

Connecticut State University Outer Island Education Program Report

Submitted by:

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Connecticut State University Outer Island Summer Programs

Outer Island Interns

This year (Summer 2020) two student interns were hired to staff Outer Island and to assist groups with educational programming during their visit to the island. The interns also conducted research activities, including monitoring water quality and fouling, and participated in maintenance activities on the island facilities. This past summer the island interns were Ian Bergemann and Sage Maier. Both Ian and Sage were former interns returning for a second summer. Brief bios were provided by the interns and are included below:

Ian Bergeman is a senior Environmental System and Sustainability Studies major at Southern Connecticut State University and a local to Branford, Connecticut. Ian returned to Outer Island after a 2-year hiatus where I was able to travel to South Africa to study environmental justice and to Malaysia to study eco-tourism in the Belum National Rainforest. This past academic year Ian was working as a researcher for the Werth Center for Marine and Coastal Studies, a geography tutor for the Academic Success Center, and a sustainability intern for the Office of Sustainability. I have a great interest in wetlands like bogs and marshes, along with the critters living there like frogs, crabs, and Osprey. I hope this internship will solidify my pursuit of a master's in ecology and a career in environmental conservation.

Sage Maier graduated last year from Central Connecticut State University with a bachelor's in Biology, and a focus on ecology. Her passion for the environment and outdoor education has led me to jobs at zoos, wildlife centers, and camps. I currently live in Los Angeles where I work at Clear Creek Outdoor Education Center. I'm back for the summer to return to Outer Island! I worked on Outer Island in 2018, and I am so excited to spend another summer as an island keeper!

Due to the Covid-19 restrictions and the anticipated decrease in visitors, only two interns were hired for Outer Island for the summer 2020. Both interns did an outstanding job in providing visitor services during the pandemic. Student interns each received a salary processed via CCSU.

Schedule of Visitors

Due to Covid-19 restrictions, no large group visits were scheduled during the spring 2020 for Outer Island during the summer. Access to the island was permitted for individuals and small groups. Social gatherings were restricted to a maximum of five individuals. Island visitors were also required to wear masks and comply with social distancing recommendations. US Fish and Wildlife Services Covid-19 restrictions and guidelines were posted on the Outer Island website.

Research Activities

Water Quality Monitoring

Water quality parameters were monitored by the CSU interns during the summer 2020 from June 24th to August 8th. Water quality monitoring occurred each day at 2:00 pm from the end of the floating dock. Water quality parameters monitored included: water temperature, salinity, conductivity, specific conductance, dissolved oxygen, Secchi disk depth, turbidity, and pH. All measurements were made on water samples collected from at a depth of one meter.

Water temperature gradually increased from the spring to the end of the summer. Water temperature ranged from 19.9°C (6/26) to a high of 25.2°C (8/8). Variations in water temperature over the summer correlated well with changes in measured air temperature (Figure 3). Dissolved oxygen concentrations were highest initially (10.38 mg/L) on 6/24 and showed a decrease over the summer months correlating with increasing temperatures reaching a low of 6.90 mg/L on 8/6 (Figure 1b). With one exception, salinity showed little variability, with a range of only 29.2 ppt (6/24) to 30.3 ppt (8/8), while conductivity showed a slightly larger range from 40.38 mS (6/30) to 46.60 mS (7/29) (Figure 1a). Both parameters showed similar variability compared to previous years.

Water clarity, as measured by a Secchi disk, varied from 0.8 m (6/28) to 1.5 m during the monitoring period (Figure 2a). pH ranged from a low of 7.94 (7/21) to a high of 8.14 (7/29) (Figure 2b). Similar to other parameters this season, water clarity/turbidity and pH showed less

variation than previous years. The water quality monitoring raw data and graphs will be available online in the redesigned Research section of the Outer Island website.

Water Quality and Supplies for Education Programs

Additional supplies were purchased in support of the water quality monitoring and education programs. Environmental quality meters (light meter, pH pen, optical salinometer, weather meter) were purchased to replace older, poorly functioning equipment. A new YSI Pro 30 conductivity/temperature/salinity meter and a YSI Pro 20 dissolved oxygen meter were purchased to increase the availability of water quality studies. The new meters will assure continued water quality measurements for the summer 2021.

These supplies supplement previously purchased supplies to be used in support of visiting groups and educational programming.

Outer Island Website Update

We continue to revise the Outer Island website (www.outerisland.org) to create a more informative, user friendly interface for Outer Island information and educational programming. The Outer Island website is hosted on iPage (www.iPage.com; recently renewed; now terms February 2021). Undergraduate computer science student Robert Orozco worked on the Outer Island website this past year (Honorarium \$1,500). Robert posted additional content to the website during the spring and summer 2020. Improvements to the website include:

- Re-establishing the camera video streams to the homepage
- Posting of the 2019 water quality data and attendance records,
- Posting of summer 2020 intern photos and bios, and
- Resources for LIS educators

Robert Orozco will be contracted once again to continue website 2021 updates. Planned tasks include posting the bios for the 2021 interns, posting annual reports, attendance records and water quality data.

AT&T Wireless Account

The AT&T wireless account used in support of the Outer Island WeatherBug station and video cameras now supports three wireless lines transmitting data and images. Two of the lines support the cameras and WeatherBug weather data and the third line supports the Wifi hotspot. The wireless hot spot allows internet access to the student interns and teachers providing educational programming on the island. AT&T broadband access fees for the wireless for the 12 month service period from April 2020 to February 2021 totaled \$1,229.88.

WeatherBug Station, Web Cameras and Remote Video Capabilities

Overall, the WeatherBug weather station has been performing well. The camera views and access to the WeatherBug weather data are now available once again on the www.outerisland.org website. The camera mount will be stabilized and reinforced once we gain access to the island in the spring 2020.

Outer Island Watercolor Workshop/Art Experience

Covid-19 restrictions resulted in the cancellation of the annual Outer Island Watercolor Workshop. We anticipate scheduling the workshop once again in the summer 2021 as Covid-19 restrictions are modified/relaxed.

Outer Island Water Quality 2020

Date	Time	HT Time	LT Time	Weather	Wind Speed max (mph)	Wind Speed min (mph)	Relative Humidity %	Air Temperature Fahrenheit	Air Temperature Celsius	Solar Radiation x 100 lux	Conductivity mS	Specific Conductance mS	Salinity ppt	Temperature Celsius	Dissolved Oxygen mg/L	Secchi Disk Depth m	pH
6/24/2020	2:08:00 PM	2:26:00 PM		clear sun	3.1	1	48		23.5	1008	41.05	41096	29.2	20.8	10.38		
6/25/2020	1:53:00 PM	3:15:00 PM	8:59:00 AM	clear sun	1.8	0.9	63	74.3	23.5	1052	40.78	40770	29.4	20.1	8.78	1	7.98
6/26/2020	1:58:00 PM	3:06:00 PM	9:49:00 AM	clear sun	3.3	1.4	66	77.1	25.1	1065	40.87	41002	29.5	19.9	8.50	1	7.91
6/27/2020	2:01:00 PM	5:00:00 PM	10:42:00 AM	overcast	4.1	1.5	83	72.5	22.5	128	41.11	41120	29.5	20.0	8.69	1	7.93
6/28/2020	2:00:00 PM	11:38:00 AM	5:57:00 PM	clear sun	5.4	2.9	70	74.2	23.4	1044	41.67	41648	29.5	20.6	8.80	0.8	7.93
6/29/2020	1:41:00 PM	6:56:00 PM	12:35:00 PM	overcast	1	0	73	74.1	23.1	1044	41.55	41551	29.6	20.4	8.51	1.1	8.04
6/30/2020	2:04:00 PM	7:27:00 AM	1:33:00 PM	rain	3.7	1.8	79	69.7	20.9	333	40.38	40407	29.3	19.5	9.24	1	7.98
7/1/2020	2:00:00 PM	8:29:00 AM	2:31:00 PM	partly cloudy	3.4	1.7	79	75.7	24.3	1150	41.82	41814	29.6	20.6	9.33	1.5	8.04
7/2/2020	2:00:00 PM	10:25:00 AM	3:37:00 PM	clear sun	2.8	0.5	74	78.2	25.7	1008	42.11	42108	29.7	20.9	8.79	1.5	8.03
7/3/2020	2:00:00 PM	10:25:00 AM	4:21:00 PM	cloudy, overcast	1.6	0	73	79.9	26.6	664	42.03	42026	29.7	20.7	8.82	1.5	7.99
7/4/2020	2:08:00 PM	11:15:00 AM	5:13:00 PM	clear sun	6.5	2.8	76	76.5	24.7	1011	42.03	42052	29.5	21.2	9.26	1.5	8.08
7/5/2020																	
7/6/2020																	
7/7/2020	2:00:00 PM	1:39:00 PM	7:26:00 AM	partly cloudy	12.7	9.8	86	69.6	20.9	238	42.57	42570	29.3	21.9	8.62	1.5	8.17
7/8/2020	2:04:00 PM	2:26:00 PM	8:10:00 AM	overcast	2.7	0	90	78.9	26.1	202	43.18	43151	29.3	22.6	8.78	1.5	8.18
7/9/2020	2:02:00 PM	3:12:00 PM	8:54:00 AM	clear sun	2.2	1.5	84	80.7	27.1	1011	43.36	43358	29.8	22.7	8.23	1.5	8.12
7/10/2020																	
7/11/2020																	
7/12/2020																	
7/13/2020																	
7/14/2020	2:00:00 PM	7:13:00 PM	12:49:00 PM	clear sun	10.1	2.7	N/A	80.9	27.2	1090	44.30	43190	29.6	23.5	9.40	1.5	8.03
7/15/2020	2:09:00 PM	8:04:00 PM	1:40:00 PM	clear sun	4.8	2.8	72	76.3	24.6	1018	43.12	43112	29.7	22.6	8.26	1.5	8.11
7/16/2020	2:05:00 PM	9:42:00 AM	2:31:00 PM	clear sun	14.2	AVG 5.9	81	73.0	22.8	1014	44.04	44095	29.6	23.4	8.35	1.0	8.22
7/17/2020	2:00:00 PM	9:31:00 AM	3:21:00 PM	drizzle	1.5	0.7	88	73.1	22.8	132	43.31	43314	29.4	22.7	7.81	1.5	8.09
7/18/2020	2:00:00 PM	N/A	N/A	clear sun	1.6	0	N/A	89.6	32.0	1010	43.95	43990	29.4	23.4	7.71	1.5	8.06
7/19/2020	2:11:00 PM	11:03:00 AM	4:55:00 PM	clear sun	2.8	AVG 1.9	61	82.0	27.8	1004	44.12	45565	29.5	23.3	7.71	1.2	7.95
7/20/2020	2:10:00 PM	11:46:00 AM	5:42:00 PM	clear sun	3.0	AVG 1.6	89	83.1	28.4	988	44.10	44102	29.6	23.2	7.57	1.0	7.99
7/21/2020	2:10:00 PM	12:31:00 PM	6:28:00 PM	clear sun	3.6	3.3	77	86.4	30.2	1005	44.20	44193	29.8	23.0	7.18	1.5	7.94
7/22/2020	2:00:00 PM	1:16:00 PM	7:17:00 PM	partly cloudy	10.2	8.1	82	74.7	23.7	1002	44.34	44417	30.0	23.0	7.45	1.5	8.00
7/23/2020	1:56:00 PM	2:04:00 PM	7:49:00 AM	partly cloudy	2.4	AVG 1.1	90	79.7	26.5	1041	45.14	46137	29.9	23.9	7.86	1.5	8.05
7/24/2020	2:05:00 PM	2:53:00 PM	8:37:00 AM	N/A	2.8	AVG 1.2	81	70.8	21.6	398	44.98	46260	30.0	23.5	7.54	1.3	8.02
7/25/2020	1:56:00 PM	3:44:00 PM	9:26:00 AM	clear sun	2.7	AVG 2.1	79	79.4	26.3	999	45.70	46349	30.1	24.0	7.75	1.5	8.01
7/26/2020																	
7/27/2020																	
7/28/2020	2:00:00 PM	6:05:00 AM	12:13:00 PM	clear sun	1.9	0	67	86.8	30.4	1010	46.20	46182	30.2	24.5	7.85	1.0	8.09
7/29/2020	2:07:00 PM	1:14:00 PM	7:10:00 AM	clear sun	5.6	1.7	53	81.5	27.5	1004	46.60	46589	30.2	25.1	7.82	1.0	8.14
7/30/2020	2:00:00 PM	N/A	N/A	partly cloudy	2.6	1.5	67	83.0	28.3	1186	46.50	46184	30.2	24.9	7.30	1.5	8.11
7/31/2020	2:00:00 PM	N/A	N/A	N/A	1.6	0.8	N/A	76.9	24.9	424	45.80	45779	30.2	24.2	7.16	1.0	8.06
8/1/2020	1:55:00 PM	N/A	N/A	clear sun	3.8	2.5	52	82.0	27.8	1013	46.20	46237	30.2	24.7	7.45	1.5	8.13
8/2/2020	2:00:00 PM	11:00:00 AM	5:00:00 PM	overcast, drizzle	20.2	1.7	88	81.1	27.3	444	46.00	46589	30.3	24.4	7.25	1.0	8.07
8/3/2020																	
8/4/2020																	
8/5/2020																	
8/6/2020	2:00:00 PM	N/A	N/A	partly cloudy	10.1	7.9	49	75.2	24.0	420	46.20	46225	30.3	24.5	6.90	1.0	8.00
8/7/2020	2:00:00 PM	2:36:00 PM	8:19:00 AM	partly cloudy	11.0	6.1	60	74.8	23.8	982	46.20	46217	30.3	24.6	7.11	1.5	8.05
8/8/2020	2:00:00 PM	N/A	N/A	clear sun	6.5	2.6	N/A	77.4	25.2	925	46.59	46664	30.3	25.2	7.67	1.5	8.08

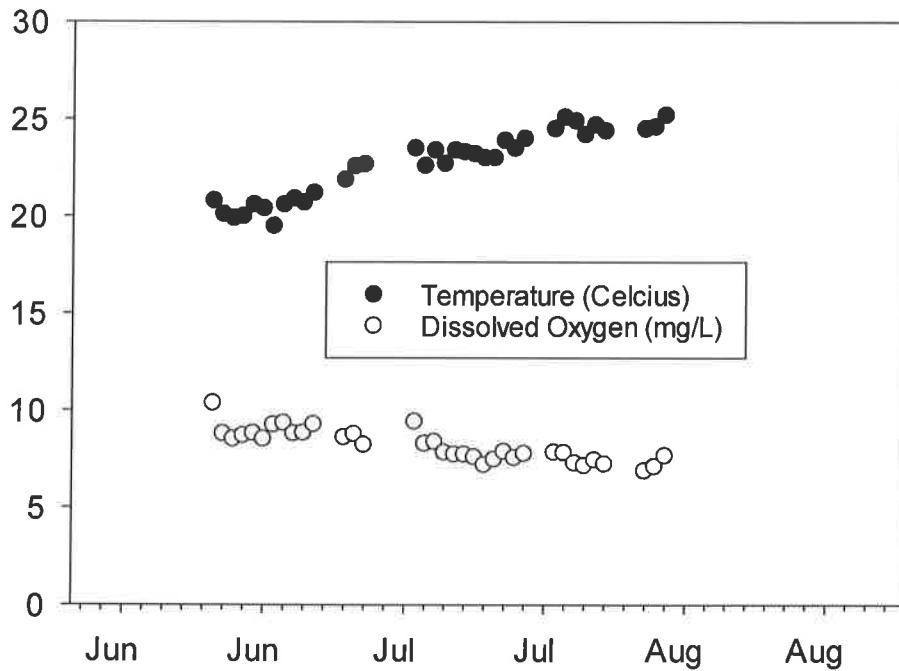
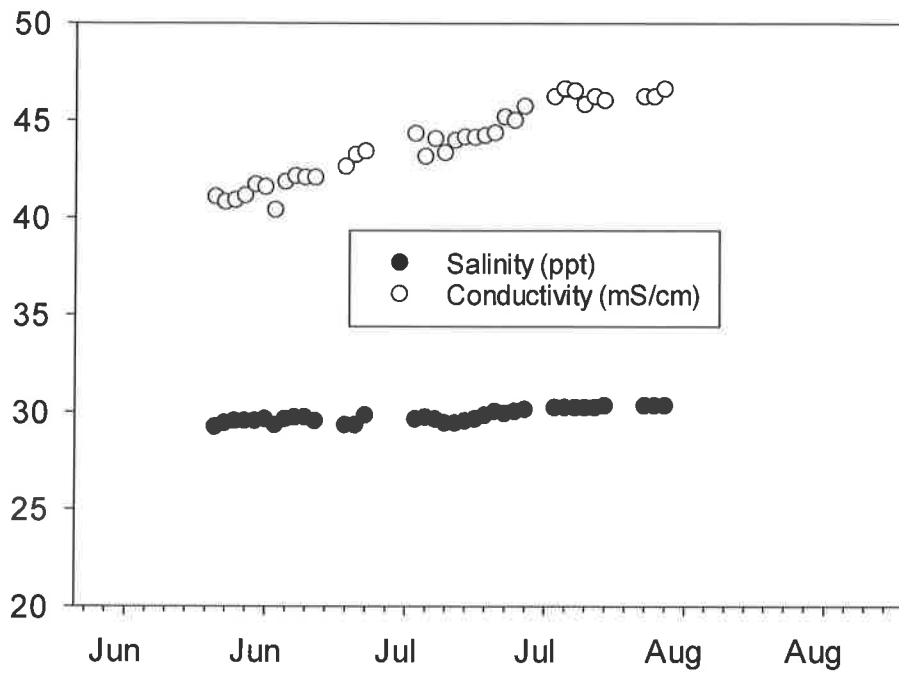


Figure 1. Outer Island 2020 water quality monitoring results: (a) salinity and conductivity and (b) temperature and dissolved oxygen.

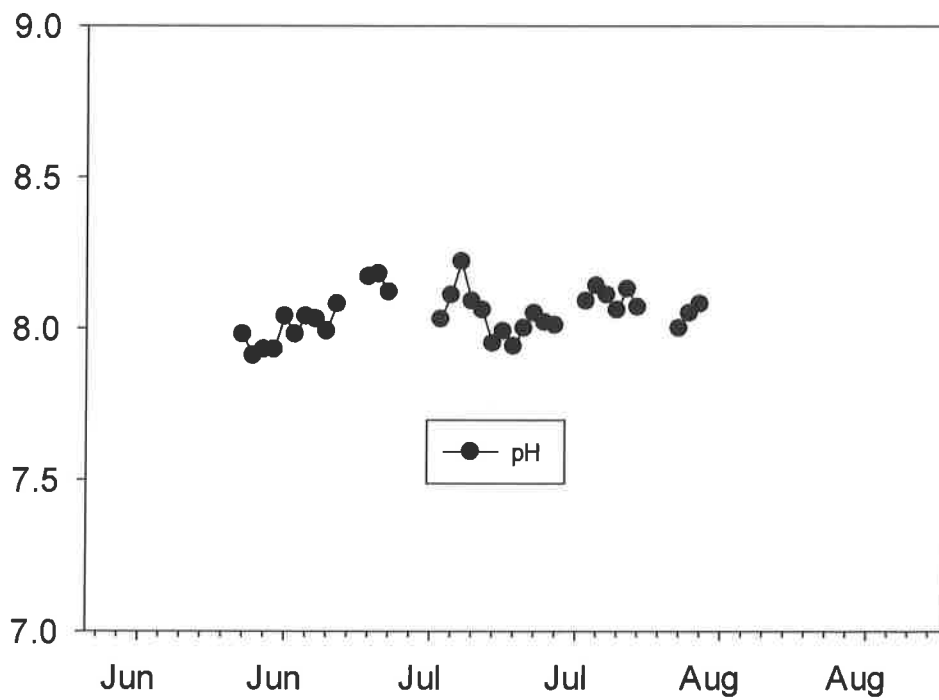
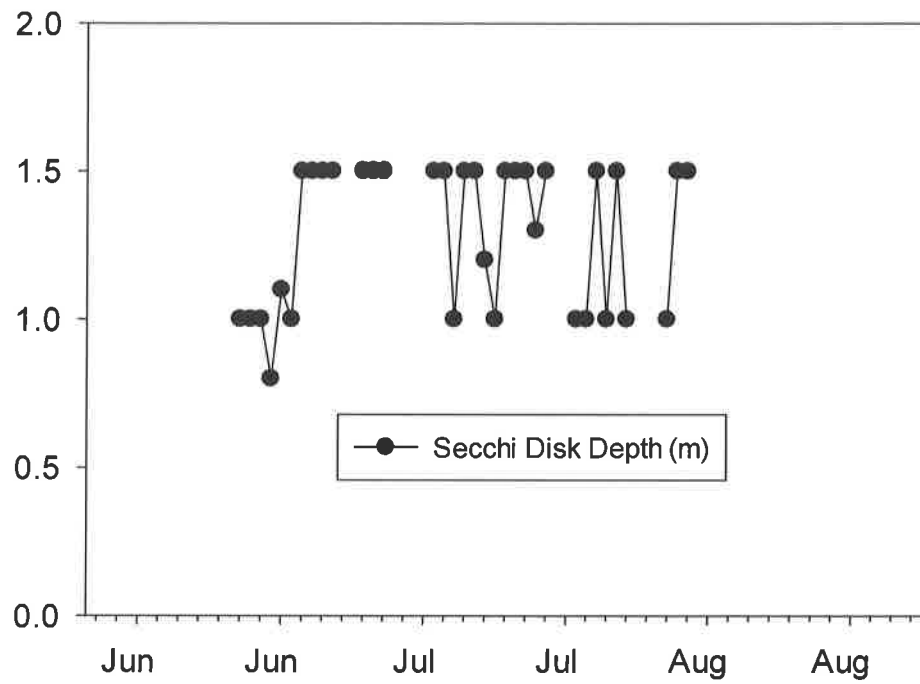


Figure 2. Outer Island water quality monitoring results: (a) secchi disk depth and (b) pH.

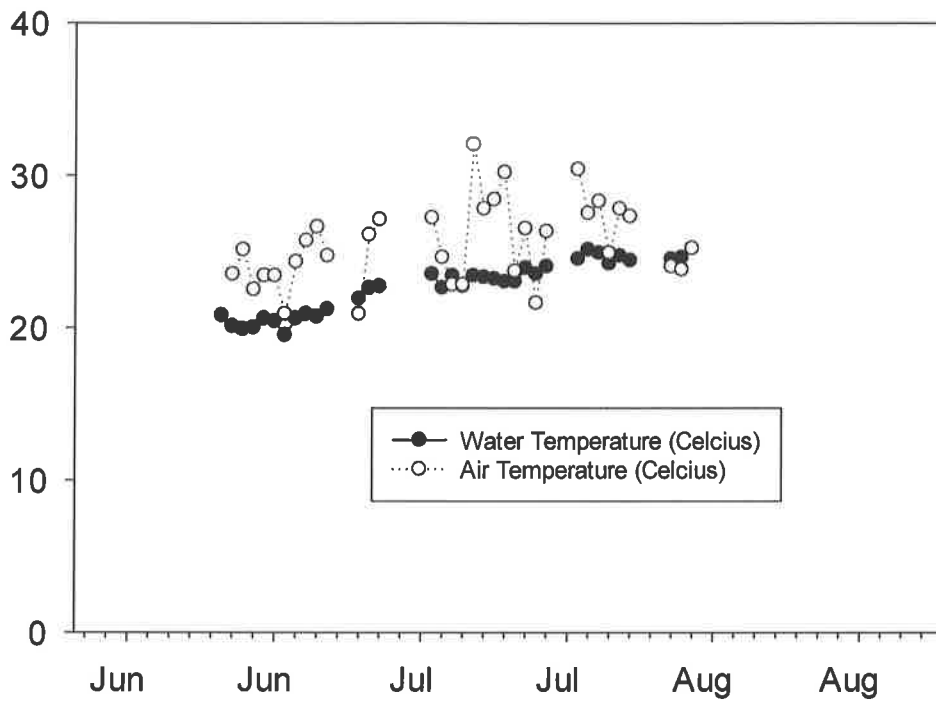


Figure 3. Outer Island water quality monitoring results: water and air temperature.

SCSU Outer Island Funds Request 2020-2021

Category	Requested Funds	Disbursed Funds
Personnel		
Honorarium (Outer Island website maintenance) (75 hours @ \$20/hour) Robert Orozco	\$1,500.00	\$1,500.00
Faculty Stipend T. Wiley Carr (Summer Art Workshop 2020)	\$1,000.00	\$0.00
Faculty Stipend T. Wiley Carr ART (Summer 2020) (Fringe: 23.18%)	\$231.80	\$0.00
Tuition Reimbursement Ian Bergemann 3 credits	\$0.00	\$1,736.00
Total Personnel	\$2,731.80	\$3,236.00
Supplies	\$4,000.00	\$4,946.41
Water Quality, Weather Meters		YSI Pro 20 Cond meter 932.45
Laboratory and field supplies		YSI Pro 20 DO meter 866.84
Art Workshop Supplies		Kestral/Light meters 902.79
Educational Supplies and Books		pH/Solutions 751.68
		Water sampling bottle 515.04
		Web hosting fees 451.1
		Batteries/meters 526.51
		Sum 4946.41
Friends of Outer Island Equipment request Binoculars, spotting scope, throw net, pH paper	\$1,000.00	\$0.00
Travel (In State)		
Thimble Islands Ferry Tickets to Outer Island	\$2,400.00	\$2,400.00
Other		23-Jun 1200
		7-Aug 1200
Annual AT&T Broadband Access fees	\$1,800.00	\$1,229.88
		March 102.49
		April 102.49
		May 102.49
		June 102.49
		July 102.49
		Aug 102.49
		Sept 102.49
		Oct 102.49
		Nov 102.49
		Dec 102.49
		Jan 102.49
		Feb 102.49
Contingency Funds	\$2,000.00	\$0.00
Total Funds Requested 2020-2021	\$13,931.80	\$11,812.29