



Recreational Boating Damages Due to the *Cosco Busan* Oil Spill

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prepared for:

Cosco Busan Natural Resource Damage Assessment

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INTRODUCTION On November 7, 2007, the *Cosco Busan* struck the Bay Bridge in San Francisco Bay, spilling approximately 58,000 gallons of intermediate fuel oil. The oil spill resulted in closures of marinas, oiling of vessels, and the disruption of recreational boating activity. In addition, the State of California closed the marine fishery within three nautical miles of the outer coast from Point Reyes to San Pedro Point, including San Francisco Bay.

The Trustees retained Industrial Economics, Incorporated (IEc) to estimate the magnitude of impacts to recreational boaters. Our analysis relies on existing information combined with site-specific data collected in response to the oil spill. This report summarizes our approach for estimating impacts to recreational boaters based on these data.

IEc estimated recreational boating impacts in three stages:

- 1) We estimated baseline boating activity. Baseline represents the number of boating trips that would have occurred in the absence of the oil spill.
- 2) We estimated the number of boating trips that were lost due to the spill. Impacted trips equal the difference between baseline trips and the number of boating trips that were actually taken during the oil spill impact period.
- 3) We estimated the economic value associated with the lost trips.

We describe each component of the analysis below.

**ESTIMATING
BASELINE TRIPS** IEc estimated baseline boating activity based on data collected during an on site study conducted from November 14 – 17, 2009. IEc sampled boating activity at 10 marinas located throughout San Francisco Bay. Marinas were selected for inclusion in the sampling effort based on location within the Bay, the presence of vantage points for observing boats entering the marina, number of slips, and receipt of permission to conduct on-site sampling. As part of the sampling effort, we recorded the number of boat trips and classified various attributes of those trips. Data were obtained by direct observation of boating activity and through interviews with a sample of boaters. Exhibit 1 summarizes information about the location and sampling methodology for each marina included in the study. Attachment A summarizes the survey methodology.

EXHIBIT 1: MARINA SAMPLING LOCATIONS

MARINA	LOCATION	NUMBER OF SLIPS	COUNT	INTERVIEW
1. Loch Lomond Marina	San Rafael	512	Yes	Yes
2. Marina Bay Yacht Harbor	Richmond	850	Yes	Yes
3. Berkeley Marina	Berkeley	1,100	Yes	Yes
4. Richardson Bay Marina	Sausalito	221	No	Yes
5. Clipper Yacht Harbor	Sausalito	700	Yes	No
6. Ballena Isle Marina	Alameda	515	Yes	No
7. Grand Marina	Alameda	400	No	Yes
8. San Francisco Marina Yacht Harbor	San Francisco	686	Yes	Yes
9. Brisbane Marina	Brisbane	574	Yes	Yes
10. Redwood City Yacht Harbor	Redwood City	185	Yes	Yes

DEVELOPING BASELINE USE FROM SURVEY DATA

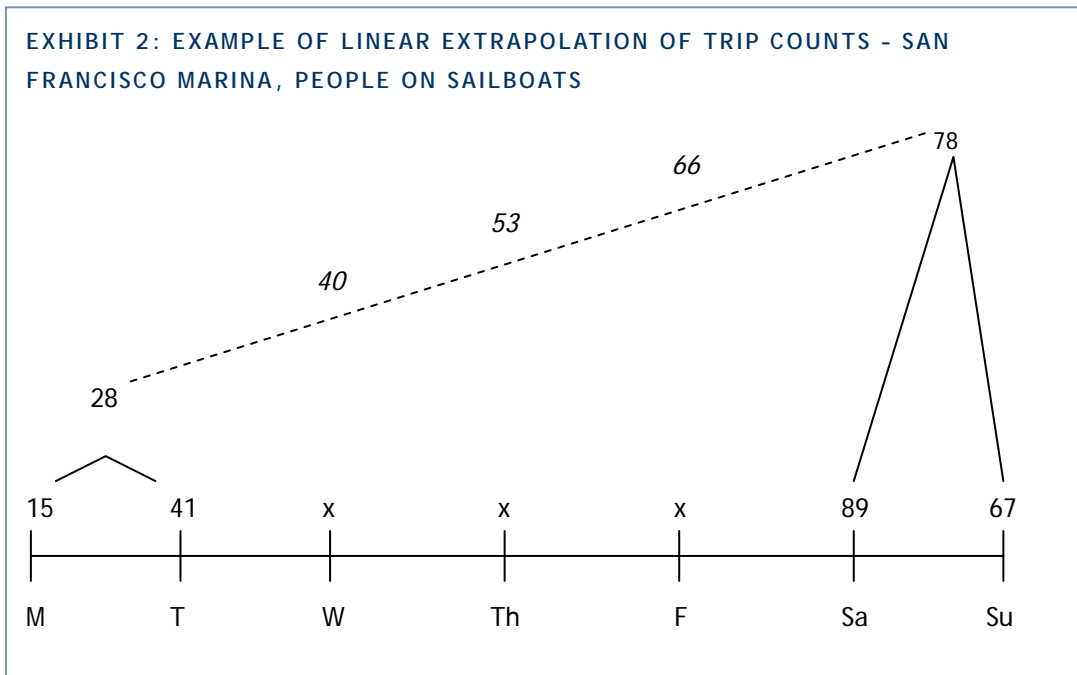
We used the 2009 data to estimate boating activity that would have occurred in the absence of the oil spill. However, since we collected the 2009 on-site survey data over a limited period of time and at a subset of the marinas in San Francisco Bay, we addressed several gaps in the data. Specifically, we accounted for (1) un-sampled days of the week, (2) weather, and (3) un-sampled marinas. In addition, we account for differences in marina-specific attributes such as marina size and other factors that may affect the number of boating trips. Below, we describe the primary adjustments we made to the on-site study data to facilitate application of survey results throughout the Bay.

Un-Sampled Days of the Week

The 2009 study collected data on four consecutive days: Saturday, Sunday, Monday, and Tuesday. Since we did not sample on Wednesday, Thursday, or Friday, we evaluated how to account for the un-sampled days. Based on a review of the 2009 data and scoping surveys conducted in 2008, we adjusted the data to reflect expected changes in activity on each day of the week. Specifically, we estimated daily use at each marina under the assumption that boating activity was lowest on Monday and Tuesday and highest on Saturday and Sunday. Next, we fitted a linear model to the 2009 data to estimate boating activity on Wednesday, Thursday, and Friday.¹ Exhibit 2 provides an example of how

¹ As part of the 2008 shoreline survey, the Trustees conducted a limited scoping survey of boating activity at Richmond Marina and Berkeley Marina. The survey was conducted on Friday, Saturday, Sunday, and Monday (November 7-10). Consistent with the results of the 2009 survey, boating activity was the lowest on Monday and highest on Saturday and Sunday. The 2008 data show boating activity on Friday was about 20 percent lower than the weekend average and approximately three times greater than the number of trips observed on Monday. These results are

this adjustment accounts for expected variation in boating activity for each day of the week. We performed this adjustment for each marina included in the 2009 on-site study.



Weather

All other things being equal, more boating activity occurs when weather conditions are favorable. Since the weather during 2009 differed from the weather that occurred during the oil spill impact period, it is necessary to adjust the on-site counts to account for this difference.

Using data from IEC's 2008 shoreline survey, we estimate how shoreline visitation varies with changes in weather and day of the week.² This involves predicting visitation in both 2007 and 2009. Next, we match comparable days in 2007 and 2009 and calculate an associated weather ratio for each day during the spill impact period. Exhibit 3 provides the weather adjustment developed for the boating analysis.

consistent with data collected in 2009 and support the use of a linear extrapolation model. The 2008 survey data are not used directly in our analysis of boating impacts due to the limited number of sites surveyed and slight differences in the survey methodology. Both sites included in the 2008 study were re-sampled in 2009 to ensure consistency with the data obtained from the other study sites.

² See Appendix G. *Baseline Shoreline Use Estimates for the Cosco Busan Oil Spill Damage Assessment* October 31, 2010.

EXHIBIT 3: WEATHER ADJUSTMENT

DATE 2009	PREDICTED COUNTS 2009	DATE 2007	PREDICTED COUNTS 2007	WEATHER RATIO
November 11	14,290	November 7	7,390	0.52
November 12	8,158	November 8	8,000	0.98
November 13	8,016	November 9	9,045	1.13
November 14	13,157	November 10	6,402	0.49
November 15	13,942	November 11	13,253	0.95
November 16	8,958	November 12	15,126	1.69
November 17	8,352	November 13	9,600	1.15
November 18	7,984	November 14	11,543	1.45
November 19	8,672	November 15	8,631	1.00
November 20	3,231	November 16	8,016	2.48
November 21	12,356	November 17	12,797	1.04
November 22	12,388	November 18	13,531	1.09
November 23	9,219	November 19	8,373	0.91
November 24	10,295	November 20	8,527	0.83
November 25	10,745	November 21	9,624	0.90
November 26	15,068	November 22	15,136	1.00
November 27	11,046	November 23	18,038	1.63
November 28	15,949	November 24	14,052	0.88
November 29	17,145	November 25	14,391	0.84
November 30	9,433	November 26	8,942	0.95
December 1	9,064	November 27	9,498	1.05
December 2	6,888	November 28	9,717	1.41
December 3	7,697	November 29	8,523	1.11
December 4	7,329	November 30	7,241	0.99
December 5	11,618	December 1	11,707	1.01
December 6	8,608	December 2	13,454	1.56
December 7	5,113	December 3	9,628	1.88
December 8	6,425	December 4	6,092	0.95
December 9	6,090	December 5	8,181	1.34
December 10	5,588	December 6	6,172	1.10
December 11	4,930	December 7	6,331	1.28

Note: Yellow highlighting indicates weekend days and holidays

Un-Sampled Marinas

IEc's 2009 on-site study collected data at 10 marinas located through San Francisco Bay. To develop an estimate of baseline boating activity, we assume that marinas that are closely located to one another exhibit similar rates of use. Therefore, we apply the trip rates observed at sampled marinas to unsampled marinas that are located in the same area. Exhibits 4 and 5 detail the marina groupings.

EXHIBIT 4: MAP OF BAY AREA MARINA GROUPINGS



EXHIBIT 5: BAY AREA MARINA GROUPINGS

GROUP NAME	SURVEYED MARINA	ASSOCIATED MARINAS
North Marin County	Loch Lomond Marina	Lowrie Yacht Harbor Marin Yacht Club San Rafael Yacht Harbor Martinez Marina Vallejo Municipal Marina
South Marin County	Clipper Yacht Harbor	Galilee Harbor Sausalito Marine Harbor Presidio Yacht Club Marina Corinthian Yacht Club Pelican Yacht Harbor Arques Shipyard & Marina Marina Plaza Yacht Harbor Schoonmaker Marina San Francisco Yacht Club Paradise Cay Yacht Harbor Richardson Bay Marina Sausalito Yacht Harbor
San Francisco	San Francisco Marina	Treasure Island Marina Pier 39 Marina SBC Park Marina (Pier 38) South Beach Harbor
South Central San Francisco	Brisbane Marina	Oyster Cove Marina Oyster Point Marina Park Coyote Point Marina
South San Francisco	Redwood City Yacht Harbor	Redwood Landing Marina Bair Island Marina Docketown Pete's Yacht Harbor Peninsula Marina
North East Bay	Berkeley Marina/Marina Bay Yacht Harbor	Richmond Yacht Harbor Channel Marina Point San Pablo Yacht Harbor Brickyard Cove Marina Emery Cove Marina Emeryville Marina

GROUP NAME	SURVEYED MARINA	ASSOCIATED MARINAS
South East Bay	Ballena Isle Marina	Portobello Marina Mariner Square North Basin Union Point Basin Fifth Avenue Marina Embarcadero Cove Marina Central Basin Jack London Square Marina Oakland Yacht Club Pacific Marina San Leandro Marina Grand Marina Fortman Marina Alameda Marina Marina Village Yacht Harbor Fernside Marina

Marina-Specific Adjustments

As described above, we used data from sampled marinas to estimate boating activity associated with unsampled locations. In addition to the adjustments outlined above, we normalized the data to account for marina-specific differences that affect trip rates as follows:

- The physical size of a marina significantly affects the number of boats that complete trips on any given day. When estimating the number of boating trips at one marina based on data from another marina, it is important to account for the size of each marina. We adjusted for marina size by calculating the number of trips per slip for the sampled marinas. The resultant trip *rate* is then used to estimate the total number of boat trips at other marinas in the same vicinity, where the total number of boat trips for marina *i* equals the applicable trip rate multiplied by the number of slips at marina *i*.
- Marinas that have boat ramps will have higher trip rates relative to marinas that do not have boat ramps. To account for this difference, we sampled trip rates at marinas with boat ramps and recorded any vessels that used the boat ramp at the completion of their trip. We adjusted the trip rate when applying sample data across marinas that have dissimilar vessel access options.
- Many marinas in San Francisco Bay are occupied to capacity. However, a survey of marinas in the northern and southern sections of the Bay indicates some marinas have slips available for rent. Where data indicated that slips were available, we adjusted the trip estimate for the marina to reflect the number of occupied slips.

Attachment B provides the trip rates for each marina and each day for the period November 7 to December 7, 2007.

BASELINE RESULTS

Using data from the 2009 survey in conjunction with the adjustments described above, we estimate the number of boating trips that would have occurred in the absence of the spill. We estimate baseline activity for the period November 7 to December 7, 2007. Our estimate reflects the total number of individuals participating in sail-boating, motor-boating, and other types of boating originating from marinas. Exhibit 6 summarizes baseline boating trips by mode.

EXHIBIT 6: BASELINE BOAT TRIPS - NOVEMBER 7 - DECEMBER 7, 2007

	ESTIMATED BOATING TRIPS	LESS BOAT-BASED ANGLERS ^a	BASELINE BOATING TRIPS
Sailboats	30,996	NA	30,996
Motorboats	32,693	(10,184)	22,509
Other	288	NA	288
Total	63,172	(10,184)	53,793

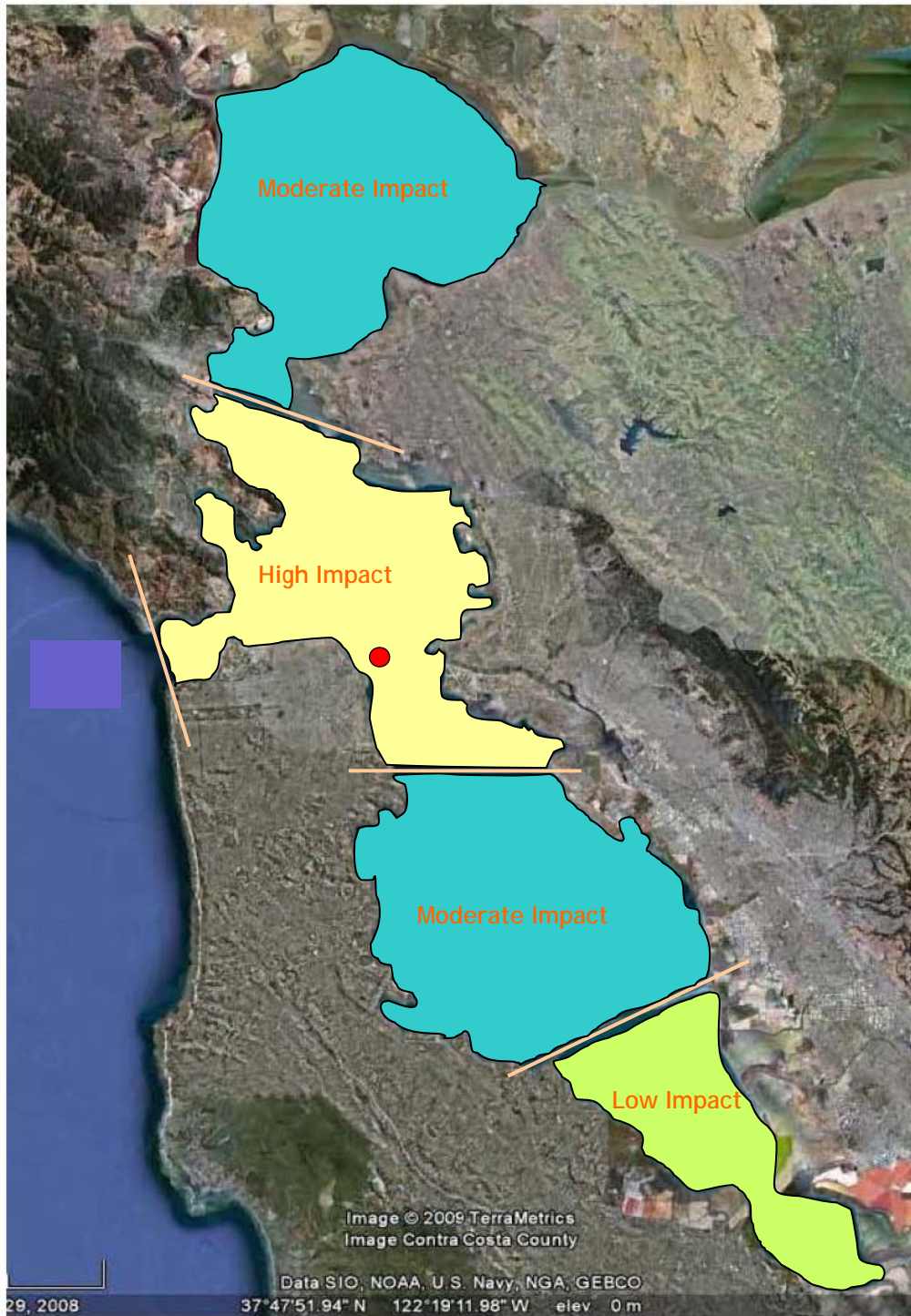
^a Boat-based anglers have been removed from the baseline trip estimate because impacts to anglers are addressed through a separate analysis. Data for this adjustment were obtained from the California Recreational Fishing Survey for November and December 2005 and 2006, and are adjusted to account for the fraction of each month affected by the oil spill.

ESTIMATING SPILL-IMPACTED TRIPS We estimate the change in boating trips for 30-days following the spill based on information such as marina closures, regatta cancellations, and data that describe the distribution of oil on shorelines. The process for determining the number of lost boating trips consists of estimating the severity of impacts in different parts of the Bay and calculating the reduction in boating trips from baseline in each area. We also make marina-specific adjustments where appropriate to account for boating impacts that were not accounted for in the baseline data. We describe each step in the analysis below.

IMPACTS

Within San Francisco Bay, oil from the *Cosco Busan* spread throughout the central portion of the Bay and north to Point Pinole. The oil also spread out of the Bay north and south along the outer coast. Based on spill records and other information gathered subsequent to the spill, we divided the Bay into three impact areas for boaters. The impact areas – designated Low, Moderate, and High – generally reflect the severity of oiling throughout the Bay and the associated reactions of boaters and marina operators in each area. Exhibit 7 depicts the impact areas.

EXHIBIT 7: IMPACT AREAS



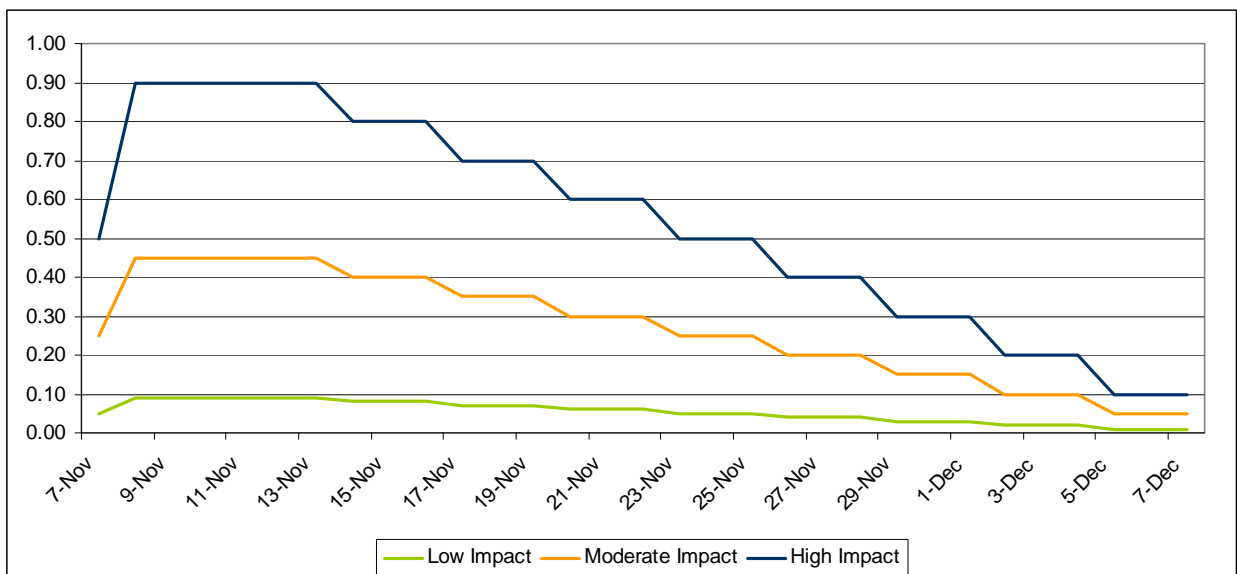
● *Cosco Busan* point of impact with Bay Bridge (approximate)

For each impact area, we derived a loss function that reflects available information on oil spill impacts. The greatest impacts occurred in the central section of the Bay due to the presence of oil in and on the water and associated response activities. During the first several days of the spill, several marinas in the central section of the Bay were physically closed due by containment boom and many of these marinas remained closed through November 15. Similarly, several scheduled sailing events in the central portion of the Bay were cancelled as a result of the spill. During this initial period, boaters in the central section of the Bay were also faced with the added expense of cleaning their hulls if oil was encountered on a trip. Once oil was no longer present on the surface of the water and marinas were reopened, we expect boating activity to steadily increase until it reached baseline levels. In comparison, little oil reached the northern section of the Bay, and no oil was found in southern section. Boaters in these areas continued to have access to recreational opportunities, but they likely reduced the frequency of their trips due to widespread media coverage or they may have modified their trips to avoid oiled areas. As a result, we expect relatively modest impacts to boating activity in these areas, with a gradual return to normal activity levels over time.

Losses were calculated for the period of November 7 to December 7, 2007. The impact functions are described below and are shown in Exhibit 8.

- **High Impact:** The high impact function reflects the most severely impact portion of the Bay. This function starts with a 50 percent loss of boating activity on November 7th, followed by a loss of 90 percent for November 8th through the 13th. Starting November 14th, the loss decreases by 10 percent every three days.
- **Moderate Impact:** The moderate impact function follows the same pattern as the high impact category, but is always 50 percent of the value associated with the high impact function.
- **Low Impact:** The low impact function follows the same pattern as the high impact category, but is always 10 percent of the value associated with the high impact function.

EXHIBIT 8: LOSS FUNCTIONS BY IMPACT CATEGORY



As part of our 2009 on-site study, survey respondents provided information on which area of the Bay they visited on their trip. Based on these results, we determine the number of boat trips for each marina that fall into each impact category. Exhibit 9 provides the allocation of boating trips by area visited.

EXHIBIT 9: FRACTION OF TRIPS IN EACH IMPACT CATEGORY

	LOW IMPACT	MODERATE IMPACT	HIGH IMPACT
North Marin County	0.0%	31.3%	68.8%
South Marin County	0.0%	0.0%	100.0%
San Francisco	0.0%	0.0%	100.0%
South Central San Francisco	0.0%	50.0%	50.0%
South San Francisco	77.8%	18.5%	3.7%
North East Bay	0.0%	0.0%	100.0%
South East Bay	0.0%	0.0%	100.0%
% of Total Trips	3.6%	8.9%	87.5%

For each marina, we calculate the number of lost trips on any given day as the product of that day’s baseline trips, the fraction of trips to each impact area, and the applicable value from the loss function.

MARINA-SPECIFIC ADJUSTMENTS

While most of the boating impacts can be determined using the data collected in 2009, several spill-related effects associated with specific marinas were observed in 2007. These impacts are accounted for separately to ensure that observations made concurrently with the spill are accurately represented in the boating analysis. Where appropriate, the 2009 on-site study was designed to avoid potential double-counting of these marina-specific impacts. The following marina-specific adjustments are included in the estimate of impacted boating trips:

- In 2007, we contacted several sailing and boating clubs within San Francisco Bay to determine if the spill had impacted club activities. Some of these organizations reported that specific activities planned by the club were cancelled as a result of the spill. Following a survey of potentially affected organizations, we estimate that 805 marina-specific sailboat trips were lost in November 2007. None of the organizations we contacted reported spill-related impacts in December.
- The Berkeley Racing and Canoe Center provides opportunities for individuals to participate in dragon boat racing and excursions. During the spill, the Berkeley Mariana was closed and the Center cancelled its regularly scheduled dragon boat activities. To evaluate potential impacts to individuals engaged in dragon boating, we collected on-site data to determine the number of impacted trips. Based on these data and information on the frequency of dragon boat activity obtained from the

organization and its web site, we estimate that 288 dragon boat trips were lost in November 2007.

LOST TRIPS RESULTS

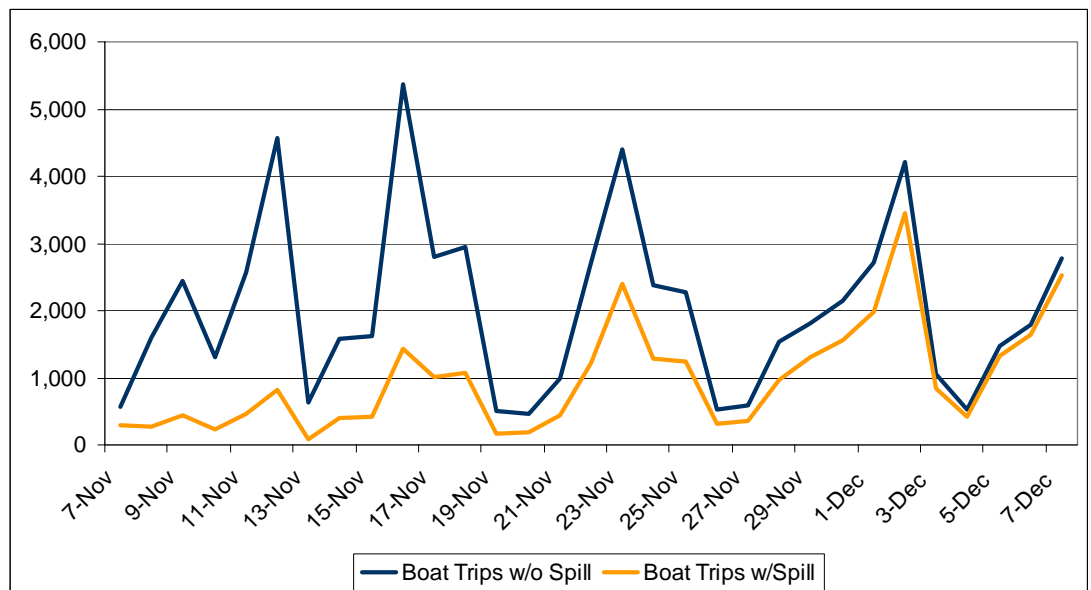
Using data from the 2009 survey in conjunction with the adjustments described above, we estimate the number of boating trips that were lost as a result of the spill. We estimate lost trips for the period November 7 to December 7, 2007. Our estimate reflects the total number of individuals participating in sail-boating, motor-boating, and other types of boating originating from marinas. Exhibit 10 summarizes lost trips by mode. Exhibit 11 shows estimated boating activity with and without the spill.

EXHIBIT 10: TOTAL LOST BOAT TRIPS - NOVEMBER 7 - DECEMBER 7, 2007

	ESTIMATED LOST TRIPS	LESS BOAT-BASED ANGLERS ^a	TOTAL LOST TRIPS
Sailboats	15,748	NA	15,748
Motorboats	17,314	(6,763)	10,551
Other	288	NA	288
Total	33,350	(6,763)	26,587

^a Boat-based anglers have been removed from the baseline trip estimate because impacts to anglers are addressed through a separate analysis. See Exhibit 6.

EXHIBIT 11: BOAT TRIPS



VALUATION We estimate the dollar value of lost boating trips based on benefit transfer. Benefit transfer is the process of adopting trip values from existing literature to fit the conditions associated with the site, activity, and incident of interest. Multiplying the reduction in trips by the loss per trip yields the total loss in dollars. This approach is based on the economic principle of consumer surplus, which measures changes in value associated with changes in the supply and demand of goods and services. The benefit transfer methodology has been used to assess recreational damages in several past oil spills.

To determine the appropriate value to use for the assessment, we reviewed literature on ocean-based sailing and motor-boating. However, due to the small number of studies that evaluate ocean-based boating, we also reviewed the valuation literature for motor boating, canoeing, and other types of boating on lakes and rivers. Based on our review, we selected values from a 2005 study authored by John Loomis. This report compiles consumer surplus estimates for a wide range of outdoor activities, including motor-boating. Loomis reports a mean value of \$52.23 per day for motor-boating (\$2009).

The specific studies that underlie the values reported in Loomis (2005) differ from San Francisco Bay boating in a number of ways. Primary among the differences is that most of the boating activity reported in the literature occurs on inland lakes and rivers. In addition, the boats are typically smaller than those found in San Francisco Bay and none of the studies expressly evaluates oceangoing sailboats. Despite these limitations, Loomis (2005) offers useful guidance regarding the range of values that one might expect to find if an original study was conducted in San Francisco Bay. Specifically, we estimate that recreational sail-boating and motor-boating in San Francisco Bay has a value of \$78 per trip, or 150 percent of the consumer surplus reported in Loomis (2005). We estimate the value of dragon boat trips to be similar to the \$52 per trip reported by Loomis (2005). The upward adjustment from Loomis (2005) reflects the factors outlined above plus a premium that reflects San Francisco Bay’s unique boating conditions.

Exhibit 12 summarizes the total damages associated with spill-related impacts to boating. Total damages are calculated by multiplying the present value lost trips by a per trip value for sailboats, motorboats, and other trips. The present value of the lost trips is calculated by applying a three percent discount rate to the 2007 lost trips.

EXHIBIT 12: SUMMARY OF BOATING IMPACTS

	LOST TRIPS NOV-DEC 2007	PRESENT VALUE LOST TRIPS (NOVEMBER 2009)	VALUE PER TRIP	TOTAL DAMAGES
Sailboats	15,748	16,707	\$78	\$1,228,336
Motorboats	10,551	11,193		\$822,962
Other	288	306	\$52	\$14,976
Total	26,587	28,206		\$2,066,274

REFERENCES

Loomis, J. 2005. Updated Outdoor Recreation Use Values on National Forests and Other Public Lands. United States Department of Agriculture, U.S. Forest Service. General Technical Report PNW-GTR-658.

ATTACHMENT A
2009 ON-SITE STUDY METHODOLOGY

SURVEY METHODOLOGY

The overall goal of the 2009 sampling effort was to record the number of boat trips for each marina included in the sample and to classify various attributes of those trips. During the sampling period, each vessel returning to the marina was observed by field staff. Field staff also conducted brief interviews with a sample of visitors to characterize boating activity.

Visitor Counts

On each sampling day, field staff recorded each vessel that entered the marina from the Bay. The counts were conducted in two shifts covering 7:00 a.m. to 5:30 p.m. The first shift covered five hours, from 7:00 a.m. to 12:00 p.m. The second shift covered 5 ½ hours, from 12:00 p.m. to 5:30 p.m. Observers recorded each vessel as it entered the marina, classifying each by vessel type. Vessels were classified as sailboats, motorboats, personal watercraft or kayaks. In addition, commercial work boats such as Coast Guard, harbor maintenance and law enforcement/marina staff vessels were identified. The number of visible individuals on each vessel was recorded and classified as “Adults” (age 13 and over) and “Children” (infant to age 12). Age classifications were based on visual identification by survey staff.

Visitor Interviews

We conducted interviews at eight marinas: Loch Lomond, Marina Bay, Richardson, Berkeley, San Francisco, Grand, Brisbane, and Redwood City Marinas. Visitor interviews were conducted with one member of each party that departed the marina after completion of a boating trip. When possible, the interview was conducted with the vessel owner or captain. Interviews were conducted in one shift per day starting at 9:00 a.m. and ending at 5:00 p.m.

Interviews consisted of several brief questions designed to characterize various attributes associated with the just-completed trip and the respondents’ general boating activity. Specific information obtained during the interviews includes:

- Areas visited on the just-completed trip;
- Duration of the just-completed trip;
- Number of adults and children on the vessel;
- Type of vessel;
- Length of vessel;
- Number of trips on the vessel in the last 12 months;
- Length of time the individual has kept their vessel at the marina;
- Monthly slip fee (if applicable); and
- Zip code.

ATTACHMENT B
MARINA-SPECIFIC TRIP RATES

EXHIBIT B1: ESTIMATED SAILBOAT TRIP RATES NOVEMBER 7 - DECEMBER 7, 2007

DATE 2007	AREA 1 LOCH LOMOND MARINA	AREA 2 CLIPPER YACHT HARBOR	AREA 3 SF MARINA & YACHT HARBOR	AREA 4 BRISBANE MARINA	AREA 5 REDWOOD CITY YACHT HARBOR	AREA 6 BERKELEY MARINA & MARINA BAY	AREA 7 BALLENA ISLE MARINA
Wed, 7-Nov	0.0046	0.0124	0.0343	0.0187	0.0314	0.0240	0.0069
Thur, 8-Nov	0.0129	0.0372	0.0852	0.0467	0.1154	0.0716	0.0229
Fri, 9-Nov	0.0196	0.0586	0.1211	0.0667	0.1971	0.1125	0.0377
Sat, 10-Nov	0.0105	0.0320	0.0622	0.0344	0.1127	0.0615	0.0212
Sun, 11-Nov	0.0205	0.0626	0.1215	0.0672	0.2201	0.1201	0.0414
Holiday, 12-Nov	0.0364	0.1112	0.2159	0.1194	0.3910	0.2133	0.0735
Tue, 13-Nov	0.0055	0.0115	0.0527	0.0282	0.0045	0.0227	0.0036
Wed, 14-Nov	0.0130	0.0347	0.0959	0.0522	0.0879	0.0671	0.0192
Thur, 15-Nov	0.0131	0.0378	0.0864	0.0474	0.1172	0.0727	0.0232
Fri, 16-Nov	0.0431	0.1287	0.2663	0.1468	0.4333	0.2474	0.0830
Sat, 17-Nov	0.0223	0.0682	0.1324	0.0732	0.2398	0.1309	0.0451
Sun, 18-Nov	0.0235	0.0719	0.1397	0.0772	0.2529	0.1380	0.0475
Mon, 19-Nov	0.0043	0.0091	0.0416	0.0223	0.0035	0.0180	0.0029
Tue, 20-Nov	0.0040	0.0083	0.0380	0.0203	0.0032	0.0164	0.0026
Wed, 21-Nov	0.0080	0.0215	0.0594	0.0323	0.0545	0.0416	0.0119
Holiday, 22-Nov	0.0216	0.0661	0.1284	0.0710	0.2326	0.1269	0.0437
Holiday, 23-Nov	0.0352	0.1075	0.2088	0.1154	0.3781	0.2063	0.0711
Sat, 24-Nov	0.0190	0.0580	0.1127	0.0623	0.2040	0.1113	0.0384
Sun, 25-Nov	0.0181	0.0553	0.1073	0.0593	0.1944	0.1060	0.0365
Mon, 26-Nov	0.0045	0.0095	0.0434	0.0233	0.0037	0.0187	0.0030
Tue, 27-Nov	0.0050	0.0105	0.0480	0.0257	0.0041	0.0207	0.0033
Wed, 28-Nov	0.0127	0.0338	0.0936	0.0509	0.0858	0.0655	0.0187
Thur, 29-Nov	0.0146	0.0420	0.0962	0.0527	0.1304	0.0809	0.0258
Fri, 30-Nov	0.0171	0.0513	0.1061	0.0584	0.1725	0.0985	0.0330
Sat, 1-Dec	0.0217	0.0663	0.1288	0.0712	0.2333	0.1273	0.0439
Sun, 2-Dec	0.0337	0.1029	0.1998	0.1105	0.3619	0.1975	0.0680
Mon, 3-Dec	0.0090	0.0189	0.0863	0.0462	0.0073	0.0372	0.0059
Tue, 4-Dec	0.0045	0.0095	0.0434	0.0233	0.0037	0.0188	0.0030
Wed, 5-Dec	0.0121	0.0322	0.0891	0.0485	0.0817	0.0624	0.0178
Thur, 6-Dec	0.0145	0.0419	0.0959	0.0526	0.1300	0.0807	0.0258
Fri, 7-Dec	0.0223	0.0666	0.1379	0.0760	0.2243	0.1280	0.0429

EXHIBIT B2: ESTIMATED MOTORBOAT TRIP RATES NOVEMBER 7 - DECEMBER 7, 2007

DATE 2007	AREA 1 LOCH LOMOND MARINA	AREA 2 CLIPPER YACHT HARBOR	AREA 3 SF MARINA & YACHT HARBOR	AREA 4 BRISBANE MARINA	AREA 5 REDWOOD CITY YACHT HARBOR	AREA 6 BERKELEY MARINA & MARINA BAY	AREA 7 BALLENA ISLE MARINA
Wed, 7-Nov	0.02708	0.01488	0.04051	0.00416	0.01006	0.02336	0.01258
Thur, 8-Nov	0.07687	0.04932	0.09980	0.01013	0.03434	0.06524	0.03428
Fri, 9-Nov	0.11781	0.08105	0.14126	0.01424	0.05708	0.09916	0.05143
Sat, 10-Nov	0.06347	0.04543	0.07231	0.00726	0.03219	0.05315	0.02735
Sun, 11-Nov	0.12399	0.08874	0.14127	0.01418	0.06288	0.10384	0.05342
Holiday, 12-Nov	0.22024	0.15764	0.25095	0.02518	0.11170	0.18445	0.09490
Tue, 13-Nov	0.03029	0.00832	0.06312	0.00660	0.00447	0.02738	0.01576
Wed, 14-Nov	0.07572	0.04159	0.11326	0.01162	0.02812	0.06531	0.03518
Thur, 15-Nov	0.07802	0.05006	0.10129	0.01028	0.03485	0.06621	0.03479
Fri, 16-Nov	0.25904	0.17820	0.31060	0.03131	0.12550	0.21803	0.11308
Sat, 17-Nov	0.13509	0.09669	0.15392	0.01545	0.06851	0.11314	0.05821
Sun, 18-Nov	0.14247	0.10197	0.16233	0.01629	0.07225	0.11932	0.06139
Mon, 19-Nov	0.02393	0.00658	0.04988	0.00522	0.00353	0.02163	0.01245
Tue, 20-Nov	0.02182	0.00600	0.04549	0.00476	0.00322	0.01973	0.01136
Wed, 21-Nov	0.04691	0.02577	0.07017	0.00720	0.01742	0.04046	0.02179
Holiday, 22-Nov	0.13102	0.09378	0.14929	0.01498	0.06645	0.10973	0.05645
Holiday, 23-Nov	0.21299	0.15245	0.24269	0.02436	0.10802	0.17838	0.09178
Sat, 24-Nov	0.11492	0.08225	0.13094	0.01314	0.05828	0.09624	0.04952
Sun, 25-Nov	0.10948	0.07836	0.12474	0.01252	0.05553	0.09169	0.04717
Mon, 26-Nov	0.02498	0.00686	0.05206	0.00544	0.00368	0.02258	0.01300
Tue, 27-Nov	0.02761	0.00759	0.05755	0.00602	0.00407	0.02496	0.01437
Wed, 28-Nov	0.07388	0.04059	0.11052	0.01134	0.02744	0.06372	0.03433
Thur, 29-Nov	0.08680	0.05570	0.11269	0.01144	0.03878	0.07367	0.03871
Fri, 30-Nov	0.10316	0.07097	0.12369	0.01247	0.04998	0.08683	0.04503
Sat, 1-Dec	0.13143	0.09407	0.14976	0.01503	0.06666	0.11007	0.05663
Sun, 2-Dec	0.20386	0.14592	0.23228	0.02331	0.10339	0.17073	0.08784
Mon, 3-Dec	0.04962	0.01363	0.10341	0.01081	0.00732	0.04485	0.02582
Tue, 4-Dec	0.02498	0.00686	0.05207	0.00545	0.00368	0.02258	0.01300
Wed, 5-Dec	0.07035	0.03865	0.10524	0.01080	0.02613	0.06068	0.03269
Thur, 6-Dec	0.08658	0.05556	0.11240	0.01141	0.03868	0.07348	0.03861
Fri, 7-Dec	0.13408	0.09224	0.16077	0.01621	0.06496	0.11286	0.05853