

CBOCS Annual Meeting 02/24/2015

- The following power point slides were used at the CBOCS annual meeting.
- **Many Many Thanks** to all who attended and contributed their ideas, especially team leaders.
- If interested in becoming involved in the exciting new activities outlined during the last part of this program, please contact the team leaders or John Bacon.



Chesapeake Beach

Oyster Cultivation Society



CBOCS 2015 Annual Meeting Agenda

- **Welcome and Introductions**
- **Review of 2014, text and photos**
- **Preview of 2015 planned activities**
by project leaders
- **Member input on other potential activities**
- **Oyster Spat counting on Beach Elementary school**
larvae experiment
- **EVERYBODY Participates**



CBOCS Missions

PRIMARY

- Host Oyster Spat on Shell for 1 year

PARALLEL

- Educate youth
- Monitor water quality
- Outreach to community
- Enhance Fishing Creek Trail



CBOCS Accomplishments

- Formed 2011, **4th year in operation**, 120 volunteers
- Installed 30 BOCS Oyster Cages in Fishing Creek to raise oysters from spat to 1 year olds (plus another 30 MGO cages under piers)
- Placed 300,000 juvenile oysters on Old Rock Reef
- Hosted 1700 Calvert County Students on Field Trips
- Partnered with Maryland Growing Oysters program

CBOCS is endorsed and supported by Chesapeake Beach Mayor Wahl, Calvert County Commissioners, Calvert County School System, Delegate Fisher and Senator Miller and Chesapeake Beach Residents



CBOCS 2014 year in review

- **Volunteers and maintenance staff spent 1926 hours completing CBOCS projects. **MANY THANKS!!!!!!!!!!****
- **Delivered ~85,000 one year old oyster spat to the Old Rock Reef**



Delivering Oysters To Bay

Lifting Oyster Cage



Raising Oyster Cages



Delivering Oysters To Bay

Cages into unloading
frame



Juveniles Unloaded



Delivering Oysters To Bay

Cleaning Cages - YUK

Cleaned Cages - YEA



Counting Oysters Going To Bay

Counting 1 year old Spat

Counting 1 year old Spat



Delivering Oysters To Bay

Transport to Reef



Deployed on Reef



Monitoring Oysters in Bay

DNR buoy on Old Rock Reef
Lost in February Bay Freeze

Monitor Reef Progress
Calvert County Dive Team



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- **Planted ~110,000 1 month oyster spat in Fishing Creek and under bay piers for initial year growth**



Planting Oysters on Creek

Oyster bag delivery



Oysters loading in BOCs



Planting Oysters on Creek

Oyster bags being loaded

Oyster bags to be loaded



Counting Oysters Going to Creek

Counting and Sizing Spat

Count Totals



	Bag 1		Bag 2		Bag 3	
1	3	2	3	1	2	0
2	15	2	1	0	1	0
3	3	3	0	0	0	2
4	8	8	2	0	0	0
5	6	15	2	0	2	9
6	6	4	0	0	1	6
7	3	5	1	0	3	1
8	3	1	0	1	1	0
9	2	12	0	1	4	1
10	1	4	1	2	5	3
11	14	6	0	0	5	0
12	12	3	0	0	1	4
13	4	5	1	0	1	1
14	5	8	0	0	0	1
15	3	11	0	0	1	3
SubTotal	98	99	11	0	1	4
Total	177		17	6	28	34

15/09/20



Planting Oysters on Creek

Float the Cages



Position for Growth Cycle



Planting Oysters on Creek

Placing BOCS cages under
Trail

BOCS and MGO Cages



Growing Oysters

Floating Oyster Cultivation System (BOCS)

- Pier or Boardwalk
- Fishing Creek Only
- Weatherize 2x/year



Oyster Cage

- Piers only
- Bay or Fishing Creek
- Agitate every week



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- **Grew ~ 5,000 oyster larvae into oyster spat. First time for an oyster gardening facility in MD**



Oyster Larvae

Hundreds of oyster larvae



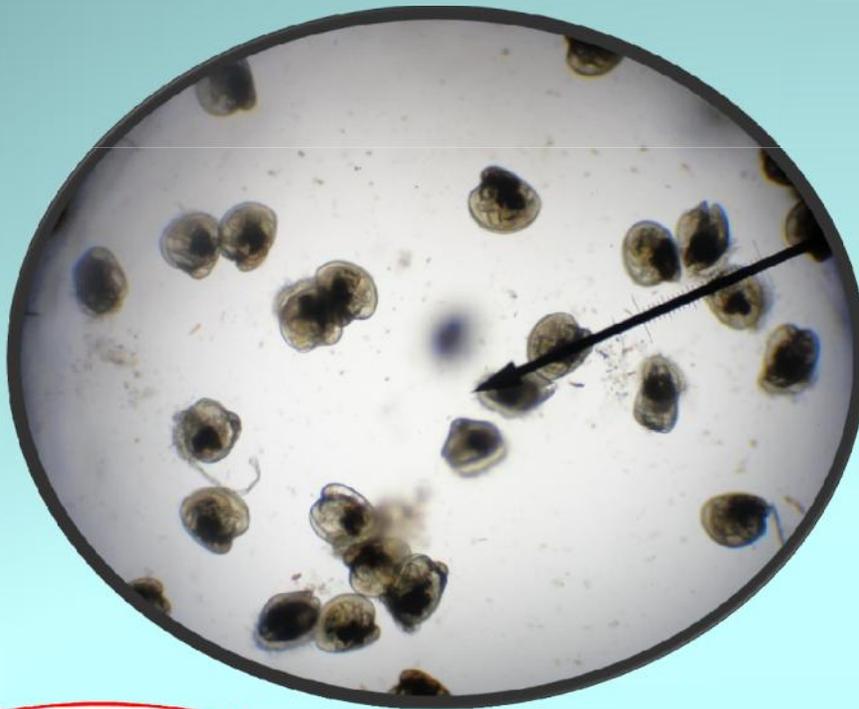
One oyster larvae
(Poppy seed size)



Oyster Larvae

Many Larvae magnified 40X

Larvae swimming around in tank



Oyster Spat

Oyster Spat 8 weeks old



Oyster spat 10 months old



Oyster Clumps from the Bay

Oyster clumps 3 year old

Oyster clumps 3 year old



CBOCS Volunteers

All Ages



All breeds



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- **Conducted 10 oyster health water monitoring sessions**
- **Conducted 10 TMDL water monitoring sessions**



Water Quality Monitoring

Total Maximum Daily Load Water Quality

Phosphorus – low as possible

3 year ave. = 0.16 mg/l (**GOOD**)

High = 0.53 Low = 0.01 (**GREAT**)

Nitrates – as low as possible

3 year ave. = 0.27 mg/l (**GOOD**)

High = 1.4 Low = 0.0
(**FANTASTIC**)

Total Solids – as low as possible

3 year ave. + 15.1 mg/l (**GOOD**)

High = 30.0 Low = 2.8 (**GREAT**)



Oyster Health Water Quality

Salinity -> 0.4%

3 year ave. = 1.0 % **GOOD**

Dissolved Oxygen -> 3 mg/l

2 year ave. = 6.8 mg/l **GOOD**

pH – 6.2 to 7.8

3 year ave. = 7.23 **GOOD**

Turbidity - > 18 inches

3 year ave. = 28 in. **GOOD**



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- Conducted 10 oyster health water monitoring sessions
- Conducted 10 TMDL water monitoring sessions
- **Hosted 865 students, teachers and chaperones on 14 oyster field trips**



Parallel Mission - Student Involvement

- Support CHESPAX “Oyster of the Chesapeake Bay” field trips for 6 Northern Calvert schools 5th grade students.
- Conduct joint environmental programs with Northern High school LORAX and Northern Middle school Honors program.
- Conduct educational seminars and field trips for youth, church and civic groups.



Parallel Mission - Student Involvement

Water Quality Monitoring



Measuring Oysters



Parallel Mission - Student Involvement

Stream Flow Monitoring



Water Quality Monitoring



Parallel Mission - Student Involvement

Field Trip Orientation



Identifying Oyster Friends



Parallel Mission - Student Involvement

Viewing Oyster Friends



Observing Wonders of Trail



Parallel Mission - Student Involvement

Checking Oyster Spat



Oyster Introduction



CBOCS 2014 year in review cont.

- **Presentations at the Bayside History Museum, Captain Avery Museum, Retired Federal Employees, Northeast Community Center.**
- **Participated in Easter, Stars & Stripes ,Halloween and Bayfest festivals**
- **Demonstrated oysters ability to clean bay for 5 days at Library**
- **Participated in 2 Fishing Creek clean up days. Monthly Town Meetings.**



Parallel Mission - Community Outreach

Bayside History Museum

North Beach Bay Harvest Fest



Parallel Mission - Community Outreach

Stars and Stripes



Easter Festival



Parallel Mission - Community Outreach

Library Oyster Demonstration

Library Summer Program



CBOCS 2014 year in review cont.

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- Participated in Easter, Stars & Stripes, Halloween and Bayfest festivals
- Demonstrated oysters ability to clean bay for 5 days at Library
- Participated in 2 Fishing Creek clean up days.
- **Revised the “Treasures of a Tidal Creek” activity book and printed 1500 copies**
- **Identified flora along Fishing Creek and Brownies Beach. Erected 49 signs and completed “Field Guide to the Flora of the Town of Chesapeake Beach” and printed 250 copies**

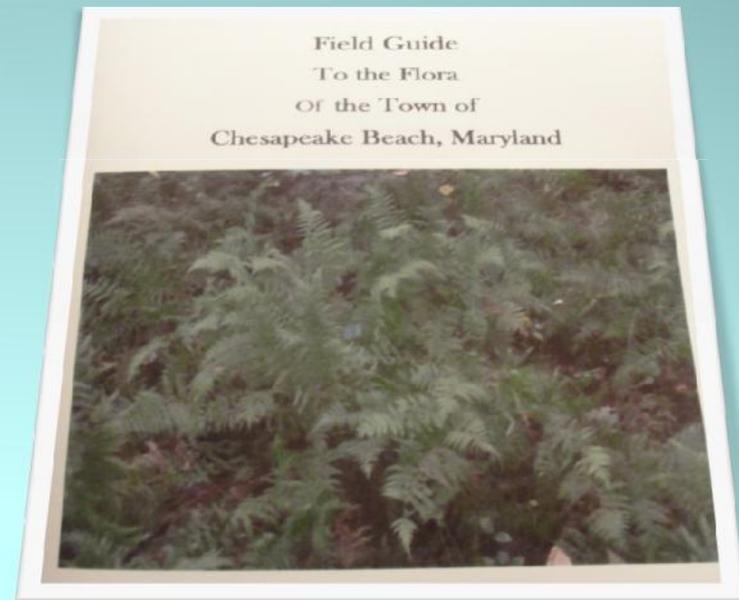


Parallel Mission - Community Outreach

Activity Book



Field Guide



Parallel Mission – Enhance F. C. Trail

Flora Identification team and cart driver minus Nancy

Installation of Flora Signs



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- Participated in Easter, Stars & Stripes, Halloween and Bayfest festivals
- Demonstrated oysters ability to clean bay for 5 days at Library
- Participated in 2 Fishing Creek clean up days.
- Revised the “Treasures of a Marsh Creek” activity book and printed 1500 copies
- Identified flora along Fishing Creek and Brownies Beach. Erected 49 signs and completed “Field Guide to the Flora of Chesapeake Beach and printed 250 copies
- **Built and erected 2 osprey platforms, hosted 1 osprey family**



Parallel Mission – Enhance F. C. Trail

Erecting 2 Osprey Platforms



Ospreys Nesting



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- Built and erected 2 osprey platforms, hosted 1 osprey family
- **Constructed 42 Oyster Reef Balls for deployment on Old Rock Reef. Presented project to multiple state and federal agencies to receive permit**



Reef Ball Manufacture

One of the many groups

Making the reef ball



Oyster Reef Balls

Reef balls ready to be deployed Reef ball after 3 years in Bay



CBOCS 2015 preview

Existing

- Oysters in and out
- Education more students
- Outreach
- Trail Enhancement

New

- Oyster Demonstration Garden
- Smart board “Treasures of a Tidal Marsh”
- Reef Ball Deployment and Reef Oyster Counting
- Plant Natural Mosquito Repellent Garden



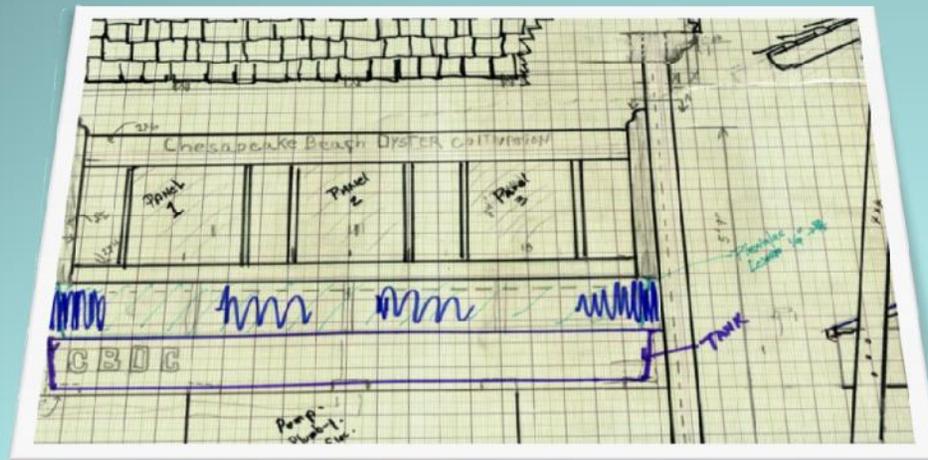
Oyster Demonstration Garden

- Live display of oyster cycle at 1st rest stop
- Tank, graphics of oyster cycle
- Dedicated March 21 9:30 AM
- Open March to November
- Used for school field trips and general education
- **Project leaders Larry Ringgold, Jay Berry, Dennis Brown**

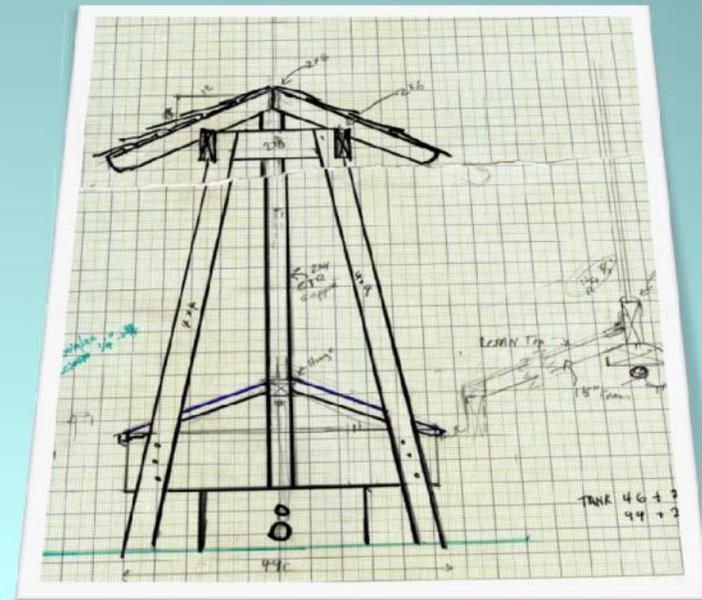


Oyster Demonstration Garden

Sketch of side view



Sketch of end view



Smart board “Treasures of a Tidal Marsh”

- **Interactive computer and smart board based training tool**
- **Explains all aspects of a TIDAL MARSH**
- **Available for schools and other groups**
- **Started gathering content 2014**
- **Members taking class to support teachers**
- **Project leaders, Mary Butz, Robin and Brian Clites, Ron Draper, Amenda Brown and others**



Smart board technology

Smart board



Smart board in action



Reef Ball Deployment

- Deployment first week in April on a calm day
- 42 reef balls each 60 pounds in a 200' diameter circle around the Old Rock Reef Buoy
- Identify boundary of reef
- Provide protection for oysters and other small marine life.
- **Project leaders Bob Munro, Jay Berry**
- Boats needed



Counting Oysters on Reef

- Determine the health of the reef
- Bring up oysters for inspection, measuring and counting
- Check reef balls
- Use divers, oyster rakes and video camera
- Divers must have current certification
- Calm day after reef balls are deployed
- **Project leaders Terry Klazer, Jay Berry**



Counting Oyster on Reef

Video Cam being lowered

Diver with oyster



Plant Natural Mosquito “**REPELLENT**” Garden

- Plants that repel mosquitos naturally
- 2 Demonstration plant gardens
- Trail at split between Bayview Hills and Richfield Station
- Bench to sit and observe
- Brochure for residents to use at home
- **Project leaders Nancy Feuerle, Melanie Crowder, Linda Draper, Karen Schumaker**



Mosquito Repellent Garden

List of plants

- Bee Balm - Catmint
- Catnip - Floss Flower
- Garlic - Lavender
- Lemon Balm - Lemon Thyme
- Lemon Verbena - Mint
- Mexican Marigold - Tansy
- Citronella - Rosemary
- Nodding Onion - Sweet Fern
- Lemon Scented Geranium

Location of gardens and bench



Comments and Ideas

Lets hear them!!!!!!

- 1. Build 2 Martin Houses for the trail to help reduce mosquito population. Material and potential plans provided by CBOCS. Labor by a volunteer. Need done by April 1, 2016. Contact John Bacon if interested in building.**
- 2. Build several Bat Boxes for the trail to help reduce mosquito population. Material and potential plans provided by CBOCS. Labor by a volunteer. Could use ASAP. Contact John Bacon if interested in building.**
- 3. Got More Ideas. Contact John Bacon**

