

CITY OF SANTA BARBARA WATERFRONT DEPARTMENT

MEMORANDUM

Date: March 20, 2014
To: Harbor Commission
From: Scott Riedman, Waterfront Director
Subject: Annual Review—Clean Marina Program

RECOMMENDATION:

That Harbor Commission review and consider an annual report on the Department's Clean Marina Program.

BACKGROUND:

City Council adopted a Clean Marina Program ("Program") in 2002. Its goal is to achieve and maintain, via feasible means and alternatives, best management practices and a clean harbor environment for people, aquatic life and seabirds. The Program includes six elements:

1. Facilities for Boaters
2. Water Quality
3. Best Management Practices
4. Pollution Prevention and Abatement Projects
5. Education
6. Compliance and Enforcement

Staff reports annually on the status of the Program to the Harbor Commission.

DISCUSSION:

1. Facilities for Boaters

A. Sewage Pump-Outs

The harbor's five sewage pump-out stations accommodate boaters and reduce the likelihood of sewage spills. Last year, Waterfront Maintenance staff rebuilt pump-outs at Marina 1 West and Sea Landing. Inspectors tested all other harbor pumpout stations in November, 2013 and found them in fine working order.

Sewage Pump-Out Use (In Minutes)

<u>Fiscal Year</u>	<u>Marina 1</u> <u>East*</u>	<u>Marina 1</u> <u>West</u>	<u>Fuel Dock</u>	<u>Launch</u> <u>Ramp</u>	<u>Annual</u> <u>Total</u>
FY '03	5,165	1,253	1,421	73	7,912
FY '04	4,957	1,069	1,310	135	7,471

FY '05	4,758	758	2,183	3	7,764
FY '06	4,384	1,657	2,608	362	9,011
FY '07	3,796	1,269	1,666	27	6,785
FY '08	3,834	1,172	2,207	15	7,228
FY '09	3,690	976	1,464	252	6,382
FY '10	3,876	896	1,336	179	6,287
FY '11	4,128	884	1,204	217	6,433
FY '12	3,652	1,807	2,085	198	7,742
FY '13	3,802	336	2,249	437	5,938

* Two stations, P/Q finger and R/S finger

B. Bilge Water Pump-Out

A bilge-water pump-out at the Fuel Dock, one of only two in Southern California, accepts bilge water mixed with either oil or diesel. It cannot accept gasoline or “hot loads” with contaminants like soap, which must be disposed of at a Household Hazardous Waste Facility. The pump-out sends oil to a waste-oil container and residual water into the City’s sewer system. **Note:** The waste-oil tank was replaced in January, 2014, after its primary containment failed. Secondary containment held and no oil was spilled. Pumping at about five gallons per minute, the facility removed 3,640 gallons of bilge water in 2013, 73% of its 11-year average.

Bilge-Water Pump-Out Use

<u>Year</u>	<u>Minutes</u>	<u>Gallons</u>
2003	1,086	5,430
2004	1,602	8,010
2005	1,416	7,080
2006	1,353	6,765
2007	1,546	7,730
2008	N/A	N/A
2009	629	3,145
2010	948	4,740
2011	813	4,065
2012	895	4,475
2013	728	3,640

C. Debris Nets

Over 40 debris nets—found on each finger dock—help boaters remove light debris from the harbor. Some nets disappear or rot out each year. In 2013, staff replaced parts equivalent to 10 nets, average for past six years.

Debris Nets

<u>Year</u>	<u>Nets</u>
2008	15
2009	7
2010	8
2011	6
2012	11
2013	10

D. Waste-Oil Disposal

The Department operates waste-oil disposal stations at the Fuel Dock, Marina 2 and Marina 4. These free facilities also accept oil filters, anti-freeze and oil-absorbent bilge pads. Staff has tracked the number of gallons of oil received at these stations for the past three years. The FY '13 total was near exactly the three-year average.

<u>Year</u>	<u>Gallons</u>
FY '11	7,585
FY '12	6,675
FY '13	7,145

E. Marine Battery Collection

The Department provides a marine battery collection bin on the City Pier near the Fuel Dock. Interstate Batteries hauls away the batteries for free. The number of batteries recycled in FY '13 (200) was down from previous years, for reasons not entirely clear.

<u>Year</u>	<u>Batteries Recycled</u>
FY '09	450
FY '10	350
FY '11	300
FY '12	290
FY '13	200

F. Fishing Line Recycling

The Department has traditionally operated three fishing-line recycling stations—one at Stearns Wharf Bait and Tackle, one on the shoreward finger west of the Sea Center and one at Sea Landing. The Sea Landing (rock groin) collection bin was stolen last year and its signage damaged beyond repair. Staff removed the damaged sign and is relocating the station to the passenger-carrying fishing vessel *Stardust* at Sea Landing.

2. Water Quality

A. Monthly “Dry Season” Harbor Water Quality Monitoring

In FY ‘13, seven stations were tested for three bacterial indicators between April and October. For the second straight year, no samples exceeded state standards for body contact (Attachment 1). A map of harbor sampling sites is included as Attachment 2.

B. East Beach Water Quality Monitoring

Coastal Commission permit conditions for the East Beach Mooring Program require twice-yearly water-quality testing in the mooring area for heavy metals and three times a year for bacteria. Results remain consistent with baseline results from 2006, indicating good water quality in the project area (Attachment 3). Sampling sites are noted in Attachment 4. If the area continues to test “clean” for another three years of a 10-year agreement with the Commission, the testing requirement will be waived.

C. Dissolved Oxygen Tests

The Department tests dissolved oxygen (D/O) levels in the harbor to predict and report low-oxygen events that can cause fish and invertebrate die-offs. Twelve D/O tests were conducted in FY ‘13. Results (Attachment 5) indicate generally good levels (five milligrams of oxygen per liter of water) except for poor levels in April and September (same as FY ‘12), plus very poor levels in January. Low levels usually indicate the presence of algae blooms. When D/O levels are dramatically low, the Department posts marina gates so crab and lobster fishermen who store their catch in receivers can move them outside the harbor to avoid “dead loss.” Fishermen are encouraged to alert the Department immediately if they experience high dead-loss, so staff can test D/O levels.

D. Anti-Fouling Paints (AFPs)

In response to studies indicating elevated copper levels in many Southern California harbors, the testing of alternative AFPs has increased in recent years. In an effort to advance applied knowledge, the Department has experimented with new AFPs on its Patrol boats since 2009. The best success has come with zinc-based bottom paint, used on its aluminum-hulled, 33’ fire boat (PB#3). Other non-copper AFPs like ceramic coatings and E-conea have proved less effective and not worth pursuing. Based on the success with zinc coating on PB #3, the Department will soon apply the same to PB#1, a 22’ fiberglass Radon (the smaller of two fiberglass Patrol boats and less expensive to coat for test purposes).

In related actions, the Los Angeles Regional Water Quality Control Board recently established Total Maximum Daily Load (TMDL) requirements for Marina

Del Rey, in hopes of reducing copper pollution. TMDLs are methods used to achieve and maintain good water quality in water bodies with poor water quality. Besides Marina Del Rey, two other harbors already operate under TMDLs (Shelter Island Yacht Basin in San Diego and Newport Bay in Orange County). In Marina Del Rey, the TMDL plan allots 11 years to reduce copper discharge from boats by 85%. The plan can be amended based on new findings and good-faith efforts toward improving water quality. Proposed implementation options include switching from copper-based to non-toxic antifouling paints, use of slip liners, and use of less-abrasive hull cleaning techniques.

Pursuant to legislation implemented February 1, 2014, the State Department of Pesticide Regulation (DPR) has developed maximum leach rates for copper paints and recommended practices (especially for in-water hull cleaning) in an effort to ensure that saltwater marinas reduce copper levels to the “protective standard” of 3.1 parts per billion. Regional Water Boards will have the task of implementing regulatory or non-regulatory means of achieving these goals. For complete information, visit DPR’s website at www.cdpr.ca.gov.

E. Industry’s Clean Marina Program

The Clean Marina Program is a multi-state, industry-sponsored certification program designed to reflect compliance with strict environmental and best-management practices to prevent ocean pollution. The Program has certified 117 California marinas and six out-of-state marinas since 2004. Santa Barbara Harbor was certified in July 2006 and recertified in June 2011.

3. Best Management Practices (BMPs)

A. Storm Water Pollution Prevention Plan

The Department complies with federal Clean Water Act standards through its Stormwater Pollution Prevention Plan (SWPPP), whose goal is to prevent pollution discharges into the harbor. The SWPPP includes a description of the entire Waterfront and potential sources of stormwater discharge, plus BMPs to maintain the area such that stormwater does not become contaminated as it flows off Waterfront property.

Visual observations are made quarterly and stormwater runoff samples (mostly from parking lots) are captured by our consultant, Leidos, Inc., during two storm events per year. Results are reported annually to the RWQCB. No significant illicit discharges in were observed FY ‘13.

B. Storm Water Management Plan

In 2009, the City completed a state-mandated Stormwater Management Plan (SWMP), which includes several Minimum Control Measures (MCMs—like

public outreach, illicit discharge detection and BMPs) to help maintain good water quality in our harbor. As part of the City's overall SWMP, the Waterfront developed MCMs specific to its operations. To date, the Waterfront is compliant and current with the SWMP and will continue to work closely with the RWQCB to modify the document as appropriate.

C. Diver BMPs

All hull-cleaning dive companies are trained and certified in BMPs for minimizing paint sloughing into the harbor. Harbor Patrol Officers are similarly trained.

D. Staff and Contractor BMPs

City staff and City contractors observe BMPs during maintenance, repair and construction work at the Waterfront:

- Vacuuming debris on decks or roadways during work
- Power-washing and/or scrubbing roadways and parking lots for oil and stain removal (recovered and deposited into sewer system)
- Monthly trash-enclosure cleaning at Waterfront Center Building
- Monthly strip-drain cleaning in the 117 Building alley
- Placing booms around projects sites near the water
- Placing crew in skiffs in the water to scoop debris
- Monitoring beaches to ensure all debris is retrieved
- Removing any leaking equipment from service

E. Oil Absorbent Pad Distribution

Funded by the CalRecycle grant noted earlier, the Department distributes recyclable absorbent bilge pads that boaters use to soak up oily bilges and prevent leaks while fueling. The number of pads distributed in FY '13 is near the 11-year average, during which time nearly 190,000 pads have been distributed.

<u>Year</u>	<u>Pads Distributed</u>
FY '03	15,000
FY '04	18,000
FY '05	20,000
FY '06	17,000
FY '07	14,400
FY '08	14,000
FY '09	17,500
FY '10	17,500
FY '11	21,000
FY '12	17,000
FY '13	15,000

F. Bird Protection

Three years ago, the Department began tracking bird rescues, activity it coordinates with the Wildlife Care Network. Despite the seeming increase in rescues, staff could only speculate on the reasons for the increase over this brief span. In fact, through the first half of FY '14, Harbor Patrol rescued only 21 birds.

<u>Year</u>	<u>Bird Rescues</u>
FY '11	29
FY '12	81
FY '13	115

4. Pollution Prevention and Abatement Projects

A. "Salad Boat"

A contractor working from the dock and/or a 13' skiff, extracts litter and debris from the harbor on alternate Saturdays and following harbor events or storms (augmenting maintenance staff's routine efforts). This improves the harbor's appearance, encourages a clean-ocean environment and helps maintain access to and from boat slips. West-facing docks continue to collect debris. Last year, Area "C," near the small-boat launch ramp was a "hot spot" for debris, requiring half of all cleanup efforts. Debris includes aluminum cans, newspaper, buckets, kelp, tree limbs, plastic bags, tennis balls, cigarettes, snack wrappers and Styrofoam cups, though cigarette butts were down from previous years.

B. Abandoned Watercraft Abatement and Vessel Turn-In Grants

The Department disposed of three beached boats in FY '13 through DBW's Abandoned Watercraft Abatement Fund (AWAF) — far below the annual eight-year average, due mostly to two unusually mild winters. The Department exhausted its (three-year) \$41,500 AWAF grant, in FY '12, and obtained a \$10,000 grant for 'FY 14.

<u>Year</u>	<u>Abandoned Boats</u>
FY '06	14
FY '07	10
FY '08	13
FY '09	6
FY '10	15
FY '11	10
FY '12	2
FY '13	3

The City also participates in DBW's four-year-old Vessel Turn-In Program (VTIP), which allows voluntarily surrender of vessels that would potentially be abandoned (and likely end up in the East Beach anchorage). Operating with consecutive \$8,000 grants, following is the Department's four-year record of disposed VTIP vessels:

<u>Year</u>	<u>VTIP Boats</u>
FY '11	10
FY '12	2
FY '13	7
FY '14 (to date)	7

C. Operation Clean Sweep

Operation Clean Sweep, a volunteer seafloor cleanup program, has removed 14.4 tons of debris from the harbor during seven annual one-day events. Typical debris includes barbeques, bicycles, plastic barrels, boat propellers, outboard engines and an occasional marine battery. This year's event (May 3rd) will target fingers M through P in Marina 1. Staff expects 50 volunteer divers and dock workers to participate. Next year's event will finish the harbor "circumnavigation," to begin again in Marina 4 in 2016.

D. Fish Market Trench Drain – Water Diversion Project

The Santa Barbara Fish Market's business has grown dramatically with much of its operation expanding into an alley on the north side of the 117 building. The alley is frequently wet from melting ice and wash-down water that flows down a trench drain into the harbor. Occasionally the water stagnates in the trench drain and creates unpleasant odors. Last November, staff designed a system to divert the water associated with the Fish Market's operations directly into the sewer system, reducing odors and preventing potential discharge into the harbor. The project cost \$21,500, shared by the Fish Market and the Department.

5. Education

Staff disseminates Clean Marina information via *Docklines* and *The Log* newspaper, and distributes literature from California Sea Grant, the California Coastal Commission, DBW and the U.S. Coast Guard. Recent Clean-Marina *Docklines* articles included "Integrated Pest Management in Santa Barbara Harbor," "Marine Battery Maintenance" and a primer on the Department's VTIP program. Harbor Patrol educates boaters in the field, distributing pollution packets describing BMPs for clean boating and environmentally sound boat maintenance.

6. Compliance and Enforcement

A. Marine Sanitation Device (MSD) Inspections

Dye-tabling MSDs (“holding tanks”) is required for boats visiting Santa Barbara Harbor and for new slip and live-aboard assignments. The number of MSD inspections in FY ‘13 (1,087) was 85% of the 11-year average, up 26% from FY ‘12. Staff believes the change reflects increased visitor berthing, due both to a recovering economy and a non-active year in the Marina 1 reconstruction project.

<u>Year</u>	<u>MSD Inspections</u>
FY ‘03	1,230
FY ‘04	1,280
FY ‘05	1,199
FY ‘06	1,259
FY ‘07	1,370
FY ‘08	1,160
FY ‘09	992
FY ‘10	837
FY ‘11	770
FY ‘12	640
FY ‘13	1,087

B. Discharge Violations

There were 9 known pollution violations in FY ‘13, the lowest number in nine years of tracking this measure, and the latest in a steady downward trend. Patrol issued two citations, both for oil spills. The ratio of warnings to citations continues to reflect the Department’s emphasis on education as its primary enforcement tool.

<u>Year</u>	<u>Total</u>	<u>Warnings</u>	<u>Cites</u>
FY ‘05	32	29	3
FY ‘06	19	16	3
FY ‘07	22	19	3
FY ‘08	22	18	4
FY ‘09	14	13	1
FY ‘10	19	16	3
FY ‘11	14	12	2
FY ‘12	10	8	2
FY ‘13	9	7	2

COST SUMMARY:

Storm Water Pollution Prevention Plan	\$11,900
Dry Season Water Quality Testing	\$2,374
Salad Boat	\$6,644
Trench Drain Water Diversion	\$8,000
* Oil-Absorbent Pads	\$8,900
* Abandoned Vessel Disposal	\$7,000
East Beach Water Quality Testing	\$7,790
Replace Dockside Debris Nets	\$1,310
* Hazmat Turn-In Disposal	\$7,840
* Used-Oil Disposal	\$15,400
* Fuel Dock Waste Oil Tank	\$6,990
Sub Total Annualized Program Cost:	\$84,148
* Grant Funded/Reimbursed Cost	<u>-\$46,130</u>
FY '13 Adjusted Clean Marina Program Cost:	\$38,018

ANNUAL CLEAN MARINA PROGRAM COSTS

FY 2003	\$ 40,647
FY 2004	\$ 25,476
FY 2005	\$ 27,627
FY 2006	\$ 32,400
FY 2007	\$ 33,770
FY 2008	\$ 25,900
FY 2009	\$ 25,163
FY 2010	\$ 21,792
FY 2011	\$ 21,543
FY 2012	\$ 35,140
FY 2013	\$ 38,018

CONCLUSION:

The Clean Marina Program continues to be an important contribution to the Department's overall mission, with annual costs remaining stable. The Program highlights the importance of maintaining a clean ocean environment for those who visit, recreate or work in Santa Barbara Harbor, as well as the marine and avian life that depend on it to thrive.

- Attachments:
1. Water Quality Sampling Results—Harbor
 2. Water Quality Sampling Map—Harbor
 3. Water Quality Sampling Results—East Beach Mooring Area
 4. Water Quality Sampling Map— East Beach Mooring Area
 5. Dissolved Oxygen Sampling Results—Harbor
 6. Salad Boat Annual Report
 7. Salad Boat Debris Cleanup Map

Prepared by: Mick Kronman, Harbor Operations Manager

SANTA BARBARA HARBOR
WATER QUALITY TEST RESULTS
FY2013

MARCH 20, 2014
#7

Total Coliform MPN/100mls					
Station	July	September	October	April	June
SBH #7	419	10	41	63	213
SBH #8	631	52	52	63	187
SBH #9	309	156	63	10	41
SBH #10	110	63	74	31	<10
SBH #11	132	31	41	52	97
SBH #12	10	<10	74	52	<10
SBH #13	<10	<10	<10	20	<10
Limit: <10,000 MPN/100mls					

Fecal Coliform MPN/100mls					
Station	July	September	October	April	June
SBH #7	272	<10	<10	<10	<10
SBH #8	20	10	<10	10	10
SBH #9	10	41	20	10	20
SBH #10	63	31	31	<10	<10
SBH #11	10	<10	10	10	31
SBH #12	10	<10	63	20	<10
SBH #13	<10	<10	<10	<10	<10
Limit: < 400 MPN/100mls					

Enterococcus MPN/100mls					
Station	July	September	October	April	June
SBH #7	20	10	10	<10	<10
SBH #8	10	<10	<10	<10	10
SBH #9	<10	<10	<10	<10	<10
SBH #10	<10	10	<10	<10	<10
SBH #11	<10	<10	<10	<10	<10
SBH #12	<10	<10	<10	20	<10
SBH #13	<10	<10	<10	<10	<10
Limit: < 104 MPN/100mls					

ATTACHMENT #1

SANTA BARBARA HARBOR
WATER QUALITY TEST RESULTS
FY2013

MARCH 20, 2014
#7

MBAS MPN/l			
Station		April	June
SBH #7		ND	ND
SBH #8		ND	ND
SBH #9		ND	ND
SBH #10		ND	ND
SBH #11		ND	ND
SBH #12		ND	ND
SBH #13		ND	ND
Limit: < .2 MPN mg/l			



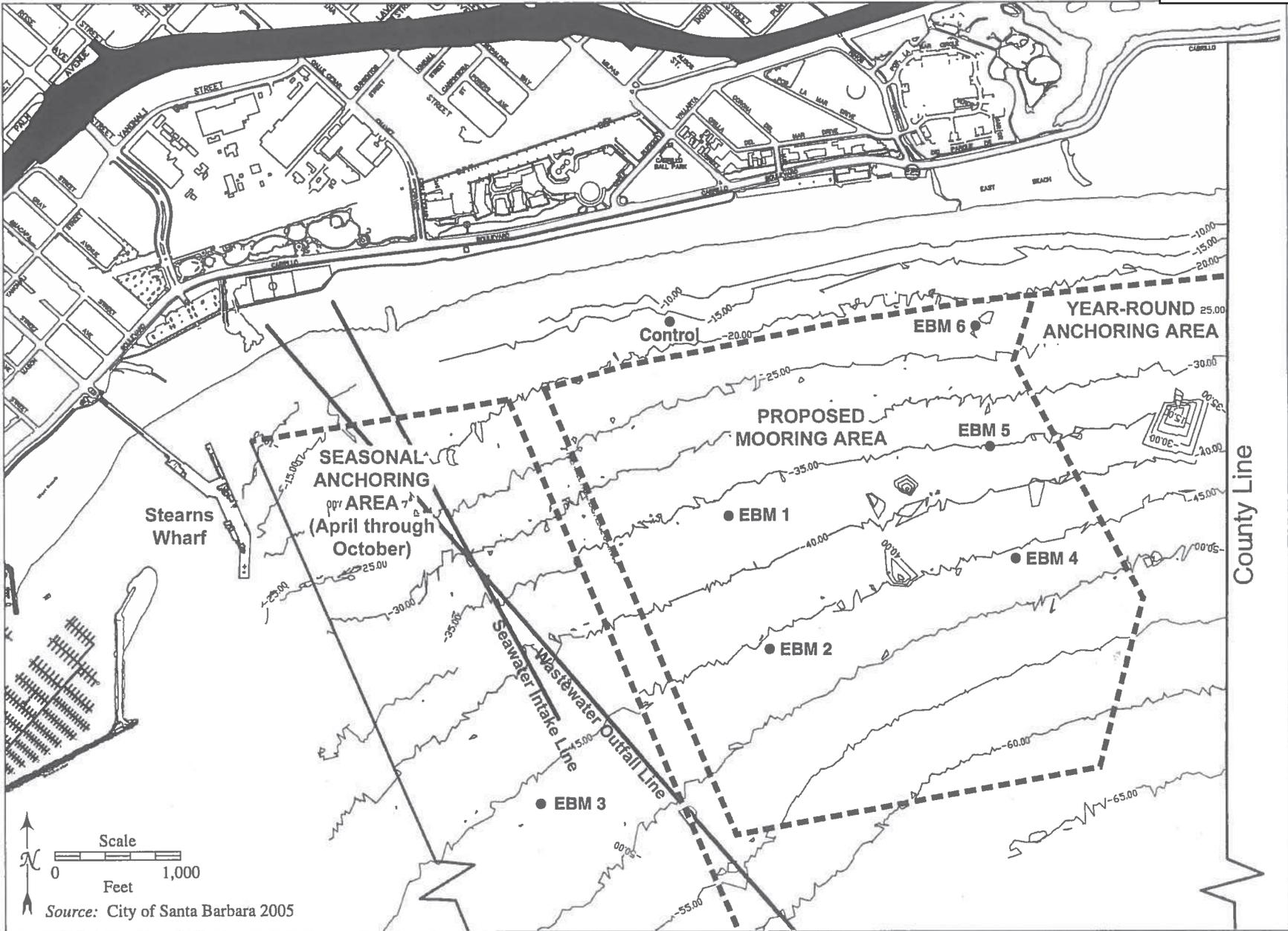
Water Quality Sampling Locations

EAST BEACH MOORING
WATER QUALITY TEST RESULTS FY2013

Total Coliform MPN/100ml			
Station	September	April	June
EBM #1	<10	<10	<10
EBM #2	<10	<10	<10
EBM #3	<10	<10	<10
EBM #4	<10	<10	<10
EBM #5	<10	<10	<10
EBM #6	<10	<10	<10
CONTROL	<10	<10	<10
Limit: < 10,000 MPN/100 ml			

Fecal Coliform MPN/100ml			
Station	September	April	June
EBM #1	<10	<10	<10
EBM #2	<10	<10	<10
EBM #3	<10	<10	<10
EBM #4	<10	<10	<10
EBM #5	<10	<10	<10
EBM #6	<10	<10	<10
CONTROL	<10	<10	<10
Limit: < 400 MPN/100ml			

Enterococcus MPN/100ml			
Station	September	April	June
EBM #1	<10	<10	<10
EBM #2	<10	<10	<10
EBM #3	<10	<10	<10
EBM #4	<10	<10	<10
EBM #5	<10	<10	<10
EBM #6	<10	<10	<10
CONTROL	10	<10	<10
Limit: < 104 MPN/100ml			



Map 1. Proposed Mooring and Anchoring Areas

Dissolved Oxygen Levels in the Harbor

7/24/2012

		<i>Near Surface DO</i>	<i>Near Bottom DO</i>
Station #7	Marina 1A002	5.57 mg/l	4.99 mg/l
Station #8	Marina 2B300	4.52 mg/l	4.80 mg/l
Station #9	Marina 3A030	5.71 mg/l	6.17 mg/l
Station #10	Marina 1M001	5.49 mg/l	4.59 mg/l
Station #11	West Finger of Launch Ramp	4.83 mg/l	4.82 mg/l
Station #12	Red Bouy #10, Mouth of Harbor	7.02 mg/l	7.22 mg/l
Station #13	Control, 100 yards Offshore	7.15 mg/l	7.61 mg/l

8/2/2012

		<i>Near Surface DO</i>	<i>Near Bottom DO</i>
Station #7	Marina 1A002	5.84 mg/l	6.05 mg/l
Station #8	Marina 2B300	5.80 mg/l	6.43 mg/l
Station #9	Marina 3A030	5.56 mg/l	6.14 mg/l
Station #10	Marina 1M001	6.31 mg/l	6.06 mg/l
Station #11	West Finger of Launch Ramp	5.44 mg/l	5.25 mg/l
Station #12	Red Bouy #10, Mouth of Harbor	8.36 mg/l	8.01 mg/l
Station #13	Control, 100 yards Offshore	8.37 mg/l	8.79 mg/l

8/28/2012

		<i>Near Surface DO</i>	<i>Near Bottom DO</i>
Station #7	Marina 1A002	6.30 mg/l	5.99 mg/l
Station #8	Marina 2B300	5.57 mg/l	4.92 mg/l
Station #9	Marina 3A030	5.62 mg/l	5.82 mg/l
Station #10	Marina 1M001	5.77 mg/l	5.61 mg/l
Station #11	West Finger of Launch Ramp	5.73 mg/l	5.91 mg/l
Station #12	Red Bouy #10, Mouth of Harbor	7.48 mg/l	7.71 mg/l
Station #13	Control, 100 yards Offshore	7.93 mg/l	8.45 mg/l

9/27/2012

		<i>Near Surface DO</i>	<i>Near Bottom DO</i>
Station #7	Marina 1A002	4.77 mg/l	4.29 mg/l
Station #8	Marina 2B300	4.06 mg/l	4.56 mg/l
Station #9	Marina 3A030	4.57 mg/l	5.20 mg/l
Station #10	Marina 1M001	4.64 mg/l	5.46 mg/l
Station #11	West Finger of Launch Ramp	4.36 mg/l	4.04 mg/l
Station #12	Red Bouy #10, Mouth of Harbor	7.34 mg/l	7.67 mg/l
Station #13	Control, 100 yards Offshore	7.65 mg/l	7.84 mg/l

11/28/2012

		<i>Near Surface DO</i>	<i>Near Bottom DO</i>
Station #7	Marina 1A002	5.02 mg/l	5.08 mg/l
Station #8	Marina 2B300	4.63 mg/l	4.64 mg/l
Station #9	Marina 3A030	4.78 mg/l	5.40 mg/l
Station #10	Marina 1M001	5.24 mg/l	5.34 mg/l
Station #11	West Finger of Launch Ramp	4.65 mg/l	4.74 mg/l
Station #12	Red Bouy #10, Mouth of Harbor	7.64 mg/l	7.67 mg/l
Station #13	Control, 100 yards Offshore	7.80 mg/l	7.70 mg/l

1/8/2013

		<i>Near Surface DO</i>	<i>Near Bottom DO</i>
Station #7	Marina 1A002	5.92 mg/l	5.63 mg/l
Station #8	Marina 2B300	5.86 mg/l	5.62 mg/l
Station #9	Marina 3A030	5.50 mg/l	5.87 mg/l
Station #10	Marina 1M001	5.94 mg/l	6.28 mg/l
Station #11	West Finger of Launch Ramp	5.15 mg/l	4.71 mg/l
Station #12	Red Bouy #10, Mouth of Harbor	7.28 mg/l	7.16 mg/l
Station #13	Control, 100 yards Offshore	7.80 mg/l	7.80 mg/l

Dissolved Oxygen Levels in the Harbor

1/23/2013

		<i>Near Surface DO</i>	<i>Near Bottom DO</i>
Station #7	Marina 1A002	0.98 mg/l	0.94 mg/l
Station #8	Marina 2B300	1.03 mg/l	0.98 mg/l
Station #9	Marina 3A030	1.06 mg/l	1.00 mg/l
Station #10	Marina 1M001	1.41 mg/l	0.76 mg/l
Station #11	West Finger of Launch Ramp	1.12 mg/l	1.06 mg/l
Station #12	Red Bouy #10, Mouth of Harbor	8.03 mg/l	8.23 mg/l
Station #13	Control, 100 yards Offshore	8.52 mg/l	9.06 mg/l

2/26/2013

		<i>Near Surface DO</i>	<i>Near Bottom DO</i>
Station #7	Marina 1A002	4.73 mg/l	5.00 mg/l
Station #8	Marina 2B300	4.52 mg/l	4.58 mg/l
Station #9	Marina 3A030	3.94 mg/l	4.71 mg/l
Station #10	Marina 1M001	4.70 mg/l	4.82 mg/l
Station #11	West Finger of Launch Ramp	4.11 mg/l	4.19 mg/l
Station #12	Red Bouy #10, Mouth of Harbor	6.48 mg/l	6.89 mg/l
Station #13	Control, 100 yards Offshore	9.24 mg/l	9.37 mg/l

3/9/2013

		<i>Near Surface DO</i>	<i>Near Bottom DO</i>
Station #7	Marina 1A002	6.08 mg/l	5.41 mg/l
Station #8	Marina 2B300	4.84 mg/l	5.02 mg/l
Station #9	Marina 3A030	6.79 mg/l	5.25 mg/l
Station #10	Marina 1M001	5.90 mg/l	5.83 mg/l
Station #11	West Finger of Launch Ramp	5.38 mg/l	5.40 mg/l
Station #12	Red Bouy #10, Mouth of Harbor	5.19 mg/l	4.57 mg/l
Station #13	Control, 100 yards Offshore	4.95 mg/l	4.60 mg/l

4/11/2013

		<i>Near Surface DO</i>	<i>Near Bottom DO</i>
Station #7	Marina 1A002	4.85 mg/l	4.71 mg/l
Station #8	Marina 2B300	4.92 mg/l	4.94 mg/l
Station #9	Marina 3A030	4.75 mg/l	4.39 mg/l
Station #10	Marina 1M001	4.85 mg/l	4.28 mg/l
Station #11	West Finger of Launch Ramp	4.35 mg/l	4.35 mg/l
Station #12	Red Bouy #10, Mouth of Harbor	5.30 mg/l	5.47 mg/l
Station #13	Control, 100 yards Offshore	5.52 mg/l	5.62 mg/l

5/26/2013

		<i>Near Surface DO</i>	<i>Near Bottom DO</i>
Station #7	Marina 1A002	7.45 mg/l	5.45 mg/l
Station #8	Marina 2B300	6.55 mg/l	6.95 mg/l
Station #9	Marina 3A030	6.69 mg/l	7.10 mg/l
Station #10	Marina 1M001	7.58 mg/l	5.50 mg/l
Station #11	West Finger of Launch Ramp	6.14 mg/l	6.75 mg/l
Station #12	Red Bouy #10, Mouth of Harbor	9.35 mg/l	9.31 mg/l
Station #13	Control, 100 yards Offshore	10.09 mg/l	10.10 mg/l

6/9/2013

		<i>Near Surface DO</i>	<i>Near Bottom DO</i>
Station #7	Marina 1A002	5.36 mg/l	5.29 mg/l
Station #8	Marina 2B300	5.45 mg/l	4.85 mg/l
Station #9	Marina 3A030	5.41 mg/l	5.71 mg/l
Station #10	Marina 1M001	4.49 mg/l	4.84 mg/l
Station #11	West Finger of Launch Ramp	4.24 mg/l	4.36 mg/l
Station #12	Red Bouy #10, Mouth of Harbor	6.78 mg/l	6.46 mg/l
Station #13	Control, 100 yards Offshore	7.33 mg/l	7.41 mg/l

CUSHMAN CONTRACTING CORPORATION
P.O. Box 147
Goleta, CA 93116-0147

Subject: Harbor Debris Cleanup: July, 2013-March, 2014
Date: February 25, 2013

During the course of our Harbor Debris cleanup efforts much regularity has been noticed. As in years past; most west-facing docks and fingers are the primary collecting spots for debris. The reason this side collects more debris is most likely due to the direction in which debris are moving. The wind, along with the out-to-sea current at low tide is in an easterly direction. This results in a "comb like" effect, trapping the debris in these areas.

The debris collected this year that can be categorized as regular or reoccurring consist of: plastic bags, plastic and glass bottles, buckets, sunscreen containers, foam, candy and food wrappers, aluminum cans, tennis balls, rope, balloons, oil diapers, kelp, dead birds, milk crates, and corks.

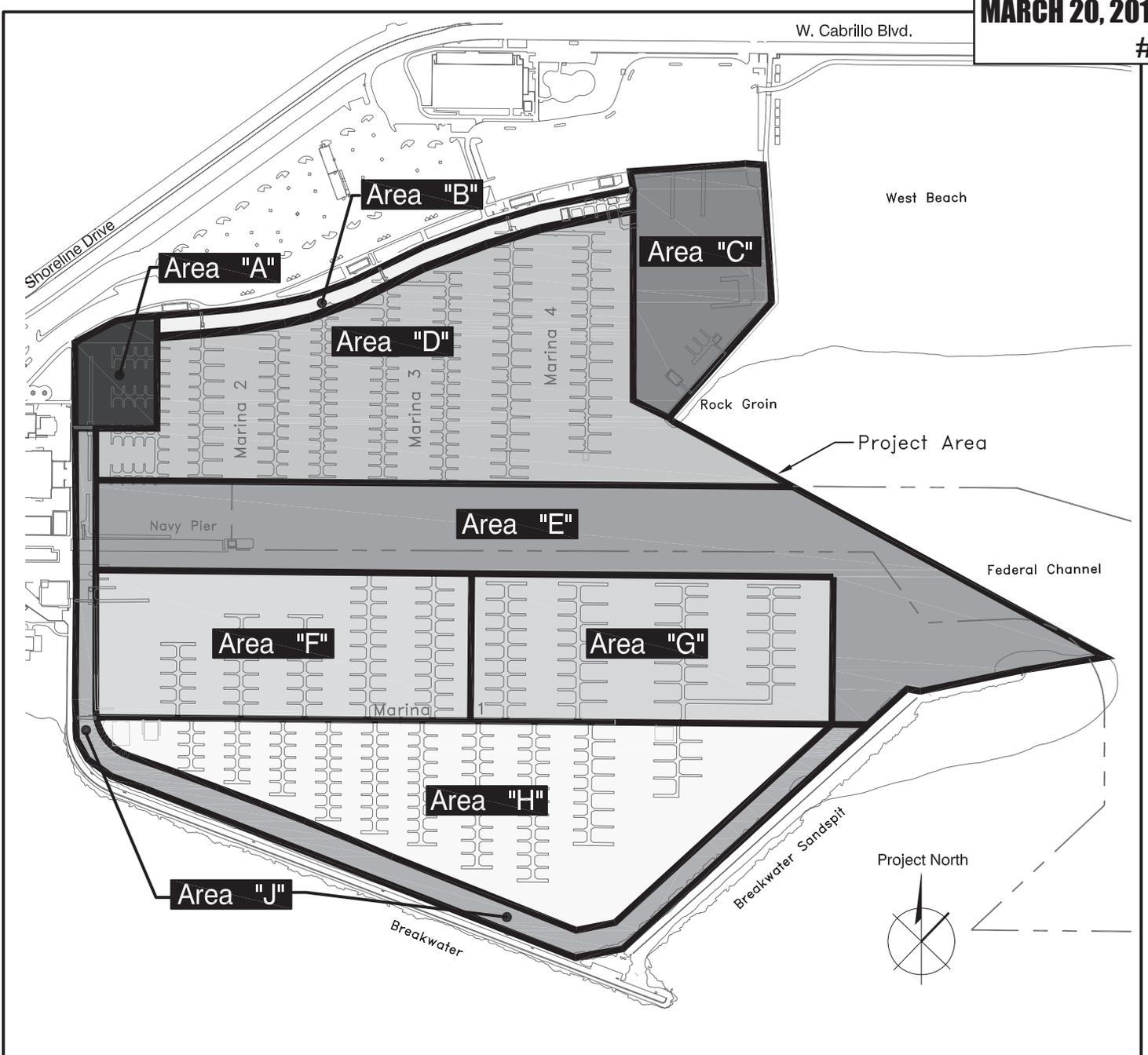
We have found that walking along the marinas and docks is more time efficient, covers a larger area and produces a much higher volume of debris than working from a skiff. A skiff is used in areas inaccessible by foot, for removal of larger debris and where it is more efficient.

This year, unlike previous years, the majority of cleanup effort occurred in the area of the Harbor designated as "C" on the maintenance map. Area "C" is in the vicinity of the boat launch. The main collection point in this area is along the east side of the harbor along the rock jetty. This area resulted in nearly half of our effort, followed respectively by areas G, H, D, & F.

Two areas that required less cleaning this year than in previous years were Areas "A" and "B". Area "A" is in the vicinity of the storm drain outfall in the northwest corner of the harbor closest to Shoreline Drive. Area "B" is all along the north side of the harbor in the rocks below the seawall in Marinas 2, 3 & 4. The majority of trash when picked up in this area is after a storm. Due to so little rain and runoff this year these area have been some of the cleanest areas in the harbor.

Two special events that resulted in unscheduled response were associated with King Tides and strong down winds from inland. The King Tide event resulted in increased kelp and seaweed mainly getting trapped in the areas of F, G, and H as the tide resided. The downwind event resulted in trapped debris also mainly in the areas of F, G, and H for the reasons discussed previously.

On a more positive note, there appears to be fewer dead birds this year than last year. Only fourteen birds (cormorants) have been found to date compared to twenty at this time last year. Many are again mangled, as if caught in props underwater while swimming for food. We have also noticed a decline in newspapers and cigarette butts over prior years.



Cleanup Date: _____ Operator: _____

Cleanup Hours: _____

Debris Profile:

<input checked="" type="checkbox"/>	Area "A"
<input type="checkbox"/>	Area "B"
<input checked="" type="checkbox"/>	Area "C"
<input checked="" type="checkbox"/>	Area "D"
<input checked="" type="checkbox"/>	Area "E"
<input type="checkbox"/>	Area "F"
<input type="checkbox"/>	Area "G"
<input type="checkbox"/>	Area "H"
<input checked="" type="checkbox"/>	Area "J"

General Comments:

ATTACHMENT #7