Coastal Tank Barge Market

Office of Statistical and Economic Analysis
Maritime Administration
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Overview

As of year-end 2003, there were 213 (2.84 million DWT) coastal tank barges of 5,000 DWT or greater available for operation in U.S. coastal trades.[1] Of these, 206 (2.75 million DWT) were in class (vessel surveys are up-to-date and the vessels have been maintained to the standards of the classification society). Seventy-nine of the barges (1.17 million DWT) have double hulls.

Of the 213, 78 were large tank barges (15,000 DWT or greater) with a total capacity of 1.62 million DWT; and 46 (0.55 million DWT) were 10,000-14,999 DWT. Of the large barges, 40 (0.82 million DWT) were equipped with double hulls. Seventeen of the 10,000-14,999 DWT barges were equipped with double hulls. All of the 10,000+ DWT barges were in class.

In 2002, large tank barges accounted for about 73 percent of U.S. coastal tank barge traffic (Exhibit 1). Large tank barges compete with product tankers in the 500+ mile coastal trades, but also redistribute pipeline and tanker shipments in the less than 500 mile trades. Large tank barges accounted for 83 percent of traffic in 500+ mile trades, but only 47 percent of the traffic in the shorter-haul trades.

For fully-employed tank vessels, average costs tend to decline as size increases. However, for short-haul product trades, customers generally prefer greater service frequency and smaller shipments (vessels) than for longer trades. This pattern reflects the influence of both holding and transport costs on choice of vessel size.

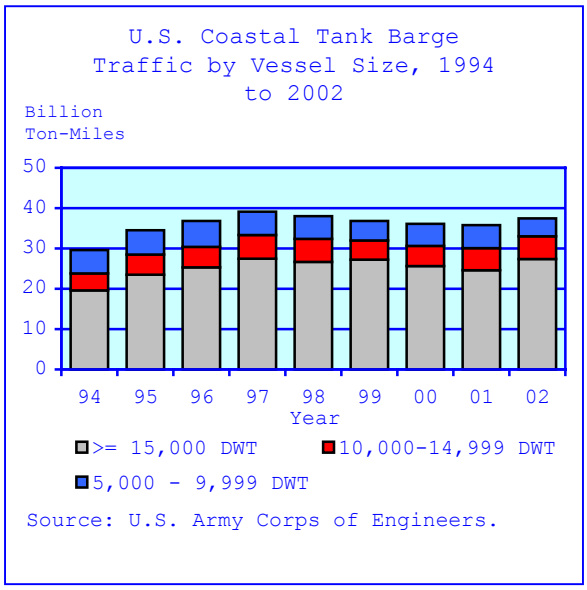


Exhibit 1

Tank Barge Shipments by Coast,
1994 and 2002

(Million Metric Tons)

Shipping Coast	Receiving Coast Atl.	Gulf	Pac.	Lakes	Total
1994					
Atlantic	64.4	0.3	0.0	0.0	64.7
Gulf	13.3	0.8	0.0	0.0	14.1
Pacific	0.0	0.0	7.3	0.0	7.3
Lakes	0.0	0.0	0.0	0.4	0.4
Total	77.7	1.1	7.3	0.4	86.5
2002					
Atlantic	55.8	0.5	0.0	0.0	56.3
Gulf	18.1	3.7	0.0	0.0	21.8
Pacific	0.0	0.0	10.1	0.0	10.1
Lakes	0.0	0.0	0.0	0.4	0.4
Total	73.9	4.2	10.1	0.4	88.6

Source: U.S. Army Corps of Engineers.

Exhibit 2

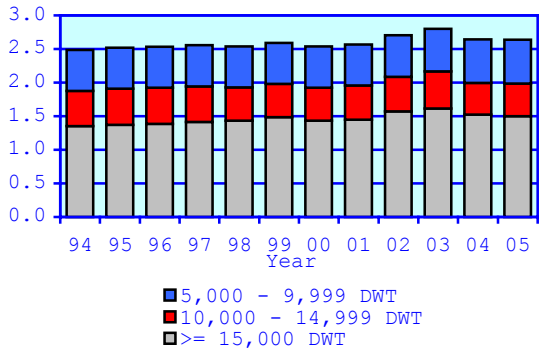
In 2002, 79 percent of the tank barge shipments (metric tons) were intracoastal, and 80 percent of these were between Atlantic Coast berths. However, long-haul intercoastal shipments increased by 37 percent from 1994 to 2002, while intracoastal shipments declined by 4 percent. Intra-Atlantic coast trades accounted for 63 percent of coastal tank barge shipments, followed by Gulf/Atlantic trades (21 percent), intra-Pacific coast(11 percent) and intra-Gulf trades (4 percent) (Exhibit 2).

[1] Fleet and traffic figures exclude nine 14-knot ITB's which are categorized as tankers by the Coast Guard and Corps of Engineers.

Traffic

Coastal tank barge traffic increased from 30 to 39 billion ton-miles over the period 1994 to 1997, and remained in the 36 to 38 billion ton-mile range over the next five years. For the entire period, tank barge shipments (metric tons) increased by just 2 percent, while average haul increased by 23 percent to 423 miles.[2] The growth of tank barge traffic in traditional Gulf/Atlantic product tanker trades contributed to the increase in average haul.

U.S. Coastal Tank Barge Fleet Capacity by Vessel Size, 1994 to 2002



* Includes firm newbuilding orders.
Source: U.S. Army Corps of Engineers for historical data.

Exhibit 3

Seasonal Factors

Coastal tank barge traffic is moderately seasonal with Summer shipments 7 percent above average and Fall shipments 7 percent below average. This pattern corresponds roughly to that for East Coast gasoline demand, and reflects heavy involvement of tank barges in Atlantic Coast gasoline trades.[3]

Fleet Capacity and Trades

Coastal tank barge fleet capacity increased by 19 percent from 1994 to 2003 (Exhibit 3). Seventy-two percent of the increase has been over the last 2 years. Over this period 25 (0.392 million DWT) new/reconstructed double-hull tank barges were added to the fleet, while only 5 (.086 million DWT) single-hull barges were removed from service. Sixteen (0.300 million DWT) of the 25 new/reconstructed barges were 15,000 DWT or greater. Another sixteen (0.230 million DWT) new/reconstructed tank barges will be delivered over the next 2 years. Of these, 9 will be 15,000 DWT or greater.

Coastal Tank Barge Productivity Factors, 1994 and 2002

	1994	2002
Average Barge Size (DWT)	16,528	17,263
Average Haul (Miles)	342	422
Ton-miles/DWT	15,586	16,617

Source: U.S. Army Corps, Waterborne Commerce of the United States.

Exhibit 4

Notwithstanding deliveries, fleet capacity will fall from 2003 to 2005 as OPA-90 restricts old, 10,000+ DWT single-hull barges from operating in U.S. petroleum trades (Attachment 1). The smaller segment of the single-hull fleet will not be affected by the regulation until 2015. Despite the decline in the 10,000+ DWT segment, overall fleet capacity will remain above

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[2] Seventy percent of the major coastwise tank barge operators expect the tank barge share of coastal tank vessel (tanker and tank barge) shipments to increase over the next three years. (U.S. Maritime Administration, Industry Survey Series: Coastal Tank Barge, 2002, p. 7.)

[3] In 2002, finished gasoline accounted for 33 percent of coastal tank barge traffic, followed by residual fuel oil (26 percent), distillates (16 percent) and chemicals (15 percent). Eighty-six percent of the gasoline shipments (metric tons) were to Atlantic Coast ports. For East Coast demand for gasoline see Energy Information Administration, Petroleum Marketing Annual, 2002, Washington, D.C.: U.S. Department of Energy, (www.eia.doe.gov), August 2003, p. 220.

pre-2002 levels.

Over the next five years, fleet capacity growth will be limited by the following factors.

Productivity Increases. Average productivity for the coastal tank barge fleet (thousand ton-miles/DWT) increased from 15.6 in 1994 to 16.6 in 2002 (Exhibit 4). The increase in productivity can be attributed largely to an increase in average shipment miles -- vessels are more productive on longer routes.[4] From 1994 to 2002, average shipment miles increased by 23 percent to 423 miles. In 2002, 28 percent of tank barge shipments were in 500+ mile trades, up from 21 percent in 1994. These trends are expected to continue over the next five years.

Another factor that will continue to enhance fleet productivity is the replacement of old vessels. New barges are more productive (less maintenance/dry-docking time) than those they replace. Furthermore, many of the new barges are part of articulated tank barge units (ATB's which are faster, more maneuverable, and more seaworthy than traditional single-hull units.[5] Seventeen ATB units were delivered in 2002/2003. Another 11 units are under construction.

Industry concentration. The top 10 operators controlled 85 percent of the coastal tank barge traffic in 2002, up from 76 percent in 1994. The fleets of major operators are generally tied to term/affreightment contracts with utilities and major oil companies, while those of smaller operators generally operate on a spot basis.[6] Thus, concentration tends to limit the potential for redundant, speculative (spot market) additions to the coastal tank barge fleet.

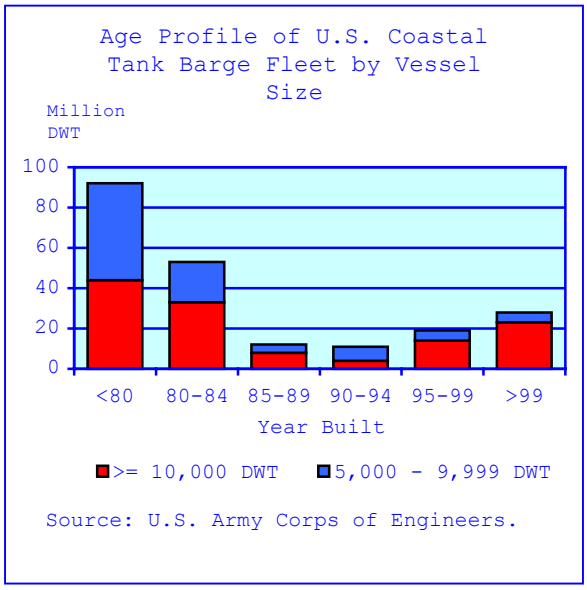

Exhibit 5

Aging of the Fleet. Coastal tank barges generally remain in service for 25-30 years (Exhibit 5). The average age of the 25 barges removed from service since 1994 was 28 years.[7] Of these, fouteen were removed at least 5 years before their OPA-90 phase-out date (Attachment 2). Age, obsolescence and market forces (costs, rates, and newbuilding prices) were the principal drivers for

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[4] Average shipment miles increases from 342 in 1994 to 423 in 2002. Assuming 3 port days, speed of 10 knots, and a 350-day operating year, the annual laydown capability of a new 20,000 DWT tank barge is about 409 million ton-miles on a 342-mile route, but 453 million ton-miles on a 423-mile route.

[5] An articulated tug barge unit has a double-hinge like connection between the tug and barge resulting in greater speed, maneuverability and sea-keeping than an ITB of otherwise similar features.

[6] The major coastwise tank barge operators indicated that they would prefer that 80-90 percent of their revenues came from term contracts (U.S. Maritime Administration, Industry Survey Series: Coastal Tank Barge, 2002, p. 7.)

[7] A surge in coastal tank barge newbuildings in the early 1980's generated significant excess capacity, and resulted in low charter rates which limited removals and newbuildings in the 1990's.

removal of tank barges. Even though OPA-90 allows 70 of the pre-1980s built tank barges to remain in U.S. petroleum trades until 2010 or later, most of these are likely to be removed from petroleum service over the next five years.

Market Indicators

For the period 1994 to present, daily charter rates for 20,000 DWT, ATB's increased from $12,000-15,000 to $16,000-19,000; and charter rates for 8,000 DWT tug/barge units increased from $6,000 to $9,500. Assuming a 25-year economic life, full-employment (350 days/year) and charter rates at current levels, these vessels (new) generate a 15 and 22 percent return on investment (return), and are economic from an overall market perspective (Exhibit 6).

Costs, Revenues and Return on Investment For Selected Coastal Tank Barges ($)

Costs/Revenues @ 100% Util.	Tug/Barge 8,000 DWT	ATB 20,000 DWT
Capital Cost	7,000,000	25,000,000
Oper. Cost/Day	5,000	7,000
Annual Oper. Costs	1,750,000	2,450,000
Charter Rate/Day	9,500	18,000
Charter Revenue/Yr.	3,325,000	6,300,000
Oper. Revenue/Yr.	1,575,000	3,850,000
Returns (%)		
100% Util. (350 days)	22	15
90% Util.	17	12
80% Util.	12	9
70% Util.	7	6
61% Util.	0	3
55% Util.		0

Exhibit 6

Oil companies have been chartering ATB's for up to 3 years, a signal that they expect charter rates for large tank barges to be at or above current levels over this period. These contracts insure full-employment and stable earnings for the units over the 3 years.

The higher return for the 8,000 DWT unit reflects the fact that they are generally operated under affreightment contracts or monthly time charters with greater employment/earnings risks than long-term charters. Because operating costs (crew, insurance, maintenance and repairs) are fixed over the short term, even a small decline in utilization can result in a significant decline in returns. For example, at 90 percent utilization (315 days), the return on investment for an 8,000 DWT unit falls to 17 percent, at 80 percent utilization, the return falls to 12 percent, and at utilization rates below 61 percent, the investment has a negative return.

Thus, it is critical to get customer feedback on the investment at a time when changes that enhance market potential (utilization) can still be made. Customer feedback is important not only in terms of initial success, but if performed in a regular systematic fashion, can provide feedback that is important for ongoing project success.

Summary, Coastal Tank Barges

The market for coastal tank barge services can be divided into short-haul trades (< 500 miles), in which tank barge services complement tanker and pipeline services; and 500+ mile trades in which large tank barge services substitute for product tanker services. In 2002, 28 percent of tank barge shipments were in 500+ mile trades, up from 21 percent in 1994. This trend is expected to continue over the next five years.

Coastal tank barge traffic (ton-miles) will grow at about 2 percent per year over the next five years, reflecting fleet productivity increases and the substitution of large tank barges (15,000+ DWT) for product tankers in the 500+ mile petroleum products trades.

The addition of new tank barge capacity to the fleet over the next five years will be driven largely by long-term charters which have lower employment/earnings risks than spot charters. Growth in fleet capacity will be limited by fleet attrition and productivity increases.

Attachment 1

OPA-90 Phase-Out, U.S.-Flag Tank Barges By Phase-Out Year
10,000 DWT and Greater, As Of December 31, 2003

Name	GRT	DWT	Year Built	Year Reblt.	OPA-90 Phase-Out*	Jones Act Elig.	Dbl. Hull (DH)
OPA-90 Phase-out Year 2004							
B NO 115	6,411	17,014	1974		2004		
B NO 120	6,869	17,890	1975		2004		
B NO 135	8,488	15,422	1975		2004		
B NO 160	9,844	21,995	1978		2004		
BARGE 102	7,970	15,841	1970		2004		
BARGE 103	8,088	22,426	1971		2004		
ENERGY 8701	5,323	10,251	1976		2004		
ENERGY 9501	5,869	12,655	1972		2004		
ENERGY 9801	6,293	11,590	1967		2004		
PENNSYLVANIA	5,285	11,279	1971		2004		
KTC 135	6,773	15,241	1969		2004		
KTC 90	6,430	13,107	1967		2004		
KTC 96	6,278	13,154	1969		2004		
KTC 155	8,666	19,958	1974		2004		
MINERAL CREEK	9,359	19,441	1973		2004		
NEW YORK	14,187	29,416	1970		2004		
OCEAN 215	12,176	21,664	1975		2004		
PENN NO. 460	9,359	19,441	1973		2004		
RTC 120	7,297	14,327	1970		2004		
RTC 502	7,912	13,590	1976		2004		
OPA-90 Phase-out Year 2005							
B NO 130	7,515	19,414	1980		2005		
B NO 140	7,515	19,414	1980		2005		
FLORIDA	7,244	15,014	1980		2005		
KTC 71	5,467	11,340	1975		2005		
TEXAS	12,981	27,944	1980		2005		
OPA-90 Phase-out Year 2006							
B NO 275	9,262	18,944	1981		2006		
BARGE 450-6	8,986	16,887	1981		2006		
BARGE 450-7	8,986	16,460	1981		2006		
BARGE 450-9	8,133	16,460	1981		2006		
BARGE 450-10	8,914	16,460	1981		2006		
FLORIDA BAY	12,271	20,866	1981		2006		
OCEAN 210	11,951	22,929	1981		2006		
KTC 80	5,264	11,000	1981		2006		
SMT CHEMICAL EXPLORER@	17,126	45,313	1981		2006		
SMT CHEMICAL TRADER@	17,126	45,313	1981		2006		
TEXAS	7,847	15,014	1981		2006		

OPA-90 Phase-Out, U.S.-Flag Tank Barges By Phase-Out Year
10,000 DWT and Greater – Cont.

Name	GRT	DWT	Year Built	Year Reblt.	OPA-90 Phase-Out Year*	Jones Act Elig.	Dbl. Hull (DH)
OPA-90 Phase-out Year 2007							
BARGE 450-11	8,922	16,460	1982		2007		
MASSACHUSETTS	10,564	17,781	1982		2007		
OCEAN 211	11,012	22,876	1982		2007		
PENN NO. 400	5,651	11,794	1977		2007		
RTC 503	9,185	16,330	1982		2007		
SCC 3902@	18,671	39,976	1977		2007		
SOUTH CAROLINA BAY	12,399	20,866	1982		2007		
VIRGINIA BAY	12,271	20,866	1982		2007		
OPA-90 Phase-out Year 2009							
B NO 185	9,268	18,944	1987		2009		
B NO 195	9,268	18,944	1989		2009		
ENERGY 11101	6,925	14,397	1979		2009		
ENERGY 11102	6,925	14,397	1979		2009		
PENN NO. 410	5,293	11,794	1979		2009		
OPA-90 Phase-out Year 2010							
BISCAYNE	5,407	10,886	1981		2010		
OPA-90 Phase-out Year 2012							
GROTON@	22,471	47,247	1982		2012		
JACKSONVILLE@	22,331	47,247	1982		2012		
OPA-90 Phase-out Year 2013							
BALTIMORE@	22,470	47,247	1983		2013		
NEW YORK@	22,470	47,247	1983		2013		
OPA-90 Phase-out Year 2014							
B NO 35	4,761	11,632	1980		2014		
B NO 35	4,761	11,632	1980		2014		
B NO 65	3,965	10,791	1968		2014		
BB 110	4,505	12,193	1978		2014		
DELAWARE	4,361	15,131	1968		2014		
HUGH	4,939	10,251	1977		2014		
KLAMATH	4,412	10,070	1990		2014		
MOBILE@	22,331	47,247	1984		2014		
NEHALEM	2,857	10,669	1976		2014		
PHILADELPHIA@	22,331	47,247	1984		2014		
B NO 85	4,038	11,693	1971		2014		
B NO 95	4,981	11,693	1972		2014		
B NO 105	4,981	11,693	1971		2014		
ROCKLAND	4,170	10,510	1975		2014		
RTC 105	4,892	11,716	1980		2014		

OPA-90 Phase-Out, U.S.-Flag Tank Barges By Phase-Out Year
10,000 DWT and Greater – Cont.

Name	GRT	DWT	Year Built	Year Reblt.	OPA-90 Phase-Out Year*	Jones Act Elig.	Dbl. Hull (DH)
OPA-90 Phase-out Year 2014							
RTC 90	4,982	11,792	1980		2014		
WESTCHESTER	4,179	10,510	1975		2014		
OPA-90 Phase-out Year na							
ACADIA	10,691	17,237	1997		na		DH
ALSEA BAY	6,039	11,703	2003		na		DH
ATC 21	9,439	19,499	2002		na		DH
ATC 23	10,889	29,938	1978		na		DH
ATLANTIC	8,327	15,422	1995		na		DH
BARGE 550-1	11,457	22,315	2002		na		DH
BARGE 550-2	11,457	22,315	2002		na		DH
BARGE 550-3	11,457	22,315	2002		na		DH
BARGE 550-4	11,457	22,315	2002		na		DH
B NO 210	8,225	13,504	1995		na		DH
B NO 215	8,721	17,277	1999		na		DH
B NO 220	8,225	13,504	1999		na		DH
B NO 225	8,799	18,870	2003		na		DH
B NO 230	10,558	18,944	1993		na		DH
B NO 235	10,722	17,892	1995		na		DH
B NO 240	10,483	18,136	1994		na		DH
B NO 245	19,049	26,309	1997		na		DH
B NO 255	9,266	18,944	1979		na		DH
B NO 265	9,266	18,944	1979		na		DH
BARGE 450-8 (OSRV)	8,133	16,460	1981		na		
CARIBBEAN	8,327	15,422	1995		na		DH
CASABLANCA	7,001	12,247	1987		na		DH
CAPELLLA	5,790	11,434	2002		na		DH
COMMENCEMENT BAY	6,040	11,703	2003		na		DH
DBL 70	5,248	10,277	1972		na		DH
DBL 81	6,214	11,000	2002		na		DH
DBL 82	5,896	15,854	2003		na		DH
DBL 101	6,214	15,854	2002		na		DH
DBL 102	6,214	15,854	2003		na		DH
DBL 134	9,514	15,150	1969	1986	na		DH
DBL 140	10,303	18,053	1999		na		DH
DBL 151	8,710	19,995	1981		na		DH
DBL 152	8,710	19,995	1982		na		DH
EVERGLADES	15,126	27,944	1980		na		DH
ENERGY 8001	5,752	11,340	1996		na		DH
LEMON CREEK	7,001	13,608	1987		na		DH
M 192	11,796	22,974	1979	1998	na		DH
M 244	16,021	30,177	1971	2000	na		DH
M 252	14,679	28,062	1972	2002	na		DH
M 254	14,678	28,672	1970	2002	na		DH
MARITRANS 300	16,553	29,845	1979		na		DH
MARITRANS 400	27,471	55,844	1981		na		DH

OPA-90 Phase-Out, U.S.-Flag Tank Barges By Phase-Out Year
10,000 DWT and Greater – Cont.

Name	GRT	DWT	Year Built	Year Reblt.	OPA-90 Phase-Out Year*	Jones Act Elig.	Dbl. Hull (DH)
NOA	4,827	10,614	2002		na		DH
PACIFIC	5,669	12,247	1993		na		DH
PENN NO. 90	7,592	15,000	2002		na		DH
PENN NO. 120	9,424	18,000	2002		na		DH
PENN NO. 121	9,424	18,000	2003		na		DH
PORTLAND	6,917	12,969	1987		na		DH
POSEIDON	7,022	15,241	1973		na		DH
RIGEL	5,669	12,247	1993		na		DH
RTC 135	10,077	17,690	1999		na		DH
RTC 145	10,046	17,690	2002		na		DH
RTC 150	10,460	17,690	2003		na		DH
SANSANOA	5,790	12,247	2001		na		DH
SPRING CREEK	7,001	13,608	1987		na		DH
TENNESSEE	5,688	12,319	2003		na		DH
TMI 17	6,840	15,876	1996		na		DH
YUCATAN	12,157	17,237	1998		na		DH
Z BIG 1 (OSRV)	8,914	18,797	1981		na		

* Last year/partial year of operation in U.S. trades. For example, a vessel with a January 1, 2005 phase-out date would have a 2004 phase-out year, while a vessel with a March 1, 2005 phase-out date would have a 2005 phase-out year.
@ Integrated tug barge units classified as tankers by Coast Guard and Corps of Engineers.
OSRV – Oil spill recovery vessel, exempt from OPA-90 double hull requirements.
Source: U.S. Army Corps of Engineers, Vessel Master File, December 31, 2003
American Bureau of Shipping, Record 2004.

Attachment 2

Coastal Tank Barge Removals, 1995-2003

Name	DWT	Year Built	OPA Phase-out Year*	Removal Year
BARGE 17	5,917	1954	2014	1999
NORTH CAPE	12,247	1978	2004	1997
LYNNHAVEN	6,096	1964	2014	1995
INTERSTATE 138	16,330	1979	2004	1997
MORRIS J. BERMAN	11,711	1976	2004	1996
B NO 145	14,515	1972	2004	1999
OCEAN 262	15,114	1977	2003	2000
BARGE 450-2	14,697	1976	2004	1998
BARGE 450-4	14,697	1976	2004	1998
STL 3901	39,108	1974	2001	2000
B NO 125	17,014	1975	2004	2002
BARGE 16	5,917	1953	2014	2000
IOS 3301	29,938	1971	2000	1995
BARGE 101	14,969	1968	2002	2002
KTC 115	13,173	1968	2002	2002
CP SACRAMENTO	7,258	1966	2001	2001
BARGE 10	5,613	1966	2014	1998
TMI 11	9,979	1956	2014	1996
OCEAN 192[r]	22,974	1979	2004	1998
GULFSTREAM[r]	8,848	1976	2014	1996
OCEAN CITIES[r]	28,062	1972	2004	2002
OCEAN 244[r]	30,177	1971	2000	2000
OCEAN 252[r]	28,672	1970	2004	2002
M 214[r]	21,664	1975	2004	2003
OCEAN 193[r]	19,596	1980	2005	2003

[r] Retrofits.
Source: U.S. Army Corps of Engineers, Vessel Master File, December 31, 2003
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