

The Database of Cost References by Group--PDF#7

Prepared by Heuston Consulting, Inc., July 2009

Coldwarweaponsystemcosts.com

SHIPS

s1 – Review of Several US Navy Ships

Cost –

Discussion – Assume Long Tons = 2240lbs/ton

Name	Displacement Full - tons	STD	Cost X10to 6 th	Date Complete	Notes
Enterprise	85,000	75,700	435	1961	Nuc. Power
Forestall	75,900	59,650	218	1955	STD Pow.
Constellation	76,000	60,000	150	1961	STD Pow.
Iowa	579,500	45,000	100	1943	Group-aver.
New Jersey	579,500	45,000	100	1943	Group-aver.
Missouri	579,500	45,000	100	1944	Group-aver.
Alaska	34,250	27,500	74	1944	Group-aver.
Long Beach	18,000	19,000	250	1960	18 for Nuc.
Norfolk	7,300	5,600	44	1953	
D.G.	4,500	3,370	17	1961	Av. of 4
George Washington	6,700	5,600	105	196	Nuc. Power
Skip Jack	3,500	2,850	40	1959	Nuc. Power
GATO	2,425	1,525	6.3	1942	Av. of 10
MHC	360	300	1.78	1957	
AZALEA	178		.50	1958	

Source – Janes Fighting Ships, 1963

Recorded – 1964.

s2 – Small Ship Costs

Cost – as follows

Discussion –

Ocean Going Tug, Procurement Cost = \$750,000

Rental Cost/Day = \$1,500 speed approx. 5 nautical miles/hr.

200' x 21' pontoons on Sponsons Procurement Cost = \$200,000

70' Service Craft, Procurement Cost = \$90,000

Transportation Barge, Procurement Cost = \$150,000

50' Launch, Procurement Cost = \$25,000

Ballasting Tanks, Procurement Cost = \$800,000

Flotation Tanks, Procurement Cost = \$40,000

Source – TODD Ship Yard, San Pedro, January 31, 1963.
Recorded – February 4, 1964.

s3 – Apollo Ships

Cost -- \$110 million

Discussion – Its fire instrumented-laden Apollo ships are now in various stages of modification.

USNS Redstone & USNS Vanguard being outfitted at Quincy, Mass., Shipyards of General Dynamic Corp.

Consists of 2 venerable TAGM's (aux. missile ships)

And 3 modified Navy T-2 tankers.

The Huntsville and Watertown are instrumentation ships from the Western Test Range and belong to the "6" class 455 ft long with 62-ft. beam 23-ft. draft and 12,000 ton displacement.

The two of converted oilers, all WWII veterans belong to the "19" class.

Displacing 22,300 tons each, 595-ft beam 25-ft. draft.

Source – Missiles & Rockets, January 24, 1966, p 25.

Recorded – February 9, 1966.

s4 – The Hovermarine HM-2 Hovercraft

Cost – 75,000 British pounds -- 85,000 British pounds

Discussion – Launched December 3, 1967

60 passengers

For operation in sheltered waters, estuaries, etc.

Powered by 2 320 hp. diesel engines driving water screws for propulsion and a 185 hp. Diesel for lift.

Construction of the hull and superstructure from glass reinforced plastics molded by Halmatic Ltd.

Estimated total operating cost will be 20 British pounds per hour on an annual utilization of 2,000 hours.

Source – Interavia, September 9, 1968, p 1101

Recorded – November 20, 1968.

s5 – Ship Steel

Cost -- \$192 per long ton of ship steel weight in 1962.

Discussion -- \$192 per long ton of ship steel weight in 1962

1062 cost of steel from \$135 per short ton of invoiced weight

For comparison with other cost estimating methods which may not specifically include the 3 per cent provision for the premium cost of hull costing and the 7 per cent provision for the cost of material for staging the hull during construction, the 1962 gross material cost for steel ship weight would be \$211 per long ton.

Source – Weight, Cost & Design Characteristics of Tankers & Dry Cargo Ships, RAND RM 3318-PR, April 1965, p 61.

Recorded – February 7, 1966.

s6 – Aircraft Carrier – CVHO-1, British

Cost -- \$168 million
Discussion – a replacement for the Victorious and Arc Royal
To be equipped with F-111
Carrier cost is about \$168 million without aircraft or support ships.
Source – Aviation Week, January 10, 1966, p 23
Recorded – January 31, 1966.

s7 – Enterprise

Cost -- \$14.8 million
Discussion – Adm. Sylvester – total overhaul and alterations
P 871, 25 years life, nuc. Carrier is about 20% more expensive than conventional.
This counts for initial cost of it, the nuc. Refueling, the cost of additional training
to personnel, the somewhat larger engineering crew that is required.
Source – Senate Subcom. of Appropriations Committee Hearing, 88th Congress,
1st Session, HR 7179, p 869
Recorded – November 12, 1963.

s8 – Challenger Vessels – American Merchant Marine

Cost -- \$4,850,000
Discussion – average base cost to the Govt. for construction – differential subsidy
26 crew
Daily operating expense of \$2,600
Source – Senate Subcom. of Appropriations Committee Hearing, 88th Congress,
1st Session, HR 7179, p 1347.
Recorded – November 13, 1963.

s9 – COMET Supply Ship – US Navy

Cost -- \$22 million
Discussion – highly specialized & ingeniously designed for roll on roll off
handling of vehicles.
Pg 1347 – crew of 56 civilians
\$2,800 per day operating cost, no fuel or port costs included
Pg 1347 -- \$16 million/Devlin & Unites States Lines
Source – Senate Subc. of Appropriations Committee Hearings, 88th Congress, 1st
Session, HR 7179, p 1345.
Recorded – January 12, 1963.

s10 – Destroyer

Cost -- \$485,000, Built at end of WWII – Annual Maintenance – USN
Discussion – FY 57, \$325,000
59, \$349,000, DDG built after '57 = \$272,000
64. \$485,000 = \$430,000
Source – Senate Subc. of Appropriations Committee Hearings, 88th Congress, 1st
Session. HR 7179, p 523.
Recorded – November 7, 1963.

s11 – OIL, AMMO Ship – US Navy

Cost -- \$71 million

Discussion – Secretary Korth – one at Puget Sound Naval Shipyard & one at NY
Pg. 547 – recently let contract for \$48.5 million

Also carries dry stores

Source – Senate Subc. of Appropriations Committee Hearings, 88th Congress, 1st
Session, HR 7179, p 562.

Recorded – November 7, 1963.

s12 – Instrumentation Ships – NASA

Cost -- \$90 million budgeted for 3 ships

Discussion –

Evins – 3 identical instrumentation ships to provide precision tracking, data
acquisition, command and communications support to the NASA manned and
unmanned flight programs.

Dryden – the ships themselves cost \$9 million, 3 ships at \$9 million.

Thomas – That was wartime construction.

Dryden – The rest of the money is for equipment, and instrumentation, that is,
radars that go with the ships and telemetry.

Ostertag – How much would instrumentation cost?

Dryden -- \$20.5 million each, per ship. It should be \$9 million per ship on the
modifications.

Thomas – Are you going to buy these ships from the Maritime Administration?

Buckley – they will assign them to us.

Thomas – At no cost at all?

Buckley – Similar ships for this purpose go from very mediocre to very large and
very well equipped ships. They range in cost from \$15 million paid by AMR to
the \$75 million a piece paid by AMR for the last 2 ships.

They will be operated by a branch of the Navy, MSTS.

Seemans – NASA has no ships at present. 11 in AMR.

C-2 or C-4 class hulls, 455 ft and 520 ft, 11,000 tons and 13,000 tons.

Source – House Appropriations Committee Hearings, 88th Congress, Part 3, p
717.

Recorded – November 5, 1963.

s13 – Instrumentation Ships

Cost -- \$30 million

Discussion –

Dryden – including the instrumentation

Buckley – modernization will be done in shipyards. The Navy will help in the
planning.

Thomas – I think if you go to the private yards, you can get the same job done for
105 less.

Buckley – fixed price contract we hope it will be

Thomas – what type of ship are you taking? One of the fast, laid-up cargo ships,
as I recall.

Source – House Appropriations Committee Hearings, 88th Congress, Part 3, p 505.

Recorded – November 1, 1963.

s14 – Polaris Submarine

Cost -- \$110 to \$120 million unit cost

Discussion –

Charles Hitch – Attack submarine is now down to about \$65 million.

Source – Senate Subc. of the Committee on Appropriations, 88th Congress, 1st Session, HR 7179, June 30, 1964, p 250

Recorded – November 6, 1963.

s15 – SINS – Ships Inertial Navigation System

Cost – Total Procurement of \$8 million.

Discussion – Autonetics of NAA will produce SINS for the United Kingdom's Polaris subs under a series of contracts from the Navy's BuShips.

Will produce 11 marine inertial navigation systems.

SINS is a combination of precision gyros, accelerometers and a computer that measures and remembers a ship's movements in all directions – providing continuous information on positions, velocity, and true North.

Source – Missiles & Rockets, March 9, 1964, p 31.

Recorded – May 28, 1964.

s16 – Destroyer Type Ship

Cost – Average Annual Consumable Supplies & Equipment = \$352,000

Discussion – DLG frigate armed with Terrier Missiles

WWII DD destroyer armed with 5" guns consumes an average of \$79,000/year.

A destroyer today looks like a small cruiser approaching 7,000 tons.

Source – Senate Subc. of Appropriations Committee Hearings, 88th Congress, 1st Session, HR 7179, p 856.

Recorded – November 12, 1963.

s17 – Hydroskimmer SKMR

Cost -- \$224,000

Discussion – Space Age news, February 1964, p 26.

Recorded – May 15, 1964.

s18 – Sea Mobile Missile Launch – Navy Jeep-class Carrier (Mobile Launch Exp. No. 1.

Cost – Carrier operation = \$4,000/day

Discussion – total of \$400,000 for a 25 day shake down cruise.

3 months Pacific cruise.

Used by a team from NASA's Wallops island next spring.

Includes a concentrated sounding rocket study of the ionosphere along the geomagnetic equator.

Launch about 50 Nike-Cajun and Nike-Apache sounding rockets and 50 Arcas and Asp meteorological rockets.

Source – Aviation Week, October 19, 1964, p 33.
November 20, 1964.

s19 – DD 963, destroyer program

Cost – first five ships will cost \$342million or about \$68.5 million each

Discussion – Navy’s total buy of DD963 destroyers, ..., will be closer to 58 than 30.

Power plant competitors for this program are General Electric’s Aircraft Engine Group and Pratt & Whitney’s Turbo Power and Marine Dept. Each ship will have four prime, gas-turbine power plants rated at 25,000-30,000 ship., and costing \$1.2 - \$1.5 million each. Primary mission of these destroyers is antisubmarine warfare.

Source – Aviation Week, July 21, 1969, p 69.

Recorded – July 25, 1969.

s20 – T-2 Tanker Ships

Cost – New \$12 million, Used Cost \$600,000.

Discussion – Rate speed loader 14 ¼ knots

Rate speed unloaded 15 knots

Range 31 days

Average Speed 13 ½ knots

Specifications 523’ 6” by 68’ beam

Draft load 30’ 1 ¼

Gross tonnage 10,448 tons

Capacity Cargo Oil 5,928,650 gallons

Fuel Oil Capacity 400,462 gallons

Source – Todd Shipyard, San Pedro, March 22, 1963.

Recorded – October 22, 1964.

s21 – DLG Guided Missile launcher Ship

Cost – about \$35 million

Discussion – Naval ships has double hull construction and requirements for water tight compartments. Higher stress per weight material is used to reduce ship weight. Use of aluminum is quite extensive. Naval ships also have provisions for dual power plant.

Source – Todd Shipyard, San Pedro, February 26, 1962.

Recorded – October 23, 1964.

s22 – Polaris Sub Tender

Cost -- \$63 million

Discussion – The fiscal year 1965 program contains \$63 million for the sixth tender and \$8 million for the conversion of another re-supply ship.

Source – Aviation Week, March 2, 1964, p 77.

Recorded – October 22, 1964.

s23 – C-4 Mariner Type Ships

Cost -- \$10 million
Discussion – Length Overall 563' 7 ¾"
Depth Main Deck 44' 6"
Draft Water Line 27'
Draft Full Load 31' 6"
Total Dead Weight 14,925 tons
Full Load Displacement 22,625 tons
Source – Todd Shipyard, San Pedro, February 26, 1962.
Recorded – October 22, 1964.

s24 – LSD-28 Class Ship

Cost – Rough estimate \$45 million
Discussion – Range (Max.) 14,896 miles
Efficient Speed 11 knots
Full Speed Loaded 21 knots
Full Speed Unloaded 22-23 knots
Range at full speed 7,580 miles
Length 396'
Width 49'
Max float in clearance 26'
Deck area 19,000 sq. ft.
Weight limit 1,075 lb/sq. ft.
Source – Todd Shipyard, San Pedro, February 26, 1962.
Recorded – October 22, 1964.