

An Overview of Trends in the Tug Market

by Robert Beegle
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An Overview of Trends in the Tug Market

Marcon International, Inc. has closely followed the tug market since 1981. While trends from yesterday created the towing industry we are familiar with today, events now are shaping the tug market of tomorrow more than at any other time in the past. Today's trends indicate what the industry can expect in the next 10 – 15 years. There have been many “ups” and “downs”, both for the industry and Marcon, since we sold our first tug in the early 80's. The best word though to describe the industry and the various trends we are all experiencing today is “up”.



The first tug sold by Marcon was the 85, 1800BHP “Big Brute” from Misener Marine to Alaska Marine Charters for use in Dutch Harbor, Alaska.

Marcon sales are “up”. Charter rates and revenues are “up”. Utilization is “up”. Many owners report the highest level of activity and inquiries they have ever seen. U.S. and overseas fleet sizes are “up”. Mergers and acquisitions are “up”. Tugs on order in the U.S. and worldwide are “up”. Horsepower is “up”. Prices are “up” - which is great if you are a Seller. Of course, not everything “up” is positive. Costs for fuel, machinery, steel, paint and labor are also “up”. Repair costs are up. The average U.S. tug age is “up”. Government regulations and paperwork are “up”. Prices for second-hand and new tugs are “up” - which is not so great if you are a Buyer - and the present newbuilding frenzy means few slots are open for either fleet replacement or expansion. Even sister-companies now compete head-to-head for equipment and newbuilding slots. Good equipment and personnel are scarce and operators turn down business because of the lack of the right tug, barge or the people to man them. One local operator, with all of his tugs working, describes himself as being “Boatless in Seattle”.

Like most companies involved with the towing industry, we have done very well the last couple of years. Since we first opened our doors, Marcon has sold approximately 200 tugs totaling over a half a million BHP. Seven tugs have been sold worldwide already this year, including two newbuilding 3,300BHP Robert Allan design ASD tugs now under construction in Turkey.

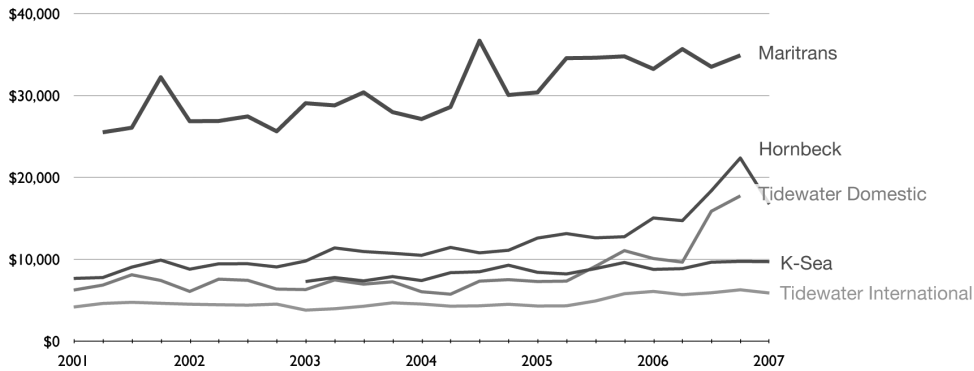
Marcon Tug Sales and Charters

	2000	2001	2002	2003	2004	2005	2006	2007
Number of Tugs	21	12	5	8	12	11	19	7
Total BHP	35,915	25,240	25,885	16,490	45,240	48,388	47,264	30,200
Average BHP	1,170	2,103	5,177	2,061	3,770	4,399	2,488	4,314

Revenues, Day Rates and Utilization

Tug and barge prices are not the only thing that have increased. Revenues are up. Many Owners report higher and sometimes even record earnings and day rates.

Average Daily Rates or Time Charter Equivalent



Operating revenues from Crowley's Marine Services segment increased 21.3% in 2006 compared to 2005. Hornbeck Offshore enjoyed improved fourth quarter 2006 and record calendar 2006 results helped by tug-tank barge revenues increasing 20.9% and day rates up 11% over the 2005 fourth quarter. K-Sea Transportation increased average dayrates for their tug-tank barge fleet from \$5,444 for the quarter ending 31 December 2005 to \$6,644 for the quarter ending 31 December 2006, while utilization improved from 78% to 84% over the same period. Before Tidewater sold 14 tugs to Crosby, their U.S. fleet averaged \$17,793 per day for the quarter ending September 2006, almost triple the \$6,028 per day earned the beginning of 2000.

This upward trend is not limited to the United States. Last year was a record year for Smit Internationale of Rotterdam as their 2006 net profits nearly doubled over 2005. For Smit, the clouds definitely had a silver - or in their case a golden lining, with a high volume of salvage work after the 2005 hurricane season in the Gulf of Mexico and harbor towage in Rotterdam and Antwerp exceeding expectations due to strong winds in 2006.

Paris-based Bourbon Group's Towage & Salvage Division was up 4.3% for the fourth quarter 2006 compared to the same quarter in 2005 and 12.9% over the year. Adsteam Marine increased their net profit for the second half of 2006 by 22% compared to the previous year with their U.K. revenues up 31% over the same time period. One European operator reported 2006 average day rates for offshore and coastal towage in Northwestern Europe were nearly double the rates earned in 2005, increasing to approximately Euro 10-12,000 per day in 2006 from Euro 5-6,000 per day in 2005.



Fleet Size

There are more tugs operating worldwide today than at any time in the past. One problem in reviewing statistics on tugs and other workboats in domestic and international markets is that we are always comparing “apples and oranges”. Our data comes from varied sources such as Lloyd’s Register, the U.S. Coast Guard, U.S. Army Corps of Engineers and others. Although there are gaps in information, numbers constantly changing and each database using different parameters, we can still get a good idea of the trends.

While information in Lloyd’s Register only covers sea-going vessels over 100 gross register tons, there are many tugs either under that tonnage or in inland service. According to Lloyd’s, as of January 2007, there were 11,760 “sea-going” tugs over 100GRT worldwide with a total of 28,116,599BHP and an average year built of 1983. Even taking into account flags of convenience, the largest national fleet of tugs worldwide sail under U.S. registry. We operate 1,427 “sea-going” tugs, or 12.1% of the world market, totaling 4,140,961BHP (14.7% of the global horsepower). Since January 2001, the U.S. tug count is up 35.5% from 1,053 vessels. Total horsepower in the U.S. during that same period of time increased over one million horsepower from 3,018,359BHP. The only negative is that the average age of U.S. sea-going flag tugs over 100GRT also increased from 30 to 34 years.

Following is a breakdown of the U.S. sea-going tug fleet by horsepower. Note that Lloyd’s only has data on 97 tugs under 999BHP. As most of the “under thousand horsepower” class of tugs in the U.S. are below 100 gross register tons, they are not included in the Registry. In reality though, there are eight to nine hundred small tugboats in this horsepower range working daily in U.S. coastal waters.

Starting out in Edward Lloyd’s 17th century London coffee house, Lloyd’s Register maintains a database of over 80,000 ships, including movements, casualties, vessel characteristics and owners. In 1760, the Register Society was formed by the coffee house customers and it printed the first “Register of Ships” in 1764.

Average horsepower of each tug increased from 2,867 to 3,326 BHP. Of the 1,427 U.S. flag tugs in Lloyds, 487 (43%) are powered by EMD’s, 21% by CATs, 14% by General Motors / Detroit Diesels. Fairbanks still powers 6% of the fleet, mostly in older tugs.

U.S. Sea-Going Tug Fleet Over 180 GRT by BHP According to Lloyds Register

	Unknown BHP	Under 999	1000 - 1999	2000 - 2999	3000 - 3999	4000 - 4999	5000 - 5999	6000 - 6999	7000 - 7999	8000 - 8999	9000 Plus	Total
Total #	182	97	316	289	206	146	61	45	43	3	39	1,427
Avg. BHP	-	824	1,538	2,560	3,625	4,389	5,582	6,439	7,217	8,337	12,361	3,326
Avg. LOA	86.4	81.7	90.4	101.7	109.6	110.8	127.4	128.2	141.6	140.4	141.0	
Avg. Beam	27.5	23.0	26.4	29.9	32.9	34.7	36.1	37.8	40.4	43.0	56.4	
Avg. Depth	12.8	11.1	11.7	12.9	14.1	14.1	17.0	17.8	17.9	17.5	22.9	
# Single Screw	154	80	196	89	22	12	3	2	2	0	0	560
# Twin/Triple Screw	28	17	120	200	184	134	58	43	41	3	39	867
Avg. Year Built	1976	1953	1963	1973	1979	1987	1979	1988	1980	1986	1993	

All dimensions in feet and tenths. Sub-types where provided by Lloyds, break down to 21 anchor handling; 75 articulated; 38 firefighting; 26 pusher; 3 recovery; 4 salvage; 4 offshore industry; 1,044 towing, arranged for pulling; 10 twin-hull and 99 water-tractor.

Data on U.S. flag tugs is also available from the U.S. Coast Guard “*Merchant Vessels of the United States*” and U.S. Army Corps of Engineers “*Waterborne Transportation Lines of the United States*”, however here also, we end up comparing “apples and oranges”. Sometimes databases lump both tugs and inland river pushboats together into one category as “Towing Vessels”. As of a 31st December 2005 survey (with updates through 30 August 2006) the U.S. Army Corps of Engineers reported a total self-propelled U.S. fleet of 8,976 vessels of which 5,290 or 58.9% were “towing vessels”. Approximately 30.3% of the self-propelled fleet were tugs and 28.7% were true tow or pushboats – demonstrating the size and importance of the towing industry to the U.S. economy. As of March 2007, the U.S. Coast Guard reported 6,871 registered towing vessels in the U.S. – including both tugs and pushboats, with an average year built of 1971. This compares to 5,451 vessels with an aggregate horsepower of 7,273,219HP six years ago.

Average Age of Tugboat Fleet in 2005

Under 5 years	184
6 - 10 years	182
11 - 15 years	75
16 - 20 years	84
21 - 25 years	392
Over 25 years	1,797
Total	2,717

Credit: U.S. Army Corps of Engineers

Summary of U.S. Towboat Fleet as of 2005

	1990	1995	2000	2003	2004	2005
Pushboats						2,573
Tugboats						2,717
Total	5,210	5,127	4,995	5,172	5,314	5,290
Total HP	8,709,914	9,107,738	9,347,780	9,883,667	10,012,020	9,983,351
Average HP	1,672	1,776	1,871	1,912	1,884	1,887

Credit: U.S. Army Corps of Engineers

As of March 2007, the U.S. Coast Guard’s “*Merchant Vessels of the United States*” database included eight 2007 built “towing vessels”, only a small portion of those under construction. Offsetting these eight new boats in the U.S. fleet are nineteen towing vessels launched before the turn of the last century. The oldest tug in active service in the U.S. is the 68’ single screw “*Sisters*” (ex-“*Fanny J*”) owned by Hartley Marine out of Boothbay, Maine. She was built in 1874, nine years after the end of the Civil War, as the “*Rebecca*” and constructed of iron when the trend for most boats her size was to be built of wood. Originally powered with coal-fired steam, she worked in Philadelphia for nearly ninety years. Now propelled by a single GM12V71 swinging a four foot diameter bronze prop, she still earns her keep docking a cement barge, towing construction barges and assisting in the launching of the latest trend of tugs built at Washburn & Doughty.



We have come a long way in the 133 years since the steam screw tug “*Rebecca*” slid down the ways. Many U.S. tugs have been built, worked and eventually sold abroad or scrapped over the years. We have seen coal-fired steam engines shift to oil-fired, diesel, diesel electric and soon-to-be hybrid propulsion; kort nozzles, steerable nozzles, shutter rudders; twin, triple

and even quad-screws - plus a whole alphabet of types from ASDs, ATBs, Catugs, Combi's, ITBs, Mor-Tracs, RTs (Rotor Tugs), SDMs (Shipdocking Modules) and VSTs (Voith-Schneider tractors) to Robert Allan Z-Techs.

Newbuildings

An article in the April 4th 2007 issue of *"Lloyds List Special Report on Tug Design & Construction"* by Jack Gaston is titled *"Demand Hits Unprecedented Levels"* and starts out saying *"at no time in its 175-year history has the tug business experienced such an intense and sustained period of tug construction."* We agree. The level of tug construction, both in the United States and abroad, is one of the trends that is "up". Today's dramatic flurry in new construction cannot be explained by any one factor, but instead by a number of forces that normally do not all come into play at the same time.

Ports worldwide require higher horsepower, more maneuverable docking tugs to handle the increasing size of container ships, car carriers and tankers. New and expanding LNG projects and oil terminals need new specialized escort tugs. New OPA'90 double skin tank barges in the United States require higher horsepower tugs to work them – plus more owners are now looking to using ATBs instead of towing on the hawser.

The tugs of tomorrow have to be more efficient – efficient in operation, manning, maintenance and fuel consumption. Refurbishing older tonnage can no longer fulfill all of the needs for the future. Older tugs were designed to operate with five to eight man crews. Depending on the trade, tugs today are being designed to operate with anywhere from two to six crew. This is necessary, not only as a cost savings, but because of the extreme shortage of qualified personnel. While I do not expect to see an "Unmanned Tug" in my lifetime, more automation is required, not only in the engine room, but on deck. When you also take into consideration the pressure for a reduction in fuel consumption and control of emissions; the past practice of converting old tugs to meet the standards of today and the future may become a less attractive option, especially for shipdocking.



The tugs being ordered and operated today include very diverse types, but generally can be broken down into five categories – with, of course, some blurring of lines between various designs and trades.

- Harbor / Shipdocking and Terminal Escort Tugs
- ATBs / ITBs
- Conventional Ocean and Coastal Tugs
- Anchor Handling Tugs
- Salvage Tugs / ETVs / High Horsepower Ocean Towing

Harbor / Docking and Terminal Escort Tugs

Harbor / shipdocking and terminal escort tugs dominate the newbuilding scene – both in the U.S. and abroad. Almost half the tugs on the order-

books in the U.S. are for shipdocking and/or escort service. These are not being built as a simple replacement of existing, older designs, but to meet new requirements. Ever since the Staten Island ferry “Nautilus” supplemented her revenues moonlighting by towing sailing ships through the Narrows in 1818, the demand has always been for higher horsepower, better maneuverability and lower manning. This evolution by itself is nothing new.

Pilots have always wanted “*the biggest and the best*”.

The harbor tug slowly evolved over the years from a simple single screw boat to an all-around twin screw tug capable of coping with both shipdocking duties and traditional routine towing jobs. The “typical” harbor tug is now expanding to a more powerful and maneuverable boat performing a variety of roles such as escort, firefighting, pollution control and even salvage operations in adjacent waters. We are today experiencing a technological revolution in tractor tugs equal to the leap made in 1950’s and 60’s from single to twin screw boats.



Most shipdocking tugs now on order are “compact” tugs under 85’ in length. They are capable of working in the tighter environs of busy harbors and terminals with fewer crew while still providing bollard pulls upwards of 60 tonnes or more. Investment can be high, but an incentive is the savings in operating costs. It is a delicate balance of paying the high cost of a new tug against potential savings, but harbor tugs operate in a competitive market. They are always fighting a downwards pressure on rates from shipowners.

New construction may be the only way a tug owner in a modern port can provide the necessary services, achieve the reduction in operating cost to remain competitive and hold onto their market share. Two new sophisticated “compact” tractor tugs can now do a job that might have taken four or five tugs in the past. The one new tug will be more expensive, but it can operate with crew costs that are less than half of a two conventional tug operation plus fuel and other expenses are also reduced.

ATBs

Orders for new ATBs are growing. “Push tugs” and barges are now used worldwide in such countries as Sweden, Denmark, Japan and Brazil for various bulk dry and liquid cargoes, but by far the largest fleet of ITBs and ATBs operating and under construction is in the United States. There are approximately 23 new ATB tugs under construction in the U.S., most married to double-skin OPA90 ocean tank barges. In addition to these newbuildings are a few conventional tugs, such as K-Sea Transportation’s 6,500HP “Barents Sea” (ex-“Pete”), being converted from other services. I am not here to sell you on the efficiencies of ATBs compared to towing on the wire, but as long as there is a need for large dry bulk and petroleum barges, ATB conversion and construction will continue.

Conventional Coastal and Ocean Tugs

In comparison, the mid-horsepower range conventional coastal and ocean towing market is one sector where we have not seen much new construction in the United States. Only an approximate 8% of the tugs on order in the U.S. are conventional ocean and coastal hawser tugs, although construction of this type in Southeast Asia is strong. More sales of second-hand tugs worldwide take place in this market sector than any other, as Buyers usually have a little more flexibility in their requirements than in other trades. While there is a strong demand in the U.S. for conventional and ocean tugs, most operators still find revenues may not warrant the cost of new construction. Four notable exceptions are Sause Bros., Dann Marine Towing, Western Towboat and Foss Maritime. Marcon sees a continued shortage in traditional coastal and ocean going tugs over the next few years. As older conventional tugs working single skin petroleum barges or docking ships are replaced by higher horsepower ATBs, ASDs, or tractor tugs, many will be recycled to conventional coastal towing.



U.S. Shipbuilding Contracts as of 1 Jan. 2007

	Large Tank Barges	Tugs
2007	23	23
2008	12	18
2009	4	7
2010	2	5
2011	0	0
2012	0	0
Total	41	53

* includes options and estimated deliveries

Credit: Colton Co.

The barge market is one indicator which can point to future trends for conventional coastal and ocean tugs. Like the tug market, the U.S. market for second-hand flat deck and similar type barges is tight. There are many more potential buyers of barges than sellers in the market and new barge construction is only recently starting to pick up in the United States. Like conventional tugs, ocean flat deck barges are a major portion of production for shipyards in Southeast Asia and China.

The majority of ocean deck barges now for sale by Marcon are located in Southeast Asia.

Anchor Handling Tugs

Anchor handling tugs are in demand overseas and are regularly being built in China, Southeast Asia, India and Germany up to 18,000HP. With the exception of Harvey Gulf International, most U.S. operators are building straight supply or anchor handling tug supply vessels instead of anchor handling tugs.

Salvage Tugs / ETVs / High Horsepower Ocean Tugs

The 1970's were the "heyday" for big ocean salvage tugs. From 1976 to 1978, twenty-eight powerful tugs over 10,000IHP were built for such renowned names in the industry as United Towing, ITC, Safmarine, Fukada, Wijsmuller, Bugsier, Smit, Svitzer, Petrobras, Tokyo Marine and Les Abeilles. A reduction of casualties in the 1980's, competition from non-dedicated resources such as anchor handling tug suppliers and falling earnings led to lean times. Many salvage tugs were sold off to second-tier operators or even scrapped. The traditional concept of commercial tugs standing by salvage stations was revitalized in the 1990's in a slightly different form throughout the U.K. and Europe because of environmental concerns at critical



geographical areas. This created a market for dedicated large, high horsepower ocean rescue / salvage tugs or Emergency Towing Vessels (ETVs) equipped to carry out year-round rescue towing and first response activities from the English Channel to the Great Barrier Reef.

In December 2006, the U.K. Maritime and Coastguard Agency renewed their contract with Klyne Tugs Ltd. of Lowestoft to supply four ETVs which are on stand-by 24 hours a day, 365 days a year to respond to shipping incidents in their area. Two are based in the English Channel, at Falmouth and Dover to cover the South West approaches and the Dover Straits respectively. "Anglian Monarch" at Dover is jointly funded and operated with the French Government. Two are based at Stornoway and Shetland Islands.

New dedicated rescue tugs are being built throughout the world. We at Marcon welcome this revitalization. The first step in preventing oil pollution is to keep the oil in the ship and a strong towing and salvage industry is necessary.

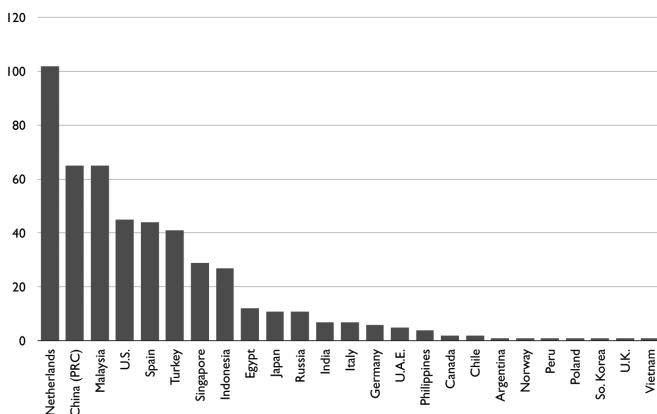
Another surprising trend occurred as companies providing long distance ocean wet-tow of high-value barges, vessels and structures found a "silver lining" in the cloud over the rest of our heads of high oil and gas prices. The "death" of the high-horsepower ocean tug which was written about almost

as an obituary in various trade journals fifteen years ago has proven to be greatly exaggerated. Old fleets have since juggled around under new ownership; operators like International Transport Contractors (ITC) brought tugs into this service from other trades, and Fairmount Marine B.V. and Semco Pte. Ltd. recently built a series of high horsepower ocean tugs.

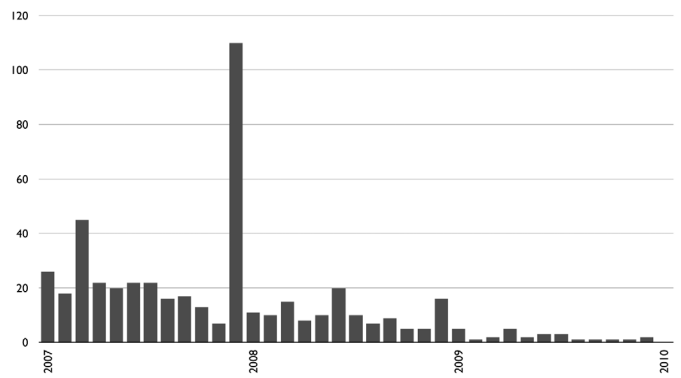
The latest list of U.S. commercial tug shipbuilding contracts from “MarineLog” and Colton includes 63 tugs on order, more than double the 29 tugs in April 2006. The majority are over 5,000HP with approximately half scheduled for delivery by the end of 2007. It remains to be seen whether all options will be exercised, or if the tugs are delivered within that time-frame. Regardless, it is obvious that we have an impressive flurry of newbuildings.

Looking at the global market, according to “Fairplay” a total of 493 tugs over 299 GRT are under construction through 2010 from Argentina to Vietnam (including the U.S.) - up from 455 the first of this year and up from 379 in October 2006. These numbers probably reflect only 75% of the actual number of tugs being built due to the GRT cut-off. The Netherlands still leads “Fairplay’s” list with a total of 102 tugs under construction, up from 96 in January. They are followed by People’s Republic of China and Malaysia each with 65 tugs under construction, the U.S. with 45, Spain 44, Turkey 41, Singapore 29, Indonesia 27, Egypt 12, Italy and India tying with 7 each, Germany 6, U.A.E. 5, Philippines 5, Canada and Chile two each and Argentina, Iran, South Korea, Norway, Peru, Poland and U.K. one each.

Worldwide Tugs on Order Over 299GRT



Delivery Dates Worldwide Orderbook



Credit: Fairplay New Buildings Online 04/07

Most are in the 3,000 – 4,000HP category, with the majority scheduled to be delivered within the next 12 months.

Summary of Tug Horsepower – Worldwide Tug Orderbook Over 299GRT

Under 1000	1,000 - 1,999	2,000 - 2,999	3,000 - 3,999	4,000 - 4,999	5,000 - 5,999	6,000 - 6,999	7,000 - 7,999	8000 - 8,999	9,000 - 9,999	Over 10,000	Not Known	Total
13	60	78	132	47	25	3	6	2	2	9	116	493

Newbuilding Tug Prices

Newbuilding costs for new tugs and barges continue to rise. Shipyards report higher costs for machinery as suppliers absorb higher manufacturing costs. One overseas shipyard advised that their cost for thrusters and winches will be increased by 15% for 2008 deliveries compared to 2007 and



that CAT diesels will be up about 9%. Another tug operator also reports newbuilding prices up 20% with much of the added cost traced back to major component vendors such as, but not limited to engines, thrusters, winches, etc. As backlogs grow and open building slots become a premium, the shipyards

themselves recognize and take advantage of the tightening market. It is the old formula of supply and demand. Money talks. If you want a “relatively prompt” delivery, you may have to pay substantially higher than if you are able and willing to wait for three or four years for your vessel or barge.

Higher shipbuilding costs are a fact of life that are not going to change in the near future. In 2004, Marcon sold a new ocean deck barge built overseas in the mid \$3 million range. In 2005 the sister-barge was priced at \$4.75 million. The 2006 sister-barge is now on the market for \$8 million. We are still waiting for the price of a fourth barge in the series which will be ready for delivery in October or November of this year.

“North American Steel Markets Monthly” published by American Metal Market Research reports that although faced by high inventories and slipping steel prices in late 2006, domestic steel plate in the U.S. still increased 1.3% to \$800-820 per tons over the year-to-date, while imported steel plate increased 10.6% to \$790 per ton over the same time period. Mills are looking to further increase prices with Nucor raising prices in March by \$20/ton. Plate orders have been high, not only for high-quality grades for oil and gas industries, but also for general infrastructure, heavy equipment, railway rolling stock, barges and vessels. Although there are periodic corrections with every market, the underlying demand for steel remains robust.

Raw materials used to manufacture coatings have risen significantly. The record rise in the price of copper forced International Paint to apply a surcharge of US\$ 2.50 per liter for copper-based antifouling products after prices climbed from US\$ 4,000 per metric ton to over US\$ 8,500/mt in May 2006. In May 2007 copper was trading at US\$8,224/mt for a cash buyer. Zinc, used extensively in anticorrosive primers, increased in price by over 50% in 2005. While trading at US\$ 2,390/mt in March 2006 it further increased to \$4,294/mt as of May 2007.

Second-Hand Vessels - The Past Affects Today

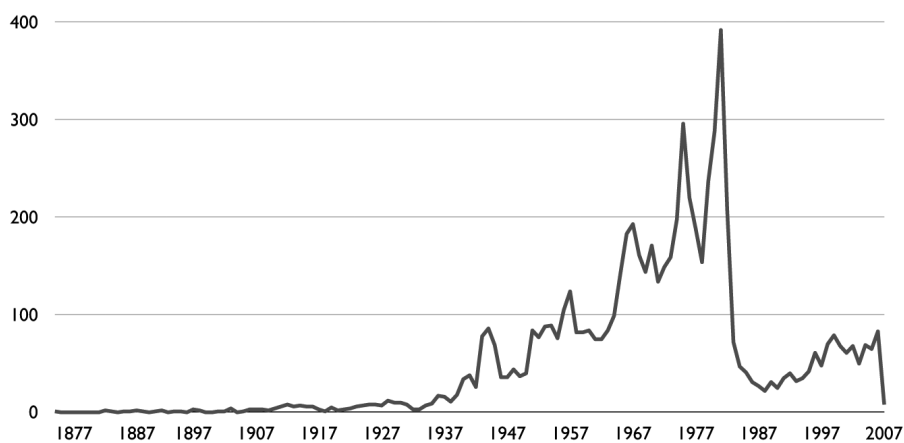
With all the current newbuilding activity, why do we still have an average U.S. fleet age of around 34 to 36 years? Up until the 1980's many owners regularly put their equipment on the market for sale as it reached 15 – 20 years of age and replaced it with newer or new built tugs. This created a fairly regular cycle of renewing towing and OSV fleets. The over optimistic forecasts though in the 1970's created a construction boom that resulted in an overabundance of tugs, OSVs and barges in the United States and

abroad. The bottom dropped out of the market. Too many vessels were chasing too few jobs. Owners started undercutting each other to keep their boats working – at times earning less than it cost to operate the vessel. Second-hand laid up tugs were sold by banks, owners or the U.S. Maritime Administration for sometimes less than 30 cents on the dollar. I still periodically look at some of the prices tugs were sold for in the mid-80's and just shake my head. As a result of this downturn, the building of new tugs and fleet replacement came to a virtual stand-still. In the U.S. from 1975 through 1982 we built an average of 59 harbor, anchor handling, integrated and conventional ocean tugs per year – plus probably close to 150 inland river towboats and smaller tugs. This peaked in 1981 when over 400 towing vessels of various types were built.

1,126 vessels or 26.4% of the U.S. tug and towboat fleet that was built in the four years between 1979 and 1982 still operate today. 392 of those were built in 1981 alone.

The number of ocean tugs constructed in the U.S. dropped to 22 in 1983 with only 7 built in 1984. There was no demand, so there was no need for a supply of newbuilding vessels and barges. Construction of tugs in the U.S. remained at this low level up until about 1989-90 when 14 tugs were on order as of January 1990. Foreign operators also went through a similar, although, not as dramatic, downturn.

U.S. Fleet Number of Tugs/Towboats by Year Built



Credit: U.S. Coast Guard Database 03/07

The lingering effect of that “boom and bust” time continues to ripple through our maritime industry today. As the market started improving in the late 1980's and early 90's there was no ready source of tugs to expand the fleet, replace older tonnage, and replace those vessels either lost or sold abroad. Due to the Jones Act, we cannot import foreign built tugs like many countries. Although charter rates and revenues improved from the 1980's slump, owner confidence and day rates remained below the levels required to justify most newbuildings. As the market improved, instead of building new tugs, older vessels were repowered or refurbished and put into service, even

converting some older single screw ex-Coast Guard and Navy tugs to twin screw and developing “combi-tugs” by fitting single screw boats with high horsepower azimuthing bow thrusters or azimuthing stern drives. This need to rebuild older vessels to fulfill the demand for boats is the main reason why the U.S. sea-going tug fleet is ten years older than worldwide average fleet of twenty-four years. Age though does not necessarily reflect the quality of the fleet. Many U.S. tugs have been rebuilt and repowered several times during their long lifetime as requirements changed for higher horsepower, more maneuverability, lower emissions or alternate trades.



25 Largest Sea-Going Tug Fleets According to HP Sorted By Age

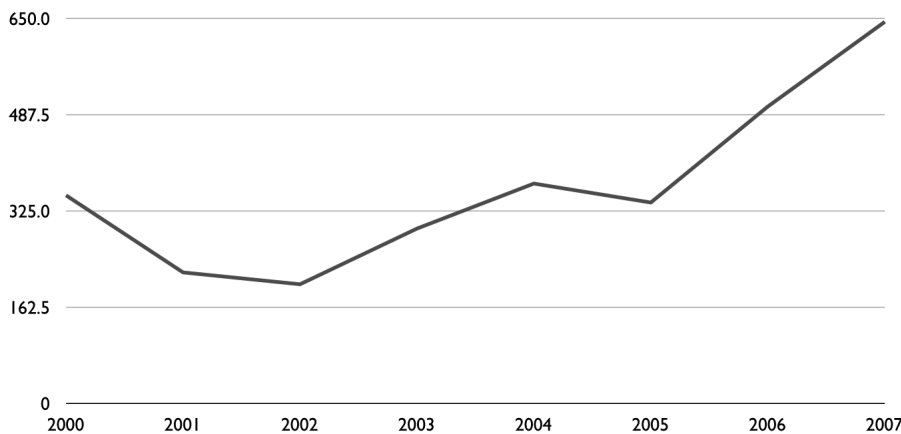
Avg. Age	Flag	Total BHP	% World-wide Fleet	No. Tugs	% World-wide Fleet	Avg. BHP
8	Singapore	1,371,404	4.88%	602	5.12%	2,278
12	Malaysia	570,515	2.03%	302	2.57%	1,889
17	Indonesia	1,772,099	6.30%	1,156	9.83%	1,533
18	Japan	2,389,280	8.50%	880	7.48%	2,715
18	India	571,467	2.03%	246	2.09%	2,323
20	U.A.E.	334,083	1.19%	129	1.10%	2,590
20	St. Vincent	329,721	1.17%	118	1.00%	2,794
21	Saudi Arabia	374,965	1.33%	128	1.09%	2,929
22	South Korea	942,255	3.35%	376	3.20%	2,506
22	Australia	453,139	1.61%	154	1.31%	2,942
22	Turkey	319,782	1.14%	143	1.22%	2,236
23	Netherlands	326,162	1.16%	126	1.07%	2,589
24	Russia	738,812	2.63%	301	2.56%	2,455
24	China (PRC)	737,313	2.62%	241	2.05%	3,059
24	U.K.	623,672	2.22%	235	2.00%	2,654
24	Spain	507,654	1.81%	192	1.63%	2,644
24	Mexico	408,856	1.45%	137	1.16%	2,984
27	Italy	810,530	2.88%	306	2.60%	2,649
27	Venezuela	275,278	0.98%	143	1.22%	1,925
27	Iran	269,525	0.96%	140	1.19%	1,925
28	Egypt	282,868	1.01%	116	0.99%	2,439
29	Panama	950,706	3.38%	299	2.54%	3,180
34	United States	4,139,738	14.72%	1,425	12.12%	2,905
38	Canada	462,247	1.64%	188	1.60%	2,459
39	Brazil	356,108	1.27%	135	1.15%	2,638
24	Worldwide	28,116,599	100.00%	11,760	100.00%	2,391

This lack of regular newbuildings over the years created a situation where there are few willing sellers of good marketable second-hand tugs today. Suitable candidates for refurbishing are even scarce. Many owners will now only consider selling a tug provided they can earn a premium. Prices for second-hand vessels soared and motivated Buyers today must pay two or maybe three times what a similar tug sold for five years ago. In past “*Tug Market Reports*”, Marcon was able to state that average “official” asking prices for various horsepower ranges had, for example, risen 5%, fallen 13% or stayed flat. We can no longer do that with any reliability, as most of today’s sellers are not interested in posting official prices. Some Owners, while inviting “best offers” now only “float” a number out there for us to indicate “as brokers only”, but not as an official number to be published. With most listings we can now only give “indications” and “price guidance” while Owners hide their numbers behind a broker’s shield. We actually recommend this to many Owners when listing equipment for sale in volatile and especially upward trending markets. It is always difficult to increase a published price if a particular market sector has a further upswing or if a Seller ends up with two or more Buyers in a rare “bidding war”.

Marcon currently has 25 tugs listed world-wide between 4,000 and 5,000BHP with only two official prices quoted. Of 61 tugs for sale between 3,000BHP and 4,000BHP only four have official quoted prices.

I tried to develop meaningful figures for this Conference to compare dollars per horsepower paid for all of the tugs sold by Marcon since 2000, without giving away actual prices and confidential information. After looking at the spreadsheets, I found, as expected, that not only were we dealing with “apples and oranges”, but we were also probably throwing in a few “bananas and cherries” into the mix with single and twin screw boats, foreign and U.S. flags, different ages, different Owner’s circumstances and obviously varying conditions. Even with all this mix, we still can see a trend. Buyers are definitely paying more for their horsepower.

Marcon Average Tug Sale Price per BHP



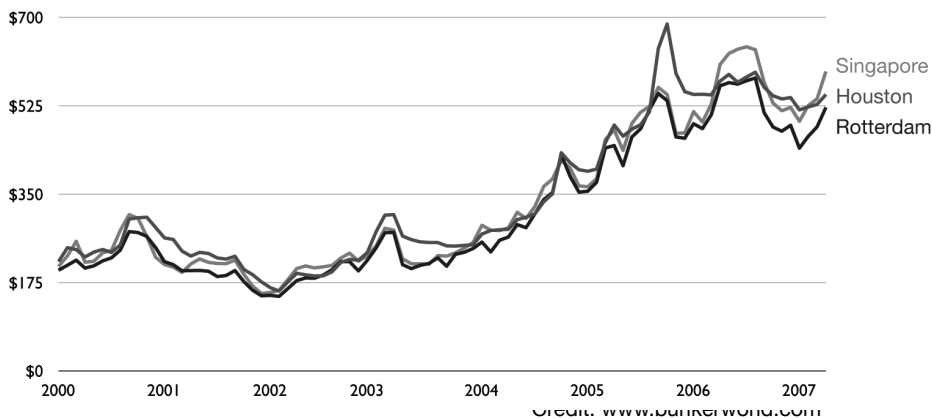
	Actual Sales Price / BHP	Average Age
2000	\$352	33
2001	222	37
2002	202	36
2003	296	33
2004	372	30
2005	340	36
2006	502	36
2007	645	29

I believe we have reached or are very close to reaching the plateau on prices for second-hand tugs, in both domestic and international markets.

Fuel Costs

The cost of fuel is a critical factor in shaping the towing industry of the future. Just as we all endure daily at the gas pump, the price of marine diesel is also up. In January 2000, the price of marine diesel in Houston was US\$ 217.50 per metric ton, peaking in October 2005 at over three-times that level at US\$ 687.67 per metric ton. As of 30th April the price for MDO was US\$ 560 per metric ton. Operators in Rotterdam who were used to paying US\$ 200 per ton at the beginning of 2000 now have to dig deep into their pockets, paying by the end of April US\$ 529.50 per ton.

Historic Bunker Prices (MDO)

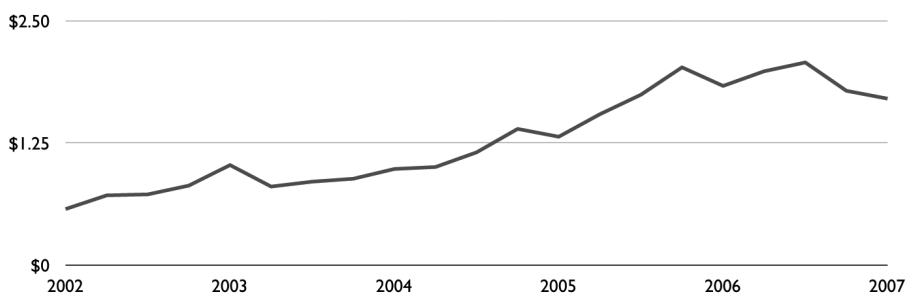


The highest price now being paid, according to Bunkerworld, is US\$ 620/mt at Fujairah in the Arabian Gulf.

In the United States, Kirby Corp. of Houston, TX paid an average of US\$ 0.58 per gallon for diesel during the first quarter of 2002. This peaked the third quarter of 2006 at US\$ 2.08 per gallon, slipping to \$1.71 per gallon of fuel consumed for the first quarter of 2007. The cost of fuel in the future is not expected to improve and is something we are going to have to live with. One European operator commented that fuel costs are killing many medium to long towages for MDO/MGO burning tugs and in fact only the offshore market seems willing to pay these exorbitant consumable costs. Keep in mind that other traditional competing modes of transportation are also affected. The same amount of fuel will still take a cargo ton much further on the water than it will by road, rail or air. The demand for better fuel economy will continue to be a key factor in shaping the design of tugs, barges and diesel engines themselves over the next fifteen years.

Most U.S. rail shipments are now subject to a mileage-based fuel surcharge, which is indexed to the price of on-highway retail diesel.

Kirby Marine Average Cost/Gallon Fuel



Manpower

People, or the lack thereof, will have a dramatic affect on the towing industry and tug design in the future. We have an aging workforce and a critical shortage of marine personnel. Advertisements by operators looking for entry-level and licensed crew are in just about every marine trade journal you pick up. Gulf Coast companies have placed “Help Wanted” billboards alongside freeways. Training programs offered in conjunction with maritime schools and major operators are expanding. Recruiters are even trying to “poach” crews right off tugs just back from a run. Everyone is facing manpower issues – not just in the towing industry. This is a long-term problem and although crew wages are rising, the problem cannot be solved just by throwing money at it.

Along with the population as a whole, the U.S. labor force is getting older. The Bureau of Labor Statistics projected the median age of the U.S. worker next year to be nearly 41. Over 40% of the workforce will be 45 and older in 2008 and the number of workers 25 – 44 years old will actually decline. By 2030, 24.2% of the population will be 65 or older, compared to only 15.6% in 2000.

Age is only a small part of the problem – there have always been “old timers” in this industry. Finding skilled people to work on the boats is getting harder. Tug companies compete with supply boat operators, drilling companies, shipyards and others recruiting from the same shrinking manpower pool.

More certificates, licenses and training are also being required, and although more companies and schools are helping, much of it is at the time and expense of the seafarer. Long hours and time away from families put a strain on relationships plus licensed personnel can also now face potential criminal or civil liability. An incident can not only cost a Captain or a Mate his or her license and livelihood, but also leave them open to being declared criminally negligent or a defendant in civil lawsuit. This is not just a problem in the United States, but worldwide.




Summary

Despite the challenges, the towing industry in the United States is definitely healthy. Financially, this is seen in the day rates, utilization and revenues reported. From a broker's perspective, it is also apparent by the lack of surplus tugs and barges for sale.

When discussing newbuilding tugs, Marcon is regularly asked whether this could be the start of another "boom or bust" period as experienced in the 1970's and 80's. My answer, for the U.S. tug market, is "no". Tugs under construction and on-order in the United States at this moment only represent approximately 2-3% of the total fleet, 4-5% of our "sea-going" tugs, and 7-8% of the total horsepower. Newbuildings will continue at a strong pace for the near term. Demand for tugs is still greater than supply. This will eventually level out to where the pace of newbuildings reaches a balance with those tugs that are retired, lost or sold abroad, and new equipment required for future business.

Buyers of second-hand equipment and owners building new tugs and barges now pay a "premium". The premium will continue over the next two or three years because of shipyard backlogs and the operator's immediate demand for the equipment. Several owners have recently admitted paying well over what they felt was "fair market price" for a particular tug or barge, but it was required for projects "now", not tomorrow, and not in two years.

Greater use of waterborne transportation represents the future for developed and developing countries to get cargo off of congested highways and rails. Tugs and barges move more freight per mile using less fuel and with fewer emissions than land transport. For countries to continue their growth and simultaneously reduce "greenhouse gases", they require a strong, innovative maritime industry. Marcon expects the U.S. tug fleet to continue to grow in numbers and horsepower over the next decade. Now is a good time for companies to rebuild, explore new technologies and position themselves for the years to come. 

Appendix A

Latest Breakdown of Current U.S. Commercial Shipbldg. Deck Barge Contracts

Shipbuilder	Location	Type	Customer	Yard # or Status	Description	Delivery
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	775	120 ft.	2007
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	776	120 ft.	2007
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	777	120 ft.	2007
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	778	120 ft.	2007
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	779	195 ft.	2007
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	780	120 ft.	2007
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	781	120 ft.	2007
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	782	120 ft.	2007
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	783	120 ft.	2007
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	784	120 ft.	2007
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	785	120 ft.	2007
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	786	120 ft.	2007
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	787	120 ft.	2007
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	788	120 ft.	2007
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	789	120 ft.	2007
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	790	120 ft.	2007
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	791	120 ft.	2007
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	792	120 ft.	2007
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	793	120 ft.	2007
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	794	120 ft.	2007
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	795	120 ft.	2007
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	Option	120 ft.	
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	Option	120 ft.	
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	Option	120 ft.	
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	Option	120 ft.	
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	Option	120 ft.	
Conrad Industries	Morgan City LA	Deck Barge	Undisclosed	Option	120 ft.	
Conrad Industries	Morgan City LA	Deck Barge	Arkhola Sand & Gravel	803	200 ft.	2007
Gunderson	Portland OR	Deck Barge	Crowley Maritime	Firm	400 ft. by 105 ft.	2007
Gunderson	Portland OR	Deck Barge	Crowley Maritime	Firm	400 ft. by 105 ft.	2007
Orange Shipbuilding	Orange TX	Deck Barge	Undisclosed	366	120 ft.	2007
Orange Shipbuilding	Orange TX	Deck Barge	Undisclosed	368	120 ft.	2007
Orange Shipbuilding	Orange TX	Deck Barge	Undisclosed	369	120 ft.	2007
Orange Shipbuilding	Orange TX	Deck Barge	Undisclosed	371	120 ft.	2007
Orange Shipbuilding	Orange TX	Deck Barge	Undisclosed	372	120 ft.	2007
US Barge	Portland OR	Deck Barge	Young Bros.	Firm		Sep '07
US Barge	Portland OR	Deck Barge	Young Bros.	Firm		2008
US Barge	Portland OR	Deck Barge	Young Bros.	Firm		2008
US Barge	Portland OR	Deck Barge	Young Bros.	Firm		2008

Appendix B

Latest breakdown of Current U.S. Commercial Shipbldg. Tug Contracts

Shipbuilder	Location	Type	Customer	Yard # or Status	Name	Description	Price (\$mm)	Delivery
Bender Shipbuilding	Mobile AL	Tug	OSG America	7800		12,000 hp		2007
Bender Shipbuilding	Mobile AL	Tug	OSG America	7900		12,000 hp		2008
Bender Shipbuilding	Mobile AL	Tug	OSG America	8000		12,000 hp		2008
Bender Shipbuilding	Mobile AL	Tug	OSG America	8015		12,000 hp		2008
Bender Shipbuilding	Mobile AL	Tug	OSG America	8016		12,000 hp		2009
Bender Shipbuilding	Mobile AL	Tug	OSG America	Firm		12,000 hp		2009
Bender Shipbuilding	Mobile AL	Tug	OSG America	Firm		12,000 hp		2010
Bender Shipbuilding	Mobile AL	Tug	OSG America	Firm		12,000 hp		2010
Chiasson Welding	Larose LA	Tug	Brice Construction	Firm		84-ft.		2007
Eastern Shipbuilding	Panama City FL	AHT	Harvey Gulf Marine	Firm		16,500-hp		Sep '07
Eastern Shipbuilding	Panama City FL	Tug	Seabulk International	Firm		96 ft., 5,000 hp		2006
Eastern Shipbuilding	Panama City FL	Tug	Seabulk International	Firm		96 ft., 5,000 hp		2007
Eastern Shipbuilding	Panama City FL	Tug	Seabulk International	Firm		96 ft., 5,000 hp		2007
Eastern Shipbuilding	Panama City FL	Tug	Seabulk International	Firm		96 ft., 5,000 hp		2007
Eastern Shipbuilding	Panama City FL	Tug	Seabulk International	Firm		96 ft., 5,000 hp		2007
Eastern Shipbuilding	Panama City FL	Tug	E. N. Bisso & Son	Firm		96 ft., 4,000 hp		2007
Eastern Shipbuilding	Panama City FL	Tug	E. N. Bisso & Son	Firm		96 ft., 4,000 hp		2007
Eastern Shipbuilding	Panama City FL	ATB Tug	U. S. Shipping	Firm				3Q '08
Eastern Shipbuilding	Panama City FL	ATB Tug	U. S. Shipping	Firm				4Q '08
Erie Shipbuilding	Erie PA	Icebkr Tug	Undisclosed			130 ft.		
Erie Shipbuilding	Erie PA	Icebkr Tug	Undisclosed			130 ft.		
Erie Shipbuilding	Erie PA	Icebkr Tug	Undisclosed			130 ft.		
Foss Shipyards	Seattle WA	Tug	AMNAV	Firm	Independe- nce	78 ft., 5,080-hp		Mar '07
Foss Shipyards	Seattle WA	Tug	AMNAV	Firm	Freedom	78 ft., 5,080-hp		Sep '07
Foss Shipyards	Seattle WA	Tug	AMNAV	Firm	America	78 ft., 5,080-hp		Jan '08
Gladding-Hearn	Somerset MA	Tug	Wilmington Tug	Firm		80-ft., 4720-bhp		Jan '08
Lockport Fabrication	Lockport LA	Tug	Russell Plaisance	Firm		84-ft.		2007
Main Iron Works	Houma LA	Tug	Bay-Houston Towing	Firm	Wesley A	98 ft., 6,300 hp		2007
Main Iron Works	Houma LA	Tug	Suderman & Young	Firm	Thor	98 ft., 6,300 hp		2007
Main Iron Works	Houma LA	Tug	Bisso Towboat	Firm		100 ft., 4,300 hp		Late '07
Martinac Shipbuilding	Tacoma WA	Tug	Sause Bros.	Firm	Mikiona	3,750-hp		Dec '06
Martinac Shipbuilding	Tacoma WA	Tug	Sause Bros.	Firm	Cochise	3,750-hp		Mar '07
Martinac Shipbuilding	Tacoma WA	Tug	Signet Maritime	Firm		6,220-hp	9.0	Nov '07
Martinac Shipbuilding	Tacoma WA	Tug	Signet Maritime	Firm		6,220-hp	9.0	Feb '08
Nichols Bros.	Freeland WA	Tug	Bay Delta Marine	Firm		100 ft.		Jun '07
Nichols Bros.	Freeland WA	Tug	Bay Delta Marine	Firm		100 ft.		Sep '07
Nichols Bros.	Freeland WA	Tug	Minette Bay	152		100 ft.		Dec '07

Appendix B (cont.)

Shipbuilder	Location	Type	Customer	Yard # or Status	Name	Description	Price (\$mm)	Delivery
Orange Shipbuilding	Orange TX	Tug	So. Puerto Rico Tow	383	Hector P	4,200 hp	6.0	2007
Orange Shipbuilding	Orange TX	Escort Tug	Bay-Houston Towing	391		98-ft., 7,500 hp		2008
Orange Shipbuilding	Orange TX	Escort Tug	Suderman & Young	392		98-ft., 7,500 hp		2008
Patti Shipyard	Pensacola FL	Tug	Express Marine	167		102 ft., 3,000-hp		Aug '07
Rodriguez Shipbuild	Bayou La Batre	Tug	Dann Marine Towing	Firm	Atlantic Coast	3,000 hp		May '07
Rodriguez Shipbuild	Bayou La Batre	Tug	Garber Bros. Towing	250		75 ft.		Jul '07
Rodriguez Shipbuild	Bayou La Batre	Tug	B. & B. Marine	252		66 ft.		Sep '07
Rodriguez Shipbuild	Bayou La Batre	Tug	Branko, Inc.	253		70 ft.		Sep '07
VT Halter Marine	Pascagoula MS	Tug	Crowley Marine	Firm	Resolve	9,280 hp		1H '07
VT Halter Marine	Pascagoula MS	Tug	Crowley Marine	Firm	Commitment	9,280 hp		2H '07
VT Halter Marine	Pascagoula MS	Tug	Crowley Marine	Firm	Courage	9,280 hp		1H '08
VT Halter Marine	Pascagoula MS	Tug	Crowley Marine	Firm	Integrity	9,280 hp		2H '08
VT Halter Marine	Pascagoula MS	Tug	Crowley Marine	Firm	Pride	9,280 hp		1H '09
VT Halter Marine	Pascagoula MS	Tug	Crowley Marine	Firm	Achievement	9,280 hp		2H '09
VT Halter Marine	Pascagoula MS	Tug	Crowley Marine	Firm	Innovation	9,280 hp		1H '10
VT Halter Marine	Pascagoula MS	Tug	Crowley Marine	Firm	Vision	9,280 hp		2H '10
Wahl Marine, Fred	Reedsport OR	Tug	Ruby Marine			72 ft., 1,500 hp		Apr '07
Washburn & Doughty	E. Boothbay ME	ATB Tug	Moran Towing	Firm		5,100 hp		Jun '07
Washburn & Doughty	E. Boothbay ME	ATB Tug	Moran Towing	Firm		5,100 hp		May '08
Washburn & Doughty	E. Boothbay ME	Tug	Moran Towing	Firm		92 ft., 5,100 hp		Mar '08
Washburn & Doughty	E. Boothbay ME	Tug	Moran Towing	Firm		92 ft., 5,100 hp		Jun '08
Washburn & Doughty	E. Boothbay ME	Tug	Moran Towing	Firm		92 ft., 5,100 hp		Sep '08
Washburn & Doughty	E. Boothbay ME	Tug	Moran Towing	Firm		92 ft., 5,100 hp		Dec '08
Washburn & Doughty	E. Boothbay ME	Tug	Moran Towing	Firm		92 ft., 5,100 hp		Mar '09
Washburn & Doughty	E. Boothbay ME	Tug	Moran Towing	Firm		92 ft., 5,100 hp		Jun '09
Western Towboat	Seattle WA	Tug	Western Towboat	Firm		120 ft., 4,200 hp		2007

Credit: Marine Log and Colton Co.