



Growing oysters for a cleaner Bay.....www.oystergardener.org

SPRING

NEWSLETTER

2013

TOGA Spring Oyster Fairs

The TOGA-sponsored Annual Spring Oyster Fairs will be held for the Middle Peninsula on May 11, and for the Northern Neck on June 15. Details are as follows:

Middle Peninsula

The Middle Peninsula Fair will be at Christchurch School, 49 Seahorse Lane, Christchurch, VA 23031. The school is just east of Saluda off Route 33. The agenda includes:

8:30AM -- Registration begins, (Coffee, juice, fruit, Danish)

8:30 to 9:30 -- Vendors of oyster gardening equipment, spat and supplies are invited to display their wares for sale. Spat availability, both diploid and triploid, is dependent upon winter mortality. This is also a good time to question Master Oyster Gardeners about your gardening issues.

9:30 to 9:40 -- Remarks by the TOGA President and introduction of speakers.

9:40 to 10:20 -- Educational program begins -- Dr. Jim Wesson, Virginia Marine Resources Commission, will speak about **Virginia's Oyster Industry and Management**. "Virginia's oyster harvest has increased more than 10-fold over the past decade. What's different? Now how do we manage oysters into the future."

10:20 to 10:35 -- TOGA President Brian Wood describes the latest results from the ongoing **Growth and Longevity Study** being conducting by TOGA volunteers.

10:35 to 11:00 -- Vic Spain will discuss **How to Get Started Oyster Gardening**. Details include how to get spat (oyster seed) and when best to deploy, equipment needed (on display) and how to maintain it, how many per cage, how long to harvest, sanitation, how to get help, helpful literature etc. This is mainly designed for new gardeners, so folks are welcome to stay or depart as they wish.

11:00 to 11:30 -- Informal discussion, questions and answers.

Northern Neck

The Northern Neck Fair will be held June 15, at the Women's Club of Northumberland County, 2890 Northumberland Hwy, Lottsburg, VA 22511. The facility is just west of Allison's Ace Hardware, off Route 360. The agenda includes:

8:30AM -- Registration begins, (Light refreshments provided).

8:30 to 9:30 -- Vendors of oyster gardening equipment, spat and supplies are invited to display their wares for sale. Spat availability, both diploid and triploid, is dependent upon winter mortality. This is also a good time to question Master Oyster Gardeners about your gardening issues.

9:30 to 9:40 -- Remarks by the TOGA President and introduction of speakers.

9:40 to 10:15 -- Educational program begins- Mr. A.J. Erskine, Aquaculture Manager & Field Scientist, Bevans Oyster Company and Cowarts Seafood, will speak about **Shellfish Aquaculture Sustainability**.

10:15 to 10:30 -- TOGA President Brian Wood describes the latest results from the ongoing **Growth and Longevity Study** being conducting by TOGA volunteers.

10:30 to 11:00 -- Vic Spain will discuss **How to Get Started Oyster Gardening**. Details include how to get spat (oyster seed) and when best to deploy, equipment needed (on display) and how to maintain it, how many per cage, how long to harvest, sanitation, how to get help, helpful literature etc. This is mainly designed for new gardeners, so folks are welcome to stay or head to Cowarts Seafood for a tour.

11:00 to 11:30 -- **Tour of Cowarts Seafood**. Mr. Erskine will provide a tour of Cowarts Seafood, including an overview of oyster hatchery operations.

We hope to see you at one or both of the Oyster Fairs!

2013 Master Oyster Gardener Training Course

TOGA's Master Oyster Gardener Training Course is being offered this year on two consecutive Saturdays in July (13th, 20th). The course location is at the Virginia Institute of Marine Science Gloucester Point campus. All interested TOGA members are encouraged to apply (application materials are included in the newsletter). The course is sponsored by the Virginia Sea Grant Marine Extension Program and the Virginia Department of Conservation and Recreation's Chesapeake Bay Restoration Fund.

The first MOG course was held in 1998 and graduated nineteen enthusiastic Master Oyster Gardeners. Six further courses have been held in subsequent years, each with roughly 15-20 students, for a grand total of 105 Master Oyster Gardeners to date.

TOGA plays an essential educational role in the oyster gardening community; teaching the basics of oyster biology, advising on the best culture techniques and gear and providing links to essential resources. This requires dedicated volunteers who have a good understanding of these critical components. The purpose of the Master Oyster Gardening course is to provide a steady stream of highly trained volunteers who can lead TOGA's outreach mission. The grant funds used to support the course are predicated on this outcome -- providing additional resources to the local community. Therefore "MOG" training comes with the commitment of volunteer hours towards TOGA's outreach. There are many events to choose from and a variety of ways you can participate. Example outreach opportunities can be found on the website under the outreach schedule. Additional opportunities include newsletter or website support, float building, research projects, special committees and board membership. Be a "MOG" -- expand your knowledge of oyster gardening and become a valuable resource in the oyster gardening community!

Course Details

The MOG course will take place at VIMS, Gloucester Point on two consecutive Saturdays in July (13th, 20th). The course is taught by a variety of knowledgeable experts from VIMS faculty and staff and the state regulatory community. Both days begin no later than 9:00am and run until 5:00pm. The first Saturday will consist of hands-on oyster biology, life history of oysters and understanding oyster diseases. Another hands-on topic will focus on the various "critters" that live in and around oyster gardens. The session wraps up with regulatory and human health issues surrounding oyster gardening. The second Saturday will be occupied with information from the Aquaculture Genetics and Breeding Technology Center (ABC) at VIMS. These presentations will take place at the VIMS oyster hatchery and at the field nursery and involve a complete look at oyster cultivation -- from brood stock conditioning, spawning, larval rearing, nursery systems and finally the field grow-out. The day ends with a question and answer session led by experienced MOGS, discussing gear choices and day-to-day maintenance issues for oyster gardens. The final event is the graduation ceremony for the new Master Oyster Gardeners.

Criteria

Admission to the program is limited and a selection process is used to determine the candidates. In order to qualify the individual must:

- Agree to attend the course in its entirety.
- Have been growing oysters for a minimum of one year (preferred).
- Be willing to commit to helping TOGA respond to questions from gardeners. This could involve site visits or phone calls to help solve oyster gardening problems and provide advice.
- Be willing to make your name and telephone number available to the public (via the TOGA website).
- Be willing to contribute a minimum of 50 hours to assist with TOGA's outreach at public events or other volunteer opportunities.
- Have a VMRC permit for oyster gardening.

Fee

A fee of **\$130.00 for TOGA members** or **\$140.00 for non-TOGA members** will be payable upon acceptance to the course. Course materials, including a Master Oyster Gardener handbook, refreshments and lunches are covered by this fee.

Application

If you are interested in being considered for participation in this program, please complete and sign the enclosed application form and mail to:

Tidewater Oyster Gardeners Association
PO Box 2463
Gloucester, VA 23061

Applications for TOGA members must be received no later than **May 1, 2013**.

Application and course information will also be available on our website. An effort will be to choose applicants from as broad a geographical area as possible. Private oyster gardeners will be given preference over gardeners with a commercial interest. Some scholarships are available.

Questions?

For questions and additional information, please contact **Jackie Partin** at **804-694-4407**.

New TOGA Website

Have you visited www.oystergardener.org recently? If not, you may be in for a surprise. Vic Spain, Brian Wood, Mike Sanders and Lynton Land have developed a completely new look with several new features. We have tried to put the most popular and important information at your fingertips on the home page. The "How to Start" page should be helpful for new oyster gardeners, but also has some good information for the veterans. Mike Sanders, VP and Outreach Coordinator, is keeping a TOGA Event calendar which is accessible from buttons throughout the site. An excellent "School Resource" presentation is available on the education page. Contact forms are available for updating your membership information, volunteering, commenting on the website, asking questions of the President and others. And if you need something from the old site, it's available from the new home page. It's your TOGA, so please take a look and let us know if you would like something we haven't thought of. (Vic Spain, vicspain@rocketmail.com).

2013 Outreach Program Off to a Good Start

Throughout the year, TOGA participates in a number of festivals, fairs and other community events. We hope to educate the public on the benefits of oyster gardening, recruit new members and help people interested in oyster gardening get started.

If you enjoy talking to people about oyster gardening, we need your help at these outreach events. You don't need to be an expert. We also need volunteers for light administrative duties at outreach events. The recently revamped TOGA website at www.oystergardener.org is now linked to an Event Calendar showing all the outreach events planned for 2013. The calendar is reached through a prominent link on the website's home page. Clicking on an event on the calendar will bring up an event description and details, including the name and email

address of TOGA's event coordinator for that event. If you're interested in volunteering, just email the appropriate event coordinator.

Of special interest this year is the **Stratford Hall Wine and Oyster Festival** scheduled for **September 21-22**. Stratford Hall is the ancestral home of Virginia's Lee family in Westmoreland County. TOGA has worked with the Stratford Hall staff to expand their annual wine festival to include oysters. Come for two days of pairing Virginia wines with Virginia oysters from around the Chesapeake Bay. The oysters are as unique and varied as the waters from which they are harvested. TOGA will sponsor a large education tent featuring expert presentations on oyster gardening, oyster shucking, cooking with oysters, wine appreciation and efforts to promote a healthy Chesapeake Bay.

Coming up in April, TOGA is participating in two events that are new to our outreach program. The first, **Earth Day at Fort A.P. Hill**, is just for school kids. On **April 18**, 800 students and teachers from area schools will visit the TOGA tent (not all at the same time, let's hope) and learn about oyster gardening and the benefits it provides to the Bay.

Then on **April 27**, TOGA will be at the **Beaverdam Blues Benefit Concert** at Beaverdam Park in Gloucester County. The outdoor benefit concert is to raise money for a nature center planned for the park. There will be about 25 booths, food, two bands, kids games and nature walks.

The rest of the year is shaping up to be equally exciting as we make plans to participate in annual events that are old favorites such as the Urbanna Oyster Festival, Boots and BBQ, Rivahfest and Go Wild! If you know of an event in Tidewater Virginia that is not on the event calendar and a good prospect for TOGA participation, please let Mike Sanders know about it at sndrsmich@gmail.com.

TOGA/VIMS Interaction

TOGA is embarking on a long-term monitoring partnership with researchers at VIMS in two key areas: Oyster Mortality and Harmful Algal Blooms or HABs. TOGA members can provide observations from a wide variety of field sites that could prove to be key in the understanding of mortality events and harmful algal bloom events Bay-wide. VIMS asks TOGA volunteers to be alert for two possible events.

1) Oyster mortality events. If you suspect your oysters are dying at a rate higher than "normal," we ask you to fill out a VIMS mortality event form and send it via mail or email to Dr. Ryan Carnegie at VIMS, PO Box 1346, Gloucester Point, VA 23062 or carnegie@vims.edu. Be aware that he may contact you to obtain samples for disease analysis. The form is being developed and will be made available on the TOGA website soon.

2) Harmful algal blooms (HABs), often called "Red tides" or "Mahogany tides." If you see patches of discolored water not due to runoff, please fill out the VIMS HAB reporting form immediately and monitor the event. The form can be submitted online by visiting www.vims.edu/bayinfo/habs/hab_form

Someone may contact you to come and take samples.

More information on Virginia HABS as well as sampling and reporting protocols can be found by visiting www.vims.edu/map/aquaculture

Harmful Algal Bloom (HAB) Primer for the Virginia Shellfish Industry, VSG-12-14, VIMS Marine Resource Report No. 2012-14, December 2012

We are also planning to conduct another growth/longevity study beginning this fall. It will use "natural" or "wild" diploid animals to compare with the hatchery-bred animals in the study currently underway and scheduled for termination this fall. We will supply about 150 animals in new cages to hang from your pier. We ask you to measure them three times a year until the fall of 2015. If you want to participate, please call or email Lynton Land at (804) 453-6605 or JandL@nnwifi.com with your name, mailing address, telephone number,

latitude/longitude of your pier, water depth and the name of the creek/river so we can ensure a wide geographic spread.

**Update on the ongoing research of TOGA's first student endowment recipient, Wendi Quidort:
Detection of Human Adenovirus in effluent produced by wastewater treatment plants and oysters grown in the receiving water**

Contamination of coastal and estuarine waters by fecal pollution can lead to serious human health risks. According to the World Health Organization, diarrheal related illnesses account for 1.8 million deaths annually worldwide. Waterborne or water related diseases comprise over 88% of these fatalities. Water contaminated by human enteric viruses, such as human adenovirus and norovirus, can result in respiratory illnesses, conjunctivitis, hemorrhagic cystitis, and gastroenteritis. One means by which human enteric viruses can enter coastal and estuarine waters is through ineffective treatment of sewage and wastewater by treatment plants resulting in the release of viral contaminated effluent into the environment.

Research indicates that human adenovirus is present in wastewater effluent and the tissue of shellfish harvested from effluent-receiving estuarine waters. The density, persistence and infectivity of human adenovirus in water or shellfish are not known. Therefore we have been examining the concentration of human adenovirus in shellfish harvested from effluent receiving estuarine waters, as well as controlled tank experiments.

In three separate tank studies, HAdV was not detectable in tissue from oysters exposed for 18 hours to influent from the James River WWTP. However, when exposed to influent that was spiked with viable HAdV, the virus was detectable in oyster tissue with a concentration range of 89 – 576 genomic equivalents per gram of tissue. Interestingly, oysters that had been exposed to influent spiked with HAdV, followed by relay in clean water, cleared the virus within 7 days.

In addition to the tank studies, sentinel oysters were deployed for 14 days to the receiving waters adjacent to the James River WWTP effluent outfall in April 2011. Despite finding viable virus in the effluent, we were not able to detect viral DNA in the oysters. Additional work needs to be done to determine if the virus is absent in the tissue, or if it is just below the detection limit of the assay. To do this, we will be employing culturing technique.

TOGA Growth and Longevity Study November 2012 Update

We are now just 15 months into the TOGA Growth and Longevity Study and here is an update on the progress from August 2011 to November 2012.

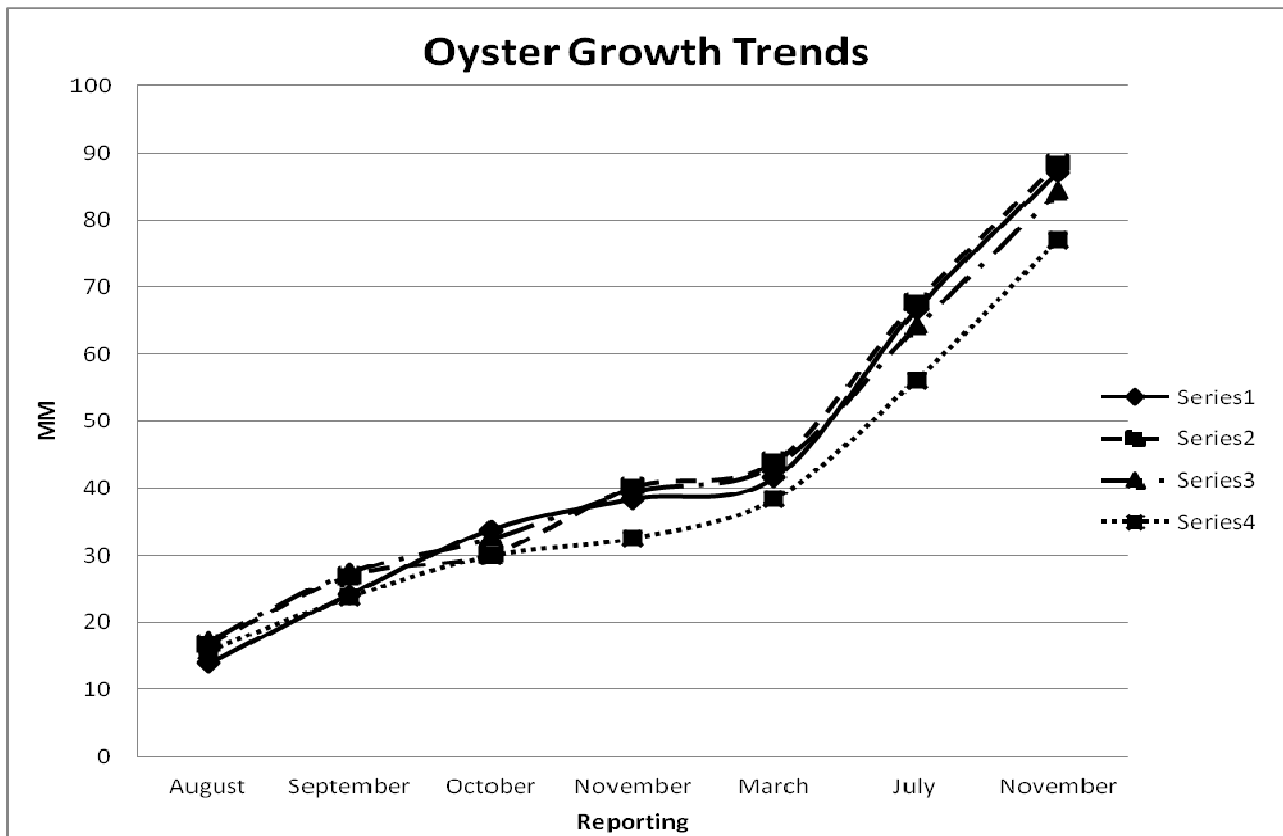
Three of the oyster strains of the four we are studying (Green, Orange, and Purple) exceeded or reached market size in August 2012 and continued rapid growth into November. The Blue strain (it's a diploid) in most reports has lagged behind, but did reach an average market size of 3 inches/76mm by the latest report. The Overall average size across all strains of oysters as of November is 86mm/3.3 inches with each river varying somewhat higher or lower. Mortality, other than a few catastrophic losses due to wind, wave, predation and Mother Nature is relatively low.

With three of the strains so closely grouped together (the two triploids and one of the diploids) it's hard to separate one from the other as top performer. Each river has its differences. At this point as we study the data we have more questions than answers and hope to have a conclusive summary of the study at its end in November 2013. It will be then that we disclose the identity of all four strains including a comprehensive report on overall growth rates with mortality rates. With the statistics of mortality and growth of the G&L study oysters we hope to have a clearer picture for gardeners which oyster performs best in your particular waters.

Please visit our new website: www.oystergardener.org and click on **projects**, then click **read more** to upload the **Nov 2012 Growth Charts** for overall and each of our studied river growth trends. As you study these charts you will see each river has its own story to tell.

Please stay tuned as we are looking into a “New Growth and Longevity Study” possibly commencing Fall 2013.

For questions please contact Brian Wood awood45858@aol.com or Lynton Land jandl@nnwifi.com



VIMS Shellstrings Monitor Oyster Strike

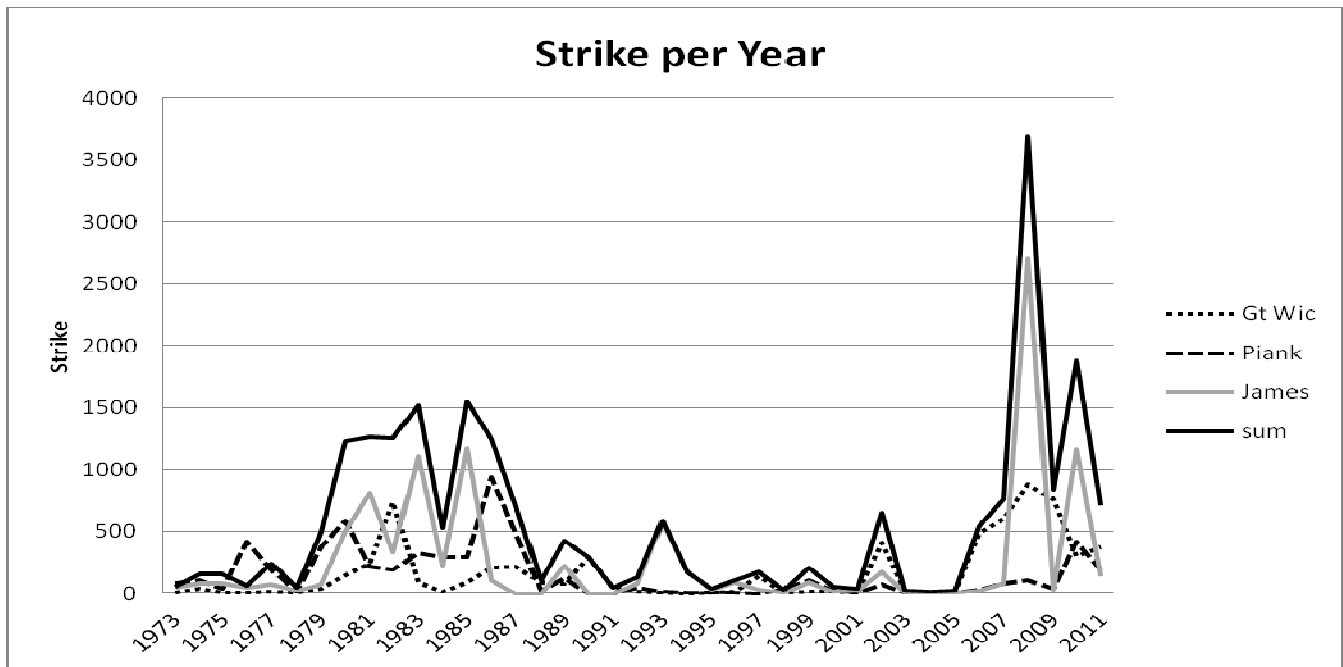
For many years VIMS has employed “shellstrings” at many stations throughout Chesapeake Bay to monitor the setting or “strike” of oysters. The “shellstrings” consist of 12 oyster shells, each about 3 inches in size, drilled through the center and strung concave side down on wire. The string is deployed 0.5 meters off the bottom and retrieved and replaced with a new string weekly. The number of spat attached to the smooth underside of the shells is counted under a microscope to get the number of spat per shell for the standardized weekly period. Most of the data are on-line at www.vims.edu/mollusc/publications/mepubamr.htm.

I compiled the data from the Great Wicomico River by adding the observed strike at all stations each week, for each year, beginning in 1974. The data were published in the 2010 Fall TOGA Newsletter (on line at www.oystergardener.org) in a table showing the total strike for each week between mid June and late September for 35 years. Two things were obvious:

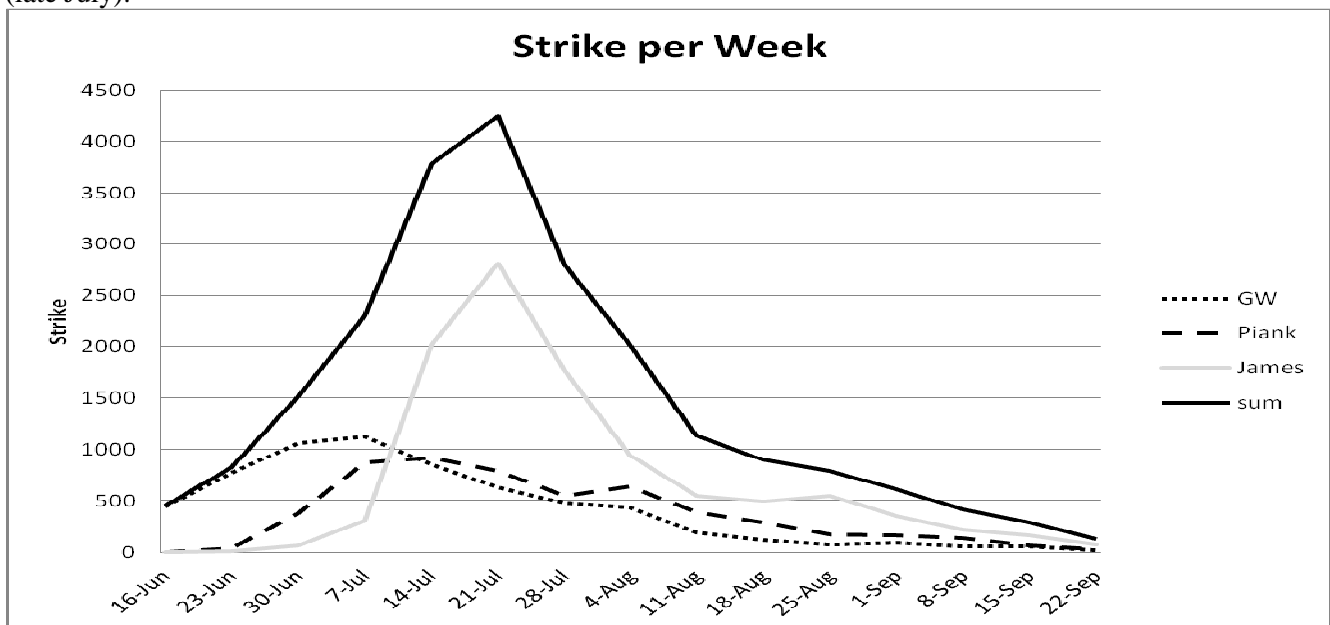
- 1) There are a few good years and a lot of bad years, and
- 2) The time of maximum strike can't be predicted, but usually occurs in July \pm one week.

An obvious question is whether or not these conclusions apply elsewhere, and if so, are the “good years” the same everywhere? Fortunately, VIMS also collected data for the James and Piankatank rivers, so I compiled those data.

Clearly the “good years” are not restricted to each river. Although each river can exhibit high strike in isolation (the James in 1993, for example), in most cases elevated strike is found simultaneously in the three rivers. Some people would like to believe that the recent elevated strike, especially in 2008, might be due to a lot more diploid animals being deployed for restoration and aquaculture. This is not proven, and the data clearly demonstrate that the period 1980 through 1987 was also characterized by high strike. Why? Nobody has yet come up with a plausible explanation, but there must be one.



Comparing the number of strike each week for the three rivers leads to the conclusion that although strike can occur at any time during the growing season, most occurs in July and early August. Unexpectedly, maximum strike in the Great Wicomico seems to occur earlier (early July) than in the Piankatank (mid July) or in the James (late July).



If gardeners want to try to catch natural spat, these data may be useful in helping determine when clean shell should be placed in the water. But combining all the data leads to the conclusion that catching wild spat is an unreliable hit-or-miss proposition. The Growth/Longevity study underway using nearly 50 TOGA volunteers has demonstrated that the difference in growth rate and mortality between diploid (fertile) and triploid (sterile) animals is small. Unless gardeners are desperate for “meat” in the summer, TOGA recommends that gardeners grow fertile animals so the oysters can spawn and provide yet one more ecological service to the Bay. Putting clean shell in the water in July may or may not successfully result in oyster strike.

Dr. Lynton S. Land, PO Box 539, Ophelia VA 22530

March 1, 2013

JandL@nnwifi.com www.VaBayBlues.org

Comparison of Grow Out Gear

In 2012 I conducted an experiment using four different types of grow out gear:

- 1) A **T**aylor float, divided in half with a partition. Half the oysters were “**T**ended” (stirred up) by hand every six weeks (**TT**) and half were “**U**ntended” (**TU**).
- 2) A **B**ottom cage treated similarly, half “**T**ended” (**BT**) and half “**U**ntended” (**BU**). The cage did not need to be lifted out of the water, but it took time to remove the top to tend half the oysters, so the bottom cage was labor-intensive.
- 3) A “**R**ack” made of reinforcing bar suspended from a rectangular PVC float. Four 20 inch x 40 inch ADPI bags were placed on the rack, two of which were “**T**ended” (**RT**) and two “**U**ntended” (**RU**). The bags were not removed from the rack and turned because of the hassle of dealing with them, so the “Tending” was minimal. This was the most labor-intensive kind of gear.
- 4) Eight **C**ylinders, three feet long and one foot in diameter, with the ends sealed with plastic bucket tops. An axle was fitted so they could be rotated, and they were suspended from rectangular PVC floats, four per float. Two cylinders were rotated ten times every week (**C1**), two were rotated every two weeks (**C2**), two every 6 weeks (**C6**) and two only rotated one half turn every 6 weeks (**CU**). These cages and the Taylor float were the least labor intensive.

The Taylor float, bottom cage and cylinders were made of 1 inch x 1 inch wire mesh and had liners made from ADPI mesh with a diagonal of 19 mm.

On April 14, 2012, the experiment was started with oysters averaging 25 mm in length, 500 on each side of the Taylor float and Bottom cage, and 250 in each bag or cylinder. Length, width and height of 25 oysters were measured on November 3.

Gear	mm length	standard deviation	% multiples
TT	84.1	13.2	36
TU	98.2	17.8	56
RT	80.8	7.7	28
RU	80.7	10.6	44
BT	66.5	6.8	56
BU	64.9	7.8	76
C1	63.5	6.3	16
C2	70.1	5.3	16
C6	72.4	7.2	20
CU	69.9	10.4	32

- 1) Oysters grew larger in the floats (except for C1) than in the bottom cage.
- 2) The size range of the oysters was largest in the Taylor float.
- 3) Tending the oysters reduced the number of multiples.

- 4) Tending the oysters weekly (C1) resulted in the smallest animals.
- 5) No difference in “cupping” was observed.

Conclusion: Grow oysters near the surface and tend them about every six weeks.
Dr. Lynton S. Land 03/01/13

OYSTER GARDENING IN VIRGINIA: WHY A PERMIT IS REQUIRED

By Ben Stagg, VMRC

In Virginia, if you wish to grow shellfish **not for sale** at your pier in either floats or cages in the riparian area of the shoreline of your waterfront property (not to exceed 160 square feet in area), you must obtain an oyster gardening permit (General Permit #3) from the Virginia Marine Resources Commission (Habitat Management Division). There is **no cost** for this permit.

VMRC is a member state in the Interstate Shellfish Sanitation Conference. The Interstate Shellfish Sanitation Conference (ISSC) was formed in 1982 to foster and promote shellfish sanitation through the cooperation of state and federal control agencies, the shellfish industry, and the academic community. This entity, in association with the USFDA, is the way shellfish health safety is regulated in the United States. For VMRC and the Virginia Department of Health (and therefore, the state of VA) to remain compliant with the ISSC Model Ordinance that governs shellfish safety in the U. S. we must patrol areas that have known shellfish growing activities. Due to budget constraints VMRC does not wish to expend time and taxpayer money patrolling areas where no such activity is taking place. Therefore, part of the reason for formulating the gardening permit is, to not only promote such activity, which many states do not, but to allow the agency (and the state) to more efficiently manage its personnel and adhere to the Model Ordinance requirements and therefore remain compliant with the ordinance.

For more information and/or to obtain the oyster gardening permit application visit our web site at **<http://www.mrc.state.va.us/>**. You may also contact our Habitat Management Division to obtain the name of the environmental engineer for your area at 757-247-2252 if you have any questions.



Our newsletter was paid for by funds generated from the sale of Chesapeake Bay license plates. These funds also help pay for the Spring Fairs and the MOG course.
See **<http://dmv.virginia.gov/exec/vehicle/splates/info.asp?idnm=CB>**

APPLICATION
2013 MASTER OYSTER GARDENERS COURSE

Name_____

Address_____

Home Phone Number_____Work Phone Number_____

e-mail address_____

Are you growing oysters now?_____

If you are growing oysters now, where is your site?_____

Do you grow oysters _____for home consumption?

_____to donate for restoration efforts?

_____to improve water quality?

(Check all that apply.)

What has been your most unusual experience growing oysters?_____

Please provide other information that will aid the committee in choosing applicants (i.e. public speaking experience, photography, biological sciences, computer expertise).

If I am accepted to this Program, I agree to all the requirements listed in the Program description.

Signature

Membership dues and contact information - a reminder

If you have already paid your 2013 dues – thanks! If you’ve paid your 2012 dues but not 2013, you will be getting a reminder letter in the mail shortly. Or, you can just use this form to send your 2013 dues in now. If you don’t need this form to pay your dues, please pass it on to someone else who might want to join TOGA.

Dues remain \$10 per year, per family, and are payable annually in the month of January. To renew, please send a check made out to “TOGA” to TOGA, P.O. Box 2463, Gloucester, VA 23061. Because some of you have changed contact information, please update or confirm your information with the form below. Some of you have already paid dues for 2013 and beyond. If you are not sure, you may check your dues status by emailing or phoning Vic Spain at vicspain@rocketmail.com or 804-642-6764.

.....cut here.....

TOGA Membership Renewal (or New Member) Application: \$10.00/family

Name: _____ Email: _____

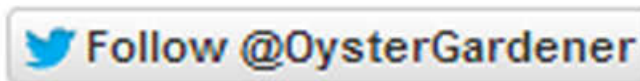
Telephone: _____

Mailing Address: _____

Body of Water Where Oysters Are Grown: _____

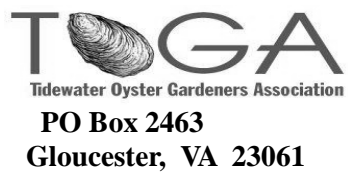
Membership Renewal? Yes No

Please make checks payable to TOGA and mail to: TOGA, PO Box 2463, Gloucester, VA 23061



TOGA is now on Twitter! Follow us at **@oystergardener**. We will be sending out tweets from time to time to keep our followers up to date on our events and activities. It is a great way to reach a wider audience and communicate the exciting things we have planned for 2013.

If you are new to Twitter, it is simple to join. Just go to www.twitter.com to sign-up and then follow us by searching for Tidewater Oyster or just search for our handle **@oystergardener**.



Non Profit Org.
U.S. Postage **PAID**
Yorktown, VA
Permit # 33

Return Service Requested