8 April 2014

2014 Inland Bays Horseshoe Crab Survey
Delaware Center for the Inland Bays and University of Delaware-CEOE

Survey Protocol

Please fill in the following information on the spaces provided on your datasheet:

- Names of volunteers
- Date
- Start time of count/end time of count
- Weather conditions (write one of following):
  - Clear
  - Cloudy
  - Foggy
  - Rainy
  - Windy
- Wind conditions and direction:
- Wave height: Calm/glassy < 1 ft > 1 ft
- Relative Amount of Natural Light – Circle all that apply.
- Observations and Comments: Note any special conditions at your site that might affect the count or would be interesting to report to the survey groups. Use back of sheet as necessary

Counting spawning horseshoe crabs

1. Arrive at the survey site before high tide. Allow for walking time to survey area.
2. Start at one end of the beach (note on datasheet)-Use Coin Flip Method.
3. Stretch the 8 m transect out along the tide line. Note the 2 pre-selected random meter markers (e.g. 3 m and 5 m) on the data sheet.
4. To begin the count:
   a. As much as possible place the transect line at the same beginning position on either end of the beach as determined by the coin flip. Place the line at the water’s edge.

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1 Use a Random Number Generator available online such as Stat Trek–
http://stattrek.com/tables/random.aspx. Cues: 2 random numbers; minimum=1;
maximum=8; allow duplicates=false; seed-leave blank. Run “Calculate” 12 times to
generate 2 random numbers for each of the survey nights. Or use : (1,3), (3,8), (7,4),
(4,1), (8,2), (1,3), (7,8), (4,1), (1,5), (1,4), (7,8), (4,8), (8,4), (5,2), (7,8), (3,6), (1,7), (3,6),
(1,8), (5,4), (5,3), (2,1), (4,6), (6,5), (8,7), (4,3), (7,3), (5,6)(randomly generated using Stat
Trek -5 March 2014)
b. Walk along the transect and stop at the first pre-selected random meter marker (e.g. 3 m).

c. Lay down the quadrat in front of the random meter marker.

d. Count males and females (separately) that fall within the quadrat; If only half a crab is in the quadrant, this counts as 1 individual.

e. After counting individuals at the first random meter marker (e.g. 3 m), move to the 2nd pre-selected random meter marker (e.g. 8 m) and count as you did in Steps 4b-c.

5. After the count for the first transect is completed

a. Continue to count the next 8 m section of beach by starting the next transect where the last transect left off.

b. Again count at the 2 pre-selected random meter markers as you did in Steps 4a-d.

6. Continue down the beach counting in the same manner until the entire beach is surveyed².

7. Please fill one vial with bay water and cap tightly. Write beach and date on vial in permanent marker. These may be kept tightly sealed and unrefrigerated until our final meeting in late June/early July.

Questions? - Contact:
Eric Buehl (CIB) - habitat@inlandbays.org   Office 302-226-8105 x105   Cell 302-228-5217
Dennis Bartow (CIB)- bartoden@gmail.com   Cell 610-675-5026   Home 302-539-4774

Site Leaders
Tower Road    Charlie Taylor    703-409-3559   info@vidnet.org
James Farm    Dennis Bartow    610-675-5026   bartoden@gmail.com
Ellis Point (HLSP)    Cheryl Rehrig    610-390-1535   crehrig@irsd.k12.de.us
Bay Colony    Pat Drizd    302-381-9121   pdrizd@mediacommb.net
Coastal Kayak-LAB    Bob Collins    302-448-6864   rcollins@mchsi.com
The Peninsula    Val Ellenberger    240-401-4677   vellenberger@aol.com

Kit Contents
1. Quadrat (PVC frame) - 1 m²
2. Transect rope
3. Clipboard
4. Datasheets
5. Pencils w/erasers
6. Vials for water sample & Ziploc bag for storage
7. Air thermometer
8. Immersion thermometer

Things to Bring
1. Flashlights/Headlamps
2. Insect Repellent
3. Sneakers (old expendable ones)/Water Shoes
4. Mobile phone with Team’s #’s in Contacts

² For most accurate survey data count all 8 quadrants in each transect.
## 2014 Horseshoe Crab Survey Dates

**Lunar Data & Date for Indian River Inlet Bridge High Tide**

<table>
<thead>
<tr>
<th>2014 Lunar Date</th>
<th>2014 Survey Date</th>
<th>Indian River Inlet Coast Guard Station HT</th>
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</thead>
<tbody>
<tr>
<td>New Moon Tuesday, April 1 29, 2014</td>
<td>Sunday, April 27</td>
<td>8:24 PM</td>
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<tr>
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<td>Tuesday, April 29</td>
<td>9:54 PM</td>
</tr>
<tr>
<td></td>
<td>Friday, May 1</td>
<td>11:18 PM</td>
</tr>
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<td>Wednesday, May 14</td>
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<td>Friday, May 16</td>
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For James Farm: add 45 minutes

For Holts Landing/Ellis Point: add 1 ½ hours

For Bay Colony: add 1 ¾ hours

For Tower Road: add 2 hours

For LAB/Coastal Kayak: Time set by Bob Collins

For The Peninsula: Add 1 ¾ hours (or adjust for tide in counting area)

See attached expanded Chart of Survey Dates and Times including optional additional survey date