Methods for Engaging Teachers about Estuaries

Lessons Learned for providing Teacher Workshops

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Galveston Bay Foundation

**Mission:** To preserve, protect, and enhance the natural resources of the Galveston Bay estuarine system and its tributaries for present users and for posterity

**Four target areas:**

- **Advocacy**
  - Water quantity
  - Water quality
  - Wetland impacts
  - Oil spill response

- **Conservation**
  - Conservation properties and easements
  - Habitat enhancements and clean-up
  - Habitat restoration

- **Education**
  - Environmental Education K-12
  - Public events and programs for involvement
  - Public Official awareness of issues
  - Provide resources and guidance

- **Research**
  - Support allocation of resources
Do you know Galveston Bay?

- Largest bay in Texas (660 square miles) and 7th largest in U.S.
- Averages 8 feet deep
- 4 major sub-bays: Galveston, Trinity, East, West
- 4 counties: Brazoria, Harris, Chambers, Galveston
- Freshwater inflows from San Jacinto (28%) and Trinity (54%) Rivers and local bayous and creeks (18%)
- 2nd Largest port in the US – Port of Houston
- Most productive bay in Texas
- Wetland replacement value estimated at $5.7 billion
What’s the attraction
What’s in it for me

- Provide the personal experience to the bay
- Understand the amount of committed time
  - How many days
  - Number of hours each day
- Create levels of incentives
  - CPE hours from state education agency
  - Stipend
- Education tool
- Credits towards a masters
When to deliver program?

- Understand holidays, state testing, and in-service days
  - Summer – vacation, in-service training
  - Fall – football, school events
  - Winter – holidays
  - Spring – Focus on state standards
- Provide multiple workshop dates to choose from
- Be flexible
What does a successful day look like?

- Consider the hours of school time
- Working lunch?
- Starting content later
- Plan for Unplanned time
- Consider travel time of field day as part of the hours
- Food?
- Provide for the necessary comforts

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**GET Wet!**

**Itinerary Day 1**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 – 9:00</td>
<td>Check-In, Introductions, and Expectation</td>
</tr>
<tr>
<td>9:00 – 9:15</td>
<td>GBF Overview</td>
</tr>
<tr>
<td>9:15 – 10:30</td>
<td>Living Shorelines</td>
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<tr>
<td>10:30 – 12:00</td>
<td>Living Shoreline Model activity</td>
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<tr>
<td>12:00 – 12:30</td>
<td>Bay Report Card with Activity</td>
</tr>
<tr>
<td>12:30 – 1:30</td>
<td>Lunch</td>
</tr>
<tr>
<td>1:30 – 3:30</td>
<td>Regional Mapping Activity</td>
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<td></td>
<td>Bathymetry Map Activity</td>
</tr>
<tr>
<td></td>
<td>Galveston Bay Timeline</td>
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</tbody>
</table>

**Itinerary Day 2**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 – 9:30</td>
<td>Wetland and Site Introduction</td>
</tr>
<tr>
<td></td>
<td>Wetland Functions Model</td>
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<tr>
<td></td>
<td>Plant Dissection</td>
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<tr>
<td></td>
<td>Wetland Value Lesson</td>
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<tr>
<td>9:30 – 11:00</td>
<td>Plant Marsh and Build Reef</td>
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<tr>
<td>11:00 – 11:30</td>
<td>Seining</td>
</tr>
<tr>
<td>11:30 – 12:00</td>
<td>Lunch (Sack lunch provided)</td>
</tr>
<tr>
<td>12:00 – 1:30</td>
<td>Oysters Dissection and Reef Exploration</td>
</tr>
<tr>
<td>1:30 – 3:00</td>
<td>Water Quality – Guest, Sarah Gosset</td>
</tr>
<tr>
<td>3:00 – 3:30</td>
<td>Wrap-up and Dismissal</td>
</tr>
</tbody>
</table>
Wow Factors

- Find the magic!
- Find engaging local scientist as a guest speaker and help them design a lesson
- Keep the teachers hands-on
Important Lessons Learned

- Be prepared for all material to be handed over
- Write everything up in lesson format
- Perform the activities you want them to do
How to Continue Supporting after the Workshop

- Priority into education programs
- E-news
- Discounts on education programs
When evaluating

- Benefits of Informal evaluation
  - End of day
  - During periods of personal exploration
- Online simple Formal evaluation
Next Steps

- Partnerships
  - Local organizations
  - Universities
- Immersion courses
- Watershed approach
Questions?

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Thank you!