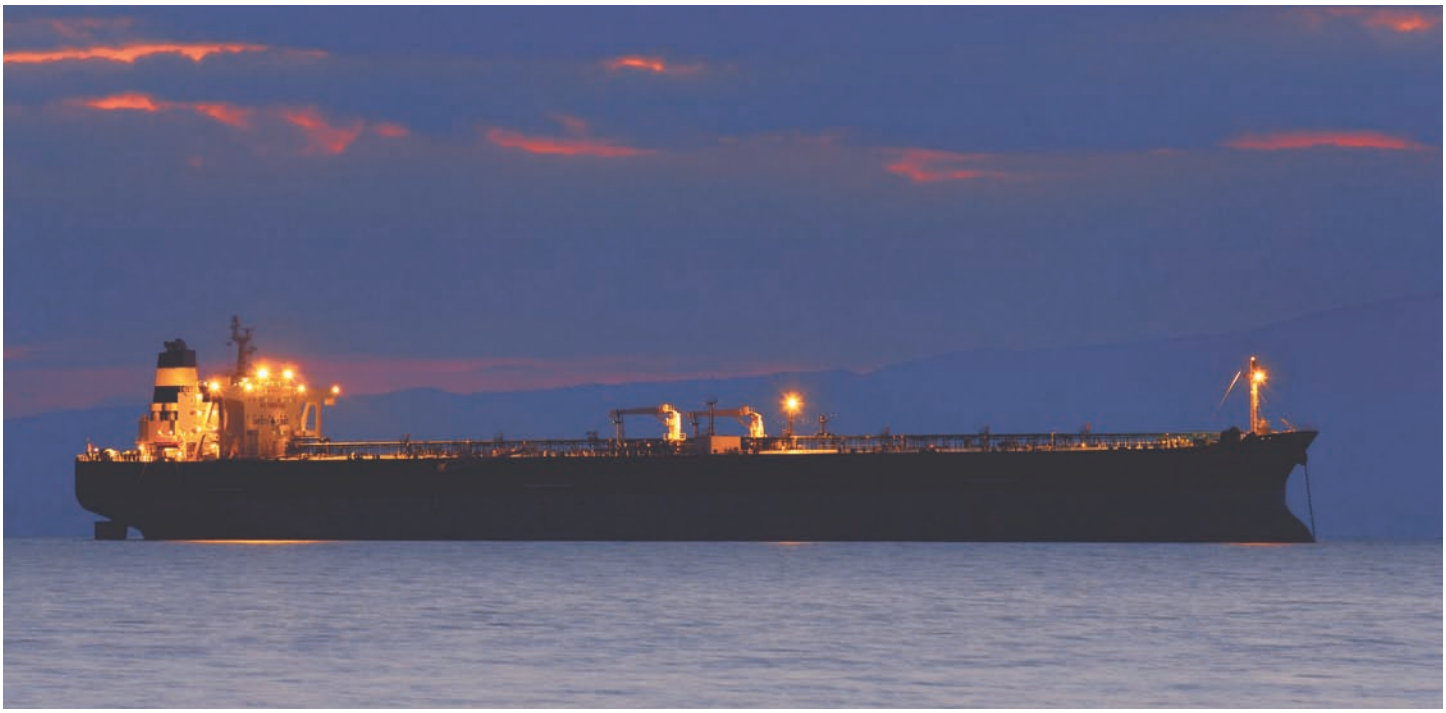


Oil Spills in U.S. Waters

energy API

AMERICAN PETROLEUM INSTITUTE

About this Report

Oil spills covered in this report are those related to U.S. navigable waters alone. This report, based on data compiled by the U.S. Coast Guard, discusses oil spills occurring in – or reaching – navigable waters under U.S. jurisdiction, including bays, harbors, rivers, lakes, sounds, and oceans up to 200 miles from shore. To ensure accurate, consistent and comparable responses, API attempted to verify all spills of more than 10,000 gallons in local newspapers and trade publications such as the *Oil Spill Intelligence Report* and *Golob's Oil Pollution Bulletin.*

Oil Spills in U.S. Waters

Every day, a network of tanker ships, pipelines and trucks safely delivers millions of gallons of oil and natural gas to fuel the American economy. New technologies and better training yield continual improvements as we strive to conserve valuable energy resources and protect our Nation's health and environment through spill prevention. And, when spills occur, the United States enjoys world-leading preparedness planning and response capabilities to minimize environmental harm.

Legislative and regulatory actions provide a foundation for effective response and mitigation. For example, Congress passed the Oil Pollution Act of 1990 (OPA '90) to further refine and enhance U.S. spill prevention and response capabilities. Since passage of OPA '90:

- Federal agencies have issued 41 new rules regarding pollution prevention, preparedness and response.

- The petroleum industry has spent over $17 billion to ensure compliance with the new regulations.

- By 2015, all tankers and barges operating in U.S. waters will feature double hulls. This design protects oil cargo, contained within the inner hull, in the event of a breach in the outer hull.

Interpreting Trends in Spill Data

Year-to-year comparisons in spills data are challenging because one or two large spills can raise the total *volume* of product released higher than average even for a year, even if the total number of spills was lower than average in that year. Therefore, to better illuminate trends, some data will be broken out in terms of averages for 1997-2001 and 2002-2006.

- The average number and volume of spills has continued to decline. However, average numbers of spills from less than 10 gallons continue to rise and average volume of spills from 100,000 gallons or more continue to account for the majority of spill volume to U.S. Navigable waters.

- In 2004, there was an 828 percentage increase in the volume of spills from 100,000 gallons or more from the previous year. Separate incidents accounted for this sharp increase:

    - A barge spill of over 151,000 gallons of naphtha oil was spilled on the Houston ship channel.

    - A tanker spill of over 263,000 gallons of crude oil on the Delaware River.

    - A tanker spill of over 219,000 gallons of other oil on the Atlantic Ocean.

    - A freighter spill of over 321,000 gallons of fuel oil on the north shore of Unalaska Island.

- In 2005, an unknown facility source spilled 110,000 gallons of crude oil on the Kentucky River.

- In 2006, Barges accounted for 22 percent of all spills while onshore facilities accounted for 65 percent of all spills (see Figure 4). There was also an onshore spill of over 144,000 gallons of waste/lubricant oil on the CC Corpus Christi Bay.

- There was a 91 percent drop in spill count and a 25 percent drop in spill volume from 2005 to 2006.

Figure 1
Average Amount Spilled in U.S. Navigable Waters

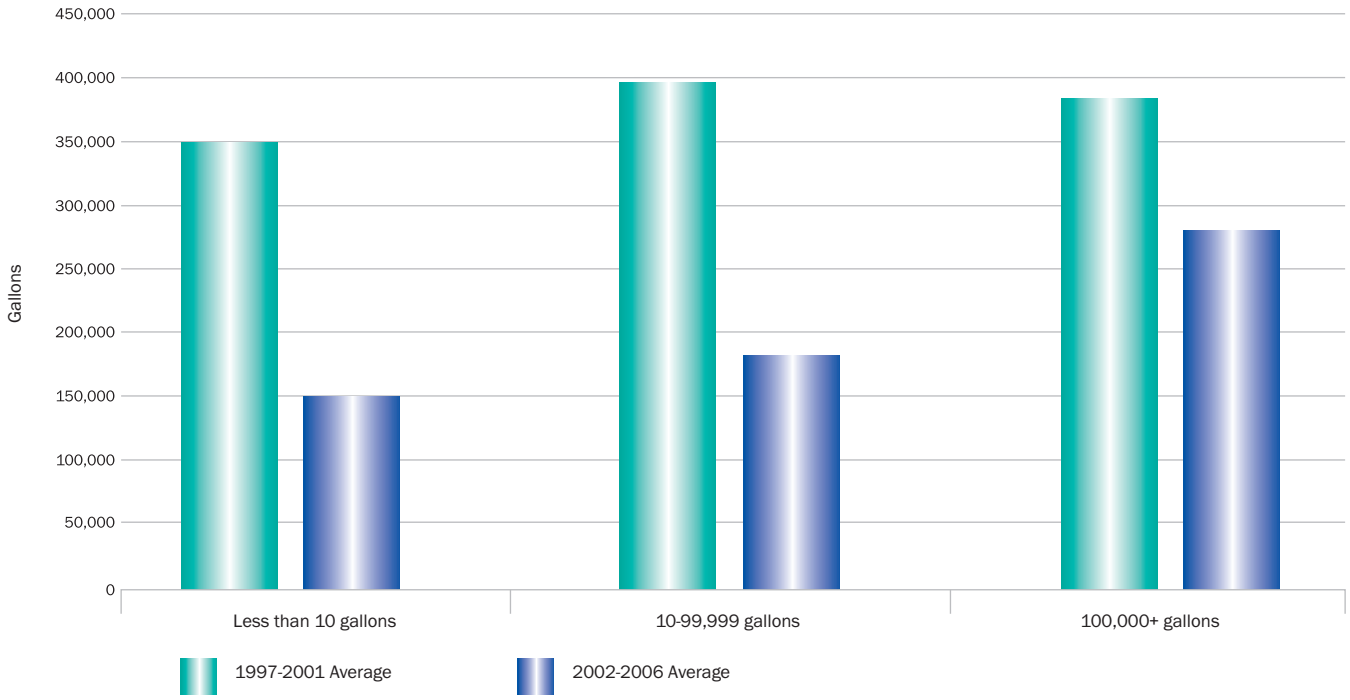


Figure 2
Average Number of Spills in U.S. Navigable Waters

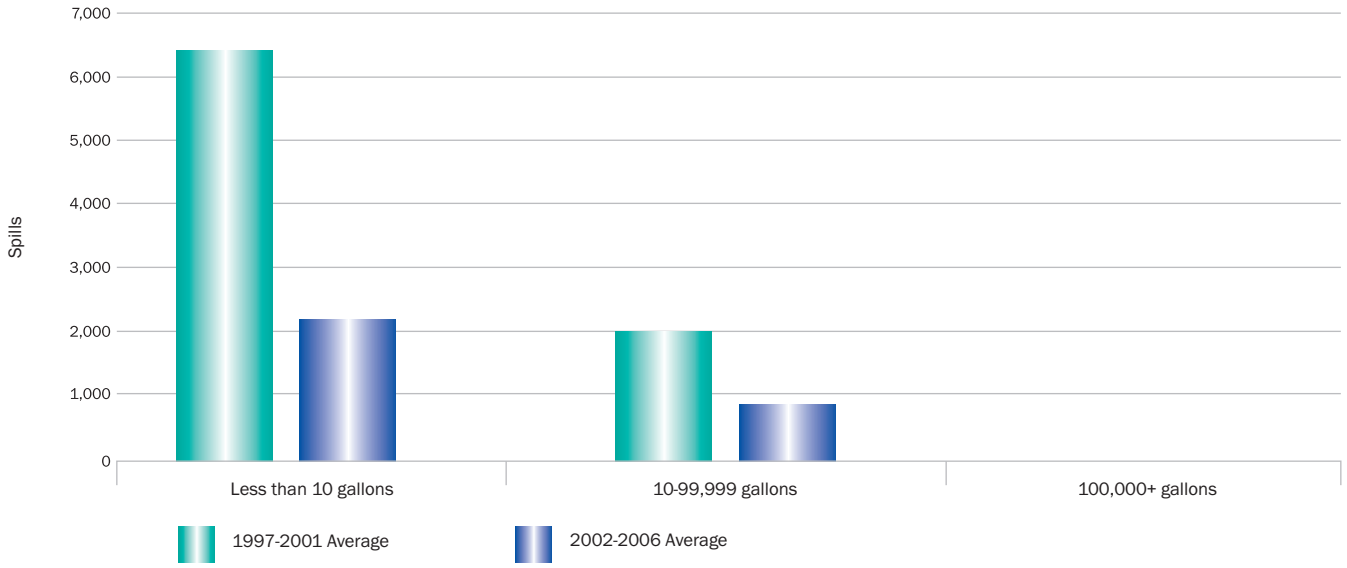


Figure 3

Number of Spills in U.S. Navigable Waters by Source: 2006

Total number of spills = 312

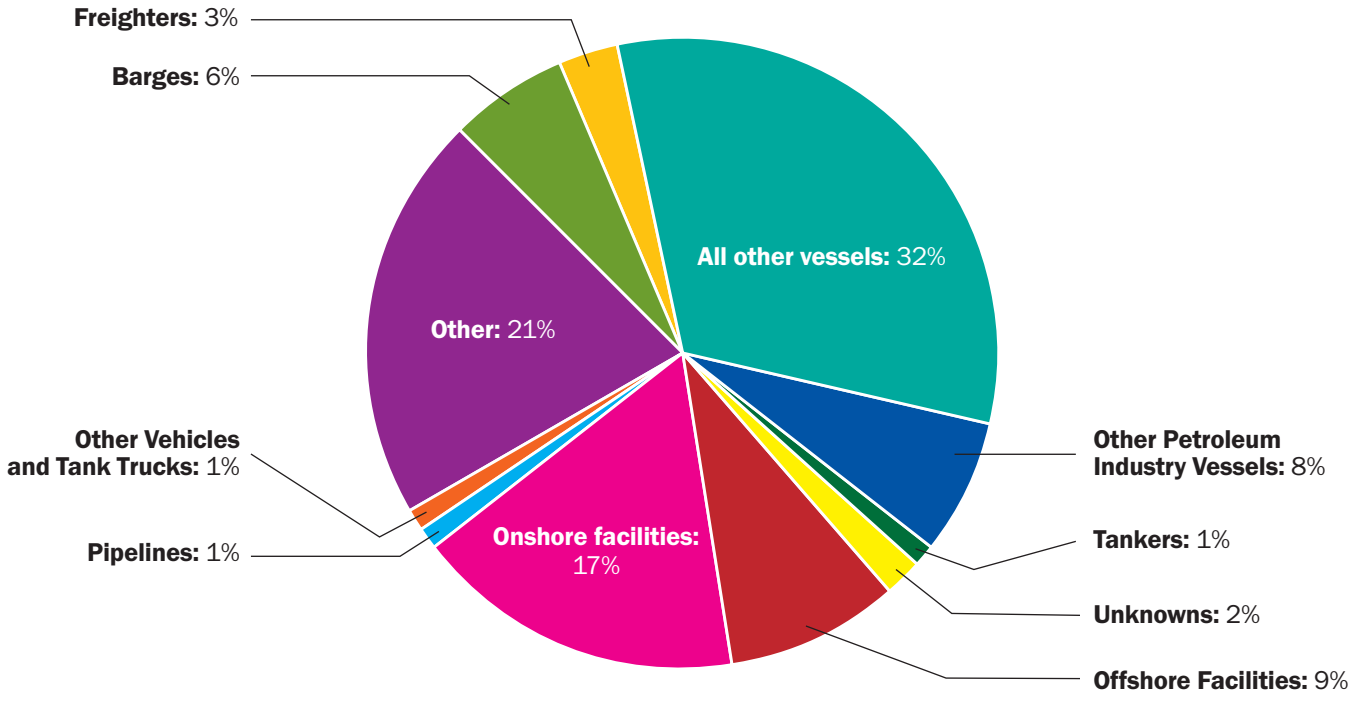


Figure 4

Volume of Spills in U.S. Navigable Waters by Source: 2006

Total amount spilled = 237,574 gallons

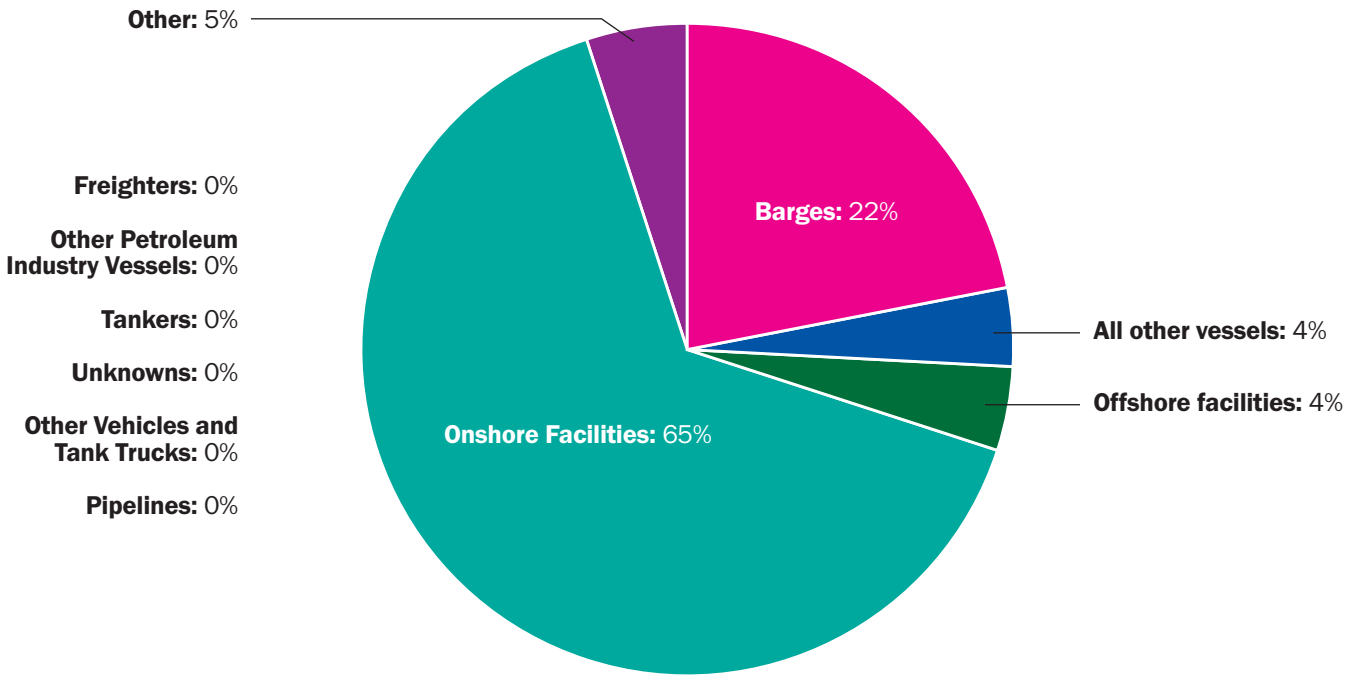


Figure 5
Amount Spilled in U.S. Navigable Waters by Vessels

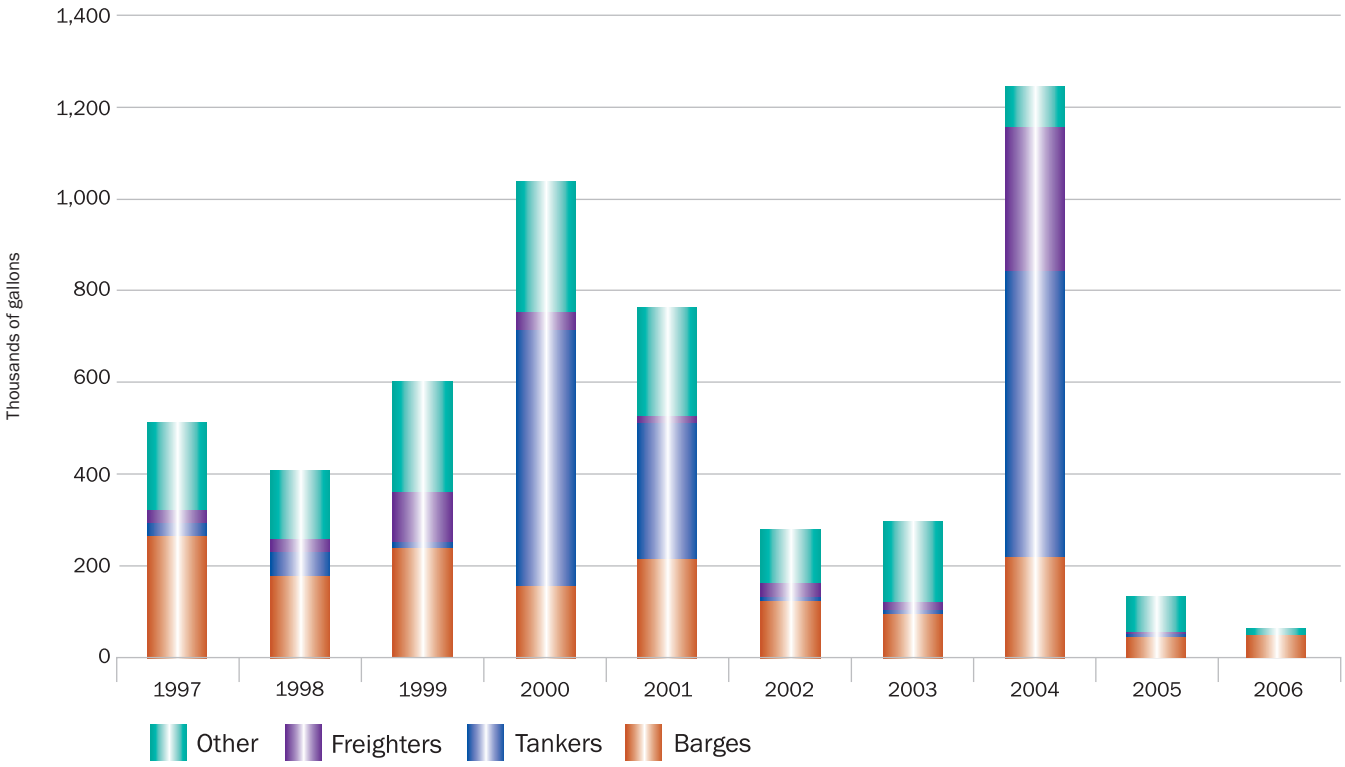
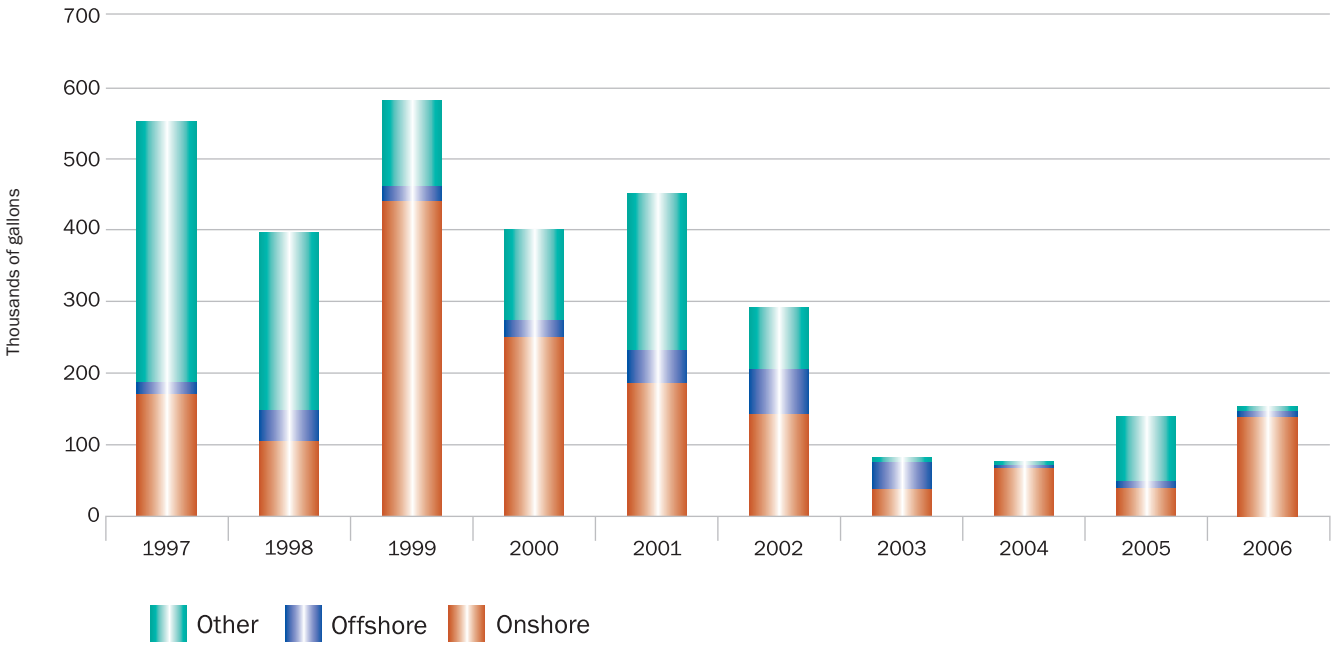


Figure 6
Amount Spilled in U.S. Navigable Waters by Facilities



The last row of Tables 1 through 7 represents the percentage change between the first half and the second half of the decade covered by this report, percentage changes are based on exact averages and, in some cases, may not agree with the rounded averages shown in the tables.

- In 2006, more than 50 percent of spills were less than 10 gallons. Between 1997 and 2005, over 70 percent of spills were less than 10 gallons (see Table 1).
- In 2006, the total volume of oil spilled was 238 thousand gallons (see Table 2). It is important to note that the occurrence of one or two large spills – large spills are defined as spills of 10,000 or more gallons – in a given year can significantly increase the total amount spilled for that particular year.
- Between 2002 and 2006, an average of 620 thousand gallons of oil was spilled each year, compared with 1,100 thousand gallons spilled between 1997 and 2001, a decrease of 45 percent (see Table 2)

Table 1:
Total Number of Oil Spills by Size: 1997-2006 (in gallons)

Year	Under 10 gallons	10-999 gallons	1,000-9,999 gallons	10,000-99,999 gallons	100,000+ gallons	Total
1997	6,539	1,833	72	17	1	8,462
1998	6,415	1,850	77	7	2	8,351
1999	6,628	1,945	75	13	1	8,662
2000	6,407	1,817	78	10	2	8,314
2001	6,442	2,117	77	18	2	8,656
2002	3,142	1,077	52	11	1	4,283
2003	3,012	991	33	7	1	4,044
2004	2,623	936	36	6	4	3,605
2005	2,392	899	32	4	1	3,328
2006	164	140	7	1	2	314
1996-2000	6,510	1,918	76	13	2	8,518
2001-2005	2,267	809	32	6	2	3,115
% Change	-65%	-58%	-58%	-55%	0%	-63%

Table 2:
Total Volume of Oil Spills by Size: 1997-2006
(in thousands of gallons)

Year	Under 10 gallons	10-999 gallons	1,000-9,999 gallons	10,000-99,999 gallons	100,000+ gallons	Total
1997	12.0	121.0	207.0	501.0	210.0	1,051.0
1998	12.0	123.0	231.0	124.0	310.0	800.0
1999	13.0	124.0	192.0	569.0	285.0	1,183.0
2000	12.0	127.0	219.0	370.0	713.0	1,441.0
2001	12.9	149.2	204.1	414.0	422.9	1,203.1
2002	5.7	85.5	130.0	357.2	104.9	683.2
2003	5.1	79.7	116.1	207.8	102.9	511.5
2004	4.1	69.2	84.2	236.0	955.2	1,348.6
2005	3.9	63.0	78.4	60.3	110.0	315.5
2006	0.3	22.9	21.3	49.1	144.0	237.6
1997-2001 Average	12	129	211	396	388	1,136
2002-2006 Average	4	64	86	182	283	619
% Change	-69%	-50%	-59%	-54%	-27%	-45%

In 2004, 44 percent of the total number of spills originated from vessels (see Figure 5, Table 3) and accounted for 93 percent of the total volume of spills. Approximately 50 percent of this volume came from tankers, 28 percent from freighters and 17 percent from barges. In this 10-yr period, vessels recorded an all time low in 2006 accounting for 26 percent of total volume of spills. However, between 2002 and 2006, 66 percent of the total number of spills originated from vessels and 24 percent of the spills came from facilities compared to 58 percent from vessels and 42 percent from facilities between 1997 and 2001 (see Table 3).

The volume of oil spilled by vessels in 2006 amounted to over 62 thousand gallons, a decrease of 55 percent from the previous year (see Table 3).

Table 3:
Total Number and Volume of Oil Spills by Source: 1997-2006 (in thousands of gallons)

Year	Number from Vessels	Number from Facilities	Number from Others	Total Number	Volume from Vessels	Volume from Facilities	Volume from Others	Total Volume
1997	5	3	0	8	483.0	568.0	0.0	1,051.0
1998	5	3	0	8	403.0	396.0	0.0	799.0
1999	6	3	0	9	599.0	583.0	0.0	1,182.0
2000	6	3	0	8	1,039.0	401.0	0.0	1,440.0
2001	5	3	0	9	749.2	450.9	2.0	1,203.1
2002	2	1	1	4	290.2	289.8	103.1	683.2
2003	2	1	1	4	305.9	74.4	131.3	511.5
2004	2	1	1	4	1,247.6	73.7	27.3	1,348.6
2005	2	1	11	3	138.0	153.9	23.7	1,348.6
2006	0	0	0	0	62.6	163.5	11.5	237.6
1997-2001 Average	5	3	0	9	655	480	1	1,135
2002-2006 Average	1	1	1	3	409	151	59	619
% Change	-75%	-67%		-63%	-38%	-69%		-45%

Table 4:
Number of Oil Spills from Vessels by Size: 1997-2006
(in gallons) (with vessel kinds from "Other")

Year	Under 10 gallons	10-999 gallons	1,000-9,999 gallons	10,000-99,999 gallons	100,000+ gallons	Total
1997	3,963	1,254	43	8	0	5,268
1998	3,987	1,193	39	3	1	5,223
1999	4,363	1,311	43	9	0	5,726
2000	4,306	1,212	43	9	1	5,571
2001	4,170	1,245	42	10	2	5,469
2002	1,250	579	31	4	1	1,865
2003	1,088	566	17	4	1	1,676
2004	1,055	510	21	5	4	1,595
2005	1,036	515	18	4	0	1,573
2006	76	73	2	1	0	152
1997-2001 Average	4,158	1,243	42	8	1	5,451
2002-2006 Average	901	449	18	4	1	1,372
% Change	-78%	-64%	-58%	-54%	50%	-75%

Between 1996 and 2005, Barges, Freighters and Tankers accounted for over 70 percent of vessel spills. In 2006, majority of vessel spills came from Barges which accounted for 81 percent of vessel spills (see Table 5 and Figure 5).

Table 5:

Volume of Oil Spills from Vessels by Source: 1997-2006

(in thousands of gallons)

Year	Barges	Freighters	Tankers	All other Vessels*	Unknown Vessels	Total
1997	277.0	20.0	23.0	112.0	29.0	461.0
1998	172.0	21.0	41.0	113.0	44.0	391.0
1999	227.0	120.0	7.0	106.0	61.0	521.0
2000	126.0	33.0	602.0	215.0	42.0	1,018.0
2001	211.7	9.7	293.8	168.2	65.9	749.2
2002	124.5	26.3	4.6	129.5	5.4	290.2
2003	92.0	22.2	2.5	185.9	3.3	305.9
2004	215.3	348.9	613.8	68.3	1.2	1,247.6
2005	55.5	6.6	3.1	71.7	1.0	138.0
2006	51.0	0.5	0.1	10.9	0.1	62.6
1997-2001 Average	203	41	193	143	48	628
2002-2006 Average	108	81	125	93	2	409
% Change	-47%	99%	-35%	-35%	-95%	-35%

* All other vessels include commercial, fishing, industrial, oil recovery, passenger, public freight, public other, recreational and research vessels, public tank ships, school ships, tugboats and towing vessels.

Table 6:

Number of Oil Spills from Facilities by Size: 1997-2006

(in gallons) (with facility kinds from "Other")

Year	Under 10 gallons	10-999 gallons	1,000-9,999 gallons	10,000-99,999 gallons	100,000+ gallons	Total
1997	2,576	579	29	9	1	3,194
1998	2,428	657	38	4	1	3,128
1999	2,265	634	32	4	1	2,936
2000	2,101	605	35	1	1	2,743
2001	2,281	875	35	8	1	3,200
2002	1,116	321	17	5	0	1,459
2003	995	235	11	1	0	1,242
2004	914	252	10	1	0	1,177
2005	815	231	8	0	1	1,055
2006	45	45	3	0	1	94
1997-2001 Average	2,330	670	34	5	1	3,040
2002-2006 Average	777	217	10	1	0	1,005
% Change	-67%	-68%	-71%	-73%	-60%	-67%

In the current 5-yr period, the year 2002 and 2006 saw the highest volume of spills from onshore facilities accounting for 49 percent and 93 percent of all facility spills respectively. In 2006, one large spill of size 100 thousand or more gallons occurred from an onshore facility on the 1st of June. This onshore facility spilled over 144 thousand gallons of oil (waste/lubricants) on the CC Corpus Christi Bay accounting for 61 percent of all spills. In 2005, unknown facility types accounted for 72 percent of all facility spills. The unknown facility spills occurred on the 26th of January from a facility on the Kentucky River. This unknown facility spilled 110,000 gallons of crude oil (see Figure 4 and Table 7).

In the current five year period (2001-2005), pipelines, railroads and other facilities did not play a major role in oil spills compared to the previous five year period. Pipelines accounted for less than 1% of facility spills, with an average of 421 gallons per year, compared to 123 thousand gallons per year between 19967 and 2001, a decrease of almost a 100% (see Table 7).

In 2006, Diesel Oil accounted for majority of the total number of spills with 27 percent of all spills. 85 percent of this spill came from vessels. On the other hand, Other Oil accounted for the highest volume of spills with 61 percent of all spills. As mentioned above, these spills came from an onshore facility on the 1st of June on the CC Corpus Christi Bay (see Table 8).

Table 7:
Volume of Oil Spills from Facilities by Source: 1997-2006
(in thousands of gallons)

Year	Airports	Deep Water Ports	Offshore	Onshore	Pipelines	Railroads	Other Facilities	Other Vehicles*	Unknown	Total
1997	1.0	0.0	13.0	175.0	267.0	4.0	92.0	1.0	12.0	565.0
1998	1.0	0.0	25.0	106.0	204.0	0.0	17.0	1.0	32.0	386.0
1999	0.0	0.0	11.0	426.0	39.0	1.0	46.0	1.0	47.0	571.0
2000	2.0	0.0	11.0	256.0	99.0	0.0	14.0	1.0	8.0	391.0
2001	0.8	0.0	31.3	193.3	8.2	0.5	140.2	12.5	64.1	450.9
2002	0.0	0.0	63.2	141.2	0.1	0.0	0.1	6.2	79.0	289.8
2003	0.2	0.0	35.8	34.8	0.2	0.0	0.0	0.7	2.8	74.4
2004	0.0	0.0	9.8	60.6	0.0	0.1	0.0	1.6	1.5	73.7
2005	0.0	0.0	8.3	33.1	0.6	0.0	0.0	0.7	111.2	153.9
2006	0.9	0.0	9.4	151.6	1.2	0.0	0.0	0.2	0.3	162.6
1997-2001 Average	1.0	0.0	18.0	231.0	123.0	1.0	62.0	3.0	33.0	473.0
2002-2006 Average	0.0	0.0	25.0	84.0	0.0	0.0	0.0	2.0	39.0	151.0
% Change	-76%		39%	-64%	-100%	-99%	-100%	-44%	19%	-68%

* Other vehicles includes tank trucks and passenger cars.

Table 8:
Nature of Oil Spills: 2006 (volume in gallons)

Material	Number from Vessels	Number from Facilities	Number from Others	Total Number	Volume from Vessels	Volume from Facilities	Volume from Others	Total Volume
Crude Oil	4	41	2	47	1,152.10	5,883.40	626.00	7,661.50
Diesel Oil	71	6	7	84	10,022.20	2,034.10	787.80	12,844.10
Fuel Oil	22	5	3	30	1,391.50	21.30	405.00	1,817.80
Gasoline	8	3	1	12	49,217.60	466.30	23.00	49,706.90
Hydraulic Fluid or Oil	10	7	0	17	20.20	13.40	0.00	33.60
Jet Fuel	1	0	1	2	0.30	0.00	600.00	600.30
Miscellaneous Oil**	13	6	2	21	246.60	1,032.30	10.60	1,289.50
Oil-related Chemicals∞	15	8	2	25	104.60	7,931.90	5.50	8,042.00
Other Oil*	1	5	0	6	300.00	144,723.60	0.00	145,023.60
Other Oil w/No Chris Codes	5	4	3	12	113.00	336.60	25.10	474.70
Unknowns	1	2	53	56	1.00	0.20	10,079.10	10,080.30

** Miscellaneous Oil includes lubricating, motor, road, gas and mineral.
∞ Oil-related chemicals incude drilling mud, benzene, isooctane, glycol mixture/crude, ammonium polyphosphate solution and tar balls
* Other oils includes oil, waste/lubricants.

In the current five year period, there were spills from other sources which did not fall in either Vessels or Facilities. Spills from these sources were on average, less than 1 thousand gallon per year in number and volume, less than 1 percent of all spills.

Reasons for the Drop in Spills from 2002 to Current

- There was a catastrophic failure of the main Coast Guard Oil spill database (MSIS) in November 2001 which resulted in data loss. As a result, there was a transfer of data to a new database (MISLE) in December of 2001. The new database was rushed to production, with conversions from the format of the old database to the new database format.

- There was an emphasis change in the collection of data: Priority changed from capturing data to investigating data which occurs when the data is collected. In addition, only larger spills (10 percent of all spills) are investigated while smaller spills (90 percent of all spills) are not. Small spills not accounted for in the Coast Guard database could possibly raise the occurrence and volume of smaller spills.

- Notices of spills are entered into the database but are not necessarily investigated. Moreover, if spills are not investigated, they are not counted in the Coast Guard pollution database.

- The Coast Guard system is being modified as time progresses. Enforcement actions against spillers are being taken; if the spiller is known, a Coast Guard hearing officer enforces the spiller to clean up the spill and in most cases, the spiller is fined. Therefore, over time, comparability of spills is more accurate.

Technical Notes

While these data generally track Coast Guard data, there are some differences. For example, where API's analysis shows there has been double-counting, it has been corrected. Also, API has not counted non-petroleum spills – for example, vegetable oil spills – that the Coast Guard includes.

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Table Notes

The Coast Guard updated its 1996 database. Therefore, figures for 2001 may differ from those reported in the eight annual edition of the *Petroleum Industry Environmental Performance Report*.

Spill volume totals may not equal the sum of their components due to independent rounding. In tables showing total volumes of spills, a value of zero represents less than 500 gallons.

Definitions

Aircraft: Airplanes, helicopters, etc.

Barges: Flat-bottomed boats built with tanks for transporting petroleum.

Freighters: Ships that transport non-petroleum products – for example, corn.

LOOP: Louisiana Offshore Oil Port, a man-made port in the Gulf of Mexico.

Natural seep: Place where oil naturally oozes from the ground to form a pool or sheen.

Offshore facilities: Drilling rigs and related production facilities located seaward of the coastline and in inland bodies of water.

Offshore vessels: Ships that carry supplies and other materials to and from offshore facilities.

Onshore facilities: Structures on land that handle petroleum products, including refineries, storage tanks, marketing terminals, and drilling rigs.

Other facilities: Includes the following Coast Guard facility categories – artificial islands, bridges, locks, permanently moored, and not elsewhere classified.

Other vessels: Ships not engaged in transporting petroleum as cargo that, nonetheless, have oil on board – for example, tugboats and fishing boats.

Pipelines: Series of pipes with pumps, valves, and control devices that transport crude oil or petroleum products.

Railroads: Railroad cars with tanks that carry petroleum products as cargo.

Tankers: Large marine vessels with tanks that carry liquid cargo such as crude oil and gasoline.

Tank trucks: Trucks with tanks that carry liquid cargo such as gasoline.

Unknown: Sources of spills that cannot be defines further due to missing or incomplete Coast Guard records.

Vehicles: Motor vehicles not engaged in transporting petroleum as cargo that, nonetheless, has oil on board.

AMERICAN PETROLEUM INSTITUTE
STATISTICS

Adebukola Adefemi
1220 L Street, NW
Washington, DC 20005-4070
USA

Phone: 202-682-8548
Email: adefemia@api.org

www.api.org

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