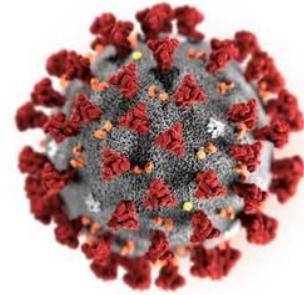


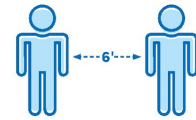
2020 Program Evaluation

Inland Seas Education Association



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Maintain 6 feet between yourself and others.



WASH YOUR HANDS

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FEEL SICK? STAY HOME!

If you experience flu-like symptoms or feel unwell, stay home and contact your health care provider.

The Inland Seas Education Association (ISEA) was founded in 1989 as a non-profit organization whose mission is to inspire Great Lakes curiosity, stewardship, and passion. To date more than 130,000 learners have participated in ISEA programs.

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Introduction

This Program Evaluation will look a little different than previous years. 2020 has been a challenging year for everyone within the context of the global coronavirus pandemic. Our season looks so different from that of any of the last several years, or maybe even from all the years we've been operating, that we felt we needed to do a different kind of evaluation this year.

This report will document and review what we did accomplish in 2020 in spite of the coronavirus pandemic, as well as critical lessons learned from the programs we did deliver. It is still unknown exactly how the pandemic will play out, but we will plan for the 2021 season to include a variety of public health safeguards to be in place. We will use what we have learned from the 2020 season to create the best possible programs we can.

*Jillian Votava
Education and STEM Coordinator
Inland Seas Education Association*

The 2020 Season

Overview

The New Year of 2020 started out strong: the program calendar was full, partnerships were growing, and ISEA's largest-ever staff had just carried out a staff retreat in December that included a grand vision for the future of the organization. More people on staff over the winter meant that many areas of work could be done all at once, including updating program documentation and materials. Various new grants offered a chance to replace older equipment with higher-quality or more efficient counterparts, e.g. new Luxeo Stereo Microscopes with video cameras, and replacing the Education Center overhead lighting with brighter LEDs.

Timeline of Events

In January reports from China were growing that a new novel virus had emerged, a coronavirus called COVID-19. New infections began popping up in other countries, including the USA, by late January. In February, Michigan's Governor Gretchen Whitmer announced plans to activate the State's emergency operations center in preparation for possible COVID-19 cases in Michigan. In mid-March, Michigan began to see its first COVID-19 cases and Governor Whitmer announced a three-week closure of all K-12 schools, roughly extending the spring break holiday for most districts. On March 23rd, Governor Whitmer issued a state-wide, three-week "Stay at Home" order that was extended several times.

By April, the coronavirus had completely shifted the entire rest of the season for ISEA:

- No in-person volunteer trainings allowed;
- Schools close and switch to virtual instruction, all field trips canceled (93 Spring Programs had been on the calendar as of March 1st);
- All overnight trips (3 YPIS, 3 charters) canceled;
- All summer programs and charters canceled (17 programs);
- Plans to travel to Detroit, Trenton, and Hessel (approx. 13 programs) postponed to 2021.

The lockdown and limited season resulted in the hard decision to shrink the size of the ISEA professional staff in order to focus organizational resources on core operations. At the end of the summer we were forced to part ways with our Boat Shop Instructor, Office Assistant, and Grand Traverse Stewardship Initiative Coordinator. At the end of the shipboard season we were also forced to say goodbye to our Great Lakes Educator.

But the strange year also resulted in many new things:

- Instructor Training Videos and narrated Crew Training slides
- Major hull repairs on S/V Inland Seas
- Online, social media engagement summer series
- New educational film
- New Scholarship program format, including shoreside facilities and a new station.

The Silver Lining

The need to still engage with our volunteers and ensure they all had the resources they needed for when we would resume instruction again, forced us to create a whole series of training videos. This has started our digital library of training assets that we will continue to build upon in future seasons.

A program-free spring opened the opportunity for *S/V Inland Seas* to get major work done. The ship went to Mackinac Marine Services in St. Ignace, MI at the end of May to have portions of the hull plating replaced and a wastewater tank repaired. The ship was out of the water for over a month and returned in early July, ready for normal operation by the end of July.

Our summer “To the Water” series allowed us to try engagement in different ways: through video interviews with locals, volunteers, and teachers reflecting on their relationship to water, and with a virtual challenge to get people to go outside and spend time with a local waterbody and share their reflections online. In addition, the education team produced two new word-scavenger hunts for families and the general public: one about wetlands, and the other about water along the TART Leelanau Trail.

With the possibility that the start of the 20/21 school year would also be affected, the education team set out to produce an engaging educational video that classrooms would be able to use in the event that they could no longer come on their field trip. What we ended up with is an amazing 45-minute video that explores the entire Lake Michigan food web divided into three parts: producers, consumers, and decomposers. “Building the Food Web: a freshwater voyage” is not a replacement for any of our programs nor is it a “virtual field trip.” It is another high-quality educational product that we can now offer to classes before or after their Schoolship trip and even to classes who cannot attend our programs at all.

Lastly, the few groups who were able to come out in the fall allowed us the opportunity to try out a new format that included teaching some of the program shoreside in our outdoor classroom. These few pilot programs gave us critical insight into how we can utilize more of our facility and which topics should be included in future programs.

2020 Staff

Professional Staff

Adam Burks	- Boat Shop Instructor (until July 2020)
Troy DeShano	- Fund Development Coordinator
Ben Hale	- SV <i>Inland Seas</i> Captain
Juliana Lisuk	- Volunteer Coordinator
Chelsea Nester	- GTSI Coordinator (until July 2020)
Rachel Ratliff	- Great Lakes Educator (until October 2020)
Stephanie Rustem	- Program Coordinator/Office Manager
Fred Sitkins	- Executive Director
Jillian Votava	- Education & STEM Coordinator
Eileen Wehr	- Office Assistant (until July 2020)

Seasonal Staff

Bob Fox	- Mate
Gavin MacDonald	- Marketing and Communications Intern
Logan Waggoner	- Education Intern

Programs Delivered in 2020

Program	Primary Audience	Number Delivered	Number of Participants
Great Lakes Discovery Sail	Public	10	112
Fishes of Lake Michigan	Public	4	44
Steady the Ship	Public	2	6
Great Lakes Under the Microscope	Public	1	4
Evening Sky Gazing Sail	Public	3	44
Fall Color Sail	Public	3	47
Member Sail	Members/ Donors	2	30
Modified Schoolship (Ship & Shore)	Students	3	86
Fall Great Lakes Discovery (for learning pods)	Students ("pods")	7	81
ROV	Students	1	30
Other Sails	Charters	7	82
Total Programs in 2020		43	566

Programming Amid COVID-19

Policies and Protocols

Postponing programs until August afforded ISEA staff the time to develop and pilot various modifications, using all the best information available at the time, to find a way to safely deliver programs, both aboard the ship and onshore.

Outlined below is a list of policies and protocols ISEA implemented for all participants.

- COVID-19 Safety Protocols for All Programs
 - Mask Requirement: Masks were required for all participants, staff, and volunteers for the duration of our programs. This was instituted out of an abundance of caution, even though programs were conducted outside. The mask requirement was included in the participants' COVID-19 Acknowledgement, so they were aware that they needed to wear a mask prior to registering.
 - Capacity Limitation: ISEA limited the ship's onboard capacity by 50% to maximize social distancing and minimize the interaction of different groups with each other. The average passenger capacity was limited to 15 program participants. Households were kept in their own "pods" while moving around the ship.
 - Sanitation: Liquid hand sanitizer, with a minimum of 60% alcohol content as per CDC guidance, was dispensed to passengers upon sign-in and embarkation. Each station instructor also dispensed hand sanitizer via spray bottle before and/or after activities as was appropriate, e.g. only after touching fish, not before. Instructors sanitized high-touch surfaces between each group and at the conclusion of the program as able.
 - Capt. Thomas M. Kelly Biological Station Closed: The Capt. Thomas M. Kelly Biological Station was closed to visitors in an effort to minimize traffic into the building. Guests were invited to use the port-a-potty in the park or the head onboard.

- Additional Public Program COVID-19 Safety Protocols
 - COVID-19 Acknowledgement: All participants were required to sign an acknowledgement of ISEA's COVID-19 policies and agree that they had not been exposed to, or shown symptoms of, COVID-19 prior to participating in ISEA programs. Participants were required to acknowledge the policy by clicking a box on FareHarbor when purchasing their tickets and were asked to sign the ship's manifest acknowledging the policy again on the day of their sail.

- Additional School COVID-19 Safety Protocols
 - COVID-19 Acknowledgement: Teachers were supplied with ISEA's COVID-19 Acknowledgement (with the same information as that supplied to public program participants) and were required to have each child's parent sign and return the acknowledgement prior to their participation in programs.

These acknowledgements were collected by the lead instructor and filed by the Program Coordinator. Unlike the public program acknowledgement, these forms were similar to permission slips and the manifest was not signed.

- Cancellation Policy: ISEA relaxed its regular cancellation policy (which typically does not offer refunds for deposits) and allowed schools to transfer their paid deposit to 2021 or receive a full refund. This was also true for charter groups that were scheduled throughout the summer.

Program Delivery

Care was taken to keep as much of the “hands-on” learning as possible while still allowing for limited- to no- sharing, and the ability to disinfect the learning material. To this end, the number of volunteers needed for a given program was also kept to a minimum by offering only 1 to 3 topical stations, and only bringing the required number of crew.

Two of the larger safety concerns included having a lot of people down below and using shared splash goggles. Both of these concerns were lessened by not offering the Water Quality station on any of our programs this season. The Plankton station was moved into the main cabin to allow for more space to be kept between instructors and passengers, as well as more air flow.

Programmatic priority was shifted to keeping individual households, or learning “pods,” together and separate from each other. A “pod” was defined as a group that self-organized and declared themselves as a unit that could safely interact together, including being closer together than the 6-foot physical distancing that was recommended for individuals of different households. For the 2020 season, pods were kept separate from each other even when that meant hosting several couples to rotate through the program stations. This was a significant shift from how programs normally operate in which the Lead could combine strangers together to host no more than 5 small-groups for the program.

COVID-Modified Schoolship

Fall Schoolship programs had the additional challenge that bookings were made several months earlier, before the coronavirus pandemic, at the normal group capacity (up to 34 passengers) and timeframe (4 hours). This prompted the education team to pilot a half-half program format: half the group starts on the ship, the other half starts on shore, halfway through the time both groups switch places.

Onboard

Three stations were chosen for the 100-minute ship portion based on their adaptability to new COVID-safety modifications, as well as their ease of sampling. Benthos, Plankton, and Seamanship stations were selected for the onboard portion. This prompted needing three stations shoreside in order to keep the small-groups even (students stayed in their small-groups for the entire 4-hour program) and lessen the overall confusion.

Shoreside

Moving the three remaining stations (Microplastics, Water Quality and Fish) shoreside was not the best choice because most involve complicated sampling protocols, and in the case of Water Quality involved sharing splash goggles. A shoreside fish station was conducted by observing and identifying fish caught in the dockside minnow traps. A second benthos station was conducted shoreside by looking for macroinvertebrates in a sample of the nearby wetlands. Students were asked to compare this wetland sample to the benthos sample taken in the lake.

A New Station

For a third station, students worked on a large canvas floor map of the Great Lakes and attempted to place name labels in the correct location. This “new” geography lesson focused on the first Great Lakes Literacy Principle: *“The Great Lakes, bodies of fresh water with many features, are connected to each other and to the world ocean.”* This was modified from the original map and lessons that came from the Center for Science and Environmental Outreach at Michigan Technological University, the host-site for the Lake Superior Stewardship Initiative.

The activity started with locating the Great Lakes on a globe, then moved on to labeling each lake, then to labeling each connecting waterway, followed by exploring the regional elevation and how that affects the direction that water flows through all the lakes. Using a supplemental “basin map,” students could either check their guesses (advanced students), or use it to place the labels correctly onto the floor map. Using a boat model or a rubber duck (and a little imagination), the lesson ended by exploring how water flows between each lake along connecting waterways and out to the Atlantic ocean. Time was given for students to record the place names in their logbook.

An Alternative Experience

Most scheduled classrooms were unable to attend their program with us, nor any of their other field-trips for that matter. Many teachers began seeking digital and online resources to use in their classrooms, both in-person and online. This included resources, activities, and lessons about the Great Lakes. Regional partners began offering age-appropriate webinar series, including Michigan Sea Grant’s “H.O.M.E.S @ Home” and Alliance for the Great Lakes’ “H.O.M.E.School.” Sleeping Bear Dunes National Lakeshore ramped up its Distance Learning programs (which it already had pre-pandemic) and included a live “Chat with a Ranger ” video-call format for classrooms anywhere in the country. Not wanting to duplicate efforts, nor to just create a video-version of our Schoolship program drove the decisions behind which topics and formats were used in the final production.

A fully-scripted, pre-recorded video was chosen as the format for ISEA to pursue after careful consideration of staff ability, resources, and timeframe available. Work on storylines and themes began in June, with the script finalized for video production to begin in late July.

“Building the Foodweb: a freshwater voyage” launched on YouTube on October 1, 2020 (<https://youtu.be/hLhEJm2p3W4>). It was shared directly with our Schoolship teachers who had

signed up for a program in 2020 along with three related, but optional activities that the teacher could lead in conjunction to watching the video. After the initial sharing, the list was expanded to include all subscribed teachers in our emailing network: 469 educators.

The film is an excellent documentation of what we (ISEA staff) collectively know and understand about the Lake Michigan system at this point in time. The film does not attempt to portray the entire food web system of Lake Michigan, nor should it be construed to do so. The narrative presented in the film represents the organisms, habitats, and interactions that ISEA has outlined in its Schoolship curriculum as key learning objectives. The “Decomposers” section of the film goes into more detail than is outlined in the current Schoolship objectives, as does the phytoplankton segment in the “Producers” section of the film.

We acknowledge that there are many other important parts of the ecosystem that were not explored, explained, or even introduced in the film, for example the link between avian botulism and quagga mussels, which include cladophora and round gobies. However, this film was produced with a target audience of 6th and 7th grade in mind. The goal was to showcase the Crosscutting Concepts of “Energy and Matter: flows, cycles, and conservation” in the context of a real environment, the freshwater ecosystem of Lake Michigan. The film also aligns with the Life Science Disciplinary Core Idea of “Ecosystems: interactions, energy, and dynamics” (DCI-LS2).

Lessons Learned

Big takeaway: with careful thought, shorter, half-day programs could be conducted safely, even amid a public health pandemic. Key lessons were learned in other areas beyond just program operation however, especially in the areas of training and engagement.

⇒ **Symbol highlights a key idea or concept to bring forward into future seasons.**

Volunteers

Training Resources

Overall, the feedback on the training videos was positive. The videos were asynchronous, which meant that volunteers could go at their own pace and revisit the videos any time. Several volunteers mentioned re-watching them right before coming out, both on wet runs and actual programs.

At the end of the training period, 89 volunteers completed a survey regarding their experience with the virtual training.

From these survey results:

- 80% found the videos very effective (14% somewhat effective) for teaching how to collect a sample

- 78% found the videos very effective (21% somewhat effective) for learning how to teach the station
- 84% found the goals and activities of the station to be very clear (16% good enough for now)
- 92% found the pace of the training videos to be just right
- 97% found the amount of material presented to be just right

Training Video Viewing Numbers (as of December 3, 2020)

- Program Overview Video = 177 views
- Benthos Station = 127 views
- Seamanship Station = 109 views
- Fish Station = 80 views
- Microplastics Station = 78 views
- Water Quality Station = 76 views
- Plankton Station = 69 views

Selection of comments from volunteers about the online training:

“Explaining/demonstrating twice how to collect the sample made the explanation more effective. I like that Rachel explained it indoors and then we got to see what she was describing in action outdoors.”

“I feel like I could easily manage the Secchi disk activity just from watching the video.”

“I learned a few new ideas on how to teach the station that I never got from previous face to face training nor shadowing. Thanks!”

“I plan to watch these videos again, especially before teaching a station. For me, it is better than reading notes!”

“This is a perfect example of the advantage of online, since there are bits of it I’d like to watch about 6 times before teaching the station.”

“Thank you so much for doing this. I know it is a lot of effort. The quality of this work is great! The ability to do this from home in Virginia is a game changer for me. I’m thinking this will open up a new group of volunteers for you.”

The majority of volunteers gave feedback that they prefer in-person training; however, many of them recognized the benefits to the online training too and were pleased to have the ability to brush up on the station prior to teaching.

⇒ Having digital training resources is a huge benefit for volunteers as it offers more flexibility for everyone. With videos, no one is restricted to specific training days, of which the staff has only ever been able to offer in the late winter, March - April. This opens up the

possibility of recruiting and training new volunteers throughout the year. Each program would need its own video series and be kept up-to-date as the current series of training videos only pertains to the (normal) Next Gen Schoolship program. Ultimately, the ability to have a hybrid of in-person training and digital resources would make for a successful volunteer experience.

Wet Runs

Training volunteer instructors within the new program formats and guidelines meant that several more Wet Run-style trainings were offered than in previous seasons. Wet runs allow volunteers to go through the program without any pressure of students or public participants. This allows them to fully focus on the program itself and ask questions.

Five wet runs took place in July and early August to prepare for the COVID-modified public programs. Two additional wet runs took place in September to prepare for the modified Fall Schoolship format. Both public format and modified Schoolship sails were hosted in September and October. This was the first year that we have offered wet runs for public program formats and prior to the fall season.

⇒ All the Wet Runs were well attended, all things considered. Offering separate Wet Runs at the start of the summer season, in addition to the typical Spring Wet Runs for Schoolship, would help with training and transitioning volunteers into the public and charter programs of the summer. The more opportunities created to let instructors practice with the materials, the better.

2020 Program Delivery

Volunteers helped deliver all formats of our programs in 2020 through the roles of crew, ship-based instructors, shoreside instructors, and ROV instructors. The volunteers who were willing to donate their time during a season of many uncertainties were very flexible and adhered to the additional safety precautions we put into place. All of the volunteers who came out to try the new format ended up volunteering more than once. Even with a smaller pool of instructors and crew to choose from, we were able to fill all of the volunteer positions and none of the programs were cancelled due to staffing shortages.

At the end of the season we surveyed the volunteers who were actively part of the 2020 season to see how it went for them and gain insight into what we should change for the 2021 season. 14 crew/CIT responded and 15 instructors responded to the survey.

From the survey results:

- 67% of crew felt the frequency of sails on which they were crew was just right, 22% felt it was not enough, and 11% felt they were on too many;
- 60% of instructors felt the frequency of times they were an instructor was not enough, while 40% felt it was just right;
- 100% of crew felt that the new safety protocols (masks, reduced capacity on ship, sanitizing, etc.) were appropriate for protecting volunteers, staff, and participants;
- 87% of instructors felt that the new safety protocols were appropriate, while 13% mentioned ways we could improve;

- 80% of instructors say they will definitely volunteer in 2021, while 20% are going to wait to make their decision as we get closer to the season;
 - 94% are comfortable instructing on Schoolship programs
 - 80% are comfortable instructing on public sails in GT Bay
 - 47% are comfortable instructing on public sails in away ports
- 86% of crew say they will definitely volunteer during the 2021 season, while the remaining 14% are waiting to make their decision until we are closer to the season.
 - 100% are comfortable crewing on transits with only ISEA staff and volunteers
 - 91% are comfortable crewing on Schoolship and public day sails in GT Bay
 - 45% are comfortable crew on overnight programs with participants and public day sails at away ports

The crew member who felt they were on too many sails commented, *“I am always happy to help but as you know we were light on available crew this past summer.”*

On COVID safety protocols:

“Taking my temperature was of minimal value”

“[ISEA should] issue masks at the beginning of the season [for volunteers]”

“Should temperature check passengers”

“Shipboard mask usage by crew is, in a few cases, inconsistent”

“I did notice that some crew members were just wearing a buff as a mask. Currently the CDC is recommending that a cloth mask be two-layers thick. So while a buff may be convenient, it may not be the safest option.”

“Safety protocols may need to be fluid depending on the knowledge gained about the virus and its transmission. Decisions made now may not be applicable in the next season.”

“Capt. Ben’s speech about why we need to wear masks on the ship was a little long-winded. I think our program participants got the idea.”

“I question the advisability of having any station below deck (plankton). Would there be a possibility of doing the plankton collection then setting up the microscope as part of the shore activities?”

“Given all of the extraordinary challenges of 2020, the staff did an excellent job of keeping the volunteers informed and involved”

On the 2021 season:

“I hope that we can encourage more, and especially more young folks, to aspire to be crew. During layup this year, three of our old farts were out of commission at the same time. That would not have worked well during the 2019 season”

“The pandemic will still be a large factor in programming but if you were still able to do so much in 2020, 2021 should be easier. Many of the protocols and program adjustments are already in place and ‘wet run’ tested”

⇒ The COVID-19 safety protocols we put into place were accepted as appropriate measures for protecting volunteers, staff, and participants. The majority of instructors and crew who volunteered in 2020 will return to volunteer in some capacity in 2021. That being said, the pool was much smaller than normal and if we are to increase our programming we will need to find ways to increase the number of volunteers available in our pool for next season. Most volunteers are comfortable with programs that take place in the Suttons Bay/Grand Traverse Bay area. We will need to ensure we can cover programming at away ports too. We should enforce that a buff does not count as a mask for our staff and volunteers. As we get closer to the 2021 season, we should reexamine the state of COVID-19, what the current CDC recommendations are, and adjust our protocols accordingly.

Continued Engagement

While the training videos received a net positive response, many volunteers stated that they also liked, or in some cases, preferred in-person training. We acknowledge that the traditional structure of the in-person volunteer training opportunities are as much a content-learning experience as they are a social event. In-person training opportunities also allow ISEA staff to model our philosophy of teaching, which is hands-on and place-based inquiry learning.

Social events are an important component to strengthening our connection with and between the volunteer community. Volunteers are continuously learning and we want to provide intentional opportunities for them to do so. Prior to the full-scale lockdown, ISEA hosted several in-person events targeting our volunteer network including: our winter “ISEA Cafe” series (four total events), a viewing of the documentary film “Maiden” accompanied by a panel Q&A session, and a volunteer open house highlighting the full spectrum of volunteering opportunities at ISEA. We also hosted a campus clean-up event in the spring and the fall. Lastly, we interviewed a number of volunteers about their experience with ISEA to create a volunteer recruitment video. This video showcases the experience of a volunteer and will help us with recruitment for years to come. [A link to the video can be found here.](#)

⇒ Continuing to utilize video and webinar-hosting platforms will allow us to reach more people across space and time, especially for the purposes of training and access to resources year-round. The pandemic has shown us that our volunteer community is willing and able to virtually attend educational webinar or trivia events (~45 households in attendance for our 2020 ISEA Cafe virtual events). Equally important, will be hosting in person events that satisfy the

socializing and networking aspects of the volunteer experience. Planning for the return of normal operations, post-pandemic, should include a healthy mix of both virtual and in person components across the entire calendar year.

Programming

Staff Coordination

A Health and Safety Team was created for the 2020 season consisting of the Executive Director, Education and STEM Coordinator, Volunteer Coordinator, Program Coordinator, and Captain to discuss policies and procedures that needed to be developed in response to COVID-19. Several health and safety policies were instituted in compliance with the Center for Disease Control (CDC) and State of Michigan (SOM) COVID-19 safety protocols. Staff and volunteer guidelines for ship-based and in-office work were also created as required by MiOSHA.

⇒ A staff-led Health and Safety Team allowed for a divide-and-conquer approach to consuming large amounts of public health information and industry guidance in order to make timely operational decisions. Weekly, or sometimes more frequent, meetings allowed all core staff to be kept up-to-date even while the state of affairs itself was constantly changing as more information became available.

Overall Experience

All bookings received a link via email to give feedback after the sail, the same survey that has been used in several previous seasons for public sails. Results of this feedback are summarized below. Our traditional Schoolship pre- and post- trip student survey was not given out this year, nor was our typical teacher survey due to the low number of Schoolship programs actually offered. The three teachers/ educators who did come out on a Fall modified-Schoolship with us were emailed directly for feedback, and their responses are indicated in the following sub-sections.

Overall rating: 4.7 out of 5
(23 respondents)

Selection of responses:

“Terrific experience. Thank you to the whole crew for putting together such a memorable adventure. I came in having a solid familiarity with the Great Lakes and was pleasantly surprised by the new things I learned. I definitely left the ship with a newfound curiosity for what's out there in the water. Looking forward to a return voyage on the ship!”

(Great Lakes Discovery Sail participant)

“We participated with a homeschool group, and had a great experience. I was so grateful to have a safe, educational and fun experience with my kiddos.”

(Great Lakes Discovery Sail participant)

“Rachel is the perfect PR person for the program. Her enthusiasm and knowledge was impressive and genuine. She injected fun and passion for the Great Lakes environment while making sure all of us were safely engaged. The crew and Captain Ben were also top notch! My grandkids absolutely loved the experience, and we can't wait to do another program next season. As a former educator and sailor, I may be signing up as a volunteer as well. Job well done, Inland Seas!!”

(Great Lakes Under the Microscope Sail participant)

Suggestions for improvement:

“Great balance of science (I love the focus on learning through exploration and inquisition), sailing, and taking time to appreciate being on the Great Lakes.

A couple of times our Inland Seas leader (Juliana) was sharing/teaching and it was hard to gather her information because the boat crew had to launch nets, address sailing items, etc. I realize both are important, but it seemed that the communication between the Inland Seas staff and the ship crew could have been improved. Overall, we loved the sail and I can't wait to get my high school students out in May 2021.”

(Teacher Appreciation Sail participant)

“The 3 volunteer instructors were all knowledgeable and obviously passionate about their subjects and information they provided was appropriate for the age of these students. The lead instructor was very welcoming and her enthusiasm was infectious. I thought her wrap-up as we approached the dock was especially effective.

(I would suggest that the crew be as quiet as possible during the '2-minutes of silence' to minimize distractions). I have a lot of experience with ISEA having begun as a volunteer instructor in 1998 and I must say that the program I experienced on Thursday was top notch, top to bottom. Captain Kelly would be very pleased.”

(Charter, Great Lakes Discovery participant)

“It was a cloudy night with no wind. No need to raise sails which blocked any view of the occasional object in the sky. Would have been better to be away from the lights around Suttons Bay. Dick gave us a lot of information about the universe.”

(Sky Gazing Sail participant)

⇒ Creating the best possible learning environment for participants is critical. All distractions that can be controlled for (e.g. talking, equipment deployment) should be. Tools like a microphone and PA-system for the lead, should continue to be utilized to help learners hear over the wind, waves, and for 2020, masks.

Station Modifications

The majority of station modifications included less shared equipment and less touching. Students still got to touch the samples (the mud, fish, and plants), and even parts of the ship (lines and the wheel), though less-so than under normal circumstances as most of the sampling equipment was handled exclusively by the instructors.

⇒ Keep as much hands-on as possible, even if that means reducing how much content was originally planned, or if it means that a new activity is needed altogether.

Overall participants on any program this year received less instruction time aboard the ship, that is to say, there were fewer “stations” across all programs, three at the most. Schoolship felt especially hit because there were three (instead of 5) ship-based stations offered, and the ship portion ran approximately 1-hour, 40-minutes (compared to 3.5-hours). The reduction in content/ topics offered did not seem to affect the overall experience however, based on instructor reflections and the feedback received.

“It is nice to have a shorter version especially if the weather is bad. It is hard to learn when cold and wet. The sailing was perfect this time. It was also nice for parents to attend. So much to learn. I am wondering if you offer a follow-up video of what was learned. A place students could link in to see total results from their trip. We had great benthos critters and that is always fun.” (Teacher on modified Fall Schoolship)

⇒ While the topics differed from the normal Schoolship program, more things were actually experienced by the students in the “Ship and Shore” version, e.g. two benthos locations/samples to compare, more time along the shore and wetland, and the new map station. To the teacher’s point above, it’s always warmer on shore than on the water. The outdoor classroom, plus a pop-up “vendor tent” allowed all activities to be covered and kept dry.

⇒ Priority should be given to considering how, or if, the other stations can be included even if offering the ship and shore version. There might be an activity from within the Microplastics station to include without sampling. The Water Quality station had a huge amount of content to cover already and all effort should be made to avoid a water quality activity that is entirely a lecture or demonstration by the instructor only.

Shoreside format

This season showed that there is real potential for doing more activities across our facilities and can include topics already explored on the ship-based programs, like benthos or fish. Two stations were conducted concurrently in the outdoor classroom and that felt to be the comfortable maximum, in terms of noise level.

“I did enjoy the shoreside activities. It seemed the kids had more time to examine the fish and inspect the sand.” (Teacher on modified Fall Schoolship)

⇒ Noise level should be considered when deciding how many activities to conduct concurrently in the outdoor classroom. Guided activities like a “circle game,” “observation walk,” or “scavenger hunt” can help with transitioning the group between two locations, like between the dock and the outdoor classroom.

New Map Station

The shoreside “Great Lakes Map” station was anecdotally well received, with positive remarks from staff, volunteers, and educators who were able to participate in the activity. Many activities are possible with a large, blank map of the Great Lakes basin. Duration and knowledge-level were the two largest factors that determined how this activity was presented. Each station had 15-18 minutes available to it, and students may or may not have had any previous experience looking at a map. The shoreside Lead taught this activity while keeping time, ringing a bell to indicate when it was time to rotate. ISEA staff were used as Leads on all three modified-Schoolship programs.

“The big map of the watershed/MI was nice. Perhaps a short video after showing what was talked about. Real vs map.” (Teacher on modified Fall Schoolship)

⇒ The map station should be considered for future shoreside use (the canvas cloth is limited to indoor and covered use only). Focussing on just the first Great Lakes Literacy principle helps to focus the learning outcome, which is for students to know that these lakes are large features, connected to each other and to the ocean. This outcome is not articulated in any of our current Programs. The Seamanship, Benthos, and Fish stations do allude to their connection in regards to the discussion on ballast water as a vector for aquatic invasive species, but the concept is not explored beyond quickly looking at a basin map, if at all.

Key considerations for future development of the map station:

- Map-reading and spatial-thinking are skills that need time to be developed, less is more;
- Within even the same grade-level students will be at variable levels of comfort using and reading a map, this is an opportunity to increase that comfort;
- Start with relatable maps first, like a globe or USA map with states and capital cities;
- Keep the activity scalable: give students a simple basin map from which to match and place labels onto the large blank floor map, or challenge advanced students to place all the labels from memory/best guess first, then check against a labeled map;
- Include time for students to record the place names into their logbooks;
- To the teacher’s point above, re-work the activity to include exploration of where the students currently are on the map (“Where are we on this map?”) and draw connections between what the map represents of the real world.

Insights on Digital Resources

Footage for training modules

⇒ Collecting footage of various components within the programming context (equipment deployment, organisms underwater or close-up, “action-shots”, and landscape scenes) allows for the creation of training modules as they are needed using a library of footage. Building this library for future use should continue, with clips being limited in scope, e.g. just the PONAR deployment and recovery, so as to be useful across many different programs and eliminating the need to re-shoot long video sequences when something changes.

Footage for educational resources

After the initial sharing of the film, it was decided by all staff that we should share this video further afield with anyone interested since it does a great job of covering all the basic vocabulary and concepts of a food web.

Total Views on YouTube (as of December 21, 2020): **153**

⇒ Utilizing a platform like YouTube for hosting these educational resources was found to be the easiest option, allowing for both ease and control of access (embed on our webpage, or send links to watch on YouTube; “privately” vs. “publicly” listed).

⇒ “Building the Foodweb” can, and should be used as a training resource for our volunteers and interns. Though not created for this purpose, it ensures everyone is starting from the same foundation of ecosystem understanding regardless of which station “topic” an instructor wants to teach. Having distinct training resources that cover content separate from delivery will alleviate the inherent confusion that exists when first learning to instruct on our programs.