Agenda

1. Overview of SIYB
2. TMDL requirements
3. Activities Implemented 2005-Present
4. Implementation Strategy for Future Activities
Shelter Island Yacht Basin

- ~2,200 (slips) boats
- 7 marinas
- 4 yacht clubs
- 1 fuel dock
- Harbor Police dock
SIYB Copper TMDL

- 76% required load reduction
- 17 year phased compliance period
- Compliance by 2022

<table>
<thead>
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<th>Stage</th>
<th>Years</th>
<th>Reduction</th>
<th>Start</th>
<th>End</th>
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<td>1</td>
<td>0-2</td>
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<td>12/2005</td>
<td>12/2007</td>
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<td>2-7</td>
<td>10%</td>
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<td>2012</td>
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<td>7-12</td>
<td>40%</td>
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<td>2017</td>
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<td>12-17</td>
<td>76%</td>
<td>2017</td>
<td>2022</td>
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SIYB Copper TMDL: Implementation (current)

Policy Milestones

a) Directive to DPR and SWRCB in final TMDL

b) Statewide copper study is finding elevated copper levels in several marinas

c) Participation & Development of State Copper Sub-group (led by DPR)

d) Paint manufacturers willing to participate in studies.
Stage 1: Orientation Period: Implementation (current)

- **Objective 1: Initiation of education effort for boat owners & boating industry**
  a) Marina Inspection
  b) Boater Survey
  c) Brochures

- **Objective 2: Initiation of commercial demonstration & scientific studies**
  a) In-water hull cleaning
  b) Zinc study
  c) EPA Grant: “Safer Alternatives to Copper Antifouling Paints for Marine Vessels”
SIYB Copper TMDL
Stage 1: Orientation Period

Education & Outreach

- Marina Inspection Program
  I. Ongoing since 1998
  II. Inspections occur 2-3 times/year
  III. Educate boaters on proper Best Management Practices
  IV. Observations on slip liners and hull cleaning
SIYB Copper TMDL
Stage 1: Orientation Period

Education & Outreach

- Brochures
  I. “San Diego Bay Boater’s Guide”
  II. “Boater’s Best Management Practices”
  III. “Quick Reference Clean & Green Boating”
SIYB Copper TMDL
Stage 1: Orientation Period

Education & Outreach

- Baseline data collection - Boater Survey
  I. Boat use frequency
  II. Hull cleaning method
  III. Type of hull paint
SIYB Copper TMDL
Stage 1: Orientation Period

Scientific Studies

- In-water Hull Cleaning Study
  a) Completed in 2006
  b) Evaluated multiple cleaning methods
  c) Quantified dissolved and particulate fractions emitted during hull cleaning
  d) In general, less abrasive methods create lower Cu loads of particulate matter
SIYB Copper TMDL
Stage 1: Orientation Period

Scientific Studies

- **Zinc Hull Paint Study**
  a) Project estimated Zn contributions from passive leaching only – not hull cleaning
  b) Model used was similar to that used for Cu TMDL
  c) Existing concentration of Zn in SIYB already slightly elevated
  d) Zn levels could potentially exceed WQO if all boats switched
  e) Complete switch to Zn paints not recommended, but could be considered as one option for boaters
SIYB Copper TMDL
Stage 1: Orientation Period

Scientific Studies

- EPA Grant: “Safer Alternatives to Copper Antifouling Paints for Marine Vessels”
  a) 2-year grant timeline (2007-2009)
  b) Involve statewide stakeholder input in decision making
  c) Develop list of available paints that are cost effective for maintenance and application
SIYB Copper TMDL Monitoring

- Monitoring to determine current and future conditions in SIYB
- Regional Harbor Monitoring
  - Conduct Core RHMP monitoring coordinated with Bight 2008
  - Develop Focus monitoring program for Copper
  - Initiate focus monitoring in 2009
SIYB Copper TMDL Port Implementation Strategy

a) Address Copper Loading at State Level
   I. Evaluate product registration
   II. Participation in state-led workgroups
   III. Work with other municipalities with upcoming TMDLs

b) Adaptive Implementation
   I. Ongoing process for evaluation & assessment
   II. Conduct regular and routine monitoring

c) Phased Approach
   I. Education and Outreach
   II. Encourage Voluntary Transition
   III. Incorporate Regulation/Enforcement
# SIYB Copper TMDL: Adaptive Strategy

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<tr>
<th>Components</th>
<th>Stage 1</th>
<th>Stage 2 - 10% reduction</th>
<th>Stage 3 - 40% reduction</th>
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- Stage 4: 76% reduction
- Stage 3: 40% reduction
- Stage 2: 10% reduction
- Stage 1: 0% reduction
SIYB Copper TMDL
Stage 2: 10% Load Reduction

- **Concept:** Focus on voluntary compliance
- **Potential Projects:**
  1. Develop cohesive education strategy
  2. Complete baseline assessments
  3. Collaboration with manufacturers to test paints on boats
  4. Coordination with hull cleaners to develop appropriate BMPs
  5. Priority lists for boats having non-copper paint
  6. Incentives to boaters who voluntarily switch paints
SIYB Copper TMDL
Stage 3: 40% Load Reduction

- Concept: Began focusing on regulatory actions and enforcing ordinances to ensure non-voluntary transition

- Potential Projects:
  1. Hull Cleaning BMP requirements
  2. Initiate adherence to approved paint list
  3. Lease agreement modifications
  4. Hull paint certifications required for all boaters
SIYB Copper TMDL
Stage 4: 76% Load Reduction

- Concept: Full enforcement-based program to require boats and hull cleaners to eliminate loading to water column

- Potential Projects:
  1. Strict Prohibition on all copper paints
  2. Ordinance banning hull cleaning
  3. Require all boaters to “register” their hull paint.
  4. Rigid enforcement structure and fines for non-compliers
SIYB Copper TMDL

- Challenges with regulation
  - Difficult if Copper paints remain on the market
  - Difficult to implement policy; several parties to regulate
  - Severe opposition to prohibitions
Summary

- Seek permanent resolution to hull paint pollutant loading
- Continue to advocate and support change at the state or federal level
- Utilize an adaptive approach to implementation
- Phase in regulation
Questions?

Karen Holman  
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Stormwater Program Manager  
(619) 725-6073  
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SIYB Copper TMDL

- High levels of dissolved copper in SIYB water column (4,600 lbs/year)
- 95% of loading from passive leaching (2,000 kg or 4,400 lbs/year)
- 5% of loading from hull cleaning (100-116 kg or 220-255 lbs/year)
SIYB Copper TMDL
Future Projects

a) Adaptive (Phased) Approach
b) Voluntary Transition
c) Enforcement Mechanisms