Business
Pollution
Prevention
Program

Thurston County Marinas
Hazardous Waste Collection
Pilot Project

Thurston County
Hazardous Waste Program

July 2004
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Acknowledgements

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Introduction

In 1997, Thurston County’s Business Pollution Prevention Program conducted a technical assistance campaign for local marinas. From March 1997 to May 1999, the Department of Ecology also conducted a single industry technical assistance campaign for marinas. The focus of these programs was to try to assess the amounts and types of hazardous materials found at marinas and to identify best management practices for their use, storage and disposal. Comments made at the end of the campaigns were that the majority of hazardous materials were managed by the boat owners, there was no way to quantify the risk posed by hazardous materials at marinas because the boats and boathouses can’t all be inspected, and that the marinas are not all equipped to handle hazardous wastes.

In 2003, Thurston County’s Business Pollution Prevention Program decided to follow-up on the 1997 campaign and conduct a hazardous waste collection pilot project at local marinas. The project was designed to evaluate two types of hazardous waste collection events and to determine what resources would be required for the events to be successful. The different collection events compared were a two-week collection event and a long-term event (eight off-season months). Effectiveness was evaluated by the frequency of use, types and amounts of hazardous waste collected, proper use of the bins by the customers, and the amount of staff time required to manage the event.

Thurston County tipping fees and the Coordinated Prevention Grant from the Washington State Department of Ecology funded this project. The Hazardous Substance Tax created by Initiative 97 funds the grant.

The 1998 Hazardous Waste Plan for Thurston County established specific goals to measure the success of the technical assistance and compliance elements of the Business Pollution Prevention Program.

1. Protect ground water, surface water, soils, sediments, and private property from hazardous materials and hazardous waste contamination.
2. Increase the rate of waste reduction, which conserves resources and reduces demand for disposal and recycling services.
3. Increase the percentage of hazardous waste collected (that cannot be prevented through waste reduction in the first place).
4. Reduce the amount of hazardous materials that are improperly stored, improperly disposed, and accidentally spilled into the environment.
5. Reduce damage to collection and transfer vehicles, and disposal equipment, and reduce disruption of treatment facilities by ensuring hazardous waste is kept out of these facilities or systems.
6. Reduce potential for causing publicly owned facilities such as the landfill or sewage treatment plants to exceed pollutant discharge limits.
Methodology

Six marinas in Thurston County were asked to host short-term (two week) and long-term (eight month) hazardous waste collection events. Four marinas chose to participate: Boston Harbor, Swantown, West Bay, and Zittels. These were non-manned events that encouraged marina customers to use self-service collection bins for hazardous materials (Figure 1). Participating marinas signed an agreement with Thurston County to host the events from about mid-September 2003 to June 2004. The agreement outlined the responsibilities for Thurston County and for each marina (Appendix 1).

The marinas agreed to host two collection bins and send educational flyers in customer billing. The marinas also assigned an employee to monitor the collection bin for spills, capacity, and security. Thurston County agreed to provide the collection bins, educational flyers, advertisement, training, spill kits, waste transportation, and documentation of waste types and quantities.

The collection bins were constructed of molded plastic and were large enough to fit six 5-gallon buckets across the bottom (approximately 2’ x 3’ x 3’ high). Each bin had two bags of absorbent material poured into the bottom to absorb spills and was removed whenever hazardous waste spilled on it. The bins had hinged lids and contained hasps for securing. The bins were also designed with feet so they were easily moved with a forklift. Each bin was equipped with a list of acceptable and unacceptable wastes as well as directions for proper bin use (Appendix 2 and 3). Also included were nitrile gloves, safety glasses, container overpacks (lidded pails), container labels, markers, grease pens, absorbent spill material, and customer surveys. These bins were left unlocked during operating hours and secured nightly.

Initially, each marina sent out a billing insert that advertised a two-week hazardous waste collection event (Appendix 4). The insert provided information about when the bins would be available, accepted wastes, and a map to an alternative hazardous waste collection site. The county representative visited the hosting marinas twice a week during these events and transported wastes as needed. All wastes were transported to the Thurston County Waste and Recovery Center’s Hazo House and were disposed of as household hazardous waste.

After the two-week event a second flyer was sent in the marina billing advertising the long-term collection event (Appendix 5). This flyer was written in a conversational tone letting customers know that the collection service was going to be available until June 2004. Again, the flyer identified acceptable and unacceptable wastes and included tips on how to handle the wastes. Posters were also produced and displayed at the participating marinas to further promote the availability of the collection bins (Figure 2). During the long-term collection period a marina employee monitored the bins and called the county representative when the bins needed to be emptied.
Figure 1: Hazardous waste collection tote.
Figure 2: Collection event poster.

FREE Hazardous Waste Collection
For Boat Related Hazardous Wastes

Thurston County has teamed up with Boston Harbor Marina to provide YOU with FREE hazardous waste disposal.

Why should you use this service?

![Image of a boat with a flag and water waves]

- This is a great time to winterize your boat by changing oil and antifreeze.
- Boats and boathouses are not secure locations to store hazardous products.
- Thurston County is helping your marina provide this service right now. Drop off your unwanted hazardous materials in the green totes.
- Proper disposal of hazardous waste protects water quality and sea life in Puget Sound for future generations.

If you have any questions, call Thurston County Environmental Health at (360) 754-4111.
At the end of the long-term collection event the county developed a final two-sided billing insert that featured a marina schematic and a list of best management practices (BMPs) for boat maintenance (Figure 3). The schematic was designed to highlight the services that are available at each marina and that support the BMPs listed. There was an off-site service key included in the flyer for the marina that did not provide all the services the BMPs recommend (Figure 4).

To try to help guide future programs, a customer survey form was left in each collection bin (Appendix 6). The survey asked customers how they heard about the collection event, what they usually do with their hazardous waste, how much they disposed of, how long they store wastes in their boat or boathouse, how they rated satisfaction with the collection service, and if they would be willing to pay a monthly fee for the service.

**Concerns**

Before the project began there were concerns about incompatible wastes being stored together, customers bringing in wastes from their home, businesses bringing in wastes for free disposal, vandalism, spills, unknown wastes, poorly containerized material, and customer safety. Each of these concerns was evaluated and whenever possible a countermeasure was put in place to minimize risk.

To minimize the risk of incompatible waste storage, a list of unacceptable wastes and acceptable wastes was put into each of the event advertisements as well as within each tote. Additionally, there were overpack containers available in each tote to place an incompatible waste into for storage and transport. Three sizes of closeable overpacks were made available: 1-gallon, 2.5-gallon, and 6-gallon.

Customers bringing in non-boating wastes from their homes were of concern because they could present an incompatible storage situation. Acids, bases, peroxides, oxidizers are all potential wastes that occur in households that would rarely be present in boat-related waste. Again the project relied on the acceptable and unacceptable waste lists and facility monitoring to keep these wastes at a minimum. Also, the advertising was directed at the boat owners by inserting flyers only in the marina billing and displaying the posters only at the marinas.

Two of the participating marinas either generated hazardous wastes or had on-site vendors that produced such wastes. To ensure that these business wastes were not being disposed of in the totes as household waste, a county representative met the businesses and reviewed their waste management procedures. The vendors that were working on homeowner boats were instructed that it is appropriate for their customers to bring their own waste to the collection totes but it is not for commercial wastes. Marina-generated wastes are to be entirely managed by the marinas and are not considered household, so, are not appropriate for tote collection.
Figure 3: Marina schematic.

Safe and Healthy Boating

As boaters, we have the ability and responsibility to protect our waterways. If we take the time to check and maintain our boating equipment we will protect our investments, water quality, and the health of our environment.

Always:
- Keep oil absorbent pads in bilge.
- Look for a sheen when you start your bilge pump (replace petroleum absorbent pads in bilge when sheen is detected).
- Use absorbent pads around fueling nozzle and don’t top-off tank.
- Maintain proper level of coolant.
- Recycle used motor oil, oil filters, antifreeze, and batteries.
- Perform engine maintenance OUT OF THE WATER.
- Use non-toxic cleaning products on boats.
- Scour with baking soda, vinegar and water for windows and floors.
- Use sewage pump outs frequently.

Periodically:
- Tune up engine and replace leaking seals.
- Check hydraulic, fuel, and coolant lines for leaks, cracks, and loose connections. Replace lines before they fail.
- Check hose clamps and tighten or replace as needed.
- Use a “smart” battery charger or if possible replace with gel cell batteries.
- Use a fuel scrub (filters fuel and cleans tank).
Figure 4: Marina schematic with off-site service key.
To reduce the opportunity for vandalism, the county only invited service-providing marinas to participate in the campaign. If a marina did not have on-site personnel or could not commit someone to oversee the totes then the county did not include them in the campaign. Participating marinas were supplied with totes that were reinforced to add on hinges and a hasp for locking. Each marina locked the totes at night and one marina kept their bin locked at all times and customers requested the key for tote use.

To minimize the risk of spilled material entering the environment or harming customers the county provided spill kits and spill response training to the marinas. The spill kits included nitrile gloves, safety glasses, eyewash, and absorbent pads (universal and petroleum-only). The county also assumed liability for clean up of any releases of hazardous material throughout the collection event, provided it was not caused by a marina employee or a marina contractor.

Since the totes were self-serve there was a great potential for wastes to be deposited in containers that were in poor shape and/or unlabeled. Overpacks were available for containers in poor shape or for customers needing a primary container. For customers with wastes in unmarked containers the totes contained tags, waterproof markers, grease pens, and pencils. The directions within the totes promoted the labeling of all waste containers.

## Results

### Collection Summary

Upon disposal, wastes types and quantities were documented for each marina, (Tables 1 and 2), as well as how many labels and overpacks were used by the customers (Table 3). Wastes from the two-week collection event took in 37 containers totaling 221 pounds. The long-term collection event was about 32 weeks in duration and collected 227 containers totaling 3,085 pounds. The short-term collection had a greater rate of containers collected than the long-term, but they were about equal in weight.

The waste types that were collected during the short-term event were all consistent with the boating industry. The only possible exception was latex paint. The number of latex containers arriving at the same time and the poor condition of the containers made them appear to be brought from a household. In the long-term event the only waste that appeared to be from a household was one box full of pesticide containers.
### Table 1
**Waste collected in two-week collection event**

<table>
<thead>
<tr>
<th>Event</th>
<th>Marina</th>
<th>Hazardous Material</th>
<th>Number of Containers</th>
<th>Approximate Gallons</th>
<th>Pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TWO-WEEK COLLECTION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Zittels</td>
<td>Contaminated gasoline</td>
<td>1</td>
<td>0.2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wood stain</td>
<td>2</td>
<td>1.2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wood preservative</td>
<td>1</td>
<td>0.1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wood cleaner</td>
<td>1</td>
<td>0.1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Boston Harbor</td>
<td>None collected</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>West Bay**</td>
<td>Contaminated bilge water</td>
<td>4</td>
<td>20</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wood stain</td>
<td>2</td>
<td>0.3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lacquer</td>
<td>1</td>
<td>0.2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine paint</td>
<td>1</td>
<td>0.3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Paint thinner</td>
<td>1</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Latex paint</td>
<td>11</td>
<td>8</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>Swantown*</td>
<td>Contaminated gasoline</td>
<td>2</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Marine paint</td>
<td>1</td>
<td>0.1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Paint thinner</td>
<td>1</td>
<td>0.6</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Liquid soap</td>
<td>1</td>
<td>0.2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Batteries (lead acid)</td>
<td>7</td>
<td>Not applicable</td>
<td>Unknown</td>
</tr>
<tr>
<td><strong>TOTAL HAZARDOUS WASTES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Containers</td>
<td>37</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gallons</td>
<td>35</td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Pounds</td>
<td>221</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Swantown Marina already has a marine paint bulking area and collection tanks for oil.

** West Bay Marina already has a collection tank for oil and drums for antifreeze.
### Table 2
Waste collected in long-term collection event

<table>
<thead>
<tr>
<th>Event</th>
<th>Marina</th>
<th>Hazardous Material</th>
<th>Number of Containers</th>
<th>Approximate Gallons</th>
<th>Pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Swantown</td>
<td>Used oil</td>
<td>20</td>
<td>122</td>
<td>973</td>
</tr>
<tr>
<td></td>
<td>Swantown</td>
<td>Antifreeze</td>
<td>24</td>
<td>79</td>
<td>567</td>
</tr>
<tr>
<td></td>
<td>Swantown</td>
<td>Contaminated gas / diesel</td>
<td>26</td>
<td>54</td>
<td>419</td>
</tr>
<tr>
<td></td>
<td>Swantown</td>
<td>Contaminated bilge water</td>
<td>2</td>
<td>1.5</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Swantown</td>
<td>Adhesive</td>
<td>10</td>
<td>2.5</td>
<td>17</td>
</tr>
<tr>
<td>West Bay</td>
<td>Swantown</td>
<td>Toilet solution (blue)</td>
<td>1</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Swantown</td>
<td>Paint thinner</td>
<td>6</td>
<td>2.5</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Swantown</td>
<td>Marine paint / stain/ latex</td>
<td>19</td>
<td>11</td>
<td>85</td>
</tr>
<tr>
<td></td>
<td>Swantown</td>
<td>Petroleum soaked rags</td>
<td>1</td>
<td>Not applicable</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Swantown</td>
<td>Oil filters</td>
<td>4</td>
<td>Not applicable</td>
<td>Unknown</td>
</tr>
<tr>
<td></td>
<td>Swantown</td>
<td>Batteries (lead-acid)</td>
<td>14</td>
<td>Not applicable</td>
<td>Unknown</td>
</tr>
<tr>
<td></td>
<td>West Bay</td>
<td>Used oil</td>
<td>4</td>
<td>7</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>West Bay</td>
<td>Antifreeze</td>
<td>7</td>
<td>9.5</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>West Bay</td>
<td>Contaminated gasoline</td>
<td>8</td>
<td>6</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>West Bay</td>
<td>Contaminated bilge water</td>
<td>2</td>
<td>9</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>West Bay</td>
<td>Adhesive</td>
<td>4</td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>West Bay</td>
<td>Caulk</td>
<td>2</td>
<td>Not applicable</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>West Bay</td>
<td>Marine paint</td>
<td>9</td>
<td>4.5</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>West Bay</td>
<td>Miscellaneous paints</td>
<td>7</td>
<td>30</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>West Bay</td>
<td>Paint thinner</td>
<td>1</td>
<td>0.5</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>West Bay</td>
<td>Solvent</td>
<td>1</td>
<td>5</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>West Bay</td>
<td>Pesticides</td>
<td>4</td>
<td>Not applicable</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>West Bay</td>
<td>Kerosene</td>
<td>1</td>
<td>0.2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>West Bay</td>
<td>Toilet solution (blue)</td>
<td>1</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>West Bay</td>
<td>Batteries (lead-acid)</td>
<td>1</td>
<td>Not applicable</td>
<td>Unknown</td>
</tr>
<tr>
<td></td>
<td>West Bay</td>
<td>Oil filters</td>
<td>6</td>
<td>Not applicable</td>
<td>Unknown</td>
</tr>
</tbody>
</table>
### Table 2 - continued

<table>
<thead>
<tr>
<th>Event</th>
<th>Marina</th>
<th>Hazardous Material</th>
<th>Number of Containers</th>
<th>Approximate Gallons</th>
<th>Pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>LONG-TERM COLLECTION (October-May)</td>
<td>Zittels</td>
<td>Used oil</td>
<td>1</td>
<td>4</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Adhesive</td>
<td>3</td>
<td>0.2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Paint thinner</td>
<td>1</td>
<td>0.2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kerosene</td>
<td>1</td>
<td>0.3</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Oil filters</td>
<td>2</td>
<td>Not applicable</td>
<td>Unknown</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Contaminated rags</td>
<td>1</td>
<td>Not applicable</td>
<td>3</td>
</tr>
<tr>
<td>Boston Harbor</td>
<td></td>
<td>Used oil</td>
<td>8</td>
<td>19</td>
<td>105</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gasoline</td>
<td>3</td>
<td>13</td>
<td>107</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Contaminated bilge water</td>
<td>2</td>
<td>10</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Oil filters</td>
<td>4</td>
<td>Not applicable</td>
<td>Unknown</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Contaminated rags</td>
<td>4</td>
<td>Not applicable</td>
<td>75</td>
</tr>
<tr>
<td>TOTAL HAZARDOUS WASTES FOR LONG-TERM EVENT</td>
<td></td>
<td>227</td>
<td>420</td>
<td>3085</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Containers</td>
<td>Gallons</td>
<td>Pounds</td>
<td></td>
</tr>
</tbody>
</table>

### Table 3

**Containers and labels**

<table>
<thead>
<tr>
<th>Marinas</th>
<th>Containers Collected</th>
<th>Overpacks Used</th>
<th>Labels Used</th>
<th>Unlabeled Containers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston Harbor</td>
<td>21</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>West Bay</td>
<td>78</td>
<td>1</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Zittels</td>
<td>14</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Swantown</td>
<td>166</td>
<td>21</td>
<td>53</td>
<td>4</td>
</tr>
<tr>
<td>All Marinas</td>
<td>264</td>
<td>27</td>
<td>61</td>
<td>14</td>
</tr>
</tbody>
</table>
The most prevalent wastes collected were used oil, antifreeze, contaminated gas/diesel, bilge water, and paints. Used oil represented 35 percent (1,151 pounds) and antifreeze represented 19 percent (633 pounds) of the total waste that was collected (3,306 pounds). The two marinas that collected 88 percent of the oil and 100 percent of the antifreeze both have separate collection tanks for oil and antifreeze. If these marinas could direct the customers to the collection tanks for these wastes they would cut their tote disposal transportation by more than half.

Contaminated gas and diesel comprised 18 percent of all wastes (585 pounds). Contaminated bilge water and paint represented 8.5 percent (280 pounds) and 6 percent (203 pounds) of the total wastes respectively. Although bilge water was the fourth largest waste stream it represented less than 4 percent of the containers collected. Bilge water waste was infrequent but tended to come in large containers. Paint waste showed up consistently throughout the project representing 14 percent of all the containers collected.

Concerns

Incompatible wastes
There were no incompatible wastes brought in and stored together throughout the project. The only waste that was deposited in the totes that caused concern was a 70-pound bag of gas-soaked rags. The bag was not secure and allowed gasoline to leak and saturate most of the absorbent material in the bottom of the tote. All of the absorbent material was removed and replaced. This material caused the tote to accumulate a large amount of petroleum vapors, which increased the risk of fire. The rag waste would not have caused concern if they had been sealed in the overpacks.

Home wastes
Home wastes represent a greater risk of waste incompatibility than do boat-related wastes. During the collection events the only household wastes deposited were latex paint and a box of pesticides. If the campaign would have seen a great deal of hazardous wastes being brought down to the waterfront from homes, a change in advertising would have been made.

Business wastes
The businesses that operate at the marinas were inspected to verify that they used proper hazardous waste disposal methods. Each company had a mechanism for hazardous waste disposal and was not using the collection totes. Advertisement for the events stated that wastes from commercial vessels were not acceptable but there was no way to verify if any customers using the totes had a commercial vessel (although there were very few commercial vessels in the participating marinas).

Vandalism
There was no vandalism at the marinas throughout the collection events.
Spills
There were no spills outside of the totes throughout the collection events. All spills inside the totes were collected in the absorbent material lining each tote. All contaminated absorbent material was disposed and replaced as needed.

Unknown wastes
Many liquid wastes came into the marinas without their original containers (Table 3). Of the 279 containers received, 216 were liquid wastes and 75 (35 percent) of them required labeling. The customers used the available pens to label over 73 percent of these containers, leaving only 14 (6 percent) liquid wastes unlabeled.

Poorly containerized wastes
Customers utilized the available overpacks 27 times (12.5 percent of all containers brought in) for their liquid wastes. Most often the liquid waste was poured directly into one of the overpack buckets instead of placing a container of poor integrity into the bucket (overpacking it). Only twice did customers leave liquid waste in an open container without using an overpack. The open wastes were overpacked by the county prior to transport and disposal. Petroleum soaked rags were placed into plastic bags and then into the totes six times throughout the collection events. The bags leaked each time and also required overpacking prior to transport and disposal.

Customer safety
To minimize customer contact with hazardous material the totes were furnished with nitrile gloves, safety glasses, and a first aid kit with an eye-wash. The customers used several of the gloves but did not need the first aid equipment.

Customer Surveys
Although survey forms were available in each tote throughout the duration of the project, only eight were filled out and returned. A summary of the customers’ responses is found in Table 4. Six of the eight surveys were from the Swantown marina and the others were from Boston Harbor and Zittels marina. Six of the eight customers that returned a survey noted that they heard of the collection event at the marina either from an employee, poster, or by seeing the totes on-site. Half of the surveys indicated that the customers had knowingly discarded hazardous wastes improperly in the past. All customers that completed surveys disposed of five wastes or less at that one time. All eight customers noted that they store their hazardous products on their boat or boathouse for less than one year. Six of them said they store the products for less than half a year.

When asked to rate the satisfaction of the waste collection service all eight customers noted that they were extremely satisfied with the service. One customer wrote that the service was “handy.”
The final question on the survey asked the customers if they would be willing to pay a fee to continue with the waste collection service. One customer of the eight respondents said no. Four of the customers noted that they would pay up to $1 per month for the service and the remaining three customers were willing to pay $2 per month.

Table 4

<table>
<thead>
<tr>
<th>Hazardous Waste Collection Event Customer Survey Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Table 4</strong></td>
</tr>
<tr>
<td><strong>1) How did you hear about this collection event?</strong></td>
</tr>
<tr>
<td>(a) Billing insert</td>
</tr>
<tr>
<td>(b) Poster</td>
</tr>
<tr>
<td>(c) Saw it on-site</td>
</tr>
<tr>
<td>(d) Other: <em>Marina employee</em></td>
</tr>
<tr>
<td>Other: <em>Friend</em></td>
</tr>
<tr>
<td><strong>One customer reply of eight</strong></td>
</tr>
<tr>
<td><strong>Two replies</strong></td>
</tr>
<tr>
<td><strong>Three replies</strong></td>
</tr>
<tr>
<td><strong>One reply</strong></td>
</tr>
<tr>
<td><strong>Two customers</strong></td>
</tr>
<tr>
<td><strong>One customer</strong></td>
</tr>
<tr>
<td><strong>2) What have you done with hazardous wastes in the past? (Circle all that apply)</strong></td>
</tr>
<tr>
<td>(a) Took them to Hazo House</td>
</tr>
<tr>
<td>(b) Took them to Wastemobile</td>
</tr>
<tr>
<td>(c) Threw in regular garbage</td>
</tr>
<tr>
<td>(d) Stored them</td>
</tr>
<tr>
<td>(e) Other: <em>Left it at marina</em></td>
</tr>
<tr>
<td><strong>Four customers of eight</strong></td>
</tr>
<tr>
<td><strong>One customer</strong></td>
</tr>
<tr>
<td><strong>Three customers</strong></td>
</tr>
<tr>
<td><strong>Two customers</strong></td>
</tr>
<tr>
<td><strong>One customer</strong></td>
</tr>
<tr>
<td><strong>3) How many wastes did you dispose of today?</strong></td>
</tr>
<tr>
<td>(a) One – two</td>
</tr>
<tr>
<td>(b) Three – five</td>
</tr>
<tr>
<td>(c) Six – ten</td>
</tr>
<tr>
<td>(d) More than ten</td>
</tr>
<tr>
<td><strong>Six customers of eight</strong></td>
</tr>
<tr>
<td><strong>Two customers</strong></td>
</tr>
<tr>
<td><strong>0</strong></td>
</tr>
<tr>
<td><strong>0</strong></td>
</tr>
<tr>
<td><strong>4) How long do you typically store hazardous products on your boat or boathouse?</strong></td>
</tr>
<tr>
<td>(a) Less than six months</td>
</tr>
<tr>
<td>(b) About one year</td>
</tr>
<tr>
<td>(c) More than a year</td>
</tr>
<tr>
<td>(d) Other: <em>Never</em></td>
</tr>
<tr>
<td><strong>Five customers of eight</strong></td>
</tr>
<tr>
<td><strong>Two customers</strong></td>
</tr>
<tr>
<td><strong>0</strong></td>
</tr>
<tr>
<td><strong>One customer</strong></td>
</tr>
<tr>
<td><strong>5) Please rate your satisfaction with this service.</strong></td>
</tr>
<tr>
<td>(a) Extremely satisfied</td>
</tr>
<tr>
<td>(b) Fairly satisfied</td>
</tr>
<tr>
<td>(c) Not satisfied</td>
</tr>
<tr>
<td><strong>Eight customers of eight</strong></td>
</tr>
<tr>
<td><strong>0</strong></td>
</tr>
<tr>
<td><strong>0</strong></td>
</tr>
<tr>
<td><strong>6) Would you be willing to pay a small fee to continue this service?</strong></td>
</tr>
<tr>
<td>(a) Yes, if less than $1/ month</td>
</tr>
<tr>
<td>(b) Yes, if less than $2/ month</td>
</tr>
<tr>
<td>(c) No</td>
</tr>
<tr>
<td><strong>Four customers of eight</strong></td>
</tr>
<tr>
<td><strong>Three customers</strong></td>
</tr>
<tr>
<td><strong>One customer</strong></td>
</tr>
</tbody>
</table>
Conclusions and Recommendations

The project was designed to evaluate two types of hazardous waste collection events and to determine what resources would be required for the events to be successful. Effectiveness was evaluated by the frequency of use, types and amounts of hazardous waste collected, proper use of the bins by the customers, and the amount of staff time required to manage the event. For the customer, having an ongoing hazardous waste disposal site is better than occasional short-term collection events. For the marinas, there is only slightly more management required to safely conduct an ongoing collection service than a couple of annual collection events. Another positive for ongoing collection is that fewer non-boat related wastes show up and thereby less potential for incompatible material storage.

The two-week collection event was advertised utilizing billing inserts for two consecutive months. The inserts informed customers that totes would be available during a specified time frame and encouraged their use while preparing boats for the off season. The two-week collection event took in about 14 percent of the total containers collected and 7 percent of the total weight collected for both events. Since the long-term event was about sixteen times longer than the two-week event the rate of collection was about equal.

Increasing the amount of advertising for a collection event may increase its success but a short-term event does not appear to motivate customers to perform maintenance and increase waste generation and disposal. This indicates that ongoing waste collection is needed if you do not want boaters to store such wastes near the shoreline. Ongoing waste collection also encourages prompt waste disposal.

Labels, markers, grease pens, latex or nitrile gloves, absorbent pads, overpacks, and primary containers are all recommended to have available at each hazardous waste collection tote. Having wide-mouthed plastic containers in one to five-gallon sizes for use as a primary container would be very useful to customers wanting to retain their original containers. Overpack buckets are useful in two to five-gallon sizes but are more expensive than wide-mouthed plastic containers. The overpacks will be used less frequently if primary containers are available and can be reused if requested back from the disposal facility (Hazo House).

Since 54 percent of the waste collected was either antifreeze or used oil it is suggested that the marinas that have collection tanks for such material move their hazardous waste totes to the same area. This would promote the customers utilizing the more preferred method of disposal (bulking in the tanks) and minimize transportation of the totes to the disposal facility.
Marina personnel working in the area of the totes should be trained to respond to spills and it would be useful to have an understanding of chemical properties (flammable, corrosive, reactive, and poisonous). They should also have the ability to instruct customers with labeling and use of the disposal service.

Based on the customer surveys, which were minimal based on the number of customers using the collection service, advertising such an event in the monthly billing does not appear to have a lasting impression in the customer’s memory. Increasing the amount of on-site advertising and informing all employees of the availability of hazardous waste collection would get the word to customers more effectively.

All eight customers disposed of less than five hazardous wastes. But, although the customers are generating few wastes they indicate that they store them on their boats for up to a year. The biggest selling point for this collection service is that every customer stated that they were extremely satisfied with the service and additionally, seven out of eight customers would pay up to $1 - $2 each month to continue the service.
Appendix 1: Thurston County and Marina Agreement
This AGREEMENT, made and entered into by and between Thurston County, a municipal corporation, and (INPUT MARINA HERE), a Washington corporation, located at 2100 West Bay Drive NE, Olympia, Washington 98502 hereinafter referred to as “the Site Sponsor.”

In consideration of the mutual benefits and covenants contained herein, the parties agree as follows:

Thurston County and the Site Sponsor wish to encourage the proper disposal of household hazardous materials associated with boating to protect the public health and the environmental quality of Puget Sound. It is in the interest of Thurston County and the Site Sponsor to collect household hazardous materials from boaters using Site Sponsor’s facilities through a cooperative program to establish a supervised collection site that provides for proper maintenance, transportation and disposal of household hazardous waste.

Site Sponsor

(a) The Site Sponsor grants permission to Thurston County to place two plastic totes at the site described in Exhibit A for the collection of household hazardous waste. The container will be watertight and have a lockable lid.

(b) The Site Sponsor shall allow its customers to dispose of household hazardous waste in containers of 5-gallons or less at no charge.

The Site Sponsor shall:

Designate a project manager to supervise the execution of the Site Sponsor’s responsibilities under this agreement and work with Thurston County’s representative to resolve any problems that may arise.

Keep totes accessible during business hours and locked during non-business hours.

Monitor use and capacity of storage totes and contact the Thurston County representative for waste collection and disposal.

Report any problems with the site and provide information to the Thurston County representative.

Allow the Thurston County representative access to the site for periodic inspections customer surveys, and waste collection.
The Site Sponsor shall carry out its responsibilities stated in the Thurston County and (INPUT MARINA HERE)Spills Management and Prevention Plan, which is marked as Exhibit B. Site Sponsor or site owner is responsible and shall pay all costs, including spill containment and site remediation, if tote failure or rupture is caused by Site Sponsor, its officers, employees, or agents.

The Site Sponsor assumes all responsibility for any pre-existing conditions of the site.

Thurston County

Thurston County shall:

Provide two totes for household hazardous waste collection placed at the site indicated on Exhibit A.

Provide the transportation and recycling or disposal of all household hazardous wastes collected in the totes provided.

Provide flyers, signs, and brochures on the collection program and additional information about household hazardous wastes. Stock and replace as necessary.

Respond to problem conditions related to the collection totes for household hazardous wastes in a timely fashion.

Provide needed maintenance to the collection totes.

Provide spill kits for the clean-up of small spills.

Provide for Site Sponsor employee training on the household hazardous waste collection program and spill response procedures.

Provide monitoring and documentation of the program to determine compliance with this agreement and to gather data on waste volumes, participation, and time required to complete the different aspects of the program.

The Spill Management and Prevention Plan shall be conducted as provided as Exhibit B. Except for daily clean-up and maintenance, in the event of a spill of any household hazardous waste collected in the totes caused by the rupture or failure of the totes or caused by third persons that is not the result of an act or omission of the Site Sponsor or any of its officers, employees, or agents, Thurston County shall be responsible for clean-up and any resulting contamination.

If, after inspection of the site, the site is inadequately maintained, Thurston County, at its option, may have the totes removed with two days notice to the Site Sponsor.
Thurston County and Site Sponsor

The terms of this agreement begin on October 1, 2003. This agreement shall continue in effect until June 1, 2004, or unless terminated as provided in Section 10.

This agreement may be terminated by either party giving the other two business days written notice. Thurston County will promptly remove its collection totes upon termination of this agreement. Notice shall be provided to the following:

For Site Sponsor:
Name of Representative:
Title:
Telephone Number:
Fax Number:

For Thurston County
Name of Representative: Patrick Soderberg
Title: Hazardous Waste Specialist
Telephone Number: 360-754-4111 x7273
Fax Number: 360-754-2954

Thurston County and Site Sponsor covenant and warrant that each has full power and authority to enter into this agreement.

Hold Harmless and Indemnification

Except as otherwise provided herein, the Site Sponsor shall hold harmless, indemnify and defend Thurston County, its officers, officials, employees and agents, from and against any and all claims, actions, suits, liability, loss, expenses, damages, and judgments of any nature whatsoever, including costs and attorneys fees in defense thereof, for injury, sickness, disability or death to persons or damage to property or business, caused by or arising out of the Site Sponsor’s acts, errors or omissions in the performance of this Agreement. PROVIDED HOWEVER, that Site Sponsor’s obligation hereunder shall not extend to injury, sickness, death or damage caused by or arising out of the sole negligence of Thurston County, its officers, officials, employees or agents. PROVIDED FURTHER, that in the event of the concurrent negligence of the parties, the Site Sponsor’s obligations hereunder shall apply only to the percentage of fault attributable to the Site Sponsor, its employees or agents.

In any and all claims against the COUNTY, its officers, officials, employees and agents by any employee of the Site Sponsor, subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation under this Section shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for the Site Sponsor or subcontractor under Worker’s Compensation acts, disability benefits acts, or other employee benefits acts, it being clearly agreed and understood by the parties
hereto that the Site Sponsor expressly waives any immunity the Site Sponsor might have had under such laws. By executing the Agreement, the Site Sponsor acknowledges that the foregoing waiver has been mutually negotiated by the parties and that the provisions of this Section shall be incorporated, as relevant, into any contract the Site Sponsor makes with any subcontractor or agent performing work hereunder. The Site Sponsor’s obligations hereunder shall include, but are not limited to, investigating, adjusting and defending all claims alleging loss from action, error or omission, or breach of any common law, statutory or other delegated duty by the Site Sponsor, the Site Sponsor’s employees, agents or subcontractors.

Modification

Any writings herein are the complete agreement between the parties. Oral or written representations or understandings not incorporated in this Agreement are specifically excluded. This Agreement may only be modified by a written amendment signed by both parties.

Severability

If a court of competent jurisdiction holds any part, term or provision of this Agreement to be illegal, or invalid in whole or in part, the validity of the remaining provisions shall not be affected and the parties’ rights and obligations shall be construed and enforced as if the Agreement did not contain the particular provision held to be invalid.
IN WITNESS WHEREOF the parties hereto have executed this agreement as of the day of _______________ 2003.

THURSTON COUNTY

APPROVED AS TO FORM
Edward G. Holm
Prosecuting Attorney

Sherri McDonald, RN, MPA, Director
Public Health & Social Services Department

Jane Futterman
Deputy Prosecuting Attorney

SITE SPONSOR

Signature of Authorized Representative

Name (please print)

Title

Corporation
EXHIBIT A

Site Address for Collection Tote

(MARINA ADDRESS INFORMATION HERE)
EXHIBIT B

SPILLS MANAGEMENT AND PREVENTION PLAN

I. PREVENTION

A. Placement of totes
   1. The tote will be placed on asphalt or cement covered area.
   2. The totes will have lids to minimize precipitation from entering.
   3. The totes will have lockable lids to help prevent misuse or vandalism.
   4. The totes will be located within sight of on-site employees to allow for immediate response to accidents or incidents unless Thurston County approves of an alternative tote location.

B. Maintenance and Monitoring
   1. Site sponsor employees shall be responsible for light maintenance of the totes and the tote area on a daily basis, including:
      a. Unlocking the tote’s hinged cap that covers the main opening of the tote during operating hours.
      b. Locking the totes after operating hours.
   2. Site sponsor will monitor the capacity of the totes and report to the Thurston County representative when totes are half full or more.
   3. When the tote is full, the site sponsor will padlock the tote until the Thurston County representative can empty it.

II. SPILLS MANAGEMENT

A. Less than a ½ gallon spill
   1. Site sponsor shall clean up drips and splatters as soon as reasonably practical.
   2. Contaminated absorbent material will be stored in plastic containers until picked up for proper disposal.

B. ½ gallon to 5 gallon spill
   1. Place absorbent pads or scatter absorbent material on free flowing liquids to stop it from flowing.
   2. Storm drains nearby the oil tote shall be covered and bermed by a store employee.
3. Contact the Thurston County Health Department (360) 754-4111 Monday through Friday between 8 a.m. and 5 p.m., or contact the Department of Ecology after 5 p.m. or on weekends at (360) 407-6300.

C. More than a 5 gallon spill

1. Call the Department of Ecology at (360) 407-6300 (24-hour number) then 911 and then the Thurston County Health Department at (360) 754-4111 to report the spill. The store employee shall do nothing that would endanger himself or herself.
2. If possible, cover and berm any nearby storm drains.
3. Place absorbent material along the front edges of the free flowing oil.

D. Once notified of a spill, Thurston County Health Department personnel will respond as soon as possible. In no case shall Thurston County’s response time exceed forty-eight (48) hours. Thurston County will assist the primary spill responders in the clean up of the site. Thurston County will assume responsibility for site clean up and disposal costs pursuant to Section 5 of this Agreement.

III. FIRES

A. In the event of a fire from the household hazardous waste collection area

1. Call 911 and report the fire.
2. Evacuate the site if necessary.
3. Call the Thurston County Health Department at (360) 754-4111 and report the fire.
Appendix 2: Acceptable and Unacceptable Waste List
**ACCEPTABLE HAZARDOUS WASTES**

- Marine paint or oil-based paints
- Lacquers, stains, rust inhibitors
- Antifreeze and used oil
- Adhesives, sealers, and sealants
- Contaminated gas or diesel
- Other boat-related hazardous wastes

**UNACCEPTABLE HAZARDOUS WASTES**

- Flares or explosives
- Fluorescent light bulbs
- Latex paint (dry out and place in garbage)
- Wastes from commercial vessels
- Propane tanks or compressed gases
- Liquid wastes in containers >5 gallons

If you have any of these unacceptable wastes or have any questions concerning this waste collection event please contact Patrick at Thurston County Environmental Health at 754-4111 x 7273.
Appendix 3: Collection Tote Directions
Thank you for disposing of your hazardous waste responsibly!

- If your container is not labeled, PLEASE use the markers and labels provided to identify contents.

- If your container is leaking or in poor condition, PLEASE place the container into one of the empty yellow buckets located within this tote. **IF** there are no empty buckets, PLEASE notify marina personnel.

- If your container has leaked outside the tote, PLEASE notify marina personnel.

- If you notice that any container has leaked in the tote, PLEASE notify marina personnel.

- If you have a waste that is listed as “unacceptable” for this collection tote, PLEASE call Thurston County Environmental Health at 754-4111 ext.7273 for assistance.

- If you have any questions or comments about this collection event or hazardous materials, PLEASE call Thurston County Environmental Health at 754-4111 ext.7273 for assistance.

*PLEASE TAKE THE TIME TO FILL OUT A SURVEY FORM*
Appendix 4: Two-Week Collection Event Flyer
ATTENTION BOATERS!
Free Household Hazardous Waste Collection

Dates: October 1-15
What: Disposal of paint, antifreeze, adhesive, batteries, and other hazardous wastes.
Where: Swantown Boatworks
How: Simply drop off your unwanted hazardous items in the labeled totes at Boatworks.

More Tips:
• Store only small amounts of hazardous materials on boat.
• Dispose of hazardous waste often (See map on back).

ACCEPTABLE wastes for collection:
• Marine paint or oil-based paint
• Lacquers, stains, oils, rust inhibitors
• Antifreeze and used oil
• Adhesives, sealers, and sealants
• Hazardous cleaning compounds
• Batteries
• Other household hazardous wastes

UNACCEPTABLE wastes for collection:
• Waste from commercial vessels
• Bad gas (contaminated or old)
• Latex paint (dry out for garbage)
• Fluorescent bulbs
• Propane tanks and compressed gas*
• Flares and explosives*
• Liquid hazardous wastes in containers greater than 5-gallons*

*These wastes are not accepted at Hazo House either; please call the Hazardous Waste Hotline for more information (360) 786-5457.

If you are unable to use this service, bring your hazardous products, free of charge to HazoHouse. HazoHouse is open year round Friday, Saturday, Sunday, and Monday from 8am-5pm.

Sponsored by Swantown Marina together with Thurston County.
For more information call (360) 754-4111.
Appendix 5: Off-Season Collection Event Flyer
ATTENTION BOATERS!
Hazardous Waste Collection

Hello - my name is Patrick from the Thurston County Health Department. I am working with the Port of Olympia to help collect and dispose of your hazardous wastes. This service is available free of charge for Swantown Marina customers from now through May 2004.

We are currently collecting wastes in the green totes located in the east side of the Boatworks parking lot next to the marine paint bulking area. The totes are labeled “BOAT RELATED HAZARDOUS WASTE” and are kept unlocked during normal business hours. Inside the totes are: latex gloves, labels, markers, survey forms, and over-pack buckets for leaking containers.

I encourage you all to take advantage of this convenient service while it is available. This will help keep hazardous chemicals out of Puget Sound and Washington landfills.

PLEASE READ THE BACK TO HELP US HANDLE YOUR WASTE SAFELY

TIPS FOR SAFE WASTE DISPOSAL:
• Use gloves if waste is on container
• Put waste containers in green totes
• Identify all wastes (use labels)
• Use over-pack buckets for leaking containers or if in poor condition
• Tell marina personnel if a spill occurs
• DO NOT leave waste on docks
• DO NOT pour waste into green tote

ACCEPTABLE waste for collection:
• Marine paint or oil-based paint
• Lacquers, stains, oils, rust inhibitors
• Antifreeze and used oil
• Adhesives, sealers, and sealants
• Hazardous cleaning compounds
• Batteries
• Other household hazardous wastes

UNACCEPTABLE waste for collection:
• Waste from commercial vessels*
• Fluorescent bulbs*
• Propane tanks and compressed gas*
• Flares and explosives*
• Liquid hazardous wastes in containers greater than 5-gallons*

*Please call the Hazardous Waste Hotline for information about these wastes (360) 786-5457.

Sponsored by the Port of Olympia and Thurston County.
For more information call (360) 754-4111.
Appendix 6: Customer Survey Form
1) How did you hear about this collection event?  
(please circle all that apply)  
(a) Billing insert  
(b) Poster  
(c) Saw it on-site  
(d) Other: ________________________________  

2) What have you done with hazardous wastes in the past?  
(please circle all that apply)  
(a) Took them to Hazo House  
(b) Took them to wastemobile  
(c) Threw them in regular garbage  
(d) Stored them  
(e) Other: ________________________________  

3) How many wastes did you dispose of today?  
(please circle one)  
(a) One - two  
(b) Three - five  
(c) Six - ten  
(d) More than ten  

4) How long do you typically store hazardous products on your boat or boathouse?  
(please circle one)  
(a) Less than six months  
(b) About a year  
(c) More than a year  
(d) Other: ________________________________  

5) Please rate your satisfaction with this service.  
(please circle one)  
(a) Extremely satisfied  
(b) Fairly satisfied  
(c) Not satisfied  
Why? ____________________________________  

6) Would you be willing to pay a small fee to continue this service?  
(please circle one)  
(a) Yes, if less than $1/month  
(b) Yes, up to $2/month  
(c) No