

Welcome  
Aboard



**UNITED STATES SHIP TUCSON  
(SSN 770)**

**BUILT BY  
NEWPORT NEWS SHIPBUILDING**

**KEEL LAID - SEPTEMBER 20, 1991**

**CHRISTENED - MARCH 9, 1994**

**LAUNCHED - MARCH 20, 1994**

**COMMISSIONED SEPTEMBER 9, 1995**

**SPONSORED BY  
MS. DIANE C. KENT**

<b>SHIP'S COMPLEMENT</b>	<b>14 OFFICERS</b>
	<b>14 CHIEF PETTY OFFICERS</b>
	<b>110 ENLISTED</b>

<b>LENGTH</b>	<b>360 FEET</b>
<b>BEAM</b>	<b>33 FEET</b>
<b>DRAFT</b>	<b>32 FEET</b>
<b>MAX DEPTH</b>	<b>IN EXCESS 800 FEET</b>
<b>MAX SPEED</b>	<b>IN EXCESS OF 25 KNOTS</b>
<b>SURFACE DISPLACEMENT</b>	<b>6,200 TONS</b>
<b>SUBMERGED DISPLACEMENT</b>	<b>6,900 TONS</b>

<b>ARMAMENT</b>	<b>FOUR 21 INCH TORPEDO TUBES</b>
	<b>12 VERTICAL LAUNCH MISSILE TUBES</b>



## USS TUCSON (SSN 770)

### ***WELCOME ABOARD!***

*On behalf of the officers and crew of USS TUCSON (SSN 770), I take pleasure in extending to you the hospitality of the United States Submarine Force. We are most pleased to have you as our guests.*

*The crew TUCSON typifies the high level of knowledge, skill and reliability traditionally found in members of the Submarine Force. Their superb professionalism, loyal dedication and faithful service are the backbone of TUCSON. These dedicated Americans, who come from diverse backgrounds and represent almost every state, share a common goal: to operate the finest ship in the Navy at the forefront of our nation's defense.*

*As your hosts, all of us on TUCSON hope your visit will be informative, interesting and enjoyable. If at any time you have a question please feel free to ask any of us.*

*Sincerely,*

**D. J. MURPHY**  
*Commander, U. S. Navy*  
*Commanding Officer*



**COMMANDER DENNIS MURPHY  
UNITED STATES NAVY**

Commander Dennis Murphy, a native of San Francisco, California, graduated from the United States Naval Academy in 1981. Following commissioning, he completed nuclear propulsion training in Orlando, Florida and Idaho Falls, Idaho before attending submarine school in New London, Connecticut.

Commander Murphy was assigned to USS SAN FRANCISCO (SSN 711) in Pearl Harbor, HI for his initial sea tour, where he served as Main Propulsion Assistant and Weapons Officer from May 1983 to August 1986. During this tour he completed two deployments to the Western Pacific and one to the Northern Pacific. He then served as the Naval Aide to the Chief of Naval Operations until February 1989. During this tour he earned a Master of Science degree in Engineering Management from Catholic University.

After graduating from the Submarine Officer's Advanced Course, Commander Murphy served as the Engineer Officer aboard USS NEVADA (SSBN 733) in Bangor, Washington from August 1989 until February 1992. During this tour he completed four Strategic Deterrent Patrols.

Commander Murphy next served in the Navy's Office of Legislative Affairs in Washington, D.C. and spent a year as a White House Fellow where he worked as a Special Assistant to the Secretary of Transportation. He then returned to Hawaii for duty as Executive Officer of USS PINTADO (SSN 672) from November 1993 until August 1995. His most recent assignment was on the staff of the Director, Submarine Warfare Division (N87), in the Office of the Chief of Naval Operations.

Commander Murphy is authorized to wear the Defense Meritorious Service Medal, Meritorious Service Medal (two awards), Navy and Marine Corps Commendation Medal (three awards), and Navy and Marine Corps Achievement Medal (two awards).

Commander Murphy is married to the former Julie Saracco of Kailua, Hawaii. They have two children, Matthew and Meredith.



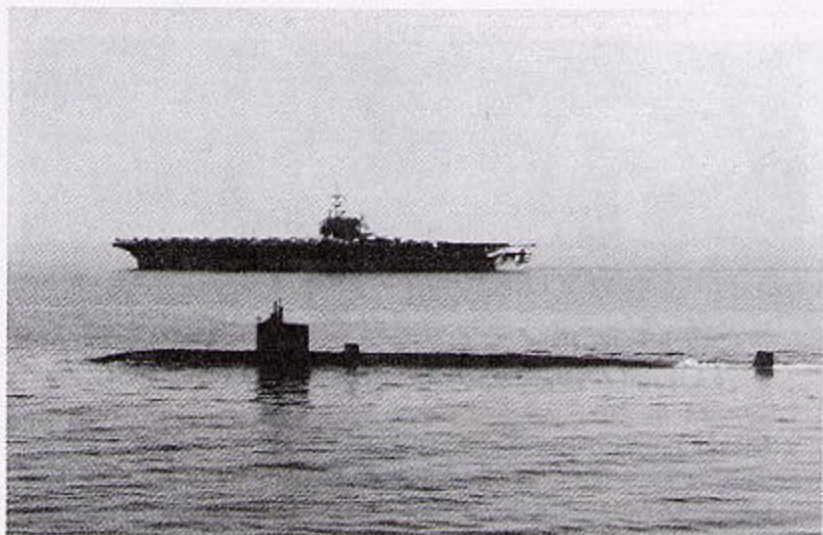


## HISTORY OF USS TUCSON

USS TUCSON (SSN 770) is the second ship of the United States Navy to bear the name of this Arizona city. The first TUCSON was a light cruiser, designated CL-98, built by Bethlehem Steel Co. in San Francisco and commissioned on February 3, 1945. Following shakedown and training cruises, TUCSON was assigned to screening duty for Fast Carrier Task Force, TF-38. TUCSON joined the fast carriers in mid 1945 in time to participate in their final assault on the Japanese Empire and its inner defenses. Following the surrender of Japan of September 2, 1945, TUCSON remained in the Far East and helped support occupation forces moving into Japan. For the next four years, TUCSON performed various gunnery and anti-aircraft training missions for the Pacific Fleet. On June 11, 1949, TUCSON was decommissioned and berthed with the San Francisco Group of the Pacific Fleet Reserve. For her service during the waning years of World War II, TUCSON earned one battle star.

The new TUCSON (SSN 770) is the 59th Los Angeles class attack submarine and the 20th of the Improved-Los Angeles class attack submarine to be built. Her construction began on 10 June, 1988 and her keel was laid 20 September, 1991. She was christened on 19 March, 1994 by Ms. Diane C. Kent, wife of the Honorable Gerald A. Cann, former Assistant Secretary of the Navy for Research, Development and Acquisition.





**TUCSON's first deployment was conducted in 1998 with the INDEPENDENCE Battle Group, deployed to the Arabian Gulf in response to increased tensions between the United Nations and Iraq. In addition to port calls in Manama, Bahrain, Dubai and Jebel Ali, United Arab Emirates; TUCSON visited Phuket, Thailand; Singapore; Yokosuka, Japan; Apra Harbor, Guam and Noumea, New Caledonia.**

**Submarines of the Los Angeles class are the most advanced vessels in the world. Their mission: to hunt down and destroy enemy naval forces alone or in battle group operations, lay mines off enemy ports, provide covert intelligence, support Navy, Army, and Air Force special operations forces and conduct cruise missile strikes against targets ashore.**

**Twelve vertical launch missile tubes for Tomahawk cruise missiles provide TUCSON with great offensive capability and strategic value. Retractable bow planes give the ship increased maneuverability and under ice surfacing potential.**

**Able to operate in all ocean areas of the world, TUCSON's stealth, endurance, mobility and responsiveness make her a formidable force in multiple mission roles.**





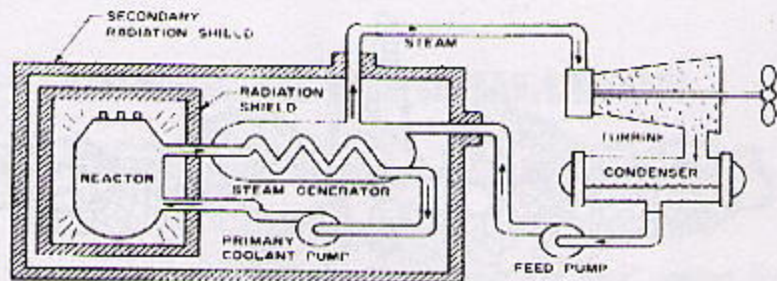
## TUCSON: A CITY OF CONTRASTS

Nestled in the Southeast desert, Tucson, Arizona is ringed by five mountain ranges: The Santa Catalina Mountains, Rincon Mountains, Santa Rita Mountains, Tucson Mountains, and Tortolita Mountains. The Tucson desert, which is known to get an occasional powdering of snow during the winter months, is far from barren. It is stunningly lush and provides a setting for an abundance of plants and animals. The majestic giant Saguaro Cactus, which can live up to 200 years and tower 40 feet, grows only in the nearby Sonoran desert.

History has etched its contrasts into the city, resulting in a diverse culture that is evident today. The area's first inhabitants were the Hohokam people, who farmed the area in the first century A.D. when the area was fed by a river. For unknown reasons, the Hohokams disappeared, and were later replaced by the Pima and Tohono O'odham tribes. The first settler to the area was the Spanish missionary Father Eusebio Francisco Kino in 1687. He founded the mission San Xavier del Bac, which remains a Tucson landmark today. The city was founded in 1775 by Irishman Hugh O'Conner who was exploring for Spain. During the Civil War, Confederate soldiers raised their flag over the city for two brief periods. During Tucson's U.S. territorial days, the city was a rowdy frontier town, Overland Stage stop and major outpost against Apache raids. The "Old Pueblo" was tamed, however, by the arrival of the railroad, telegraph and city settlers with social refinements.

Today, Tucson boasts a population of over 700,000 and a metropolitan area of nearly 500 square miles. It is a progressive city, and its ideal weather and beauty have attracted several national and international businesses. The community is one of only 14 U.S. cities with a full complement of the performing arts; symphony, theater, ballet, and opera companies. Tucson also is home to the University of Arizona and Pima Community College. Easily - and unpretentiously - TUCSON is a city of geographical, historical and cultural contrasts that have been blended into a dynamic progressive community.





## DESCRIPTION OF A TYPICAL NAVAL NUCLEAR PROPULSION PLANT

In Naval nuclear propulsion plants, fissioning of uranium atoms in the reactor core produces heat. Since the fission process also produces radiation, shielding is placed around the reactor to protect the crew. During a typical submerged patrol, a typical crew member receives less exposure to radiation than he would if he remained ashore and worked in an office building.

U.S. Naval nuclear propulsion plants use a pressurized water reactor design which has two basic systems: the primary system and the secondary system. The primary system circulates ordinary water in an all-welded, closed loop consisting of the reactor vessel, piping, pumps, and steam generators. The heat produced in the reactor core is transferred to the water, which is kept under pressure to prevent boiling. The heated water passes through the steam generators where it gives up its energy. The primary water is then pumped back to the reactor to be heated again.

Inside the steam generators, the heat from the primary system is transferred across a water-tight boundary to the water in the secondary system, also a closed loop. The secondary water, which is at relatively low pressure, boils, creating steam. Isolation of the secondary system from the primary system prevents water in the two systems from intermixing, keeping radioactivity out of the secondary water.

In the secondary system, steam flows from the steam generators to drive the main propulsion turbines, which turn the ship's propeller, and the turbine generators, which supply the ship with electricity. After passing through the turbines, the steam is condensed back into water and feed pumps return it to the steam generators for reuse. Thus, the primary and secondary systems are separate, closed systems in which constantly circulating water transforms energy produced by the nuclear reactor into useful work.

There is no step in the process that requires the presence of air or oxygen. This, combined with the ship's capability to produce oxygen and purified water from seawater, enables the ship to operate completely independent of the earth's atmosphere for extended periods of time. In fact, the length of a submerged submarine patrol is limited primarily by the amount of food the ship can carry for the crew.



## ORIGIN OF SUBMARINE DOLPHINS

The insignia of the U.S. Navy Submarine Service is a submarine flanked by two dolphins. Dolphins, traditional attendants to Poseidon, Greek God of the Sea and patron deity of sailors, are symbolic of a calm sea and are sometimes called the "Sailors Friend".

The origin of the U.S. Navy's Submarine Service Insignia dates back to 1912. On 13 June of that year, Captain Ernest J. King, USN, later to become Fleet Admiral and Chief of Naval Operations during World War II, suggested to the Secretary of the Navy that a distinguishing device for qualified submariners be adopted. He submitted a pen and ink sketch of his own, showing a shield mounted on the beam ends of a submarine, with tower. During the next couple of months the Bureau of Navigation solicited additional designs from several sources. Among the designs were a submarine and shark motif, a submarine and shield, and submarines and dolphins.

A Philadelphia firm was requested to design a suitable badge. Two designs were submitted by the firm and these were combined into a single design. It was the design in use today - a bow view of a submarine proceeding on the surface, with bow planes rigged for diving, flanked by dolphins in horizontal position with their heads resting on the upper edge of the bow planes.

The privilege of wearing "Dolphins" is a source of deep pride and professionalism for those naval personnel qualified in submarines.



# **GENERAL INFORMATION**

*Please observe the following procedures while your are aboard.*

## **WARNING SIGNS**

Please observe all warning signs. Consult any crew member for assistance.

## **EMERGENCIES**

Should any emergency situation arise, alarms will be sounded and the appropriate word passed. You are requested to **STAND FAST, BUT CLEAR** of all passageways and operating areas. Do not obstruct ladders, hatches, or the watertight door. Allow ship's personnel to perform required action without interference. The member of the ship's company in charge at the casualty will explain the situation as soon as he is able. Please follow the instructions of the man in charge without hesitation.

## **OPERATION OF SHIP'S EQUIPMENT**

Do not operate any equipment or switches, position any valve or enter any posted areas without prior approval from a crew member to do so. Observe posted precautions and procedures in all operations.

## **SECURITY**

Certain aspects of the ship's operational characteristics and certain areas of the ship are classified. The Radio Room, Sonar Room, Combat Systems Equipment Space and Engine Room are classified areas and not routinely accessible to visitors.

## **MEDICAL FACILITIES**

The ship has a Hospital Corpsman available at all times and should be consulted for any illness or injury that may occur during your visit. It is recommended that persons susceptible to motion sickness obtain medication prior to getting underway. The Hospital Corpsman may be contacted through the Chief of the Watch in Control. Dosimeters may be issued to those persons whose work on board involves radiation. If issued, please return your dosimeter to the Hospital Corpsman prior to your departure.



**"We shall never forget that it was our submarines  
that held the lines against the enemy while our fleet  
replaced losses and repaired wounds."**

**ADM C. W. NIMITZ**