

NERR or Far:

The Reserves Are Where You Are

Episode 2: Effectively Communicating Science

The **National Estuarine Research Reserve System (NERRS)** is a system of 30 coastal sites, spanning 1.4 million acres in 24 states and Puerto Rico, created to protect and study estuarine ecosystems. The word **estuarine** describes an environment where freshwater meets saltwater, most often an area where a river meets the sea. Through stewardship, research, coastal training and education, the NERRs are working to create more resilient and better informed communities on our coasts in the face of a changing world and climate. The NERRs have adopted the motto "locally significant, nationally impactful", and together, the entire system is moving the needle on national science and policy needs.

An important group that supports the success of the research reserves is **NERRA**, the National Estuarine Research Reserve Association. NERRA was created to advance the work and mission of the reserves and to raise the profile of this system. NERRA is a collective voice of reserve staff and supporters that can speak to Congress, speak to NOAA (the National Oceanic and Atmospheric Administration), as well as speak to partners all over the country on the important work that the reserves are doing, raising the bar in **advocacy**.



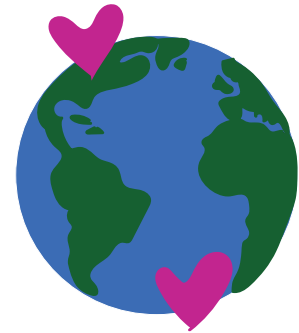
One very important thing that NERRA advocates to protect is the Coastal Zone Management Act, or **CZMA**. The CZMA was passed by the US Congress in 1972, and is an act administered by NOAA. According to NOAA's Office for Coastal Management, the CZMA is designed "to preserve, protect, develop, enhance and restore the nation's coastal resources". The Coastal Zone Management Act outlines three national programs: the National Coastal Zone Management Program, the Coastal and Estuarine Land Conservation Program, and the National Estuarine Research Reserve System. 2022 is the 50th anniversary of the Coastal Zone Management Act, an important milestone for the **cornerstone** legislation of the NERRS.

NERRA has been supporting and helping celebrate the CZMA on social media, but more importantly, they've been working with members of Congress to advance the reauthorization of the CZMA itself. Some of the challenges that NERRA president Keith Laakkonen says the organization is facing around the nation: "the country needs a stronger CZMA, one that enhances successful programs like the NERRs, delivers effective coastal management, improves community resilience in a changing

climate, and benefits communities and economic sectors dependent on these healthy natural resources”.

Beyond the Coastal Zone Management Act, there have been a number of other efforts, both globally and within the United States, to protect valuable ecosystems like estuaries. An example of this is the US Biosphere Network and the UNESCO (United Nations Educational, Scientific and Cultural Organization) World Network of Biosphere Regions. **Biosphere regions** are special places that are set aside to preserve biodiversity, culture, and economic value. There are 28 biospheres throughout the United States, and scientists are currently working together to build the biosphere network within the country and make it more well-known. The Apalachicola NERR in Eastpoint, FL, is within the Apalachicola Biosphere region, designated in 1983!

Biosphere regions are nominated and maintained by national governments, but the great thing about them and what connects them to their purpose is that they're run by local organizations. Through the designation of these regions and partnerships between community members and public land managers to come up with practical solutions, the U.S. and World Networks are achieving great strides towards a more harmonious relationship between humans and the natural environment. Biosphere regions aim to: 1) promote biodiversity and healthy ecosystems, 2) inform local decision-making through a combination of education, research and open dialogue with the community, 3) create a balance between the needs of people and nature, taking local culture and economies into consideration and 4) truly work as a network where regions globally can share knowledge and learn from the experiences of other regions. Getting back to the NERRs, let's talk about one of the reserve focuses: coastal training.



The **coastal training program (CTP)** offers diverse training opportunities to the community, including courses as unique as "An Introduction to Shorebirds for Ecotour Guides". The program works to promote scientific understanding amongst a variety of different decision-making audiences in coastal communities. The term “decision-makers” includes anyone who has influence and makes decisions that can impact the future of estuarine and coastal communities. Some examples include elected officials, city and local planners, people from the water management district, people who issue permits, realtors, even ecotour operators, as mentioned earlier. By attending programs hosted by the CTP, these

individuals are learning valuable new skills and the reserves are able to get information in professionals’ hands that will help them better understand how they also have the ability to protect places like estuaries.



Effective science translation and communication are central to what the reserves do. Doing research, training students, publishing papers and getting information out into the scientific literature is important, but as North Inlet-Winyah Bay NERR reserve manager Erik Smith says, “science in a vacuum, science just published in those journals that only scientists read is not enough. We need to get that scientific knowledge and understanding into the hands of the public, into the hands of the decision-makers so that they can use the best available information to make decisions on coastal management issues”. Reserves don’t push one position or another, but it is really important

to make sure that the decisions that affect everyone who lives in the coastal zone are informed by the best available information.

The CTP can help us collectively as a society and as communities make the best decisions for the coastal zone that we call home by being this vehicle that translates, **disseminates**, and communicates reserve findings, and education programs at the reserves can similarly communicate estuarine science to a diverse audience of visitors, fostering stewardship and a love for the environment in others. GTM NERR Education Coordinator Josephine Spearman says that she believes that a good communicator or educator not only informs, but also connects their audience to what they're trying to teach so that they care. One of the most important questions that we have to answer in science is why should we care? Why should we care about the coastal zone? Why should we care about estuaries? Providing the answers to these questions, whether it be through coastal training courses, forming connections through experiences on the estuary, or drafting policy to conserve our coastlines, is what keeps these places beautiful and communities engaged in their protection. The NERRs play a priceless role in informing communities on the coast.

QUESTION TIME

1. What would NERRA like to see change in relation to the CZMA going forward?

“a stronger CZMA, one that enhances successful programs like the NERRs, delivers effective coastal management, improves community resilience in a changing climate, and benefits communities and economic sectors dependent on these healthy natural resources.”

2. What is the advantage of biosphere regions and the NERRs being networks? What might these places be like if they were independent?

Biosphere regions in the U.S. and globally can share knowledge and learn from the experiences of other regions, and the same goes for the relationship between NERR sites nationally. Students might also mention it being easier to communicate and collaborate, it helps when it comes to standardizing data and protocol/procedures, etc. If these two systems were not setup like networks, their sites would not be able to share information as easily and have the collaborative relationship they do now. They might not be as successful or productive. It might also be difficult to pass legislation related to these systems because their rules and regulations might differ based on location.

3. How do the aims of biosphere reserves relate to those of the NERRS?

Both promote biodiversity and healthy ecosystems, both inform local decision-making through a combination of education, research and open dialogue with the community, and both create a balance between the needs of people and nature, taking local culture and economies into consideration. The aims of the biosphere reserves are nearly identical to the focuses of the

NERRS, which are stewardship, coastal training, education, and research. The NERRs also work closely with the local community and economy, helping support sustainable aquaculture amongst other industries.

4. In your own words, what is the goal of the coastal training program?

The given definition in this article is: “the coastal training program (CTP) offers diverse training opportunities to the community, including courses as unique as "An Introduction to Shorebirds for Ecotour Guides". The program works to promote scientific understanding amongst a variety of different decision-making audiences in coastal communities.” Any version of this should be acceptable! Further details related to the program are in the article.

5. What is the importance of scientists also being good communicators? What is the advantage of being able to effectively share findings with those beyond the field?

Being a good communicator is key to showing people why they should care about your research. It is important to get scientific knowledge and understanding into the hands of the public and into the hands of the decision-makers so that they can use the best available information to make decisions on coastal management issues. Communicating estuarine science to a diverse audience of visitors is also a valuable skill because it can help foster stewardship and a love for the environment in others.

6. How are the NERRs "locally significant, nationally impactful"?

The NERRs work closely with the local community to make change and address issues unique to their estuarine environment as well as with other reserves nationwide to achieve their goals of preserving, protecting, developing, enhancing and restoring the nation's coastal resources. Their coastal training programs help inform local coastal decision-makers while also being supported as a system by NERRA, which can talk to NOAA and Congress about the NERRs and coastal issues.

ACTIVITIES

- Lead a coastal training program! Students brainstorm an issue, whether it be in their local community or on the coast, that they are passionate about and then determine what decision-makers could benefit from attending their program (at least 2 different occupations/positions). The students will also explain the types of information that they would need to provide their audience. Remember, reserves don't push one position or another, it is about making sure that the decisions that affect everyone who lives in the coastal zone are informed by the best available information.

- Students research different biosphere reserves and select one that stands out to them to create a short presentation about! They will share the designation date, some characteristics of the region, why it is important ecologically, how humans play a role in this system, and why they chose the site.
 - <https://en.unesco.org/biosphere/eu-na>