

Nurdle Patrol Y5Q3 Quarterly Progress Report (December 1, 2024– February 28, 2025)

PI: Katie Swanson

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Administration:

Contract Activity

- The Nurdle Patrol Expansion, Education, and Outreach was approved for funding for Year 5 (June 1, 2024 through December 31, 2025) on June 16, 2024.
- The Subaward Agreement No.: 5 UTAUS-SUB00001508 between The University of Texas at Austin and Texas A&M University Corpus Christi (TAMU-CC) was fully funded for year five for the amount of \$74,465.00 to further enhance the website for usability and the ongoing maintenance of the phone app to help promote the awareness and education of Nurdle Patrol.

Risks and Impacts: None

Project Tasks:

Hire full-time staff to organize annual meetings, training, travel, and develop promotional materials about Nurdle patrol.

Tracy Weatherall was hired during the first quarter of year one on July 1, 2020. Her contract was renewed on June 1, 2021 for year two, June 1, 2022 for year three, June 1, 2023 for year four and June 1, 2024 for year five.

Host the Texas Plastic Pollution Symposium (TPPS)

The 7th Annual Texas Plastic Pollution Symposium planning committee met 3 times during the third quarter to plan the 2025 symposium logistics and it was decided that the event will be held at the Houston Zoo on April 3, 2025 and an evening social event will take place on April 2nd, 2025 at the venue Axelrad. This venue is located near the Hilton Garden Inn Suites where there is a room block for attendees. The Save the Date was posted in late November and a Call for Abstracts and Registration opening was sent out via email on January 6, 2025. A total of 37 abstracts were submitted by the cutoff date on February 28, 2025. There will be 25 oral and 13 poster presentations.

Student Scholarships

As an incentive to attract students to attend the annual TPPS in person and present their research, we plan to offer a \$500 student scholarship again this year to help cover costs for travel and expenses. Twenty students submitted abstracts, with 10 oral presentations and 10 poster presentations. Of these, 15 students will receive scholarship funds for traveling over 50 miles to present their research. Also, student presentation awards will be given again this year, sponsored by the Coastal Bend Bays & Estuaries Program. They are planning to give \$300 for oral presentations (\$150 1st place, \$100 2nd place, \$50 3rd place) and \$200 for poster presentations (\$100 1st place, \$75 2nd place, \$25 3rd place).

Create Starter and Teacher Kits

The Nurdle Patrol Starter Kit was created during the first year of Nurdle Patrol (2020) for organizations to start-up their own Nurdle Patrol Citizen Science Project or to incorporate nurdle surveys into their existing monitoring program. The kits were designed to supply organizations with resources needed to conduct surveys, talk to their volunteers about nurdles, and provide a foundation for a successful monitoring program (Figure 1). As of February 28, 2025, 484 partners have received the starter kits.

The Nurdle Patrol Teacher Kits were also developed during the first year of Nurdle Patrol. These kits were developed based on the many requests from teachers across the United States, wanting to teach their students about how plastics reach the ocean and what negative impacts plastics have on the environment. These kits include a curriculum about nurdles entering the ocean, what negative impacts they can have, and what solutions are out there to prevent nurdles from getting into the waterways. These interactive teacher kits include six jars of nurdles, an information card about how to conduct a nurdle survey, a presentation about nurdles, and articles describing the problem (Figure 1). An updated version of the teacher kit curriculum was completed during the third quarter of Year 2 which includes an All Level Nurdle Survey, a Nurdle Hurdle Race, K-5 curriculum that includes lesson plans for age specific children in K-1, 2-3, and 4-5, and Middle School and High School Chemistry curriculums. We are excited to announce that new lesson plans will be created during year 5 and will be linked to our webpage. As of February 28, 2025 there were 2,390 teacher kits shipped to educators in the USA, Canada, Mexico, Puerto Rico, Costa Rica, Columbia, Cuba, UK, Spain, Africa, South Africa, Australia, Turkey, Italy, and Thailand. We estimate that each teacher would have 60 students, which means these kits could reach close to 143,400 students, making this an effective tool for educating students about plastics along the Gulf of Mexico and beyond.



Figure 1. Nurdle Patrol Startup Kit (left) and Teacher Nurdle Kit (right)

Meet with organizations about Nurdle Patrol – Outreach

During the third quarter of Year 5, we acquired 11 new Nurdle Patrol partners and shipped 48 teacher kits (Figures 4-5; Table 1). The Nurdle Patrol Facebook group is being utilized as a way to communicate with individual citizen scientists as well as new organizations about new efforts related to Nurdle Patrol. News stories, survey results, and other related material are also shared with the more than 3,000+ followers on the closed group Nurdle Patrol Facebook page. Virtual and in-person presentations and meetings were given to promote Nurdle Patrol to new organizations, including the following since June 1, 2024:

- June 4 – June 25, 2024 – Eight Nurdle Patrol presentations and trainings were given to the Summer Science Sea Stars (Grades 3 – 4) and Tidal Waves (Grades 5-6) at UTMSI in Port Aransas, Texas.
- June 10, 2024 - Nurdle Patrol and Beachcombing booth at Our Lady of Mt Carmel Church in Portland, Texas.
- June 11, 2024 – Nurdle Patrol and Beachcombing the Coastal Bend presentation to the Billabong Surf Camp at Horace Caldwell Pier in Port Aransas, Texas.
- June 17- June 18, 2024 – Four Nurdle Patrol presentations and beach trainings workshops were given to the GWET group from Kansas at UTMSI in Port Aransas, Texas.
- June 17, 2024 – Nurdle Patrol presentation in the classroom at Flour Bluff High School in Corpus Christi, Texas.
- June 24, 2024 – Nurdle Patrol and Beachcombing presentation to the Wildlife Preserve Conservation Job Corps at the Harte Research Institute (HRI) in Corpus Christi, Texas.
- July 2, 2024 –Nurdle Patrol Zoom presentation to the Golden Triangle Sierra Club.
- July 11, 2024 – Nurdle Patrol and Beachcombing the Coastal Bend presentation to the Billabong Surf Camp at Bob Hall Pier on North Padre Island in Corpus Christi, Texas.
- July 15, 2024 – Nurdle Patrol and Beachcombing Zoom presentation to the TAMUCC STEM Program.
- July 20, 2024 – Nurdle Patrol Presentation to the Gulf Youth Climate Summit in Corpus Christi, Texas.
- July 26, 2024 – Nurdle Patrol and Beachcombing Presentation to the Marine Biologist for a Day participants at HRI in Corpus Christi, Texas.
- August 7, 2024 – Nurdle Patrol and Beachcombing in the Coastal Bend Presentation to the Pleasanton Lions Club in Pleasanton, Texas.
- August 8, 2024 – Nurdle Patrol training and Live Beachcombing to the Texas Children in Nature Network at Bob Hall Pier in Corpus Christi, Texas.
- August 24, 2024 – San Jose Nurdle Patrol training and Beachcombing event with the Gulf Coast Growth Ventures on San Jose Island, Aransas County, Texas.
- September 6, 2024 – Nurdle Patrol presentation at Kaffie Middle School in Corpus Christi, Texas.
- September 10, 2024 – Nurdle Policy presentation at TAMUCC in Corpus Christ, Texas.

- September 14, 2024 – Nurdle Patrol and Beachcombing booth at KEDT Station in Corpus Christi, Texas.
- September 16, 2024 – Nurdle Patrol and Beachcombing in the Coastal Bend presentation for the Monday Forums Women’s Group in Corpus Christi, Texas.
- September 18, 2024 – Nurdle Patrol and Beachcombing presentation to the HRI’s Gulf Scholars Program in Corpus Christi, Texas.
- September 21, 2024 – Nurdle Patrol and Beachcombing booth at the 3rd Annual Friends of Padre Fall Fiesta event located on Padre Island in Corpus Christi, Texas.
- October 1, 2024 – Nurdle Patrol presentation to the Coastal Cadet Club at Kolda Elementary in Corpus Christi, Texas.
- October 3, 2024 – Nurdle Patrol in the Gulf of Mexico presentation to MarCuba in Havana, Cuba.
- October 9, 2024- Nurdle Patrol training at McGee Beach in Corpus Christi, Texas for the TCEQ employees attending the Surface Water Quality Monitoring workshop.
- October 12, 2024 – Five Nurdle Patrol and Marine Debris demonstrations were given to the public during the Island Science Day event at UTMSI in Port Aransas, Texas.
- October 18, 2024 – Nurdle Patrol and Beachcombing presentation at the International Sea Bean Symposium in Galveston, Texas.
- October 28, 2024 – Nurdle Patrol presentation at the 3rd Annual Mexico Plastic Pollution Symposium in Merida, Yucatan, Mexico.
- October 31, 2024 – Nurdle Patrol Workshop at the 3rd Annual Mexico Plastic Pollution Symposium in Progreso, Yucatan, Mexico.
- November 7, 2024 – Nurdle Patrol and Beachcombing booth for STEM Night at Kolda Elementary School in Corpus Christi, Texas.
- November 8, 2024 – Nurdle Patrol and Beachcombing presentation for the South Padre Shell Group in Corpus Christi, Texas.
- November 14, 2024 - Nurdle Patrol and Beachcombing the Gulf of Mexico presentation at the Conference for the Advancement of Science Teaching (CAST) in San Antonio, Texas.
- November 15, 2024 - Nurdle Patrol and Beachcombing Panel for the screening of *Chasing the Tide* [documentary] at HRI in Corpus Christi, Texas.
- November 16, 2024 - Nurdle Patrol and Beachcombing presentation to the Texas Bayside Historical Society in Bayside, Texas.
- November 19, 2024 - Nurdle Patrol and Beachcombing presentation at Baker Middle School in Corpus Christi, Texas.
- November 26, 2024 - Nurdle Patrol and Beachcombing training for the Texas Sea Grant RJ Shelly group and the South Jetty in Port Aransas, Texas.
- December 03, 2024 – Nurdle Surveys at Newport beach with Flour Bluff Junior High School students on Mustang Island in Corpus Christi, Texas.
- December 09, 2024 – Nurdle Patrol Zoom presentation to St. Peter School in Ohio.

- December 09, 2024 – Nurdle Patrol Zoom presentation to the First Lego League Team in St. Louis, Missouri.
- January 09, 2025 – Beachcombing and Nurdle Patrol presentation to the Jenette Hammer Guild at the Church of Good Shepherd in Corpus Christi, Texas.
- January 10, 2025 – Beachcombing and Nurdle Patrol presentation to the Country Club Women’s Association at the Corpus Christi Country Club in Corpus Christi, Texas.
- January 11, 2025 – Beachcombing and Nurdle Patrol presentation at the Corpus Christi Science Museum in Corpus Christi, Texas.
- January 15, 2025 – Beachcombing and Nurdle Patrol presentation at the Mission-Aransas NERR Bay Education Center in Rockport, Texas.
- January 24, 2025 – Beachcombing and Nurdle Patrol presentation for the GLO Adopt a Beach at the Omni Hotel in Corpus Christi, Texas.
- February 05, 2025 – Beachcombing and Nurdle Patrol Zoom presentation for the NOAA Flower Garden Banks Sanctuary.
- February 06, 2025 – Beachcombing and Nurdle Patrol presentation at the Ellis Memorial Public Library in Port Aransas, Texas.
- February 11, 2025 – Beachcombing and Nurdle Patrol presentation for the Port Aransas Garden club at the Island Retreat Event Center in Port Aransas, Texas.
- February 13, 2025 – Beachcombing and Nurdle Patrol Booth at Flour Bluff Elementary School in Corpus Christi, Texas
- February 18, 2025 – Beachcombing and Nurdle Patrol presentation for the Kiwanis Club of Corpus Christ at Tower II in downtown Corpus Christi, Texas.
- February 18, 2025 – Beachcombing and Nurdle Patrol Coastal Bend Environmental Issues presentation at the Brookdale Trinity Towers in Corpus Christi, Texas.
- February 24, 2025 – All day Beachcombing and Nurdle Patrol Presentations for the Flour Bluff High School students in Corpus Christi, Texas.

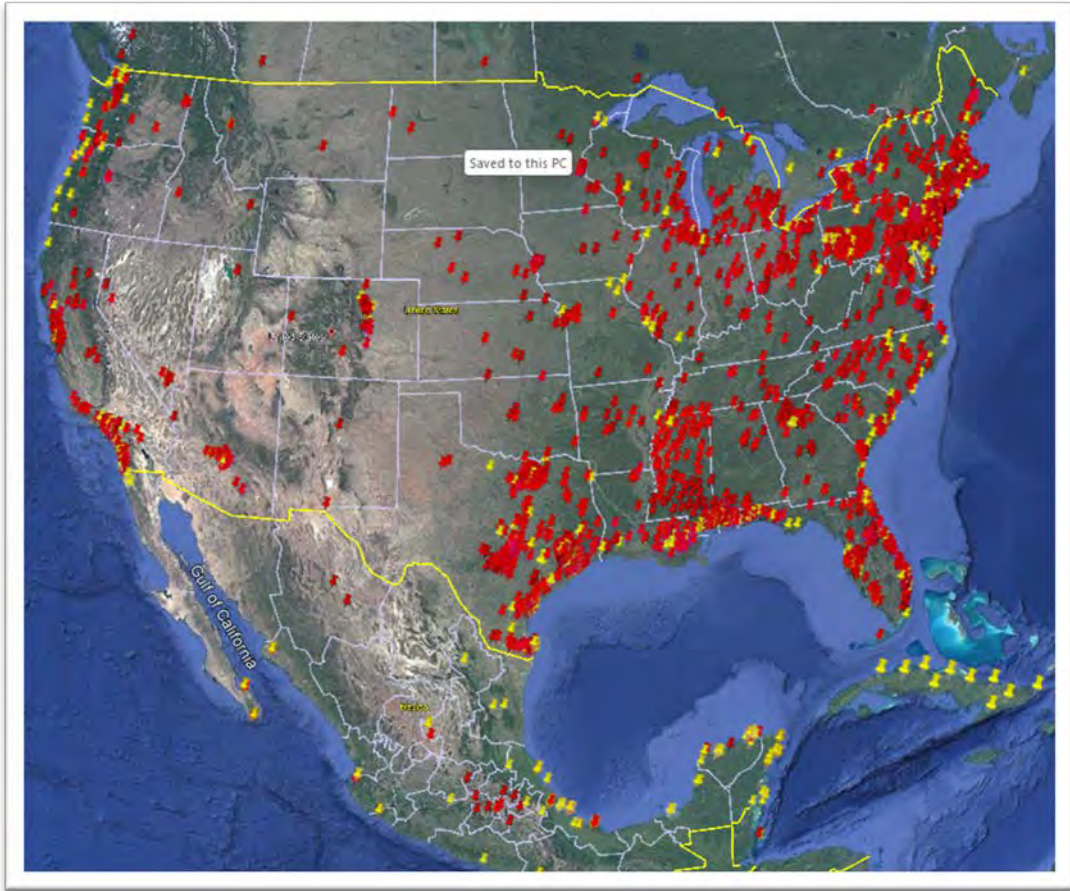


Figure 4. Nurdle Patrol Partners (yellow) and Teacher Kits (red) shipped in the continental United States, Canada and Mexico.

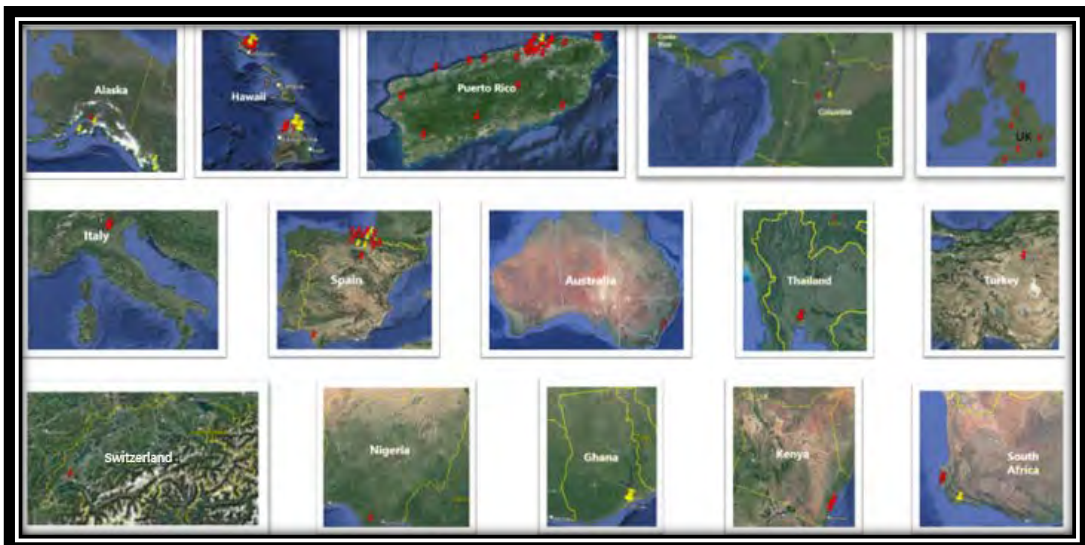


Figure 5. Nurdle Patrol Partners (yellow) and Teacher Kits (red) shipped to Alaska, Hawaii and worldwide.

| Number | Year 5 Quarter 3 New Partners | Group Type | Location |
|--------|---|---------------------|----------|
| 1 | Nova Middle School | Middle School | WA |
| 2 | Asociación de Pescadores del Caribe Pez León | NonProfit | COL |
| 3 | Nova Scotia Beach Garbage Awareness | NonProfit | CANADA |
| 4 | Texas Master Naturalist Sabine-Neches Chapter | NonProfit | TX |
| 5 | Pasadena City College | College | CA |
| 6 | Congaree Riverkeeper | NonProfit | SC |
| 7 | Girl Scouts Troop 110036 | Girl Scouts | TX |
| 8 | Instituto de Ciencias del Mar y Limnología, Unidad Académica Mazatlán | Research Institute | MX |
| 9 | Universidad de Guadalajara | University | MX |
| 10 | Dirección de Administración de la ZOFEMAT Tulum | Government Official | MX |
| 11 | H.Ayuntamiento Río Lagartos | Government Official | MX |

Table 1: Nurdle Patrol Partners who have received startup kits during Year 5 Quarter 3.

Phone App Maintenance and update website

The subaward agreement between TAMU-CC Conrad Blucher Institute (CBI) and UTMSI for year five was fully funded on September 26, 2024. The work by CBI includes improvement to the phone app for Nurdle Patrol by adding all data onto a map, as well as updates to the Nurdle Patrol website (www.NurdlePatrol.org). Both versions of the original phone app, Android, and iOS, were released in May 2021.

Overview:

During the first quarter of year five the CBI Nurdle Patrol team initiated the design phase for a new user interface to enhance the website's functionality. Efforts focused on modernizing the layout and improving user interaction to foster greater engagement.

In the second quarter of year five the CBI team marked significant progress in the development and maintenance of the Nurdle Patrol software ecosystem, focusing on both the mobile app and website interfaces. A significant portion of our resources was spent on upgrading the mobile app to comply with the latest security policies mandated by Apple and Google.

During the third quarter of year 5, the CBI Nurdle Patrol team continued to make progress in the implementation of the new website's user experience and functionality. Significant efforts were made in developing essential components of the website, including the About Page, News section, Solutions Page, and integrating statistical charts on the home page.

New Website Development:

About Page: The new About Page has been re-implemented with both English and Spanish content (Image 1).

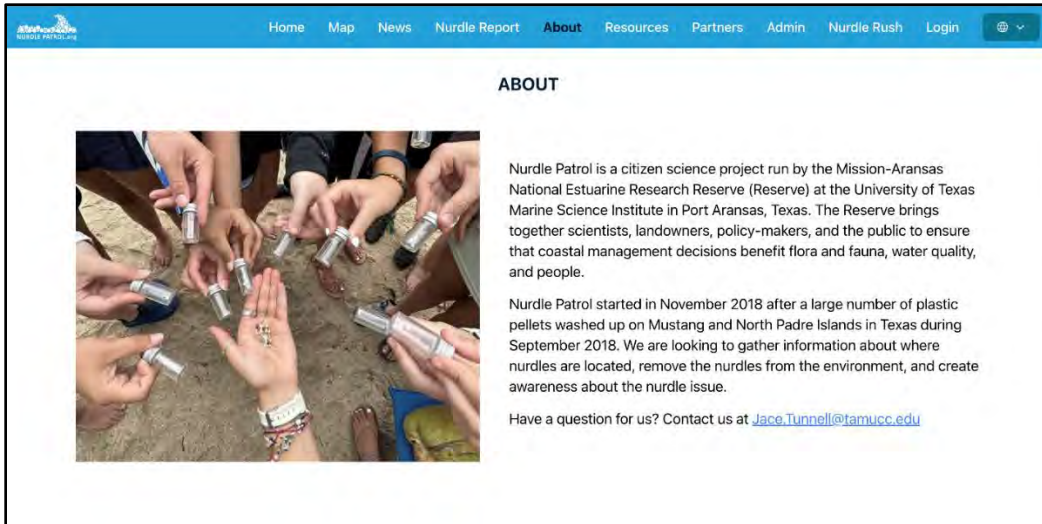


Image 1: About Page View

- News Section:** The team re-developed the News page that includes News Preview and View Article functionalities, allowing users to stay updated with the latest developments and insights related to nurdle pollution and our patrol efforts. Notably, the new technology they used to develop the new website allows users to share articles easily on social media platforms such as Facebook (Image 2).

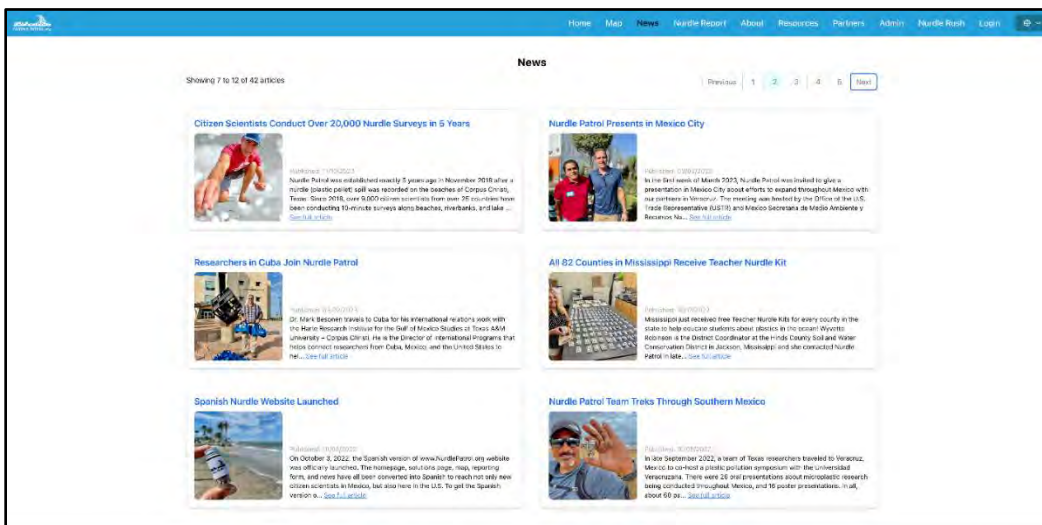


Image 2: News Page View

- Solutions Page:** The Solutions Page was developed to offer practical advice and strategies for tackling nurdle pollution, serving as a resource for communities and individuals to engage in environmental preservation (Image 3).



Image 3. Solutions Page.

- **Statistical Charts:** The team integrated statistical charts into the home page to provide real-time data visualization of nurdle findings and trends, enhancing the informational value of our site. There are five charts in total: Nurdle Patrol Timeline, Nurdles Collected, Number of Reports, US States or Countries with Highest Nurdles Collected, and US States or Countries with Highest Reports Submitted (Image 4).

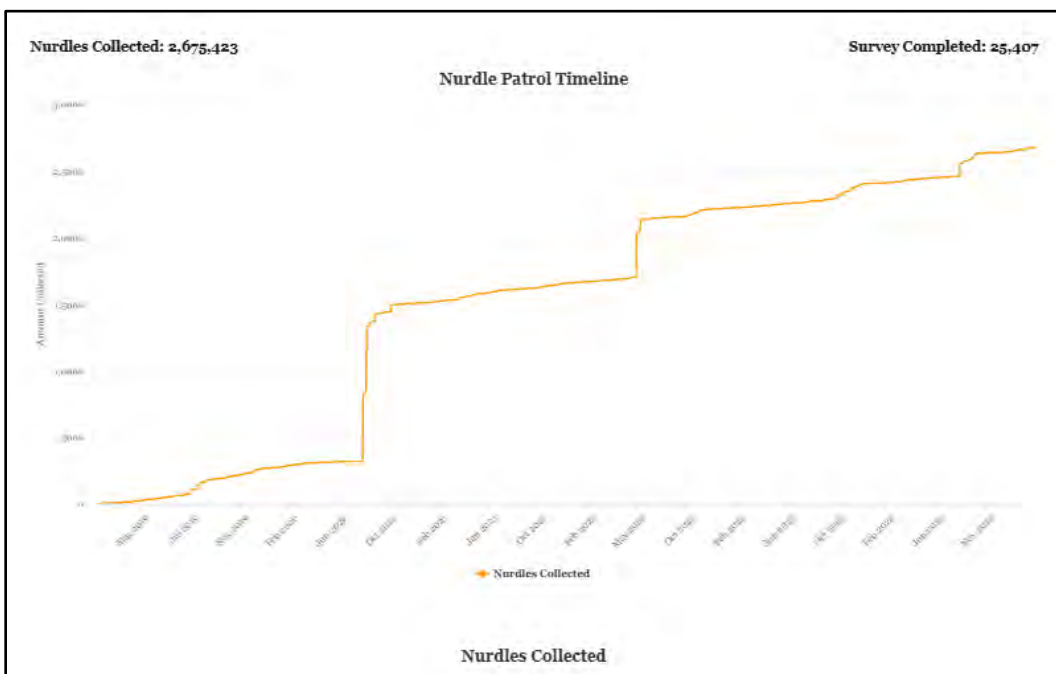


Image 4. Nurdle Patrol Timeline View on Homepage.

- **Nurdle Expeditions Videos:** The current videos on Nurdle Expedition have been replaced with new, updated content provided by Jace Tunnell (Image 5).

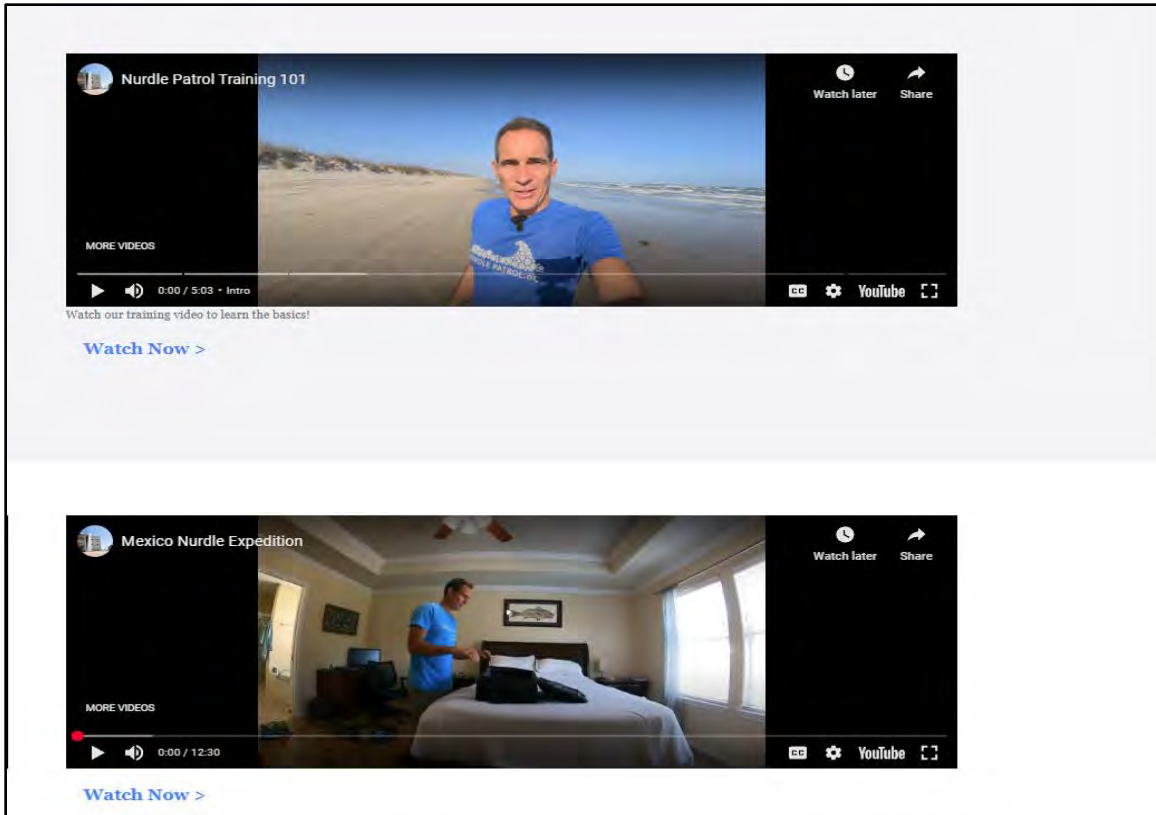


Image 5. New Nurdle Expedition Videos on Nurdlepatrol.org.

Development Plan for Quarter 3:

The upcoming quarter is set to be critical as they aim to finish up the remaining pages for the new website. This includes final tweaks and testing to ensure that all new elements are fully functional and optimized for the best user experience.

Coordinate Nurdle Patrol Program

- **Data Management and Quality Assurance:**
HRI has been actively involved in monitoring and ensuring the quality of data entered into the NurdlePatrol.org portal. Key issues include incorrect survey locations, inaccurate survey durations, and duplicate entries. To address these issues, HRI has implemented a rigorous daily monitoring process. When errors are identified, volunteers are contacted via email and guided on proper data entry procedures. This proactive approach aims to maintain high data integrity and improve overall quality.
- **Public Engagement and Presentations:**
HRI gave 15 presentations during the third quarter of year five about Nurdle Patrol at various venues, including at festivals, schools, community groups, and via Zoom. These presentations are designed to educate the public and researchers, promote the citizen science project, and attract new partners. The consistent outreach efforts contribute significantly to raising awareness and support for the Nurdle Patrol initiative.

- Partnership Expansion:**
 HRI's efforts to enhance partnerships include working closely with UTMSI on the distribution of 11 new startup kits and 48 teacher kits, which are crucial for expanding the program's reach. By leveraging the program's growing visibility, HRI aims to further increase the number of partners and strengthen collaborative efforts in the citizen science project.

Public Awareness

The Nurdle Patrol rack card continues to be printed and describes how to conduct a Nurdle Survey on the front side and on the back side it has more detailed information including where to look for nurdles, what nurdles are, and a QR Code link to NurdlePatrol.org where a training video can be found. We created this card in English and Spanish (Figures 6 & 7).



Figure 6. Nurdle Patrol outreach flyer front and back.



Figure 7. Spanish version of the Nurdle Patrol outreach flyer front and back.

The Nurdle Patrol billboard campaign was a huge success that was created during the first year (2020) and extended through 2025 (Figure 8).



Figure 8. Nurdle Patrol billboard in Point Comfort, Tx (site 355751) .

The Port Aransas Wildlife magazine highlights the diverse wildlife that can be found in Port Aransas and surrounding areas. A large portion of the earnings from the advertisers is donated to organizations that benefit wildlife in Port Aransas such as the Amos Rehabilitation Keep (ARK) for their dedication to helping sick and injured wildlife and the Carolyn Grosse Conservation Fund which supports the Port Aransas Nature Preserve. Nurdle Patrol has a full-page ad (pg. 25) in the new 2024-2025 edition (Figure 9).



Figure 9. Nurdle Patrol advertisement in the Port Aransas Wildlife Magazine.

Nurdle Patrol is proud to have a permanent outreach installation at the Texas State Aquarium (Figure 10). The Texas State Aquarium reached out to us in the summer of 2021 to request video footage, images of nurdles, and text on the impact of plastics in the environment. From the information we sent, the aquarium was able to create an exhibit with a video that plays continuously, and a poster display educating folks on what nurdles are, how they get into the environment, and solutions for reducing plastics getting into the ocean.



Figure 10. Nurdle Patrol outreach installation at the Texas State Aquarium.

Summary

A total of 733 surveys were conducted during Y5Q3 and 33,080 nurdles were removed from the beaches, riverbanks, and lake shorelines across the United States, Mexico and additional countries worldwide. Nurdlepatrol.org acquired 11 new partners and shipped 48 teacher kits to educators in the USA, Canada, Mexico, Puerto Rico, Costa Rica, Columbia, UK, Spain, Africa, Australia, Turkey, Italy, Spain and Thailand. Nine individual kits were handed out during this quarter (Table 2).

| Y5Q3 | Number of Surveys | Nurdles Removed | New Partners | Teacher Kits | Individual Kits |
|--------------|-------------------|-----------------|--------------|--------------|-----------------|
| December | 157 | 4,247 | 0 | 17 | 0 |
| January | 262 | 17,593 | 4 | 14 | 0 |
| February | 314 | 11,240 | 7 | 17 | 0 |
| Total | 733 | 33,080 | 11 | 48 | 0 |

Table 2. Y5Q3 Summary.

Obstacles

- None