane fell near Bothell, approximately three miles north/northeast of NAS Seattle, but this has not been confirmed.

2. On February 24, 1944, Ensign Lawrence Michael Murphy and David Grant McBride, Jr., AOM3c, and their SBD-5 Dauntless (BuNo 28673) failed to return to NAS Whidbey from a routine training mission.

> *SBD-5, Bureau Number 28673, piloted by Ensign Lawrence M. Murphy took off from Ault Field at 1540 on 24 February 1944 on a local familiarization flight. No radio contact was made with plane after it left the line. On 24 February 1944, 8 planes searched 1½ hours until sunset over an area bounded by Seattle on the south to Bellingham in the north, and Victoria in the west to Mount Baker in the east. On 25 February 1944, 20 planes searched from 0800 until 1400 when the weather closed in. On 26 February 1944, 2 planes searched 3 hours over the Quinault Area; 1 plane searched 3 hours over the Discovery Bay Area; 3 planes search 3 hours over Fidalgo Island. The plane, with its two crew members, is presumed lost.*
> *Adm. Report:*
> *Plane discovered on 1 Sept 45 on side of hill 9 mi. SE of Wickersham, Wash. Plane had crashed violently - apparently flew into hill, perhaps during forced landing descent.*

Although this aircraft was found in 1945, it is still listed as missing on the Washington DOT crash index inventory. The exact coordinates for this wreck are unavailable but the site was visited by an acquaintance of David Mahre a few years ago and the wreckage was badly "torn up" (David Mahre 1996, pers. comm.). Wickersham is roughly ten miles north of Sedro Wooley, Washington. The wreck site lies on an unnamed 1,200 meter ridge in Skagit County.

3. The third Dauntless is a well known wreck to local historic aviation enthusiasts. On February 15, 1945, Ensign Mathew R. McFarland, USNR, and Lieutenant Jess R. Battenfield, USMC, were killed when they flew Douglas SBD-5 Dauntless BuNo 36638 into a mountain during a routine familiarization flight.

Pilot took off in SBD-5 #36638 on routine familiarization hop in 15 mile local area. Plane and crew failed to return to base.
Aircraft crashed at unknown time upon south side of Three Queens Mountain Cle Elum Ranger District, Washington (16 miles north of Easton Washington) at an elevation of approx. 6,000' above sea level. Crashed aircraft observed by an Army Aircraft on Sept. 11, 1945. Investigation of crash revealed Auto-Pilot to be "on", Engine in low-blower, Manifold-pressure 47" Hg. indicated, Carburetor Mixture control in "Full rich", carburetor Air Control in "Warm", Throttle on, elevator tab 4°, Altimeter 5,750' indicated, cowl flaps in neutral, no clock. Pilot exceeded the bounds of his flight plan for unknown reason. It is believed that the pilot was not flying contact immediately prior to crash and that he attempted an "emergency pull-up" upon seeing the mountain and tried to over-power the auto-pilot, and crashed instead.
NOTES:
Left local familiarization area, entered overcast & flew into mountain.

This SBD crashed at 47° 25' N, 121° 16' W on the south side of the Three Queens on Chikamin Ridge. This ridge lies just north of Lake Kachess in the Wenatchee National Forest in Kittitas County. The site was visited in the late 1960s by a representative of the Bradley Air Museum in New England, who removed the dive brakes for the restoration of a Dauntless. At that time, much more of the aircraft remained at the site. When the same person showed the site to Dave Mahre in 1994 it was clear that the wreckage had been hacked apart by hikers for souvenirs and by wreck chasers for salvage of usable parts. The center section of the wing, the firewall, and the tail cone are still visible at the site (David Mahre 1996, pers. comm.). David Mahre and the Pearson Air Park Museum requested permission from the Navy Aviation Supply Office and the NMNA respectively to recover the wreckage in 1994. At that time the matter was brought to the attention of the NHC and the Washington OAHP. The NHC was currently developing standards for the archaeological assessment of aircraft crash sites and informed the Pearson Air Park Historical Society that the proposed recovery of the aircraft could not be evaluated until those standards were completed (John Donnelly 1996, pers. comm.). No further action has been taken to date by any of the parties interested in this aircraft.

GRUMMAN/GENERAL MOTORS AVENGER (TBF-1?)[14]

The Grumman-designed TBF Avenger was the Navy's primary carrier-based torpedo-bomber of World War II. Avenger crews in Washington trained primarily over water due to the design's primary tactical role and five Avengers are inventoried among the submerged Navy aircraft in the state. Although an Avenger was lost just south of the Columbia River west of The Dalles, only one Avenger was lost over land in Washington.

1. The record for this wreck is incomplete. According to the Washington DOT crash locator index the wreckage of a TBF lies in the Olympic Mountains approximately 22

[14] See description of the Avenger on page 68 in the technical report.

miles southeast of Port Angeles. This wreckage may have been initially spotted from the air since no more specific coordinates are provided. The DOT crash locator index also has a section which includes missing aircraft. This list includes TBF #2314 which disappeared after takeoff during a local flight from NAS Whidbey Island on June 16, 1943. These may be the same aircraft. Unfortunately, no TBFs were given a Bureau of Aeronautics number of 2314 or 02314. One digit is apparently missing from the DOT's listing.

PIPER GRASSHOPPER (NE-1)[15]

Not all of the single engine Navy planes lost in Washington were fighter aircraft. Two Piper NE-1 Grasshoppers were lost during World War II. One of these was lost off of Smith Island and the other crashed on Whidbey Island. The NE-1 Grasshopper was the Navy's version of the civilian Piper Cub and was used as an observation and liaison aircraft.

1. On August 10, 1943, Lieutenant, junior grade, Frank B. Earp, and A. G. Wade, AMM3c, were injured when their NE-1 Grasshopper (BuNo 26260) stalled and crashed. Lieutenant Earp died of his injuries two days later.

> *Pilot, after normal take-off, pulled plane into stall and landed on left wing and engine from and altitude of about sixty feet.*
> *REMARKS:*
> *Aircraft 95% loss. Engine 75% loss.*

The coordinates for this crashed aircraft are listed on the Washington DOT crash index. It seems likely that the site (southeast of Ault Field on Whidbey Island) has been developed since the initial listing. The coordinates are 48° 22' N, 123° 13' W.

TWIN ENGINE AIRCRAFT

LOCKHEED VENTURA (PV-1)[16]

Venturas were used extensively in Washington during and World War II for coastal patrol, training, and administrative duties. Many of these flights crossed the Cascades, Olympics, and Washington's volcanic peaks. The mountains of Washington claimed at least four and possibly five PV-1s.

1. Five men died when PV-1 Ventura BuNo 33142 crashed in the southeastern region of the Olympic Mountains on May 14, 1943. Originally listed as missing with their aircraft, the casualties included the pilot, Lieutenant, junior grade, Byron L. Lough, USNR, co-pilot, Lieutenant, junior grade, William S. Sledge, USNR, Frank Harvey Blanck, AMM3c,

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[15] See description of the Grasshopper on page 78 in the technical report.

[16] See description of the Ventura on page 84 in the technical report.

USN, G. Winston McAllister, AOM3c, USNR, and Robert S. Youngblood, Jr., ARM3c, USNR.

> *Failed to return from operational flight. Plane took off at 0815 on a navigational training flight. Flying condition at locality of crash cannot be determined due to the isolation of the scene and indeterminate time of the crash. Reports from other pilots who conducted flights thru this valley during the day indicated that the weather during the entire day was generally average to undesirable, with broken clouds, with bases fro, 1500 to 4000 feet, widely scattered showers, visibility 10 miles or better except in showers and variable winds due to terrain. Plane crashed on Olympic Peninsula, Washington.*
>
> *FROM ADMINISTRATIVE REPORT:*
>
> *While on a routine navigation flight, plane crashed on the NE slope of Mt. Washington, 200 feet from the summit. There are no known living witnesses so definite cause cannot be determined, but evidence indicates that the plane crashed while in a spin or tight spiral. Weather in the vicinity or the crash was average to undesirable with scattered showers and clouds. It is believed that while proceeding in reduced visibility, pilot may have suddenly sighted the mountain peak and pulled up to avoid a collision, thus causing plane to stall and spin.*

The wreck site of this aircraft lies at 47° 33' N, 123° 13' W.

2. PV-1 Ventura BuNo 34637 was one of the long missing Navy aircraft in Washington until a hiker discovered the wreck on the top of Mount Baker in October, 1994. This ill-fated aircraft took off from Ault Field for instrument training on August 29, 1943 and disappeared with its crew. The families of pilot Lieutenant Commander Ralph R. Beacham, co-pilot Ensign Charles E. Nestor, Carl A. Brown, AMM3c, Livid E. DeMarco, AMM3c, Robert Wigray, AOM3c, and P. D. LaVallee, ARM3c were notified that a hiker had discovered the plane at about the 7,500-foot level of the 10,778-foot tall mountain, nearly 49 years after their loved ones disappeared (*Seattle Post-Intelligencer [SPI]*, October 19, 1994:sec B3).

> *ANALYSIS:*
>
> *Failed to return from training flight.*
>
> *Aircraft took off on a routine instrument training flight at 1322 and was last reported by radio at 1522, at which time the drill "CW" circuit in the plane was secured. All planes were recalled at 1630 and a search was initiated and continued until darkness fell about 2010. Search was resumed at 0700 the following morning with no further report to date.*

3. The foothills of the Olympic Mountains claimed another aircraft of the Lockheed PV series. An unmarked PV-1 Ventura or PV-2 Harpoon[17] lies at 47° 57' N, 123° 13' W in the northeast corner of the Olympic Peninsula. This aircraft supposedly went down in 1944 but this was insufficient information to locate the pertinent records in the NHC-AVH files. The complete record of this incident may be available for purchase from private sources.

4. Another PV-1 Ventura crashed after its crew of six bailed out over the North Cascades. On January 14, 1945, Lockheed PV-1 BuNo 33380 became lost in bad weather, had communications problems, and eventually ran out of fuel over some of the most rugged country in Washington. All six crew members survived the jump but only four survived the harsh conditions they encountered upon landing. Co-pilot Ensign Bruce Mayper, was found dead from "exposure and exhaustion" and Daniel Smotherman, AOM3c, died of pneumonia resulting from his exposure to the mid-winter elements. The pilot, Lieutenant Harry Taber, Ensign Rine Kruger, Philip M. Bauer, AMM3c, and Arthur E. Utecht, ARM3c endured frost bite and hypothermia but survived the incident.

> *Pilot and crew were on a free gunnery training flight from NAS Whidbey Island to gunnery area in vicinity of Cape Flattery. Prior to flight, radioman failed to ground-check radio, also failed to notify pilot of radio discrepancies. Pilot failed to enforce operations order requiring radio CW ground-check. During flight turret fire cut command antenna which in turn grounded radio-compass (ADF) sense antenna, making the radio compass unserviceable (including loop). It is the opinion of specialists interviewed by this board that the loop could have been used, had the radioman disconnected the sense antenna. Later when the pilot encountered instrument conditions and requested either the Neah Bay or Tofino Range, the radioman said this would be impossible until he ran a "jumper" from the liaison antenna to the command receiver. The pilot got the impression from this that the liaison receiver was grounded out also. Actually, the beam could have been received on the liaison receiver. Unable to remain contact on the surface and believing he had no means of radio reception, the pilot elected to head out to sea and attempt to climb to the top. After climbing to 17000' and still not breaking out, he headed east as directed by lost plane procedure. VHF in plane was not used. The Bellingham Range was heard for a period of approximately 2 min. then lost - also one message was received giving their position 20 min. previously, however, not knowing his track since that time, this gave the pilot little aid. Plane was abandoned 10 min. prior to fuel exhaustion over mountainous terrain.*
>
> *MATERIAL FACTORS:*
>
> *Command antenna shot away.*
>
> *RECOMMENDATIONS:*
>
> *Pilots must now state definitely that his radio gear has been ground-checked before his flight plan will be accepted.*
>
> *CO:*
>
> *1. Pilot error amended as follows: 20% carelessness and negligence; 20% poor technique and 20% error in judgment due to lack of experience in local frontal weather.*
>
> *2. Direct disciplinary action has not been taken due to personnel suffering from exposure and shock.*
>
> *I.S.I.C.:*
>
> *It is obvious that there existed a distinct lack of flight discipline and proper indoctrination in this combat flight crew which at the time of the crash had completed 56% of the prescribed syllabus for PV combat replacement flight crews. The following action has been taken:*

---

[17] See description of the Harpoon on page 91 in the technical report.

(a) Commanding Officers of squadrons and units have been directed to recheck all pilots and radiomen for a thorough knowledge of the operation and employment of all radio and navigational equipment installed in aircraft normally assigned for flight training.
(b) Errors in flight discipline and judgment demonstrated by the Patrol Plane Commander and radioman of this flight crew have been brought to the attention of all pilots and radiomen operating aircraft under this command.
Adm. Report:
Buaer says it is considered possible that turret firing broke the antenna installation. Buaer is testing a new installation for the PV-1.

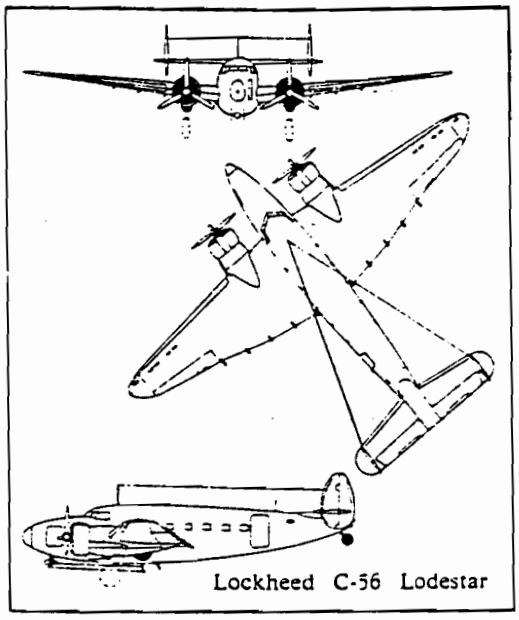
This aircraft lies at 48° 20 N, 121° 05 W and was marked and still visible from the air in 1966.

5. The last known terrestrial wreck of a Navy Lockheed Ventura in Washington occurred just after the end of the war. On November 29, 1945, PV-1 BuNo 49549 left NAS Whidbey for a ferry flight to Portland. The crew consisted of the pilot, Lieutenant, junior grade, J. E. Johnston, co-pilot Lieutenant (A5) G. D. Norberg, R. G. Knoy, AMM2c, and C. M. Askins. First Lieutenant W. H. Lawson, USAAF, was aboard as a passenger.

ANALYSIS:
The subject pilot cleared on the 23rd, from NAS Whidbey Island, Washington for AAB, Portland, Ore. on the sixth day, after being grounded because of bad weather and having attempted a flight on the 28th, he decided to clear via The Dalles, Oregon, Klamath Falls to Red Bluff, Calif. on the 29th, in extremely dangerous weather. This flight departed Portland at 1210 PST and was instructed by ATC [air traffic control] to climb on the south leg of that radio range until 500 ft. on top of the overcast. The top of the overcast was reached at 19,000 ft. The pilot, evidently seeing questionable weather ahead and the occupants without oxygen, requested permission from Radio Portland to descend and commence an extremely rapid let-down heading north. At this time, the left propeller raced necessitating single engine procedure. The pilot then directed the occupants to parachute at 6000 ft. As reported, Lawson and Askins left the aircraft in the vicinity of W122-45, N46-10. The only known survivor 1st Lt. Lawson walked to Cougar, Washington, and reported to AAB, Portland. As of this date only the body of Askins has been found; Johnson, Norberg, and Knoy are still missing. The aircraft has not been located and no damage to private property has been claimed.
SPEC. ERRORS:
This pilot cleared into icing conditions, reported above 3500' extending to 15,000 ft. MSL, in an aircraft with restricted instrument limitations and without deicing equipment.

The scattered remains of this aircraft are located near 46° 10' N, 122° 00' W (approximately five miles E/SE of Mt. St. Helens crater) and were still visible as late as 1988 (Sig Unander 1996, pers. comm.). The engines, outer wing panels, part of fuselage, and main gear were still at the site in 1988. Parts of this aircraft may have been removed to aid in the restoration of a PV-2 Harpoon presently at the Pearson Air Park (John Wulle 1996, pers. comm.).

LOCKHEED LODESTAR (R5O-6)


Lockheed C-56 Lodestar

A series of military aircraft was derived from the commercial designs of Lockheed (Vega) Aircraft Division. The Hudson, derived from the Lockheed 14 Electra, was first used by the RAF for naval reconnaissance. Although they had problems, over 2,000 Hudsons were employed in advanced training, observation and liaison duties. The British pushed for improvements and a larger, more powerful aircraft, based on the Lockheed Model 18 Lodestar, was first flown as the PV-1 Ventura prototype (see above) on July 31, 1941. Nearly 100 Lodestars were acquired by the Navy and Marines between 1940 and 1943. The 35 R5O-6s received by the Navy had bench seats for up to 18 paratroopers.

Lockheed Lodestar (R5O-6)

Manufacturer: Lockheed (Vega) Aircraft Division, Burbank, California.
Type: Command transport.
Accommodation: Crew of two or three, up to 18 paratroops.
Power plant: Two (2) Wright R-1820 engines.
Dimensions: Span, 65 feet 6 inches; length, 49 feet 10 inches.
Weights: Gross, 18,500 pounds.
Performance: Maximum speed, 250 miles per hour.
Armament: None.

1. On August 19, 1943, three Navy aircrewmen, a member of the Royal Air Force and a civilian passenger bailed out of R5O-6 Loadstar BuNo 39631 which had run out of fuel. The crew consisted of the pilot, Lieutenant, junior grade, Roland A. Bannister, Lieutenant, junior grade, L. J. Cornie and E. T. Timmel, ARM3c. The Royal Air Force was

represented by J. E. Midgley, RAF, and the civilian was C. Mellon. All of the men survived the jump.

> *Plane was on flight from Burbank to NAS Whidbey Island, at 11,000 feet. At Medford and Portland Oregon, with limited fuel and a terminal weather of 2,000 feet ceiling broken at Seattle, the pilot elected to remain on top of the overcast and make an instrument let-down at Seattle, rather than stop for fuel and proceed underneath. On approaching Seattle the radio was found to be erratic, so he left the beam to find holes in the overcast for a let-down. No holes were found, and after twice letting down and breaking out among mountains, the pilot climbed back on top. With about five gallons of fuel remaining the pilots and crew parachuted and were later recovered in the mountains east of Seattle. Plane has not yet been found.*
> *REMARKS:*
> *Presumably total loss.*
> *NOTES:*
> *No radio compass aboard. Should have made an instrument let down while he still had fuel. Disciplinary action taken- EEM*
> *Lucky boys! When they broke through the overcast they were among peaks which were as high as the plane.*

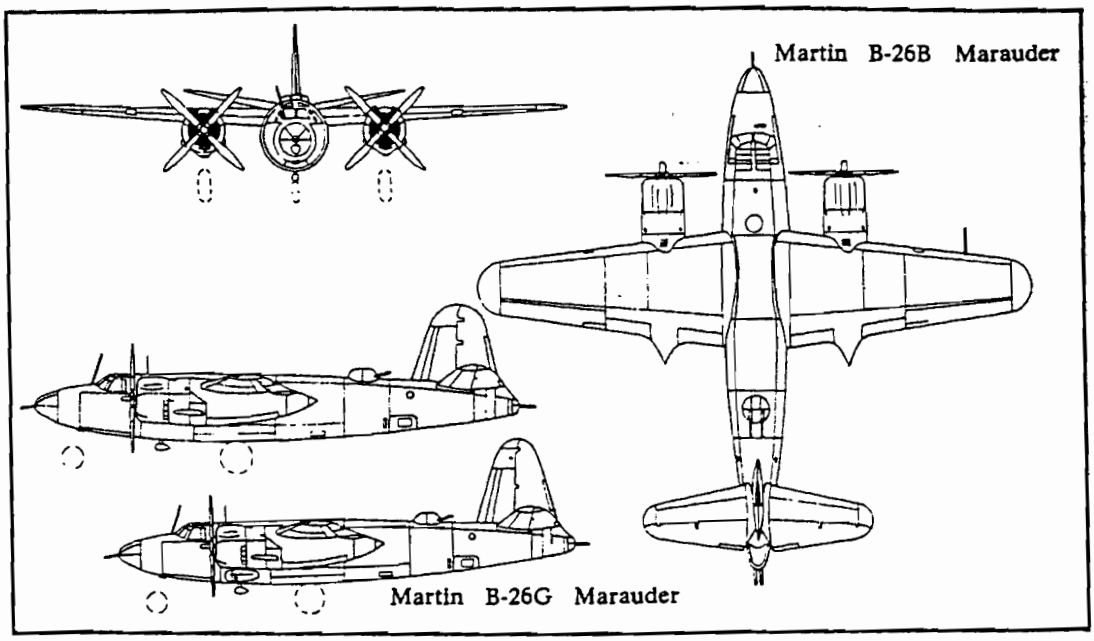
This aircraft was eventually located at 48° 30'N, 121° 00 W. According to the Aircraft Accident Summary Report the Lodestar ran out of fuel approximately 40 miles east of Seattle. However, the coordinates put this wreck site at nearly 60 miles northeast of the city.

MARTIN MARAUDER (JM-1)

The Navy acquired many models of aircraft which were more commonly associated with the US Army Air Corps. The twin-engine Martin B-26 Marauder was one of these types. Despite initial problems which resulted in a high accident rate, Martin produced over 5,000 Marauders which served in nearly every theater of the Second World War. The Navy obtained 272 Marauders during World War II and designated them JM-1s and JM-2s. These were primarily target tugs created by stripping down versions of the B-26C and B-26G variants of the Marauder.

Martin Marauder (JM-1)

Manufacturer: Glenn L. Martin, Company.
Type: Twin-engine target tug.
Accommodation: Crew of two or three.
Power plant: Two (2) 2,000 hp Pratt and Whitney R-2800-43 engines.
Dimensions: Span, 71 feet; length, 58 feet 3 inches.
Weights: Gross, 38,200 pounds.
Performance: Maximum speed, 282 miles per hour.
Armament: None.



1. One of the worst Navy aircraft accidents to occur in the Northwest involved the crash of a Martin JM-1 Marauder on February 14, 1945. Eight United States Navy Reserve personnel lost their lives when their plane, Martin JM-1 Marauder BuNo 66654, flew directly into the side of a hill six miles northeast of NAAS Arlington. The accident killed the pilot, Lieutenant Robert P. Helfrich, and Lieutenant, junior grade, William C. Lentz, Edward B. Fried, ARM3c, Sanford A. Hardy, AMM1c, Gordon W. Graham, AMM2c, William C. Young, AMM2c, Robert H. Giffin, AMM2c, and Lindsay Thomas. AOM1c and resulted in the complete destruction of the aircraft.

The pilot took off on an authorized routine night familiarization flight from NAS, Whidbey Island, Washington, at 1913, after having established radio communication with Ault Tower. The flight plan for CFR flight filed with NAS Whidbey Operations cleared him to proceed to Seattle, Bellingham, and return via airways, estimating the time en route to be two hours and thirty minutes. For reasons unknown and without proper notification, the pilot deviated from his flight plan and arrived in the vicinity of NAAS, Arlington, which is located 3 miles east of Amber 1 airway midway between Seattle and Bellingham, where he was observed at an estimated altitude of 1200-1500 feet at 1930. Competent eye-witnesses report that the engines sounded normal and the running lights were on. Arlington Tower tried unsuccessfully to establish radio communications. Arlington reports snow flurry at this time, which did not materially affect visibility. The pilot made a circle of the field and was seen to proceed to the northeast as if on the down wind leg of the runway in use (Runway #21). At 1940, the plane struck the side of a 2,000 foot hill about 200 feet below the summit on a heading of approximately 330° True. It exploded on contact, caught fire, and burned for several hours. Inspection showed the plane collided head on into the side of the precipitous hill in full level flight, wheel retracted, and in a slight left bank. A radio check was made by NAS, Whidbey after the crash and all planes answered, indicating no radio abnormality

in that area. All radio ranges were operating at the time. There was no moon. A pilot who had flown the plane that day reported it in good condition.

It is the opinion of the board that the pilot seriously erred in judgment in proceeding to Arlington rather that returning to Whidbey if any abnormality was encountered en route. If there was none, the pilot was in direct disregard of his flight plan. The board also considers that the pilot flew too far on his downwind leg and therefore was careless in his approach technique to a field which is in close proximity to mountainous terrain. The board expresses the opinion that a strong westerly wind may have existed aloft which carried the pilot farther on his down wind leg than he intended. This opinion is expressed after consultation with several aerological officers in this vicinity. It is also considered possible that the snow flurry was more intense near the mountains, and that it may have momentarily or partially obscured the pilot's vision.

RECOMMENDATIONS:

All flight plans must be followed implicitly unless in emergency.

If an emergency exists, control towers or proper authority must be notified of it with the change in flight plan. Pilots will not penetrate bad weather areas under normal circumstances, but will return to contact areas.

This crash site lies at 48° 30' N, 121° 00' W.

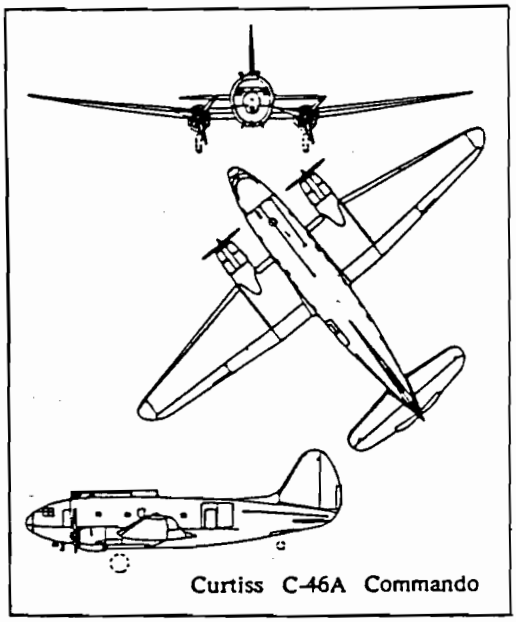
CURTISS COMMANDO (R5C-1)

The Navy R5C was equivalent to a Curtiss C-46A Commando troop transport. More than 3,000 Commandos were built and 160 of these went to the Marine Corps. Many of these Marine R5Cs saw service in the Pacific campaigns of World War II and many remained in service in the continental United States after 1945.

Curtiss Commando (R5C-1)

Manufacturer: Curtiss-Wright Corporation, Curtiss Aeroplane Division, Buffalo, NY. .
Type: Twin-engine troop transport.
Accommodation: Crew of four plus capacity for up to 50 passengers.
Power plant: Two (2) 2,000 hp Pratt and Whitney R-2800-51 Double Wasp engines.
Dimensions: Span, 108 feet 1 inch; length, 76 feet 4 inches; height, 21 feet 9 inches.
Weights: Gross, 56,000 pounds.
Performance: Maximum speed, 269 miles per hour; range, 1,200 miles.
Armament: None.

1. Curtiss R5C-1 Commando BuNo 39528, carrying 32 Marines, crashed into the top of Mount Rainier on December 10, 1946. All aboard were killed. The Commando was one of six Marine Corps R5Cs which left San Diego on a routine transport flight to NAS Seattle at Sand Point. Soon after crossing the border into Washington air space the flight encountered a severe storm. Four of the planes changed coarse and landed at Portland, one continued through the storm to land at NAS Seattle, and one disappeared (Jaunal 1990:37).



Curtiss C-46A Commando

ANALYSIS: Maj. Reilly was pilot of R5C #39528 on authorized flt. between MCAS, Miramar, California and NAS, Seattle, Washington. Pilot, crew and all passengers are missing as result of disappearance of aircraft. Pilot of subject a/c reduced his altitude from 10,000 to 9,000' in accordance with instructions received from Civil Aeronautics Communication Station at Eugene, Oregon at about 1530 on 10 Dec. The last radio transmission was to Toledo Radio at Toledo Airport, Washington at 1616 and was in substance a request for clearance to fly at an altitude of 500' above overcast. At this time pilot stated that he was 30 miles south of Toledo picking up ice at 9,000'. The existing weather system over Portland-Seattle area was such that winds from northwest with velocity exceeding 50 mph were present at last reported altitude of subject a/c and further that ice was present in degrees from light to probably severe. Seattle Air-Ways Traffic Control tried to contact subject a/c at 1635 for purpose of delivering a clearance; they were unable to make contact. NAS Seattle, Washington started lost plane procedure as approximately 1700, and organized a search utilizing Army, Navy, Coast Guard, and civilian facilities and is continuing.

After a month of unsuccessful aerial and ground searches along the flight path, Navy, Army, Coast Guard, and civilian aircraft gave up the search, but the authorities and next of kin continued to speculate as to what happened to the missing aircraft. After nearly eight months they received an answer. On July 22, 1947, an assistant ranger spotted parts of a plane and other materials revealed by melting snow and ice about half way up the mountainside on the South Tahoma Glacier. The aircraft had hit the top of the mountain less than 260 feet below the 14,410 foot tall summit and some of the wreckage had apparently been carried down slope of the glacier. It took nearly a month of summer heat to melt the snow which had completely obscured the main impact point and majority of the wreckage.

More wreckage was located farther up the glacier on August 18, 1947, and with it were 11 bodies. The main wreckage was located soon after and with it some of the remaining 21 bodies. The main portion of the aircraft rests at 46° 52' N, 121° 53' W. The first 11 bodies were more accessible than the rest and these were extricated from the snow and positively identified. The remaining Marines, either entangled in the wreckage or held fast by the ice, were accounted for but not identified.

Casualty List:

Reilly	Robert V.	Major	USMC	pilot
Robertson	Alben C.	Lieutenant Colonel	USMC	co-pilot
Slonina	Wallace J.	Master Sergeant	USMC	crew chief
Abbott	Duane R.	Private	USMC	
Anderson	Robert A.	Private	USMC	
Bainter	Joe E.	Private	USMC	
Criswell	Charles F.	Master Sergeant	USMC	
Simmons	L. R.	Private	USMC	
Skinner	Harry E.	Private	USMC	
Smith	Lawrence E.	Private	USMC	
Snelling	Buddy E.	Private	USMC	
Stafford	Bobby J.	Private	USMC	
St. Clair	William D.	Private	USMC	
Stewart	Walter J.	Private	USMC	
Stone	John C.	Private	USMC	
Stubblefield	Albert H.	Private	USMC	
Sullivan	William R.	Private	USMC	
Taube	Chester E.	Private	USMC	
Thompson	Harvey L.	Private	USMC	
Thornton	Duane S.	Private	USMC	
Tisch	Keith K.	Private	USMC	
Todd	Eldon D.	Private	USMC	
Treco	Richard P.	Private	USMC	
Truby	Charles W.	Private	USMC	
Turner	Harry R.	Private	USMC	
Waddes	William E.	Private	USMC	
Walker	Donald J.	Private	USMC	
Watkins	Gilbert E.	Private	USMC	
White	Durane E.	Private	USMC	
Whitter	Louis A.	Private	USMC	
Zaloovin	Erneseta R.	Private	USMC	
Zrensak	Gene L.	Private	USMC	

Several search parties returned to the crash site in the late summer of 1947 and each time they were hampered by ice and falling rocks. It was finally determined that excavation

of all of the bodies was out of the question and that recovery of even a few would be extremely hazardous and may have led to further loss of life. The searchers and parents of the dead decided to leave all of the bodies, including the 11 found initially, and the wreckage at the crash site and let nature take its course (Jaunal 1990:40). While search operations were still underway, a memorial service was conducted at Round Pass by Marine Corps and Navy personnel. Fourteen of the parents or relatives of the victims attended the original service on August 24, 1947, and every August the Marine Corps League and surviving relatives gather at a bronze memorial plaque at Round Pass and read the names of the 32 Marines who remain on Mount Rainier (Jaunal 1990:41).

CONSOLIDATED CATALINA (PBY-5A, PBY-6A)[18]

The Consolidated PBY Catalina flying boat was another design which was supposedly outdated at the beginning of World War II but which gave excellent service to the Navy throughout that conflict.

1. Eight men were killed on September 16, 1946, when PBY-6A BuNo 63999 crashed into a mountain north of Granite Falls. Those aboard included the pilot, Lieutenant Conrad V. Gonska, co-pilot Lieutenant John J. Dougherty, flight engineer Ensign Paul Bertke, Walter G. Hom, AMM2c, Robert L. Vaugn, ARMAC3, Jack R. Clifford, AOM3c, Columbus N. Wooley, ACRM, and Edwin J. Olsen, ACRM.

> *This plane was cleared IFR from NAS Seattle to NAS Whidbey Island about 1040 PST 9/16/46. Terminal weather at Whidbey was contact. After takeoff the plane was not heard from again. The crash was discovered on 18 September 1945 in a remote area near Granite Falls, Washington. All aboard were killed and the plane and engines were completely demolished. From observations at the scene of the crash it appeared that the wing of fuselage hit a tall tree and cartwheeled upon striking the ground. A piece of the plane was embedded in the tree and the engines were buried approx. 50 yds. downslope from the tree. The rear of the plane was scattered still farther downslope for a distance of about 150 yds.*
> *SPECIFIC ERRORS:*
> *The location of the accident indicates the pilot was not complying with his IFR clearance. Either he was lost and failed to realize it or knowing he was lost he failed to put into effect existing lost plane doctrines.*
> *NOTES:*
> *Flew into mountain - low visibility.*

This wreck was relocated by hunters on May 5, 1948, and marked by the Navy to avoid further confusion. The coordinates of the crash site are 48° 12 N, 121° 53 W but the status of the site is unknown.

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[18] See description of the Catalina on page 80 in the technical report.

FOUR ENGINE AIRCRAFT

CONVAIR PRIVATEER (PB4Y-2)[19]

The Convair PB4Y-2 Privateer was the Navy's single-tail version of the B-24 liberator bomber. This aircraft operated primarily in the years after World War II and was used for coastal and long-range anti-submarine patrol.

1. Five Navy men were killed on July 22, 1947, when Convair PB4Y-2 Privateer BuNo 59821 crashed two miles east/southeast of Ault Field on Whidbey Island. Those aboard were the pilot, Lieutenant William H. Davis, co-pilot Lieutenant, junior grade, Richard A. Kubber, Olkjer N. Jensen, ACRM, Paul McAllister, ARM2c, and Hathaway, AOM3c.

> *On nite familiarization flight, seched[sic] for 3 hrs, pilot had returned to field from presumed period of airwork at about 2200. Pilot commenced landing practice on runway 26 & made 2 touch & go landings & had taken 2 voluntary waveoffs, all of which appeared normal to tower operators & tower Duty Officer. Just prior to crash plane had called tower, "turning base" for landing clearance, which was given, and stated that this was to be a final landing. Up to this time everything was apparently normal, & tower operator states that plane did not appear to be out of position going downwind. Just before completing turn onto final leg for landing on runway 26, presumably while still in turn, left wing hit tall tree near crest of hilly area ESE of runway shearing wing panel off about 1'. Plane continued airborne for 300 yds, apparently rolling to left & crashed in heavily wooded area in an almost inverted position. According to 1 eye witness plane apparently exploded & burned on impact. Time as reported by tower was 2235. Due to difficulty in locating crash until 2335 at which time wreckage was still too hot to approach. Medical Dept. was able to remove remains of bodies at approx. 0030. Exact cause cannot be determined by this board.*
>
> *CO:*
>
> *Heavy PatRon - 10 considers lighting adequate at NAS, Whidbey Isl., for safe operations. Terrain is very favorable for flight operations, highest obstruction within 2 mi. of field being 460' high & this tall tree is NE of runway 26 & not in final approach area of any runway. Lt. Davis hit and "old growth snag" tree, which was approx. 40' above surrounding 2nd growth timber. 55 such obstructions may be counted; placing of obstruction lites on them is not considered feasible or necessary.*
>
> *It is the opinion of CO that, having taken 2 voluntary waveoffs, because, as stated by tower operator, he was too hi for even "touch & go landing", Lt. Davis deliberately made minimum alt. approach & did not allow sufficient margin for perceptual errors.*
>
> *Opinions of Bd.*
>
> *Accident was caused by pilot allowing himself inadvertently to get too low too far from field.*

---

[19] See description of the Privateer on page 100 in the technical report.

The coordinates for this site are 48° 20' N, 122° 37' W. The present status of this crash site is unknown.

CONCLUSIONS

Although local researchers are constantly updating their files with information acquired from various sources, it is impossible to accurately characterize these wreck sites without on-site inspection. For example, IARII researchers feel that, in light of potential errors in the record and secondhand information, it is premature to assign wreck sites to specific land owners based solely on archival research. Sites have been affected by land use activities such as logging and development (Sig Unander 1996, pers. comm.). Importantly, many of the wreck sites have also been, and continue to be, mined for materials potentially usable for aircraft restoration. Although specific information about the status of a few of these sites has been acquired from the archival record and consultation with knowledgeable individuals, there is a dearth of current information about most of these sites. We can deduce from the available information, however, that almost all of the terrestrial wrecks inventoried here lost structural integrity at the time they crashed due to high-speed impact and the ensuing explosion and fire. This fact may eliminate most of these wreck sites from being eligible for listing on the National Register of Historic Places. However, such sites contain Navy property and must be managed by the Navy in accordance with the National Historic Preservation Act.