



# *Sea Shadow*

*1983 to 2006*



# Program History

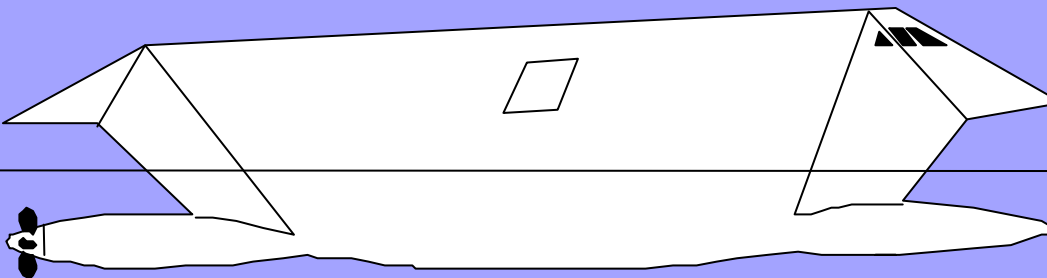
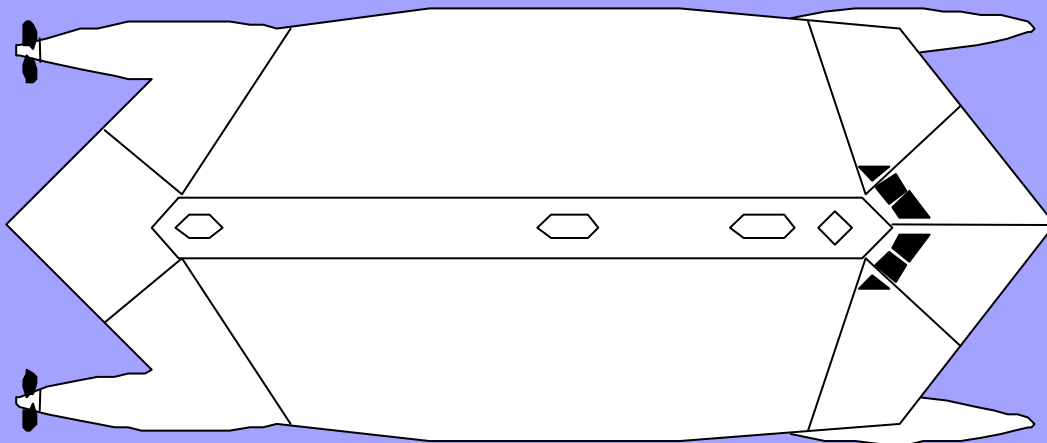


## DARPA / Navy Sponsor

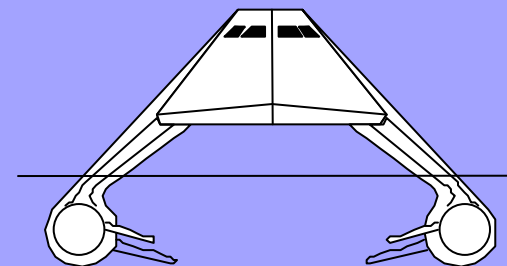
- Designed & Built in 23 Months CY 83-85
- At-sea Signature Testing CY 85-86
- Reactivated & Modified CY 92-93
- Signature & Performance Testing CY 93
- Fleet Exercise CY 94
- Analysis & Applications CY 86-87 & 93-97
- Fleet & Industry Test Ops in San Diego CY 97-06



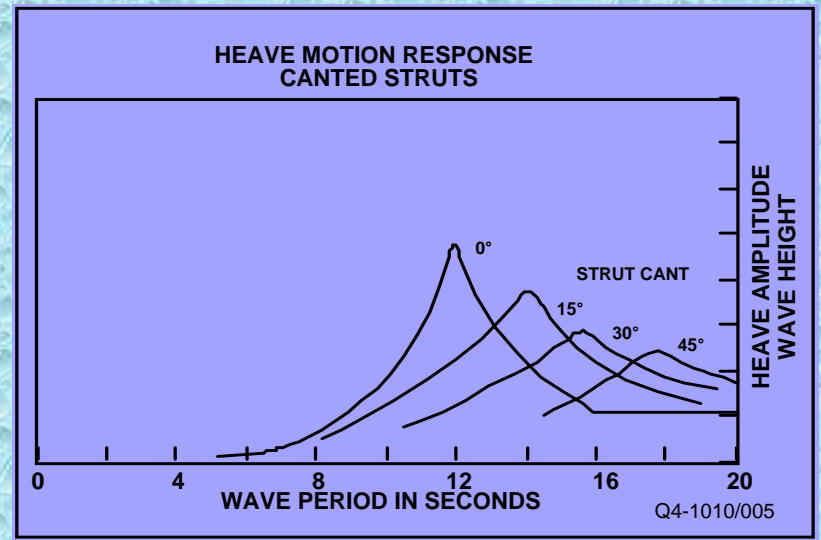
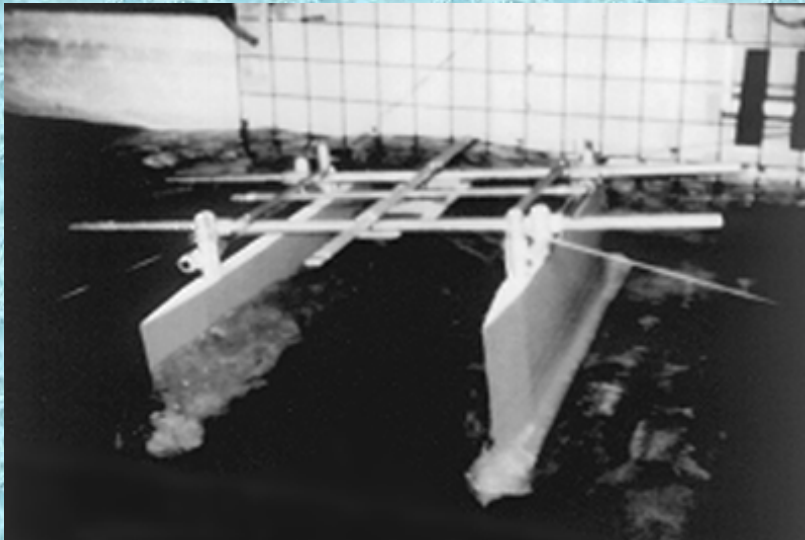
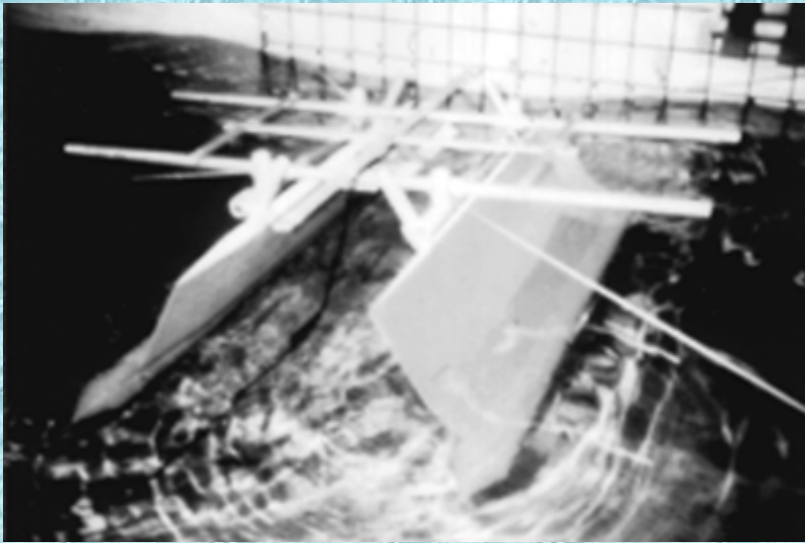
# Dimensions & Outline



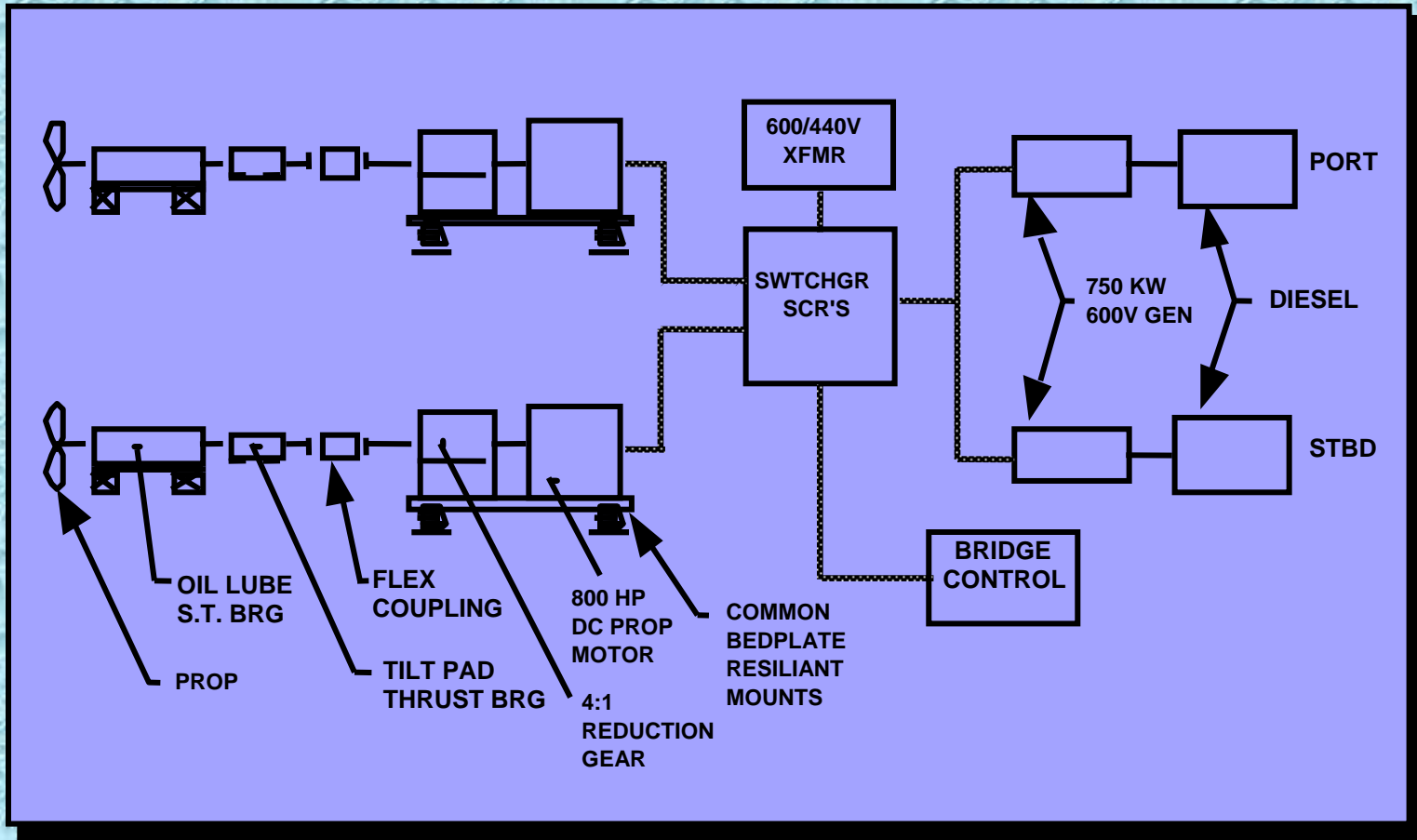
Displacement	560 LT
Overall Length	164 Ft
Beam, Maximum	68 Ft
Draft	14.5 Ft
Lower Hull Dia, Max	10 Ft
Upper Hull Clearance	8 Ft
Propulsion	Diesel Electric
Sea State	
Operate	SS-4
Survive	SS-5
Range*	1000NM @ 10 Kt
Payload Capability	51 LT
* Required range; tank volume accommodates 2250 NM	



# Improved Seakeeping



# Power & Propulsion System



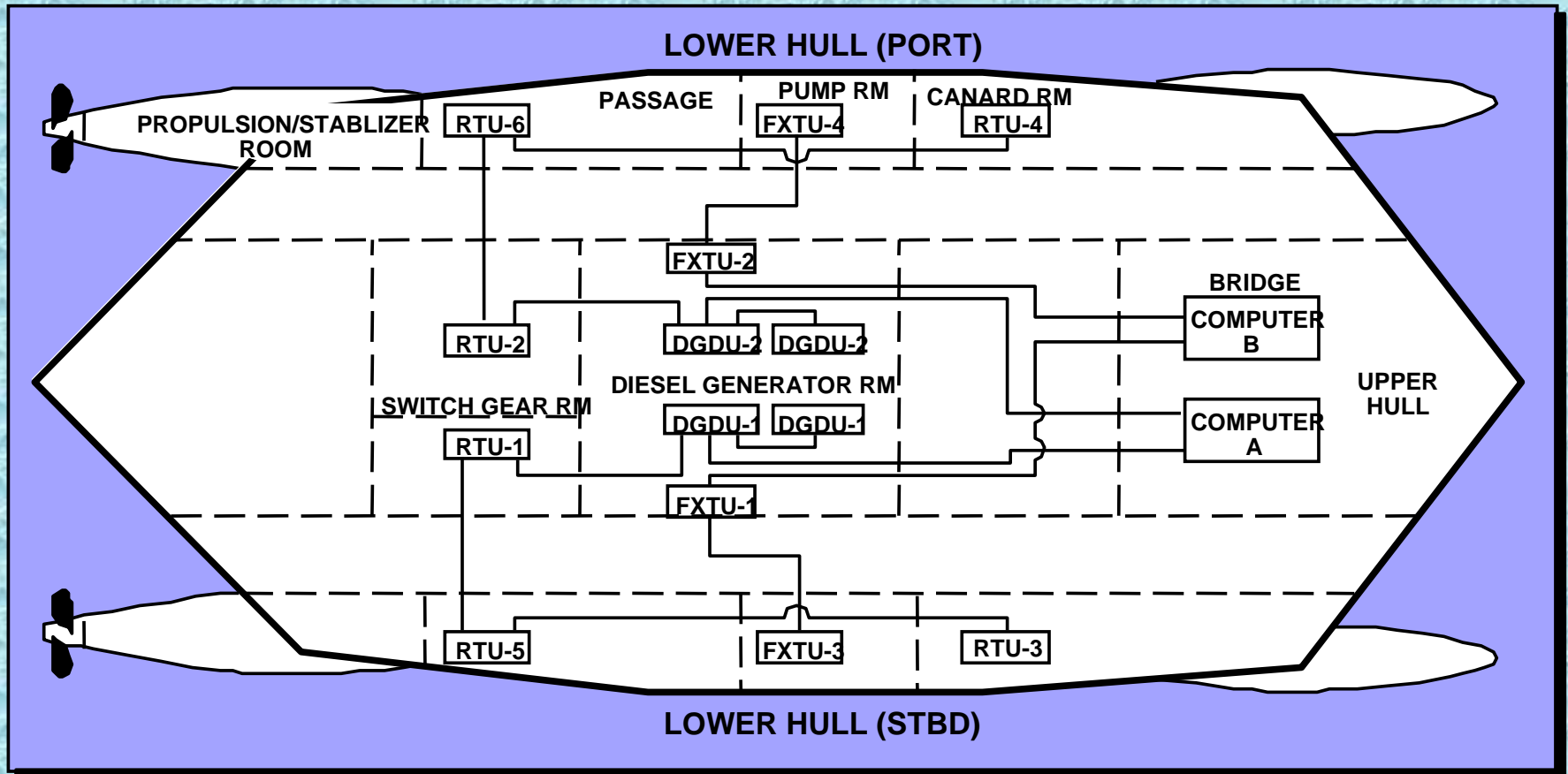
# *Reduced Manning Bridge*



# *Reduced Manning Engineering Station*

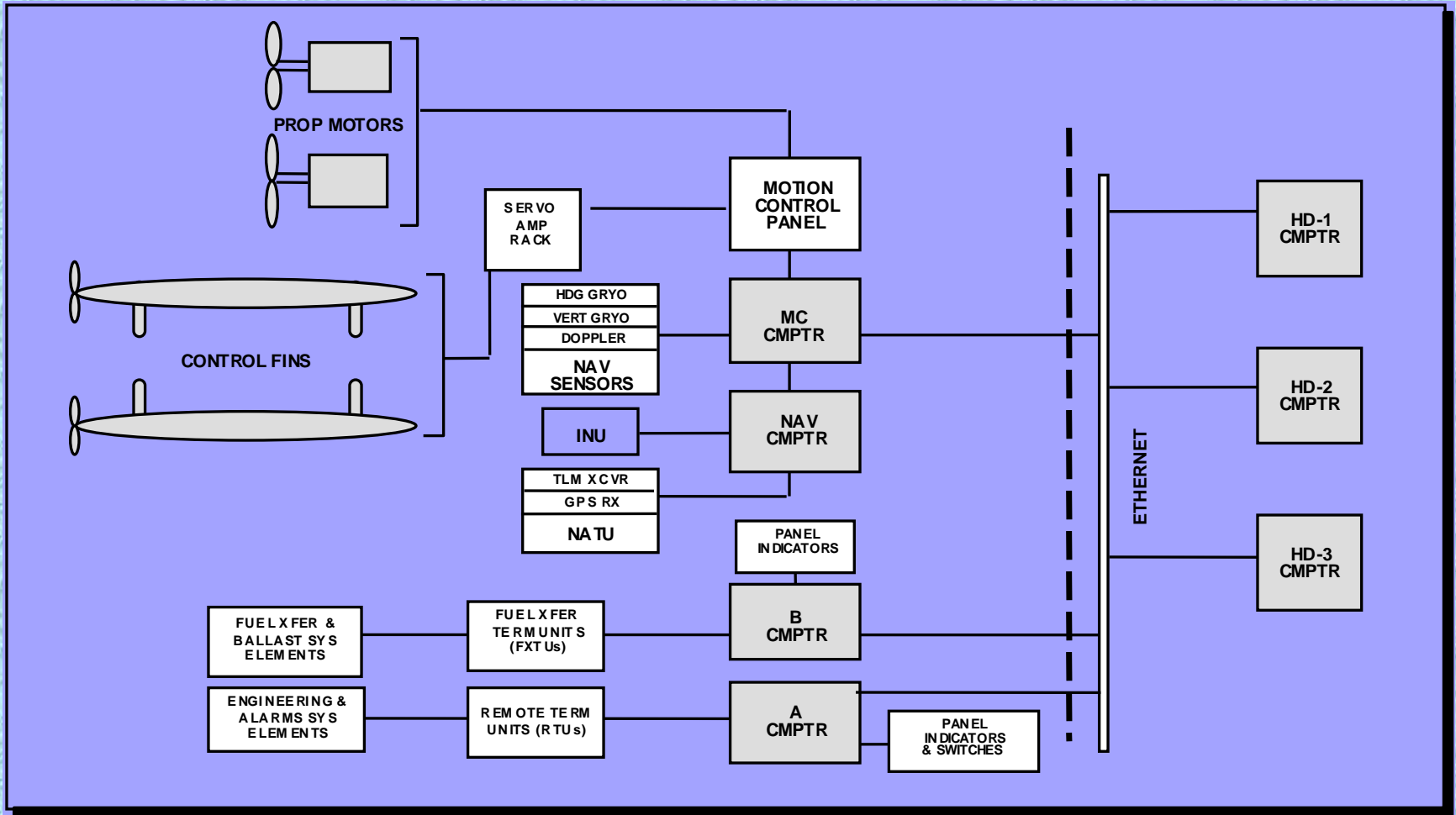


# Ship Monitoring & Control System





# Distributed Computing Demonstration



# ***Manufacturing***



# ***Hughes Mining Barge***

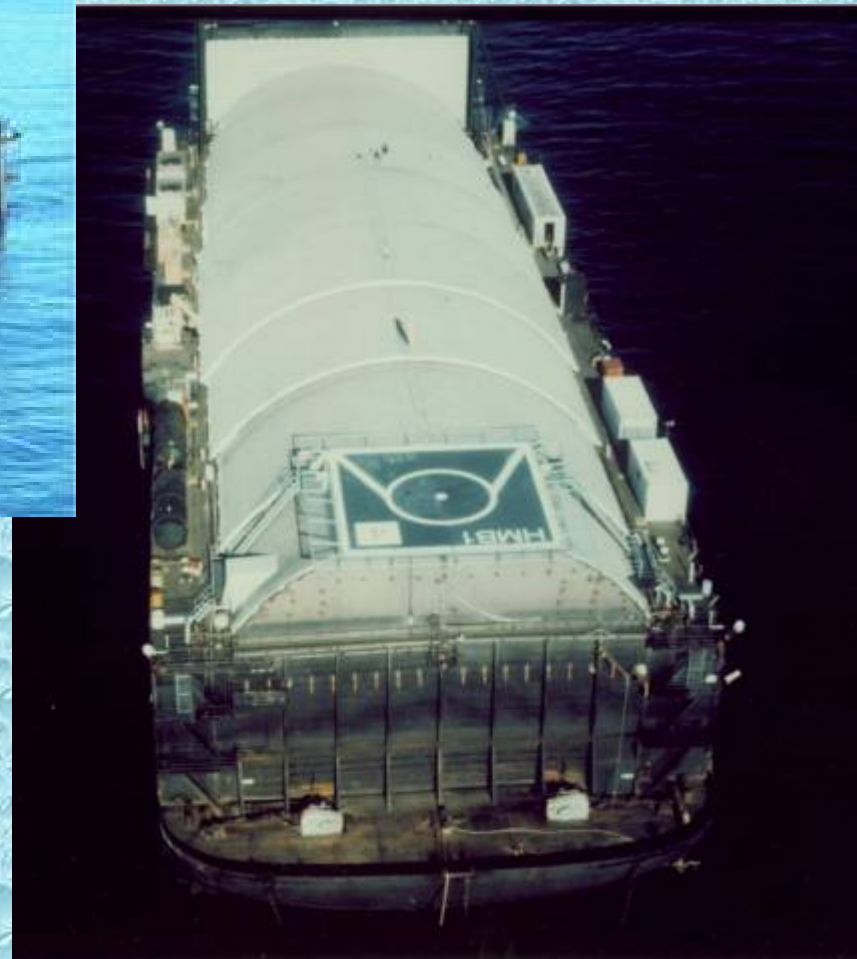
## ***Modified to support Sea Shadow at-sea Ops***



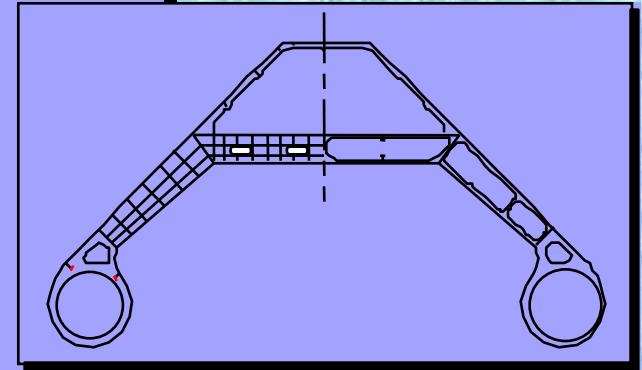
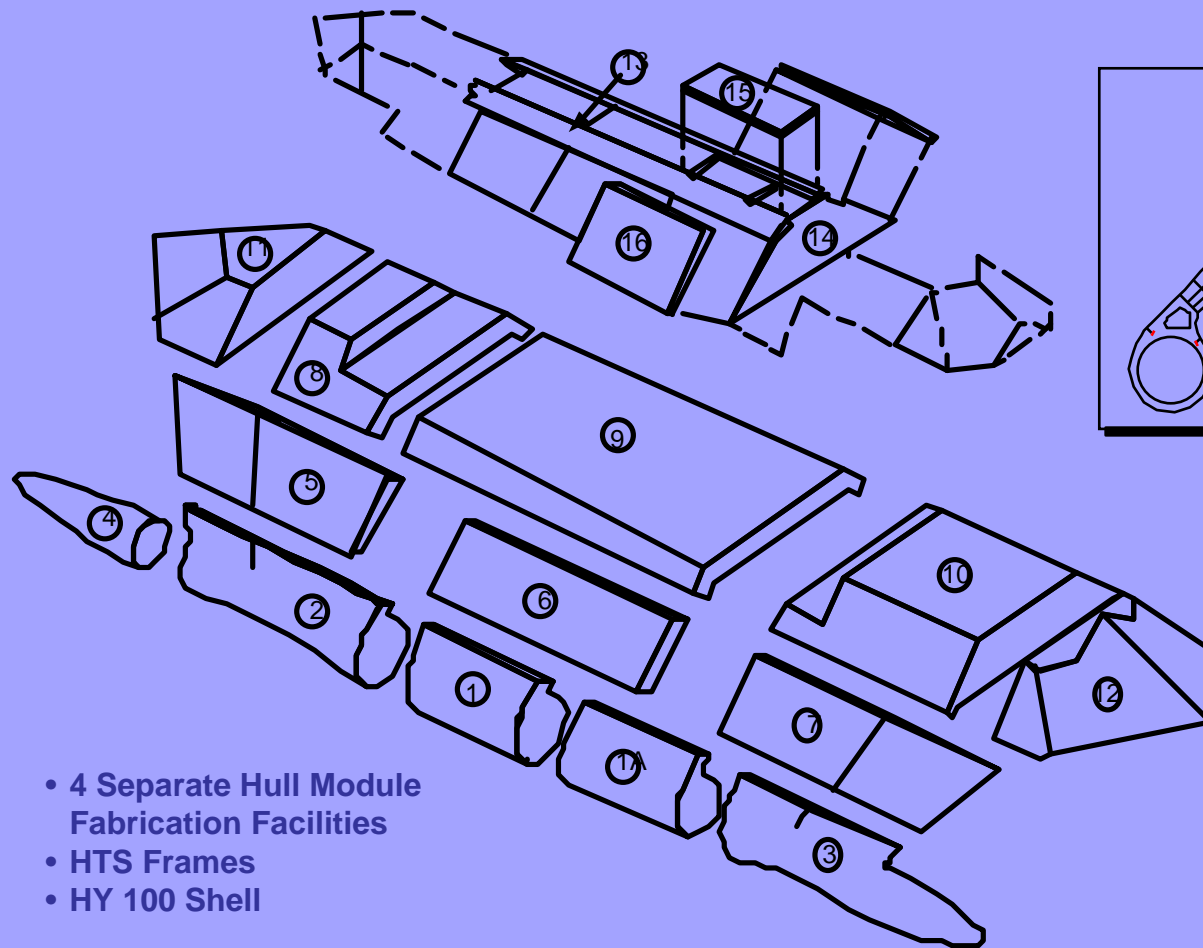
# *Hughes Mining Barge (former life)*



# *Hughes Mining Barge*



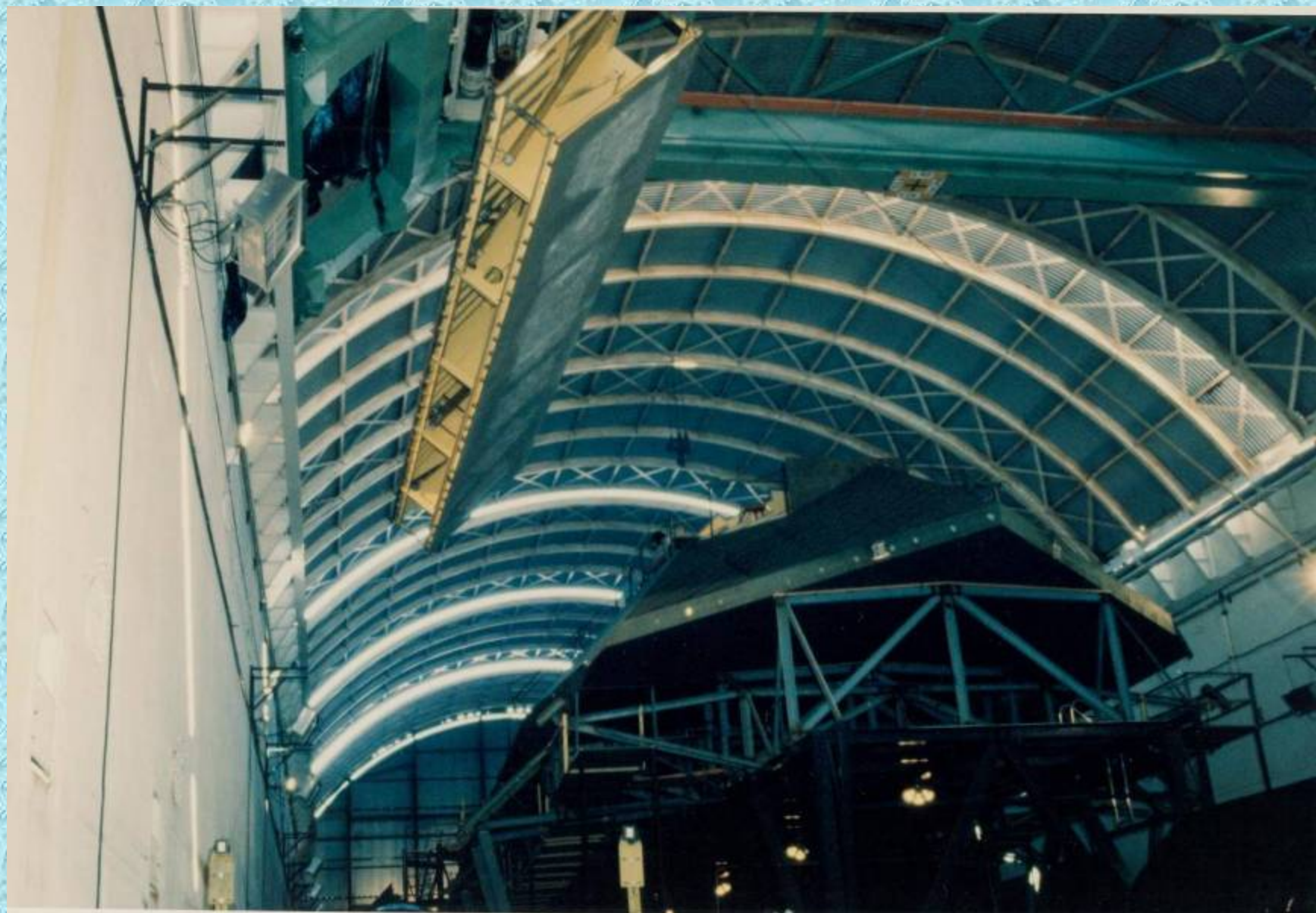
# Modular Construction



- 4 Separate Hull Module Fabrication Facilities
- HTS Frames
- HY 100 Shell

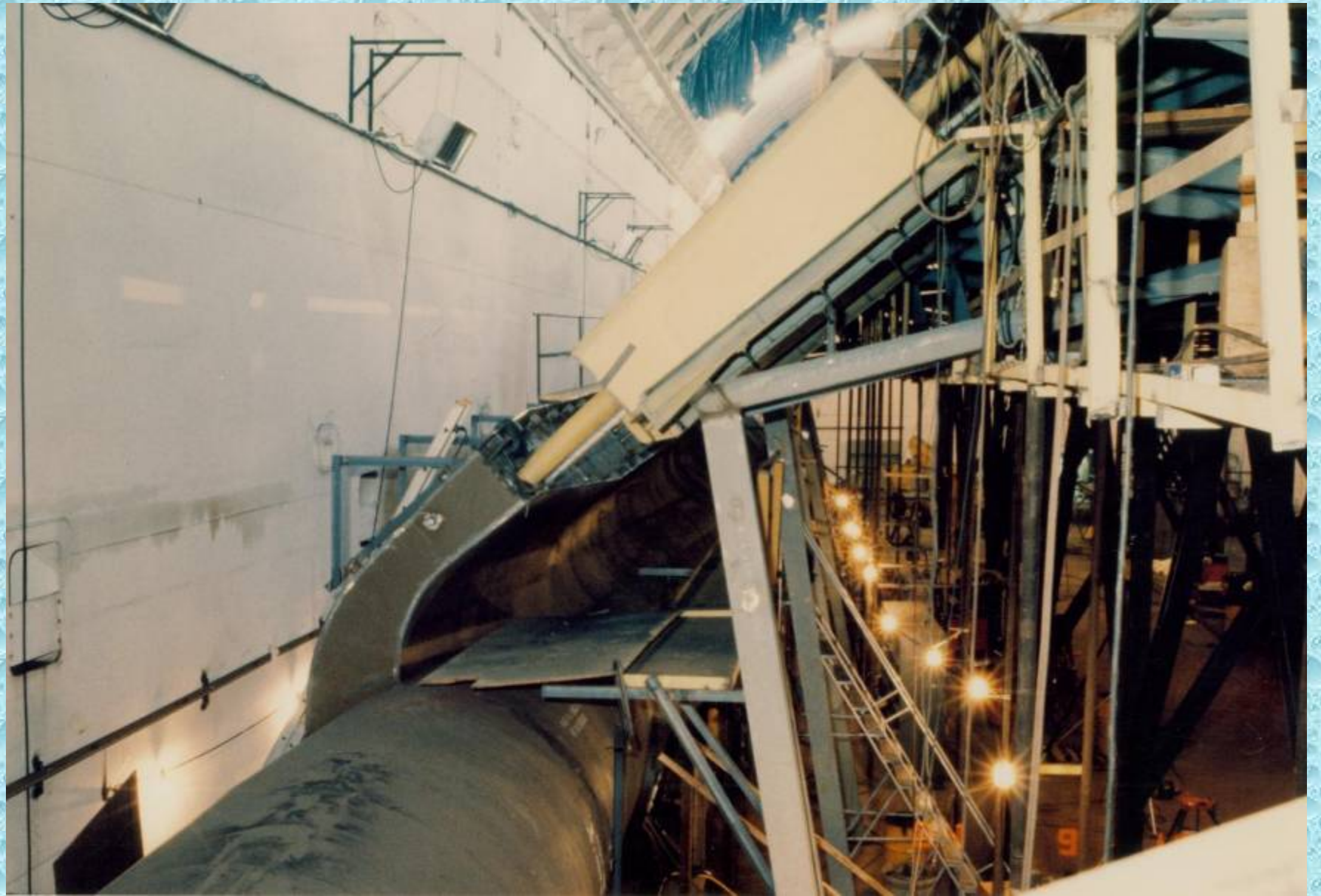
# ***HMB with Construction Structure***









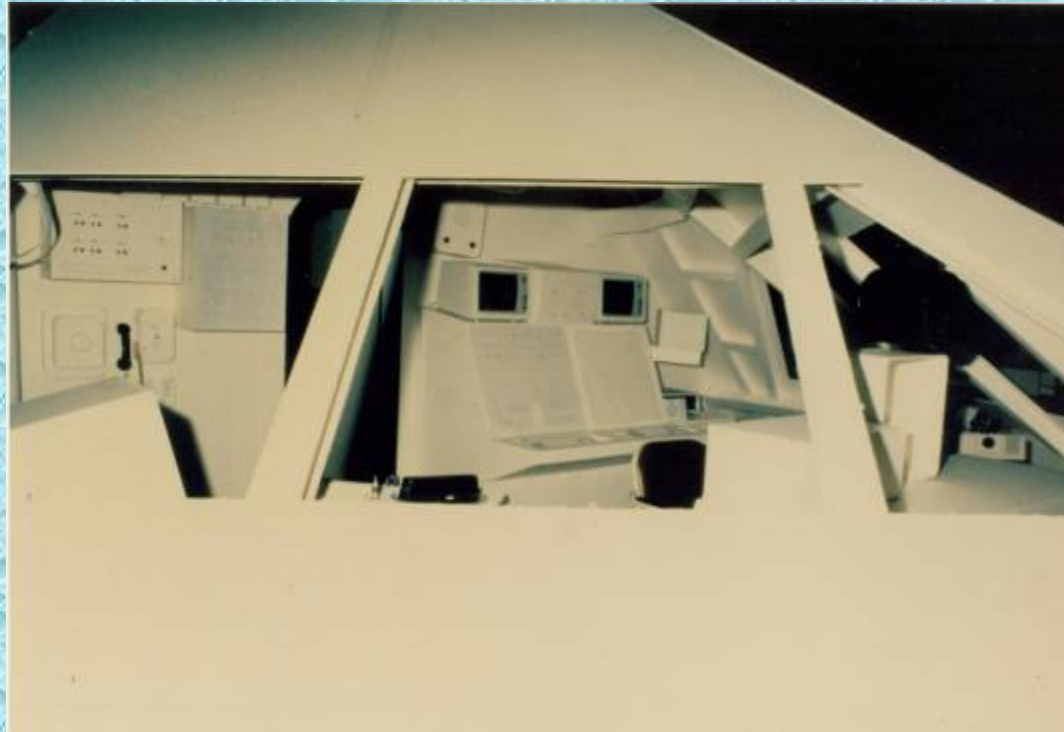




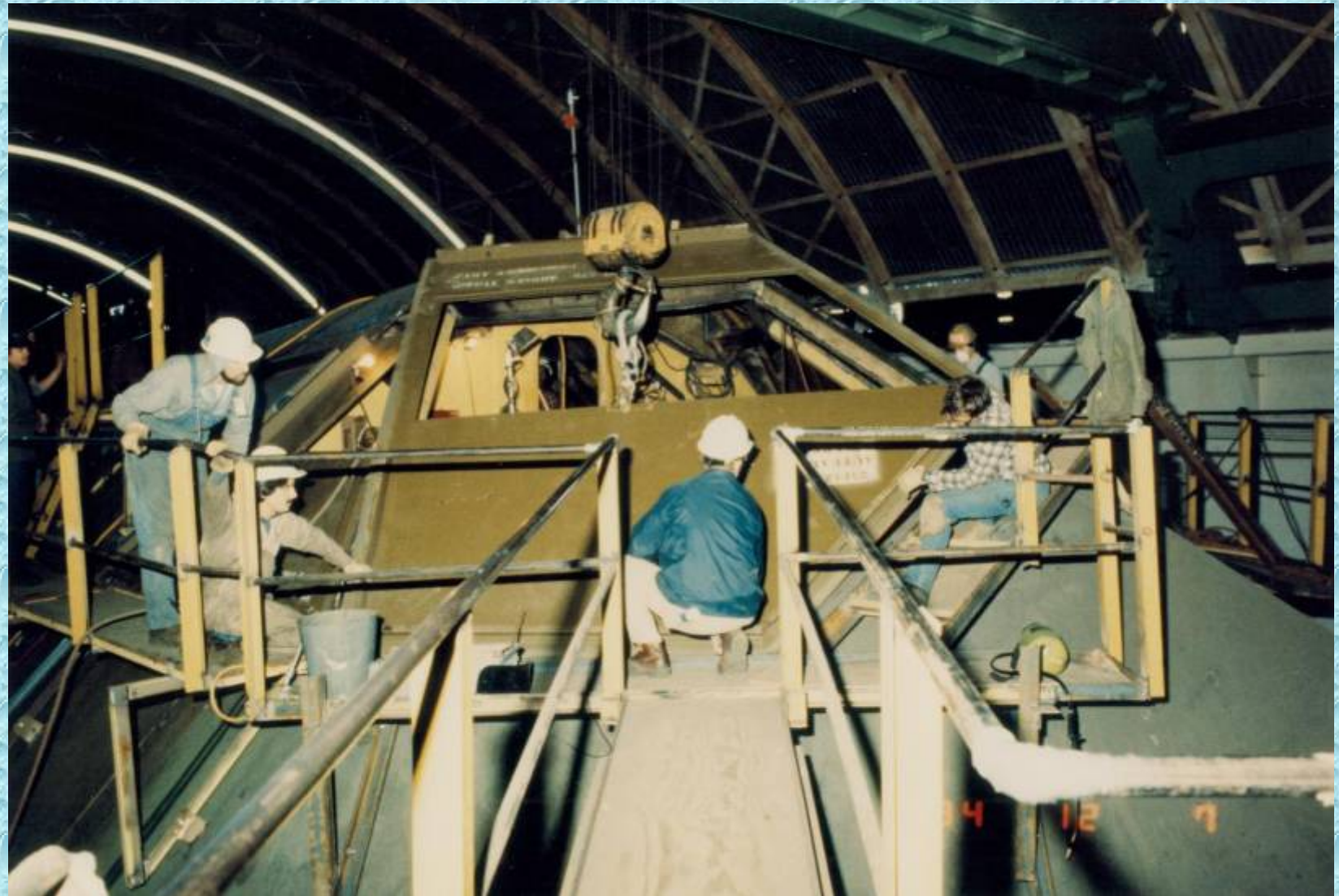
# *Propulsion Systems*



# *Bridge Development & Test Bed*



*January 1985*



*February 1985*



# **STBD Bow**





# STBD Stern



# Port Stern



# Stern



# ***Payload Bay***



# *Ready for Sea Testing*



# ***Transit Under Bay Bridge***



# ***Under Golden Gate Bridge Headed to Santa Cruz Island***



# ***Santa Cruz Operations***





# SCARF

## Santa Cruz Acoustic Range Facility



# **SCRIF**

## ***Santa Cruz Radar Imaging Facility***



# **SCRIF**

## ***The Radars***



# *Testing on the Santa Cruz Range*







# ***Crew Access from SC Island to HMB***



**Transit Boat Access Dock**



**386 Stairs and Trail  
to Bunk House**

# *Small Boats replaced by Helo*



**Small Boat Docking to side of HMB**



**Helo Landing on HMB**



# ***HMB and Single Point Moor at SCI***



# ***Helo Landing on the HMB***







# ***San Francisco Bay Operations***





















# *Sec Def Dr William Perry 1993*



# ***Dr Perry Receiving Gratuitous Advice***



















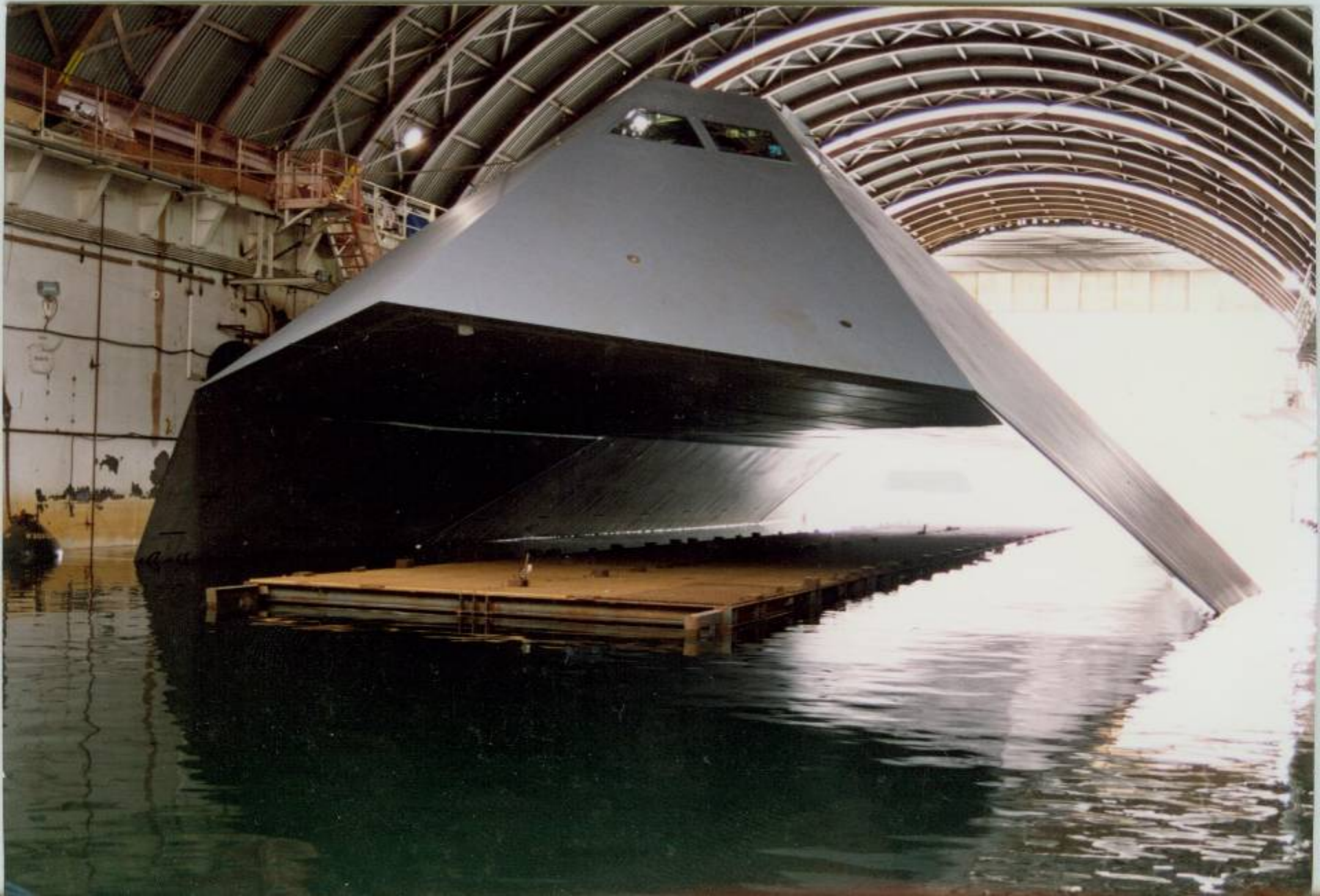
# ***San Diego Operations***



# *HMB 1 with Sea Shadow Naval Station San Diego Pier*















SEA SHADOW













**SEA SHADOW**

**SEA SH**

SLBU  
860145

KEEP OUT

14

HIGH VOLTAGE

HIGH VOLTAGE









*SEA SHADOW*

***Misc***

JOURNAL OF

# ELECTRONIC DEFENSE

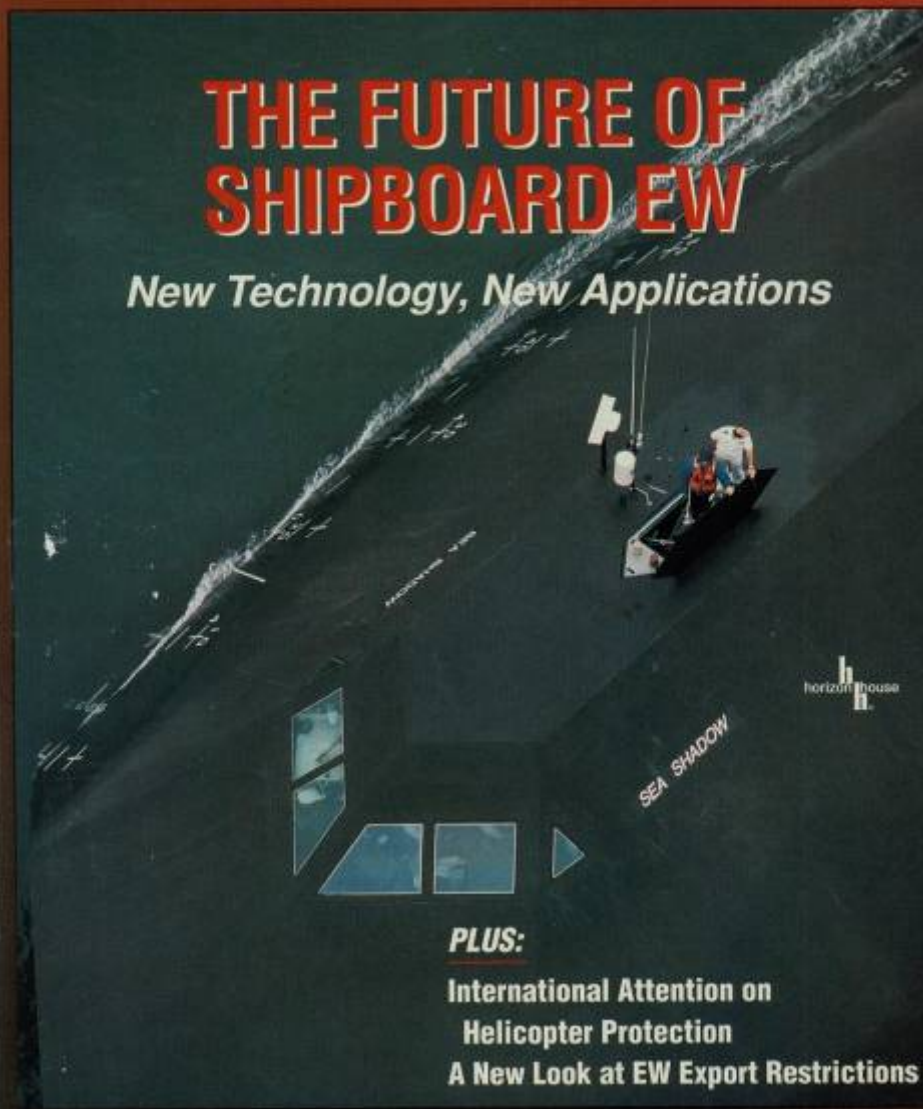
APRIL 1994

OFFICIAL PUBLICATION OF THE ASSOCIATION OF OLD CROWS

VOL. 17, NO. 4

## THE FUTURE OF SHIPBOARD EW

*New Technology, New Applications*



horizon house

SEA SHADOW

**PLUS:**

International Attention on  
Helicopter Protection

A New Look at EW Export Restrictions

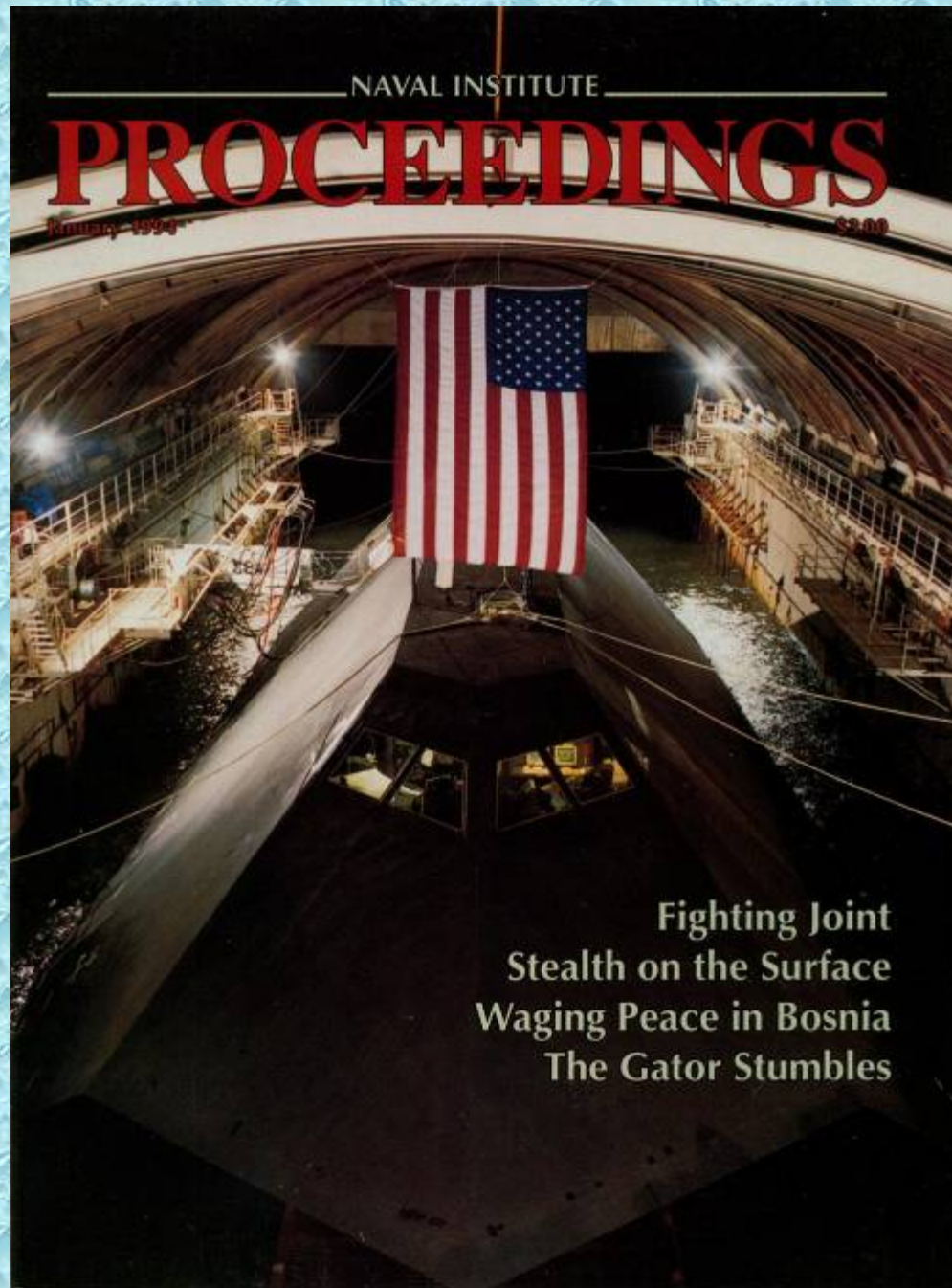


NAVAL INSTITUTE

# PROCEEDINGS

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\$2.00



Fighting Joint  
Stealth on the Surface  
Waging Peace in Bosnia  
The Gator Stumbles

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# Popular Mechanics

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THE WORLD  
TRADE CENTER**  
And How They're  
Engineering It To  
Be Even Stronger

**INCREDIBLE!**  
**NAVY'S SUPER  
SECRET 'INVISIBLE'  
WARSHIP**

Radical Radar-Defying  
Hull Makes *Sea Shadow*  
America's First Totally  
Stealth Ship

**GRAND CHEROKEE  
MILLION-MILE  
TORTURE TEST**  
Owners Hammer On  
The Newest Jeep

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# **Yachtsman**

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*Install your own washdown system*



**Boats on the Boardwalk**

*Showboats, antiques, fun and food*

**Super smoothie!**

*Ocean Alexander 52 smooth at sea*



### Sanders employees skydive for charity

Page 4

# LOCKHEED

# Today



### Lockheed cosponsors NOVA for fifth year

Page 6

OCTOBER 1993

VOL.3, NO.3

## Lockheed Sets Team To Pursue DoE Project

**L**ockheed is leading a unique high technology team to compete for management and operation of the Department of Energy's Idaho National Engineering Laboratory (INEL). In making the announcement at a news conference in Idaho Falls, Idaho on September 15, Lockheed Chairman Dan Tellep said the corporation will form a new company called Lockheed Idaho Technologies to carry out its mandate.

On the Lockheed INEL team are Rust International Inc., Duke Engineering & Services, Babcock & Wilcox, Parsons Environmental Services, Thermo Electron, and Coleman Energy & Environmental Systems.

"Lockheed and its partners bring outstanding complementary skills to meeting the challenge of INEL's transition to a new energy and environmental mission," Tellep said. "We are excited about the prospects of working with INEL's highly skilled men and women to create new opportunities for them, Idaho and the nation."

The Department of Energy's (DoE) Idaho Field Office issued a request for proposals April 23, 1993, asking for companies positioned to challenge the status quo, revitalize U.S. industry and transfer technology to the commercial sector. Proposals for the five-year, \$5 billion contract are due November 1, with contract award scheduled for June 1994. The winning team will consolidate the five primary contracts currently in effect



PLUS LANCEWOOD BY STIC SCHAEFER

**SEA SHADOW:** The Sea Shadow technology demonstration platform, developed by Lockheed to explore advanced concepts for application to surface ships, recently completed three days of operations on San Francisco Bay. Deputy Secretary of Defense Dr. William Perry (inset), who helped originate the program in the mid-1980s on behalf of the Advanced Research Projects Agency, was among those on board for the demonstrations. The 160-foot-long vessel is owned by the U.S. Navy and operated by Lockheed personnel.

# From the Newsstand at the Grocery Store

**WEEKLY WORLD NEWS** Space creature survived UFO crash in Arkansas!

## HILLARY CLINTON ADOPTS ALIEN BABY



**OFFICIAL PHOTO!**

Secret Service building special nursery in the White House!

## NAVY LAUNCHES DEADLY NEW STEALTH WARSHIP!

### Top secret 'Batboat' carries enough nuclear missiles to blow every major city on Earth to kingdom come!

The U.S. Navy has launched a secret fleet of high-speed, "invisible" Stealth warships to patrol the troubled waters of the world — and with only a four-man crew, each can carry enough nuclear missiles to wipe out every major city on Earth!

Dubbed the Batboat, the 175-foot warship was developed using the same technology that gave the Air Force its deadly armada of supersonic Stealth fighters and bombers.

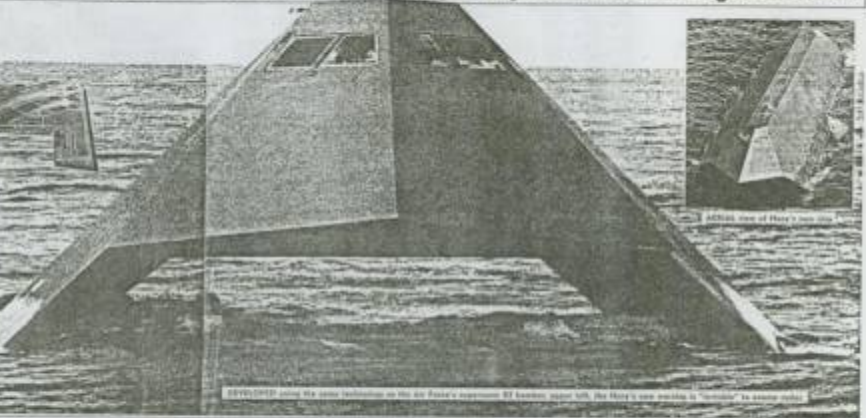
And like the airborne Stealth, the Batboat's shape and the materials used in its construction make it virtually impossible to detect by enemy radar. "The Pentagon has been afraid the end of another superpower is the end of its rule in service for three generations," said a high-ranking Navy Department official.

"It was developed in the 1980s as part of the Navy's secret Stealth program. From that the Cold War is over, the United States is being overtaken with almost no military aid."

"The Stealth is designed to be invisible to enemy radar. It has a hull that is 175 feet long and has a beam width of 11 feet and the speed is 40 knots, so it's a very low signature target."



can be detected by radar. And now, the Navy is launching a fleet of 100 Stealth warships to patrol the world's oceans. The Batboats will be used to hunt down and destroy Soviet submarines and to protect U.S. interests in the Pacific. "There are 100 Stealth warships in the fleet," said a Navy spokesman. "There's no doubt that the Stealth warship is the most advanced ship in the world."



## Shocker: Kids drink twice as much caffeine as adults!

American children get 2 or 3 cups of coffee a day, according to a new study. Experts suggest that parents limit their kids' caffeine intake to one cup a day. Researchers say the kids get their caffeine from coffee, tea, and soft drinks.

## Use your horoscope to pick the right pet, says psychic

**By KEN BASKETT**

Unlabeled people can get freedom. They are less likely to get into trouble. And they will live longer. This is the psychic's advice. He says that people who are not labeled are more likely to live longer. He says that people who are labeled are more likely to get into trouble. He says that people who are not labeled are more likely to live longer. He says that people who are labeled are more likely to get into trouble.

**ARIES** (March 21-April 19) — You are a natural leader. You should have a pet who is a natural leader. A dog is the best choice. A dog will follow you and protect you. A dog will also be a good friend. A dog will also be a good companion. A dog will also be a good pet.

**Taurus** (April 20-May 20) — You are a natural follower. You should have a pet who is a natural follower. A cat is the best choice. A cat will follow you and protect you. A cat will also be a good friend. A cat will also be a good companion. A cat will also be a good pet.

**Leo** (July 21-Aug. 22) — You are a natural fighter. You should have a pet who is a natural fighter. A dog is the best choice. A dog will follow you and protect you. A dog will also be a good friend. A dog will also be a good companion. A dog will also be a good pet.

**Virgo** (Sept. 23-Oct. 22) — You are a natural thinker. You should have a pet who is a natural thinker. A cat is the best choice. A cat will follow you and protect you. A cat will also be a good friend. A cat will also be a good companion. A cat will also be a good pet.

**Sagittarius** (Nov. 23-Dec. 21) — You are a natural explorer. You should have a pet who is a natural explorer. A dog is the best choice. A dog will follow you and protect you. A dog will also be a good friend. A dog will also be a good companion. A dog will also be a good pet.

**Capricorn** (Jan. 20-Feb. 18) — You are a natural planner. You should have a pet who is a natural planner. A cat is the best choice. A cat will follow you and protect you. A cat will also be a good friend. A cat will also be a good companion. A cat will also be a good pet.

**Aquarius** (Feb. 19-March 20) — You are a natural rebel. You should have a pet who is a natural rebel. A dog is the best choice. A dog will follow you and protect you. A dog will also be a good friend. A dog will also be a good companion. A dog will also be a good pet.

**Pisces** (March 21-April 19) — You are a natural dreamer. You should have a pet who is a natural dreamer. A cat is the best choice. A cat will follow you and protect you. A cat will also be a good friend. A cat will also be a good companion. A cat will also be a good pet.

# NAVAL FORCES

INTERNATIONAL FORUM  
FOR MARITIME POWER

ISSN 0722-8880  
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NO. VI/2004  
Vol. XXV

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NAVAL WARFARE**
- **NAVAL APPLICATIONS  
FOR HOVERCRAFT**
- **PROCUREMENT PROGRAMMES  
IN THE MIDDLE EAST**



- **CHINA'S PLA NAVY,  
THE (R)EVOLUTION**
- **LATIN AMERICA FOCUS**
- **SHIP PROFILE:  
"COMANDANTE FULGOSI"**

# Arsenal Ship



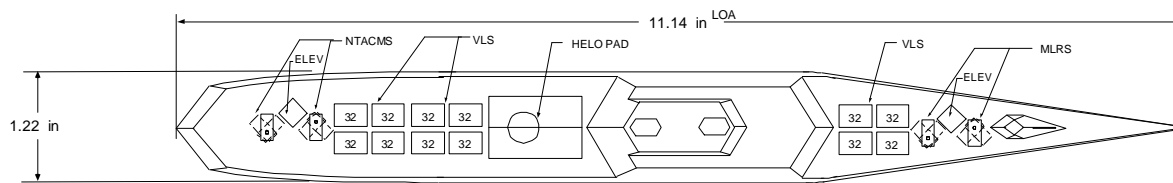
## MISSILE SHIP

LMMS MARINE SYSTEMS

### CONCEPT ARRGT

FULL LOAD DISPL - 20,000 LT

9/13/95



PLAN  
OUTBOARD PROFILE

### WEAPONS PAYLOAD

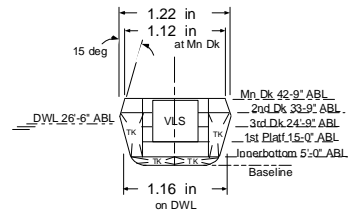
VLS - 384 TUBES

2 - MLRS LAUNCHERS

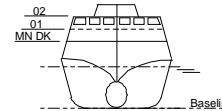
¥ 144 M26 PODS STOWED  
(864 M77 ROCKETS)

2 - NTACMS LAUNCHERS

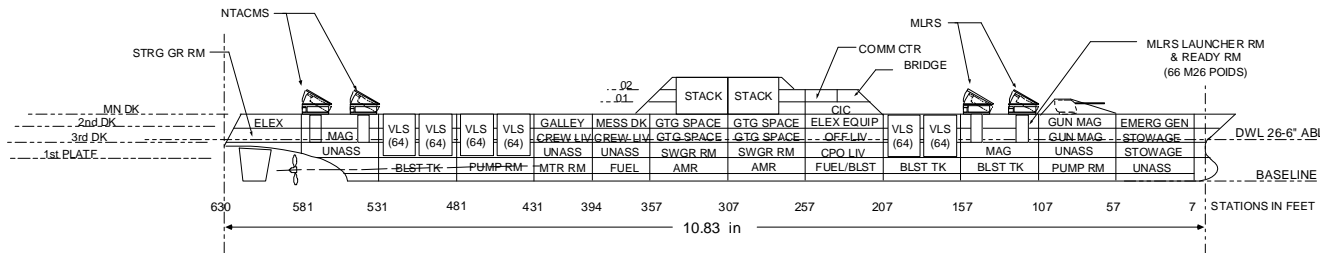
¥ 144 WEAPONS PODS STOWED



MIDSHIP SECTION



OUTBOARD PROFILE  
BOW VIEW



INBOARD PROFILE

# MK V Patrol Boat



## Statistics

<b>Length Overall</b>	82 ft.
<b>Beam, maximum</b>	17.5 ft.
<b>Draft (max. static)</b>	5 ft.
<b>Displacement</b>	57+ tons in operational configuration
<b>Speed</b>	50 knots
<b>Hull Design</b>	Mono hull, 5086 series aluminum
<b>Propulsion</b>	2 x 2285 HP MTU 12V396 TE94 engines
<b>Propulsor</b>	2 x KaMeWa K50S Waterjets
<b>Fuel Capacity</b>	2600 gallons fuel capacity
<b>Nav System</b>	Radar, GPS, LORAN, chart plotter, fathometer, flux gate compass
<b>Communications Systems</b>	VHF-BTB, VHF-FM, UHF/VHF-FM UHF AM/FM, LOS/SATCOM, VHF-High Band, HF, UHF-handheld, data, IFF
<b>Accommodations</b>	5 crew; up to 16 passengers and up to 4 CRRC + 6 outboard motors and fuel
<b>Builder</b>	Halter Marine Inc., Gulfport, Miss.
<b>Weapons Load</b>	5 mounting positions for 7.62 mm machine guns or miniguns, .50 Cal heavy machine guns, 40mm grenade launchers; improvements include 7.62mm gatling guns, twin .50 Cal, 25mm guns, STINGER Surface-to-Air Missiles



★★★★ Adm Hogg (ret)  
*Director Strategic Studies Group*



# *March 2005 20 Years of Operations*



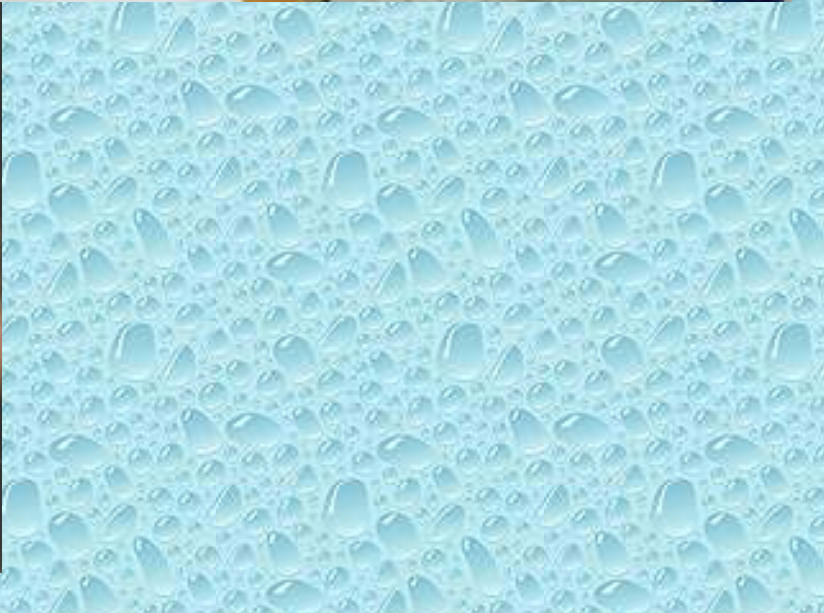
# *Don Young with his Team Sea Shadow Ready for Sea*



# HMB Crew









***Family Day 1993***



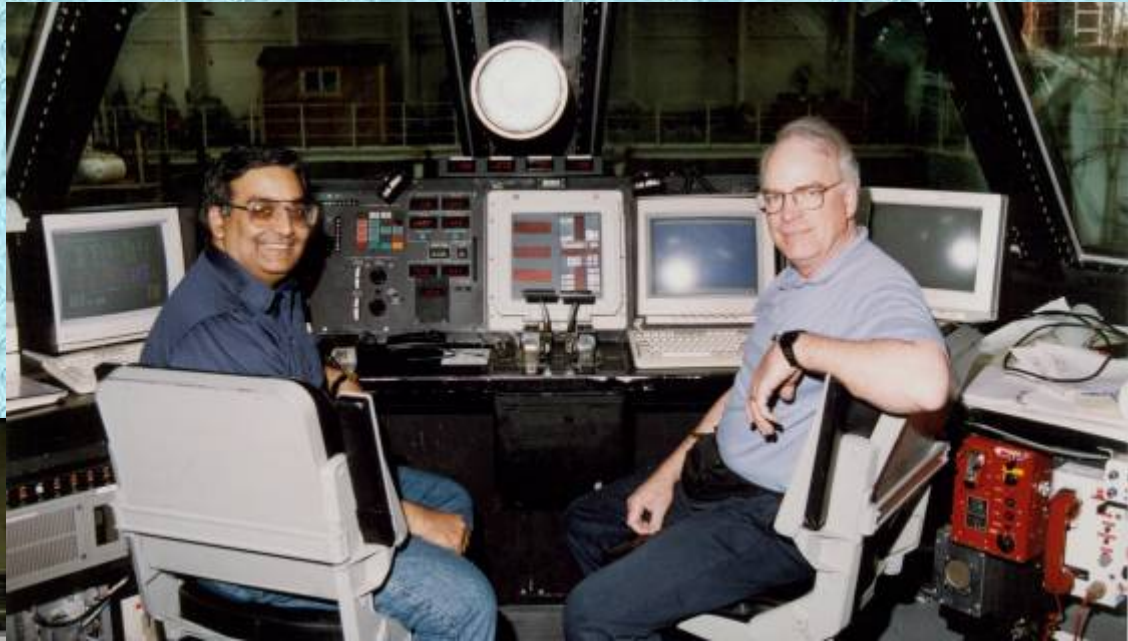




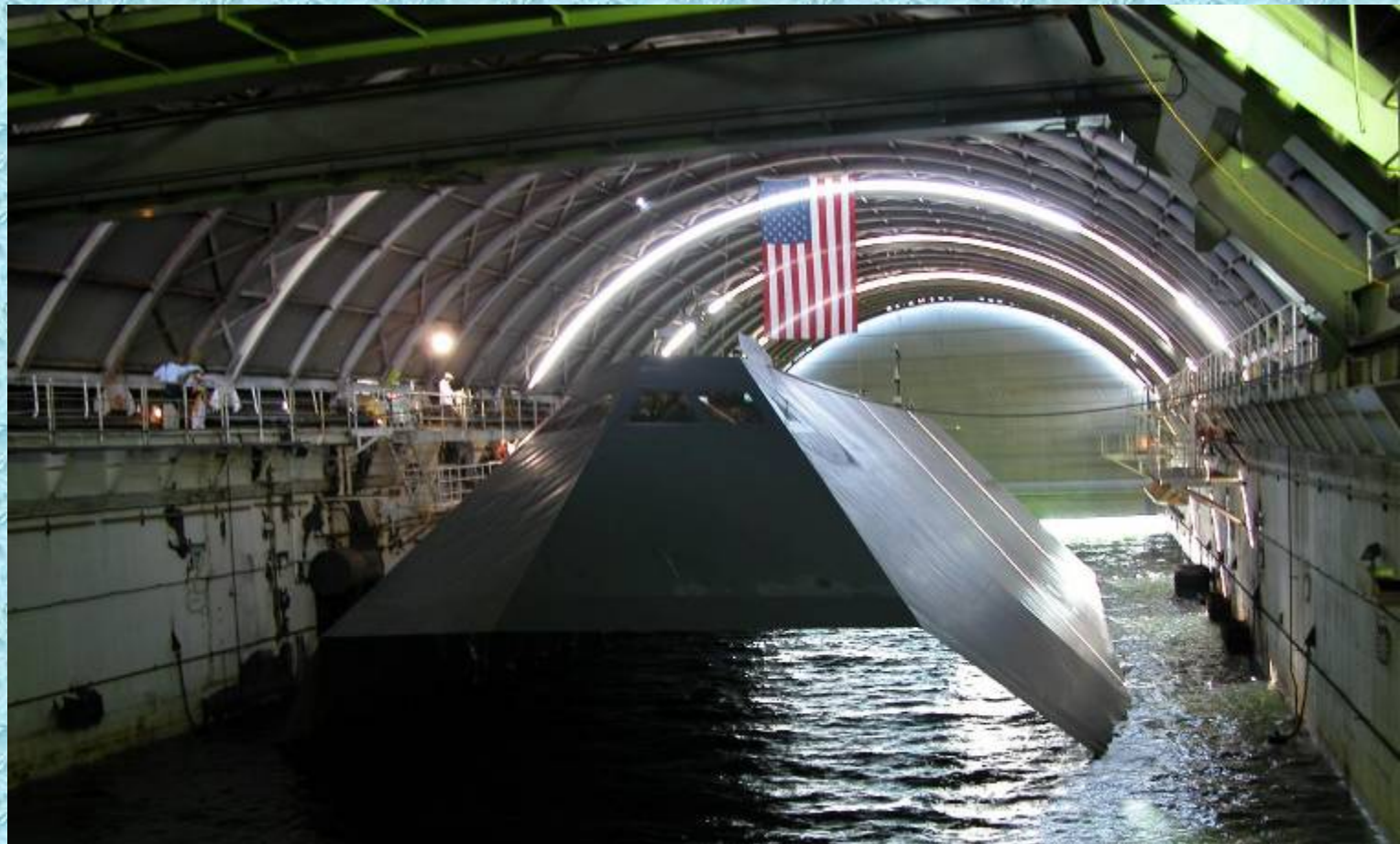


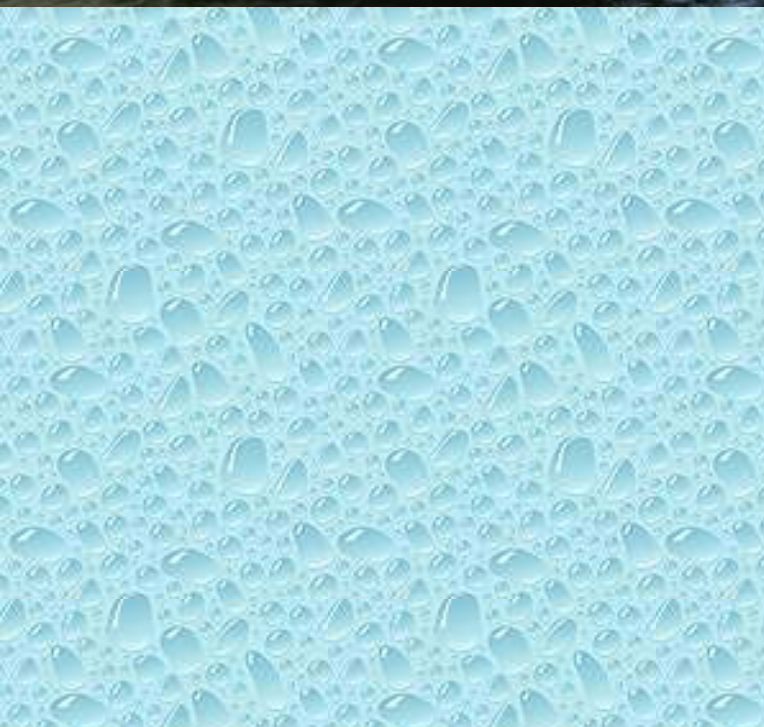


# *SS Bridge – A Favorite Spot for a Photo*



***Sea Shadow 20<sup>th</sup> Anniversary  
The People that made it Happen***



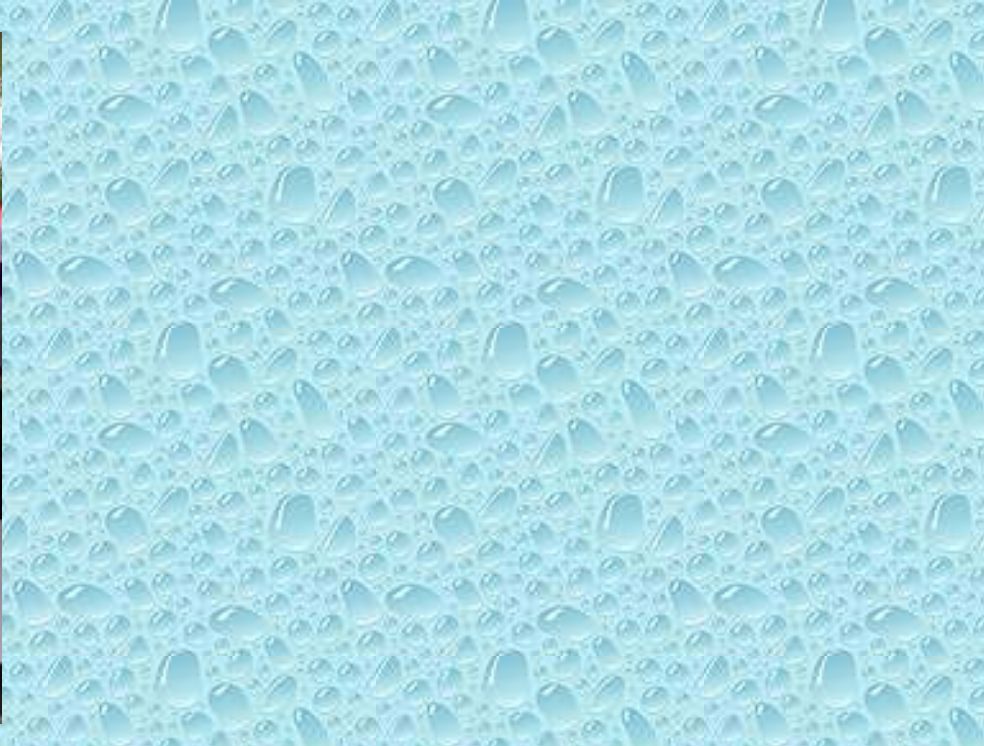












***HMB 1 with Sea Shadow***  
***Suisun Mothball Fleet with USS Iowa***





Assembled by Dick Paquette  
dickpaquette@adelphia.net