



Photo by Chris LaChance

Table of Contents

Prairie Ponderings	2
Wetland Wanderings	2
Monofilament Recycling Now at GISP	3
Report from the State Meeting 2012	3
Nobel 48, Our Global Ocean	4
Laundry Lint Pollutes the World's Oceans	6
Guppies from Julie	7
December and January Activities	8

How to Build a Ship by Diane Humes, President 2012

If you want to build a ship, don't drum up people to collect wood, and don't assign them tasks and work, but rather teach them to long for the endless immensity of the sea. - Antoine de Saint-Exupéry

Restoring a prairie, creating a wetland, building a Master Naturalist Chapter - all a lot like building a ship. Our chapter is an encouraging organization. Collectively we create an atmosphere where everyone can discover and use his talents, can grow and learn, and all work together and keep our chapter strong.

Above all else, everyone in the Galveston Bay Area Chapter has the goal of making the chapter a success. So, kudos and thank you to everyone for all those things you do to make it all happen, as if by magic. As outgoing President, I certainly know better than to take credit!

Our eleventh year is drawing to a close - seems like we just had our big 10-year celebration! We will be meeting in December for our big gathering with large helpings of Food, Fun and Friendship, wandering minstrels, and, of course, awards. Can't wait to see everyone there.

Speaking of awards, please don't forget to turn in your hours - by November 19 for recognition at the December meeting - but at the end of December for 2012. Any hours for 2012 not logged in 2012, will be lost. Your volunteer hours count not just for YOUR recognition; they are valuable match for the grant which funds the entire Master Naturalist program and are also important to Julie.

Thank you so much for all you do.



Dick Benoit celebrating his 10,000 volunteer hour award at the State Meeting.

Way to go Dick!

Next Chapter Meeting

December 6th

Annual Meeting

and

Award Ceremony

At Wayne Johnson Community Center

Prairie Ponderings by Dick Benoit

Investing in the Future by Restoring the Past

Since the turn of this century, the GBAC-Texas Master Naturalists have worked on the stewardship of land, water, and wildlife of the area, especially the prairies. Through the dedication of many volunteers and the support of partners like Texas Parks and Wildlife, Nature Conservancy, Armand Bayou Nature Center, Scenic Galveston, we have begun to restore hundreds of acres of prairies in the Galveston Bay Area.

This team effort has been supported usually with shade for workers, a pile of dirt, tables, water, and pots. Currently these functions occur Mondays at Galveston Island State Park, Tuesdays at Sheldon Lakes State Park and Texas City Prairie Preserve, Thursdays at San Jacinto State Park and Horseshoe Marsh Prairie, and on Fridays at Armand Bayou Nature Center.

We have worked at Galveston Island State Park since 2000. After Hurricane Ike in 2008, we gathered seed and

replanted nearly 20,000 dune and prairie plants. Sheldon Lake State Park has had a multi-chapter effort, planting 28,000 prairie plants. Texas City Prairie Preserve has planted over 10,000 plants and has established a plant materials center where plants are being planted mainly for their seeds. A San Jacinto State Park restoration group has been newly formed and has planted its first 1,000 plants. At Horseshoe Marsh Prairie, we have worked with the Houston Audubon Society, planting 5,000 plants. At Armand Bayou Nature Center, the longest established project, nearly 50,000 plants have been planted.

The most important ingredients in these projects are the people who dedicate their time, effort, and talents in these restoration efforts. In past articles I have discussed mainly those Pioneers of some of the projects and in the future I will highlight more of these hard working Pioneers of the Prairies who have invested themselves in the future by helping restore the past.

Wetland Wanderings by Diane Humes

The wetlands at Sheldon Lake State Park have been dry, so the Wetland Restoration Team efforts have concentrated on eradication of deep-rooted sedge and seed collection and processing. Wetland planting will resume when we have more wet.



Hornwort

In the meantime, at the state meeting I attended a class about bryophytes - photosynthetic, non-vascular plants - the earliest land plants - which include mosses, liverworts, and hornworts. In Texas there are 320 species of mosses, 70 liverworts, and exactly 2

hornworts, among the 5800 species of vascular plants. Bryophytes live on every continent, including Antarctica. Although they can withstand desiccation and may be found in arid habitats, they do not have roots and their reproductive cycles depend on water. Therefore, they are found in places where water can collect - think peat bogs, tree branches and trunks, rocks, and soil - any surface that collects water.



Liverwort

Because bryophytes are generally small, they get overlooked in favor of their larger, showier plant relatives.

But, they are very interesting and important. The sphagnum moss in northern bogs (peat moss used by gardeners) stores 320 gigatons of carbon - more than any other plant genus. Should these peats decompose, atmospheric carbon levels could increase by as much as 50%.

Dr. Dale Kruse, Curator of the S.M. Tracy Herbarium at Texas A & M University, is undertaking to collect the bryophytes of Texas for the herbarium. In the next few years, the call may go out for Master Naturalists to help with this endeavor. This could be another opportunity for the GBAC and WRT to excel!



Sphagnum moss

Monofilament Recycling Now at GISP by Root Choyce

Thanks to Paul Booth from the City of Galveston Environmental Services Division, Galveston Island State Park now has six new monofilament recycling containers. Not only has Paul installed these containers; he and his staff will pick up the recycled monofilament and send it to the Berkley Company in Iowa to be made into new items. There are three containers on the beach side and three on the bay side.

Most monofilament is non-biodegradable; it lasts over 600 years in nature. Because it is clear and thin, it is easy for birds and other animals to become entangled and once entangled they may then drown or starve to death.

Used monofilament is a danger to birds, fish, turtles and even surfers! Monofilament is made of a special plastic that cannot be recycled in a standard recycling process, so it has to be collected separately and sent to the proper facility.



Report from the State Meeting 2012 by Diane Humes

The Texas Master Naturalist program began statewide in 1998, jointly sponsored by Texas A & M AgriLife Extension Service and Texas Parks and Wildlife Department. The program has grown to include 44 chapters, covering 178 Texas counties, with a 45th chapter in the making.

At the close of 2011, 7389 Master Naturalists had logged 281,487 volunteer service hours and 45,542 hours of advanced training. Cumulatively, since the program's inception, we - all chapters, not just GBAC - have submitted 1.76 million service hours and logged 301,340 AT hours. The economic impact of all our hard work is valued at \$5.489 million for 2011 and \$34.39 million to date. Needless to say, these figures are impressive and



Michelle Haggerty, state coordinator, thanked all of us profusely and recognized all our hard work and dedication. Good job, everyone!

Michelle Haggerty announced milestone award winners; the GBAC members attending were proud to cheer for Marie and Odie Asscherick, who were each recognized for their 5000 hour milestones. They join the group of 29 others who have achieved this award - 9 now from our chapter! Also, Dick Benoit received a pin commemorating his 10,000 hours of volunteer service. So far, Dick is one of only two who have achieved this distinction. Turn in those hours - 10,000 hours seems hard, but, obviously, is not impossible!

This year's meeting, held at Camp Allen in Navasota, was the best and biggest yet - 381 Master Naturalists from nearly every chapter attended the 13th annual meeting. We heard great talks, enjoyed each other's company, and were inspired by new ideas.

The 14th annual meeting will be held October 25 - 27, 2013 at T bar M Conference Center in New Braunfels, TX. Keep it in your mind for next year. In addition to the

meeting, it will be an excellent opportunity to visit Ferdinand Lindheimer's house and garden!



Photo by Helle Brown

Nobel 48, Our Global Ocean by Diane Humes

In early October, Julie Massey and I ventured north to St. Peter, Minnesota to attend the 48th Nobel Conference at Gustavus Adolphus College. Easy to see how I talked Julie into making the trip; the topic was "Our Global Ocean". We joined 4000 others - students and life-long learners - for the opportunity to hear world authorities David Gallo, Maya Tolstoy, Barbara Block, William Fitzgerald, Christopher Sabine, Ove Hoegh-Guldberg, Kathleen Dean Moore, and Carl Safina. We had a wonderful time, saw the sights, had great food, lots of fun, and didn't get lost once!



After two very full days sitting in the athletic arena, listening with rapt attention to the flow of ideas, questions and answers, we heard these conclusions, in a nutshell. The basic fact is that human/industrial use of fossil fuels for the last 200 years has raised carbon dioxide and

mercury levels in Earth's atmosphere and oceans. For the oceans, this has meant rising average temperature, lowering pH, and bioaccumulation of toxic methyl mercury. In addition, industrial fishing has eliminated 90% of the big fish from the oceans. The speakers - scientists, explorers and a philosopher - all agreed that the time for action is NOW, the facts are in, and nobody is listening, except, perhaps, young people, who will bear the biggest burden for the future.

Ove Hoegh-Guldberg, professor of Marine Studies and Director, Global Change Institute, University of Queensland, works and lives on Australia's Great Barrier Reef. He does not know how many species live on the reef - anywhere between one and nine million - but he does know that all reefs are threatened and that if temperatures increase more than 2° C, all coral reefs will be in serious trouble. We must reduce fossil fuel emissions to keep temperature down, which will also cure the mercury and pH problems. He gave the world a ten year window to save the reef.

Christopher Sabine, the Aggie (!) chemist on the panel, Director, NOAA Pacific Marine Environmental Laboratory, thinks that "chemistry does matter - not just biology", specifically, the chemistry of atmospheric carbon dioxide. How much are we adding to the atmosphere? In 2010, humans added 9.1 petagrams CO₂ (10¹⁵ grams). Of this, half stays in the atmosphere,

while about one quarter goes into the terrestrial biosphere and another quarter into the oceans, causing lower pH - ocean acidification. In a more acid ocean, calcium carbonate in shell and coral will dissolve; oysters will be unable to form spat and will die, as researchers have already seen on the Pacific Coast of the U.S.

William Fitzgerald, professor emeritus, University of Connecticut, is a world expert on mercury. Mercury is extremely toxic and bioaccumulates up the food chain - this means us, too! - as methyl mercury. The only sources of mercury are mining, metal extraction, volcanic eruptions and burning of coal. Mercury has increased 200% since the Industrial Revolution. Dr. Fitzgerald found mosquitoes in the Arctic containing methyl mercury.

People have impacts on the oceans; we are changing the temperature and chemistry of the seas and our fishing fleets are waging war against them. "No matter where you live, you either impact the ocean or are impacted by it," said Maya Tolstoy, research scientist at Lamont-Doherty Earth Observatory. She studies undersea earthquakes and hydrothermal vents, areas that are packed with life, with much to be discovered.

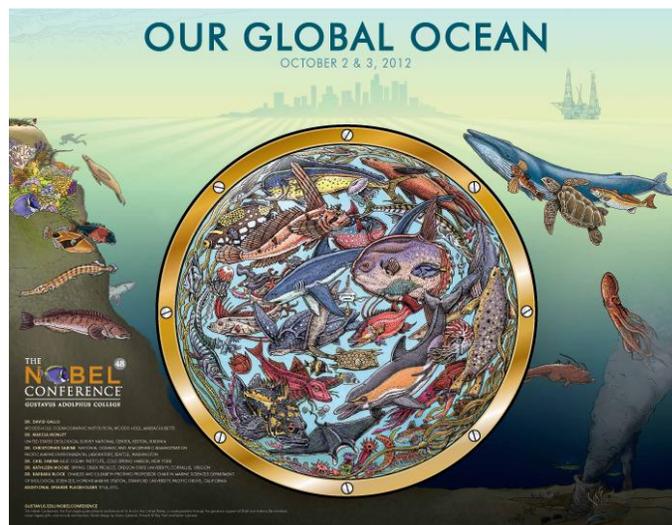
Barbara Block, of Stanford University's Hopkins Marine Station, runs the Tuna Research and Conservation Center. She spoke of "sushi and satellites" - as in putting satellite tags on tuna and other species to find out where they go. Satellite tagging research is showing that there are ocean "hot spots" where species congregate and "highways" crossing between continents. Learn about this exciting research at: tagagiant.org and www.topp.org.

Carl Safina, scientist and naturalist, founder of the Blue Ocean Society, noted that for most of human civilization it was thought that "civilization exists to defend us against nature". Heresy, to Master Naturalists; since Charles Darwin and Aldo Leopold, we have the notion that all the world is kin. We are all "caught in the same net - nature and us". "Nobody can do everything, but everybody can do something."

As humans and Master Naturalists, we must find our work using our greatest gifts to do what gives us our greatest joys and find our calling in the intersection of our greatest joy and the world's greatest need. As citizens of the world, we seek the truth. The panel was asked if there was one book that could explain; here are the responses:

- "View from Lazy Point" by Carl Safina
- "Strange as This Weather Has Been" by Ann Pancake

- IPCC Technical Summary, for the science
- "A Sea Change" - for those who prefer not to read; rent from NetFlix.
- You can watch the entire conference at www.gac.edu/Nobel



If you have read all the way to here, thank you very much. I realize that some of you may disagree with some of these conclusions. These are the thoughts of the best minds in their fields, who have studied the global ocean and been there, and concluded that we are in crisis. Please educate yourself; study the facts, begin with these resources. Having spent my entire adult life trying to live lightly on Earth - as much as an American can - I have recycled, driven fuel-efficient cars, watched the thermostat, and contributed zero population growth. (I didn't eat all the fish!) I hope that my children and grandchildren will have a beautiful future, but I despair of it.

Kathleen Dean Moore, philosopher, said that hope and despair are both forms of moral abdication, that in the middle is moral integrity. She spoke of our need to come up with an Earth ethic, to figure out how to honor our values now and for the future. Our global ocean is in crisis now. One seventh of the world depends on the sea for food. One tenth of the world's people will be inundated by sea level rise. Where is the justice, how has this come about, what is our duty? What about the plants and other animals? What is inevitable and what is part of somebody's business plan? We must realize that we are all members of a community of interdependent parts, that now is NOT the way the world has to be, the enemy is NOT us, and we will NOT let corporations offload their morality on us. We are not powerless; knowledge is power - we must decide what is important and moral.

Laundry Lint Pollutes the World's Oceans by Elsa Youngsteadt

The source: *ScienceNOW*, 21 Oct 2011.
<http://news.sciencemag.org/sciencenow>

There's nothing subtle about dryer lint: Clean the fluffy, gray mat off the filter or risk a fire. Washer lint, however, is sneaky. Nearly 2000 polyester fibers can float away, unseen, from a single fleece sweater in one wash cycle, a new study reports. That synthetic lint likely makes its way through sewage treatment systems and into oceans around the world. The consequences of this widespread pollution are still hazy, but environmental scientists say the microscopic plastic fibers have the potential to harm marine life.

The existence of so-called microplastics in marine environments is not, in itself, a revelation. Larger bits of plastic, such as those in the infamous Great Pacific Garbage Patch, gradually break down into microscopic fragments. And minute plastic fibers have turned up before in treated sewage and on beaches. But no one had looked at the issue on a global scale, says ecologist Mark Browne of University College Dublin.

So Browne and his team recruited far-flung colleagues on six continents to scoop sand from 18 beaches. (The scientists had to wear all natural-fiber clothing, lest their own garments shed lint into the samples.) Back in the lab, the researchers painstakingly separated the plastic from the sand—a process that involved, among other things, hand plucking microscopic fibers from filter papers. A chemical analysis showed that nearly 80% of those filaments were made of polyester or acrylic, compounds common in textiles.

Not a single beach was free of the colorful synthetic lint. Each cup (250 milliliters) of sand contained at least two fibers and as many as 31. The most contaminated samples came from areas with the highest human population density, suggesting that cities were an important source of the lint.

Cities come with sewers, and Browne's team thought the plastic fibers might enter the ocean via sewage. Sure enough, synthetic lint was relatively common in both treated wastewater and in ocean sediments from sites where sewage sludge had been dumped. In all the samples, the fibers were mainly polyester and acrylic, just like the ones from the beaches.

Finally, the researchers wanted to see how synthetic lint got into sewage in the first place. Given its polyester-

acrylic composition, they thought clothing and blankets were a good bet. So they purchased a pile of polyester blankets, fleeces, and shirts and commandeered three volunteers' home washing machines for several months. They collected the wastewater from the machines and filtered it to recover the lint. Each polyester item shed hundreds of fibers per washing, the team reports in the 1 November issue of *Environmental Science and Technology*.

A polyester sweater may seem cozy and innocent on a winter day, but its disintegrated fibers could be bad news in marine environments, Browne says. Other studies have found that microplastics in the ocean absorb pollutants such as DDT. And Browne's own work has shown that filter-feeding mussels will consume tiny plastic particles, which then enter the animals' bloodstreams and even their cells. If the same thing happens in nature, the plastic fibers could "end up on our dinner plates," incorporated into seafood, Browne warns.

There is still no direct evidence that the fibers—pollutant-tainted or otherwise—harm marine life, but Browne says it's worth figuring out. He argues that the fibers are "guilty until proven innocent" and says that textile and washing machine manufacturers, as well as sewage treatment plants, should be looking for ways to keep the fibers out of the ocean. Garments that shed less lint, or filters that trap the fibers, might help.

ScienceNOW sent a copy of the study to Patagonia, one popular maker of fleece sweaters. No one was able to review the study and comment before deadline, but spokesperson Jess Clayton said that Patagonia does intend to follow up on the findings with Polartec, its primary supplier of fleece.

Christopher Reddy, an environmental chemist at the Woods Hole Oceanographic Institution in Massachusetts, says it's still hard to tell where lint pollution fits in the spectrum of environmental problems. It won't "trump CO₂ in the atmosphere" as a priority issue, but he calls the new results "provocative" and says they should trigger follow-up studies that measure the effects of the fibers on marine life. "It never ceases to amaze me that we continue to find more pollutants entering the coastal environment," he adds. "What else is out there we may be missing?"

Guppies from Julie

Master Naturalists are Awesome! Master Naturalists Rock! These are the words of science teachers, students during field trips and many, many others!

As Master Naturalists, you are changing people's knowledge about our natural resources! You are training people to restore habitats! You offer unique experiences and knowledge which changes people! You are leading others to make a difference on this planet of ours! Thank you.

I have the privilege to hear about how each of you makes a difference as a Master Naturalist. People tell me how you influence their lives and how they are changed by working with you. It is, in a word ... AWESOME!

As 2012 comes to an end, 2013 will offer new volunteer and training opportunities! I look forward to seeing you on the marsh and in the prairie with students, teachers, and others as you share your Master Naturalist experience!

Save the Date - Saturday, February 23, 2013!

Join us for Dolphin Challenge in Galveston! Dolphin Challenge is an ocean sciences quiz bowl competition for high school students from across the state! Dolphin Challenge is the regional competition for National Ocean Sciences Bowl (NOSB)!

NOSB is an academic competition that tests high school students' knowledge of the marine sciences including biology, chemistry, physics and geology. Volunteers are needed for all aspects of the competition from registering teams to serving as judges - training will be provided!

Save Saturday, February 23, 2013, for Dolphin Challenge! If you would like to volunteer, please contact Julie at jmassey@ag.tamu.edu or 281-309-5063.



The Midden

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For comments on this issue or to suggest content for future issues, please contact Nathan Veatch at 281-480-6985 or by e-mail at nveatch@swbell.net.

Midden Editorial Team

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Nathan Veatch	Editor
Diane Humes	
Carolyn Miles	

The Midden Deadline for the next issue

Jan. 5th

If you have Advanced Training or Volunteer Opportunities, please submit information to Verva Densmore, rhdensmore@yahoo.com.

TEXAS A&M
AGRI LIFE
EXTENSION

Texas A&M AgriLife Extension programs serve people of all ages regardless of socioeconomic level, race, color, sex, religion, disability, or national origin. The Texas A&M University System, U.S. Department of Agriculture, and the County Commissioners Court of Texas cooperating.

December and January Activities

ADVANCED TRAINING OPPORTUNITIES

Chapter Meeting - December 6th

Annual Meeting

6:30 Social, 7:00 Presentation, 8:00 business meeting

Wayne Johnson Community Center 1 Hour AT

Sea Turtles and More - December 5th

9am-Noon - 3 Hours AT

Galveston, NOAA Building 216, Ballroom

Information on gulf-coast sea turtles, GBMN volunteer partnership & work being done at the Fisheries, upcoming volunteer opportunities with the Flower Banks, turtle patrols and more as well as a visit to the turtle barn
Presenters - Dr. Steve Alexander, Shelly Dupuy, Dr. Ben Higgins, Carlos Rios, Maureen Nolan-Wilde and staff from NOAA,

Register with Emmeline Dodd txdodd@aol.com

Wildlife Trends from a Rehabilitation Point of View -

Jan 26 1:00-3:00 pm 2 Hours AT

Wildlife Center of Texas, 7007 Katy Road, Houston, TX

This is a great opportunity to learn about some of the trends in our native wildlife as they interact with humans in urban settings. The class consists of power point presentation, learning stations and meeting the Wildlife Center's wildlife ambassadors.

Participants limited to 50

Presenters - Margaret Pickell, Wildlife Center of Texas

Register with Emmeline Dodd txdodd@aol.com

Ongoing

Galveston Island State Park

10 am at the Welcome Center

Every Saturday- Beach Explorations

Every Sunday- Bay Explorations

Tours 1 to 1 ½ hours long. Bring water and family.

Heritage Book Study Group

First Monday of every month. AgriLife Extension Office

10am-Noon 2 hours AT

Contact: Elsie Smith (409)945-4731

We are currently reading: *Water in Texas* by Andrew Sansom

STEWARDSHIP OPPORTUNITIES

Ongoing Activities:

Tuesdays -

- Sheldon Lakes State Park, Contact: Tom Solomon crandtr@sbcglobal.net
- Texas City Prairie Preserve, Contact: Jim Duron wishkad@yahoo.com
- Environmental Institute of Houston at UHCL, Contact : Wendy Reistle reistle@uhcl.edu

Wednesdays - Wetland Restoration Team, Contact:

Marissa Sipocz m-sipocz@tamu.edu

Thursdays -

- Horseshoe Marsh Prairie, third Thursday of each month, 9 - Noon. Contact: Tom Solomon crandtr@sbcglobal.net
- San Jacinto State Park, Contact: Tom Solomon crandtr@sbcglobal.net

Fridays - Prairie Friday, ABNC, 8:30 - 11:30am, Contact:

Dick Benoit RBenoitTEX@aol.com

EDUCATION-OUTREACH VOLUNTEER OPPORTUNITIES

Bay & Island Adventures - Volunteers teach six in-class hands-on modules on a once a month basis in Dickinson and Galveston Schools. Presenters and helpers are needed for eleven 4th and 5th grade classes. Contact: Sara Snell snellsw@verizon.net.

Education and Outreach Committee - Lots of work to do and we can use your help developing a speakers bureau; responding to requests for exhibit booths, fieldtrip guides and presenters, planning Camp Wild and Treasures of the Bay; and developing a library of education-outreach materials. Contact Sara Snell snellsw@verizon.net.

Partner and Associate Programs - Many organizations sponsor guided walks and education programs or need volunteers to man their nature center. Go to www.gbamasternaturalist.org click on "Volunteer Opportunities," then click on "Partners, Sponsors and Associates" for the list, then click on their website for information and contact.

BOARD AND COMMITTEE MEETINGS

Board Meetings - December 4th

2-4 at the Extension Office

Committee Meetings

Communication - January 7th

9-Noon at Extension office

Advanced Training - Dec. 17th, Jan. 21st

10-Noon at Extension office

Education/Outreach - Meets as needed. None currently scheduled.

Stewardship - Meets quarterly Next meeting to be determined