TOWN OF Kiawah Island

TOWN COUNCIL MEETING

Kiawah Island Municipal Center
Council Chambers
August 3, 2021; 2:00 PM

AGENDA

I. **Call to Order:**

II. **Pledge of Allegiance**

III. **Roll Call:**

IV. **Approval of Minutes:**
- **A.** Minutes of the Town Council Meeting of July 6, 2021 **[Tab 1]**

V. **Mayor's Update:**

VI. **Citizens' Comments** (Agenda Items Only)**:**

VII. **Presentation:**
- **A.** Clemson Bobcat Research Study

VIII. **Old Business:**
- **A.** To Consider Approval of **Ordinance 2021-09** - An Ordinance to Rescind Previous Ordinance 2020-13 Setting Salaries for the Mayor And Council Members of the Town of Kiawah Island – **Second and Final Reading** **[Tab 2]**

IX. **New Business:**
- **A.** To Consider Approval of the CARTA (Charleston Area Regional Transportation Authority) Proposed 2022 Fiscal Year Budget **[Tab 3]**
- **B.** To Consider Approval of the Board of Arts and Cultural Events Council Appointment **[Tab 4]**
- **C.** To Consider Approval of the Kiawah Conservancy Integrated Watershed Study Funding **[Tab 5]**
- **D.** To Consider Approval of the Dolphin Stewardship Program Funding **[Tab 6]**
- **E.** Update on New Communication Asset

X. **Town Administrator's Report:**

XI. **Council Member:**
- **a.** Committee Updates
- **b.** General Comments

XII. **Citizens' Comments:**

XIII. **Adjournment:**

FOIA: Notice of this meeting has been published and posted in accordance with the Freedom of Information Act and the requirements of the Town of Kiawah Island.

Tab | **1**

TOWN COUNCIL

Agenda Item

TOWN COUNCIL MEETING

Kiawah Island Municipal Center
Council Chambers
July 6, 2021; 2:00 pm

Minutes

I. Call to Order: ***Mayor Labriola called the meeting to order at 2:00 pm.***

II. Pledge of Allegiance

III. Roll Call:

Present at the meeting: John D. Labriola, *Mayor*
Maryanne Connelly, *Councilmember*
Dr. Scott Parker, *Councilmember*
John Moffitt, *Councilmember*

Present by Phone: Dan Prickett, *Mayor Pro Tem*

Also Present: Stephanie Tillerson, *Town Administrator*
Joe Wilson, *Town Attorney*
Petra Reynolds, *Town Clerk*
Stephanie Braswell, *Communications Manager*
Brian Gottshalk, *Public Works Manager*

IV. Approval of Minutes:

A. Minutes of the Town Council Meeting of June 1, 2021

Councilmember Connelly made a motion to approve the minutes of the May 4, 2021 Town Council Meeting. Councilmember Moffitt seconded the motion, and it was unanimously approved.

V. Mayor's Update:

Mayor Labriola stated that on Thursday, July 8th, at 2:00 pm, a public meeting will be held at the Municipal Center. Representatives of Kimley-Horn will be making a presentation on the Beachwalker Drive/Parkway Intersection Study. He encouraged everyone to attend, noting it was an extremely important and complicated subject, and that more ideas and suggestions would be welcome.

Mayor Labriola commented on the MUSC (Medical University of South Carolina) Emergency Facility project to be constructed on Seabrook Island Drive. He stated it was a wonderful project and would provide huge benefits to the citizens of Kiawah, Seabrook, and Johns Island. He also stated he had the opportunity to see the virtual presentation and would try to obtain a copy to send out.

Mayor Labriola commented on the property adjacent to the Municipal Center, purchased by a developer on which he planned a miniature golf course. The requested rezoning was denied by County Staff and also denied by the County Planning Commission. The understanding is that the project will be presented to County Council on August 31st. The survey completed by the Town showed that 90 percent of respondents were not supportive of the rezoning. Council, in turn, sent a letter to the County Planning Commission and would also send one to County Council in August. With varying opinions relative to why the rezoning should not occur, safety is first and foremost

when considering the traffic on Betsy Kerrison Parkway now and the increase of traffic in the future.

VI. Citizens' Comments (Agenda Items Only**):**
None

VII. Old Business:
None

VIII. New Business:

A. To Consider Approval of **Ordinance 2021-09** - An Ordinance to Rescind Previous Ordinance 2020-13 Setting Salaries for the Mayor and Council Members of the Town of Kiawah Island – ***First Reading***

Mayor Labriola stated the previous Council proposed and approved in December of 2020, Ordinance 2020-13 to provide compensation for the Mayor and Council. It was the thought of the previous Council to recognize, stabilize and encourage people from the community to become members of the Town's Council.

Mayor Labriola stated the present Council was advised that two conditions existed that were not known by the previous Council. The first was the IRS determination that Municipal Offices must be considered employees. The second, being considered an employee, PEBA (Public Employee Benefit Authority), which governs all municipal employees' fringe benefits, requires that all employees must be offered fringe benefits. The two conditions are not consistent with the intent of the previous Council, and Ordinance 2021-09 will rescind Ordinance 2020-13.

Councilmember Parker made a motion to approve the first reading of Ordinance 20201-09 to rescind the previous Ordinance 2020-13, setting salaries for the Mayor and Council Members of the Town of Kiawah Island. Councilmember Moffitt seconded the motion, and it was unanimously passed.

B. To Consider Approval of the Contract Amendment with All South Consulting Engineers

Mayor Labriola stated that the contract amendments with All South Consulting Engineers and Jan-Pro Cleaning Systems were discussed at the prior Ways and Means Committee meeting.

Councilmember Parker made a motion to approve the contract amendment with All South Consulting Engineers. Councilmember Connelly seconded the motion, and it was unanimously passed.

C. To Consider Approval of the Contract Amendment with Jan-Pro Cleaning Systems

Councilmember Connelly made a motion to approve the contract amendment with All South Consulting Engineers. Councilmember Parker seconded the motion, and it was unanimously passed.

D. To Consider Approval of the Board of Zoning Appeals Appointment

Mayor Labriola stated the appointment of Ms. Lynn O'Leary to the Board of Zoning Appeals (BZA) comes as a recommendation from Mr. Frank Cassidy, Chairman of the BZA. Ms. O'Leary would complete the term of Ms. Kulick, which expires in 2023.

Councilmember Connelly made a motion to approve the appointment of Ms. Lynn O'Leary to the Board of Zoning Appeals. Councilmember Parker seconded the motion, and it was unanimously passed.

IX. Town Administrator's Report:

Ms. Braswell reported that the Kiawah Island app presented at the previous Council meeting was ready to go. However, there was a slight delay because Apple had to verify the organization (Town) as an official government entity and the additional steps require to push the app live. She indicated it might be an additional week before the final version gets pushed and the announcement is made to the public.

Ms. Tillerson reported that the Town received updates on Tropical Storm Else from the South Carolina Emergency Management Division or the County Emergency Management Division. The next call will be at 3:00 pm, and any new information will be communicated via eBlast. At this time, there is no expectation of receiving any major impact from the storm but do anticipate heavy rain that may cause some flooding and strong winds as the storm comes through our area.

X. Council Member:

a. Committee Updates
b. General Comments

Councilmember Parker asked if it would be appropriate to have MUSC make a presentation to Town Council and the community on the Emergency Department project. Ms. Tillerson indicated that she had previously made that request but would reach out to them again for a possible presentation at the August or September Town Council meeting. In a discussion of the presentations that had already taken place, Mayor Labriola indicated the cost of the MUSC project would be between 25 and 30 million dollars, with a target of approximately 50% funded through philanthropy. He remarked on what a remarkable service would be available to the community and encouraged the public to learn more about the project.

XI. Citizens' Comments:

Charles Lipuma – 201 Horned Grebe Court

Mr. Lipuma indicated that he had also been to one of the presentations and thought it was well done. He indicated that he received an invitation by email and agreed that that the information on the project should be made available to more people.

XII. Adjournment:

Councilmember Parker made a motion to adjourn the meeting at 3:39 pm. The motion was seconded by Councilmember Connelly and was unanimously passed.

Submitted by,

_____
Petra S. Reynolds, Town Clerk

Approved by,

_____
John D. Labriola, Mayor

_____
Date

Tab | 2

TOWN COUNCIL

Agenda Item

THE TOWN OF KIAWAH ISLAND

ORDINANCE 2021-09

AN ORDINANCE TO RESCIND PREVIOUS ORDINANCE 2020-13 SETTING SALARIES FOR THE MAYOR AND COUNCIL MEMBERS OF THE TOWN OF KIAWAH ISLAND

WHEREAS, South Carolina Code § 5-7-170 and the Town of Kiawah Island Municipal Code Section 2-206(a) require that the salaries of the Mayor and Council Members of the Town of Kiawah Island shall be determined by Council and fixed by ordinance; and

WHEREAS, on December 1, 2020, Town Council adopted Ordinance 2020-13 providing a salary to the Town Mayor and Council Members, but also declaring that such payments did not create an employment relationship and did not entitle the Mayor and Council Members to employee benefits;

WHEREAS, the Town has since discovered that the Internal Revenue Service considers paid elected municipal officials to be "employees" and that the South Carolina Public Employee Benefit Authority ("PEBA") requires that all employees be offered benefits, which contradicts the intent and terms of Ordinance 2020-13;

NOW, THEREFORE, BE IT ORDERED AND ORDAINED BY THE COUNCIL OF THE TOWN OF KIAWAH ISLAND, SOUTH CAROLINA, AND IT IS ORDAINED BY THE AUTHORITY OF SAID COUNCIL.

Section 1 Ordinance (Not Codified)

Ordinance 2020-13 is hereby rescinded and revoked in full, and the Mayor and Council Members of the Town of Kiawah Island shall receive no salary and no benefits other than reimbursement for expenses.

Section 2 Severability

If any part of this Ordinance is held to be unconstitutional, it shall be construed to have been the legislative intent to pass said Ordinance without such unconstitutional provision, and the remainder of said Ordinance shall be deemed to be valid as if such portion had not been included. If said Ordinance, or any provisions thereof, is held to be inapplicable to any person, group of persons, property, kind property, circumstances or set of circumstances, such holding shall not affect the circumstances or set of circumstances, such holding shall not affect the applicability thereof to any other persons, property or circumstances.

Section 3 Effective Date and Duration

This ordinance shall become effective upon its second reading.

PASSED, APPROVED, AND ADOPTED BY THE COUNCIL FOR THE TOWN OF KIAWAH ISLAND ON THIS 3rd DAY OF AUGUST 2021.

_____
John Labriola, Mayor

_____
Petra S. Reynolds, Town Clerk

1st Reading: July 6, 2021

2nd Reading: August 3, 2021

Tab | 3

TOWN COUNCIL

Agenda Item

MEMORANDUM

TO: Board of Directors

FROM: Robin W. Mitchum, Deputy Director of Finance and Administration

SUBJECT: FY21/22 Proposed Budget Revision

DATE: June 9, 2021

Please find attached the FY21/22 Proposed FY22 Budget for your consideration.

Revenues

A detailed explanation of line item changes are as follows:

- Fare and contract revenues have been increased based on average and estimated receipts.
- HOP Lot Parking Fees have been reduced. The route has been suspended.
- Armad Hoffler Properties was a contract service for additional HOP route access for their residents. The HOP lot route has been suspended.
- Local contributions is funds received from local organizations for shelter construction. These contributions are recorded as incurred.
- Federal revenue includes estimated 5307 Urban funds, 5310 Enhanced Mobility for Seniors & individuals with disabilities, and 5307 CARES Act funds. CARTA receives funds as a direct recipient from FTA and Pass-Through funds from the BCDCOG. Capital funds are reflected in the capital revenues budget. The increase in Federal funding is a reflection of the timing of expenditures between fiscal years.
- State Mass Transit Funds is operating funds as match to 5307 Urban funds. The decrease between fiscal years is a result of the timing of grant expenditures between fiscal years.
- Sales Tax – Charleston County is the operating funds. The matching requirements for capital are reflected the capital revenues budget line item.
- Advertising revenues have been increased to average and anticipated bus advertising sales.
- Interest is interest received from SC Department of Revenue. CARTA submits for reimbursement of the SC Fuel Excise Tax each month. SCDOR periodically pays interest earned on the funds they have held in the reimbursement process. Interest is recorded as received.
- Insurance proceeds is policy proceeds that are the result of accidents. Insurance is recorded as incurred.
- Sale of Assets is the proceeds from the sale of vehicles. As a result of the purchase of battery electric buses, we anticipate the sale of older rolling stock.

Expenditures

A detailed explanation of line item changes are as follows:

- Staff Salaries & Benefits is the cost of Retiree Insurance. We are estimating a small increase in Employer contribution rates for 2022.
- Supplies includes office and facility maintenance supplies. The increase is for additional PPE supplies and rebranding materials and signage.
- Printing is increased to include rebranding material.
- Marketing is increased for rebranding and marketing services.
- Office Equipment Maintenance includes IT services (managed server services, email hosting, website management, and other general IT services), Camera system maintenance, and AVL software maintenance. The increase is to add the GMV Syncromatics Integrated Technology Solutions software and the Mobile Ticketing app.
- Rent includes the Ashley Phosphate Park & Ride Lot, Dorchester Village Shopping center Park & Ride Lot, Leeds Avenue lot lease from SCE&G, SC Works Trident lease space, and document storage. The increase is the annual lease increase for the Ashley Phosphate Park & Ride lot.
- Communications is increased to include additional internet needs for Mary Street cameras.
- Utilities includes electric and water at the Superstop, Melnick Park and Ride, the Radio Shop at Leeds Avenue, and the charging stations at Leeds Avenue. Utilities is increased for the addition of new charging stations and charging of the electric buses.
- Advertising increased to replace advertising Bus wraps on the new rolling stock fleet as we transition to the new battery electric buses.
- Professional services is increased for bus inspection services and the annual audit. We reduced custodial to remove the extra custodial cleaning services at the super stop.
- Contract Services is increased to include CARES funded demand response emergency and/or Unique trips and bring the contracted Parking Lot expansion, shelter, and Electric Bus Master Plan in line with estimated FY22 expenditures.
- Vehicle maintenance is reduced to average and estimated expenditures.
- Insurance is increased as a result of the addition of new shelters, buses, and charging stations.
- Non Capitalized assets include the purchase of security equipment including cameras, lighting, shelter panels/parts, driver safety barriers, COVID-19 PPE, and radio equipment. The budget line item is increased to purchase an air filtration system to be installed on the rolling stock.

Capital Expenditures (Balance Sheet)

- Rolling Stock is increase to the amount of rolling stock that we anticipate receiving.
- Bus Facilities/Charging stations is increased for the purchase and installation of charging stations to power the battery electric buses.
- Bus Shelter Construction/Bench Install is decreased for the estimated installation of new bus shelters.

- Land is for the purchase of property for additional parking or service route needs.
- HOP Lot Construction/Leeds Avenue is for the construction of the HOP Lot and upgrades at Leeds Avenue.
- Security Cameras and Equipment is funds available to purchase security equipment at our facilities and on rolling stock.
- Capital (IT, Facillity Repairs/Maint) is for the facility upgrades or repairs. It includes the purchase of a replacement Fuel Pump.
- ITS System was for the FY21 purchase of the integrated technology solution system that will provide computer-aided dispatching and an automatic vehicle tracking system.

We will continue to monitor the budget to ensure revenues and expenditure remain aligned and we will make recommended revisions as necessary.

If you have any questions, please contact me at 843-529-2126 or robinm@bcdcog.com.

CARTA
Proposed FY2022 Budget Revision

	Approved Budget FY 2021	Proposed Budget FY 2022	Variance
Revenues			
Farebox	1,358,019	1,840,925	482,906
Passes	373,913	473,478	99,565
HOP Lot Parking Fees	1,108	-	(1,108)
COC Shuttle	392,022	417,104	25,082
MUSC	704,942	951,364	246,422
City of Charleston - DASH	640,492	640,492	-
Armad Hoffler Properties	45,417	-	(45,417)
Local Contributions	27,971	-	(27,971)
Federal	10,390,305	11,601,438	1,211,133
State Mass Transit Funds	951,588	475,794	(475,794)
Sales Tax - Charleston County	6,790,679	6,658,003	(132,676)
Advertising	622,230	700,000	77,770
Interest	100	-	(100)
Insurance Proceeds	29,804	-	(29,804)
Sale of Asset	10,060	10,000	(60)
Miscellaneous	2,962	-	(2,962)
TOTAL REVENUES	22,341,612	23,768,598	1,426,986
Expenditures			
Staff Salaries & Benefits	8,033	8,334	301
Supplies	86,670	151,670	65,000
Printing	32,500	37,500	5,000
Marketing	5,000	10,000	5,000
Automotive	1,000	1,000	-
Postage	2,900	2,900	-
Dues/Memberships	1,513	1,513	-
Office Equipment Rental	107,877	107,877	-
Office Equipment Maintenance	222,717	1,101,938	879,221
Rent	33,200	33,800	600
Communications	162,353	170,561	8,208
Utilities	56,283	205,674	149,391
Advertising	5,000	58,500	53,500
Professional Services			
Auditing	22,000	24,300	2,300
Legal	7,500	7,500	-
Custodial	70,984	23,220	(47,764)
Pilot Ride Program	40,000	40,000	-
Other	51,120	110,000	58,880
Contract Services			
Shared Services - IGA	2,674,780	2,588,887	(85,893)

CARTA
Proposed FY2022 Budget Revision

	Approved Budget FY 2021	Proposed Budget FY 2022	Variance
Fixed Route	13,490,074	13,690,074	200,000
Money Transport	7,500	7,500	-
Security Services	96,191	96,191	-
Electric Bus Master Plan	200,000	87,595	(112,405)
Vehicle Maintenance	200,000	150,000	(50,000)
Facility Repair & Maintenance	14,950	14,950	-
Operating Fees & Licenses	25,000	25,000	-
Insurance	816,078	832,399	16,321
Fuel	1,065,531	1,065,531	-
Paratransit	2,587,469	2,587,469	-
Miscellaneous	7,741	5,500	(2,241)
Interest	60,116	56,210	(3,906)
Non-Capitalized Assets	179,532	465,005	285,473
TOTAL EXPENDITURES	22,341,612	23,768,598	1,426,986
Excess (Deficit) of Revenues Over (Under) Expenditures	-	-	-
Capital Revenues			
Rolling Stock	5,319,710	13,270,970	7,951,260
Bus Facilities/Charging Stations	-	6,553,574	6,553,574
Bus Shelter Construction/Bench Install	159,622	-	(159,622)
Security Cameras/Equipment	147,411	80,097	(67,314)
Capital (IT, Facility Repairs/Maint)	145,796	-	(145,796)
ITS System	-	-	-
Park & Ride Construction/Leeds Ave.	2,200,000	2,800,000	600,000
Sales Tax - Charleston County	4,057,071	6,222,247	2,165,176
TOTAL CAPITAL EXPENDITURES	12,029,610	28,926,888	16,897,278
Capital Expenditures			
Rolling Stock	8,175,334	17,747,668	9,572,334
Bus Facilities/Charging Stations	180,000	8,164,494	7,984,494
Bus Shelter Construction/Bench Install	200,000	100,000	(100,000)
Land	600,000	600,000	-
Park & Ride Construction/Leeds Ave.	2,200,000	2,200,000	-
Security Cameras/Equipment	173,541	97,440	(76,101)
Capital (IT, Facility Repairs/Maint)	175,735	17,286	(158,449)
ITS System	325,000	-	(325,000)
TOTAL CAPITAL EXPENDITURES	12,029,610	28,926,888	16,897,278

CARTA
***Proposed* Detailed Budgeted Expenditures**
FY 2021/2022

		Approved Budget FY 2021	*Proposed* Budget FY 2022	Increase (Decrease)
SALARIES & BENEFITS	Retiree Insurance	8,033	8,334	301
		8,033	8,334	301
SUPPLIES	Admin/Operations	86,470	151,470	65,000
	Supplies - HOP LOT	200	200	-
	Total	86,670	151,670	65,000
PRINTING	Printing	30,000	35,000	5,000
	Printing - HOP LOT	2,500	2,500	-
		32,500	37,500	5,000
MARKETING	Promotional	5,000	10,000	5,000
	Total	5,000	10,000	5,000
AUTOMOTIVE	Parking/Mileage/Service	1,000	1,000	-
	Total	1,000	1,000	-
POSTAGE		2,900	2,900	-
		2,900	2,900	-
DUES & MEMBERSHIPS	Metro Chamber	513	513	-
	TASC (SCAMI)	1,000	1,000	-
	Total	1,513	1,513	-
EQUIPMENT RENTAL	Portable Toilet Rental - HOP LOT	1,320	1,320	-
	Electric Bus Battery Lease	105,012	105,012	-
	Miscellaneous Equipment	1,545	1,545	-
	Total	107,877	107,877	-
OFFICE EQUIPMENT MAINTENANCE	IT	50,000	50,000	-
	Money Counting Equipment	2,000	2,000	-
	Super Stop Cameras	2,577	2,628	51
	AVL Cloud Manager	27,135	27,135	-
	CAD/ITS/AVL	141,005	527,425	386,420
	Mobile Ticketing Application	-	492,750	492,750
		222,717	1,101,938	879,221
RENT	Land	6,000	6,000	-
	Park & Ride	18,700	19,300	600
	Document Storage	2,500	2,500	-
	SC Works Charleston Center	6,000	6,000	-
		33,200	33,800	600

CARTA
***Proposed* Detailed Budgeted Expenditures**
FY 2021/2022

		Approved Budget FY 2021	*Proposed* Budget FY 2022	Increase (Decrease)
COMMUNICATIONS	Telephone/Internet	29,890	38,098	8,208
	Tablets - Buses	47,463	47,463	-
	Radios	85,000	85,000	-
	Total	162,353	170,561	8,208
UTILITIES	Electricity	15,667	12,849	(2,818)
	Electricity -Charging Stations	36,791	189,000	152,209
	Water	3,825	3,825	-
		56,283	205,674	149,391
ADVERTISING	ALL	5,000	5,000	-
	BUS WRAPS	-	53,500	53,500
		5,000	58,500	53,500
PROFESSIONAL SERVICES	Audit	22,000	24,300	2,300
	Legal	7,500	7,500	-
	Custodial	70,984	23,220	(47,764)
	Pilot Ride Program	40,000	40,000	-
	Other	51,120	110,000	58,880
		191,604	205,020	13,416
CONTRACT SERVICES	Management Services	75,000	75,000	-
	Shared Services (IGA)	2,413,887	2,413,887	-
	Parking Lot Expansion (IGA)	35,893	-	(35,893)
	Shelter/Bench Engineering (IGA)	150,000	100,000	(50,000)
	Fixed Route - Transdev	13,029,120	13,029,120	-
	Hop Lot - Transdev	460,954	460,954	-
	Demand Response Unique Trips	-	200,000	200,000
	Money Transport	7,500	7,500	-
	Super Stop Security Services	96,191	96,191	-
	Electric Bus Master Plan	200,000	87,595	(112,405)
		16,468,545	16,470,247	1,702
VEHICLE MAINTENANCE		200,000	150,000	(50,000)
		200,000	150,000	(50,000)
FACILITY REPAIR & MAINTENANCE	Facility Repair Misc	10,000	10,000	-
	Bus Wash Inspection	4,950	4,950	-
		14,950	14,950	-

CARTA
***Proposed* Detailed Budgeted Expenditures**
FY 2021/2022

		Approved Budget FY 2021	*Proposed* Budget FY 2022	Increase (Decrease)
OPERATING FEES & LICENSES		25,000	25,000	-
		25,000	25,000	-
INSURANCE	Administration	15,500	15,810	310
	Operating	800,578	816,589	16,011
		816,078	832,399	16,321
FUEL	Fuel	1,044,765	1,042,048	(2,717)
	Fuel - HOP LOT	20,766	23,483	2,717
		1,065,531	1,065,531	-
PARATRANSIT	TRANSDEV	2,587,469	2,587,469	-
		2,587,469	2,587,469	-
MISCELLANEOUS	MISC	7,500	5,000	(2,500)
	MISC - HOP LOT	241	500	259
		7,741	5,500	(2,241)
INTEREST	BB&T - Melnick Property	60,116	56,210	(3,906)
		60,116	56,210	(3,906)
NON-CAPITALIZED ASSETS	Non-Capitalized Assets	179,532	465,005	285,473
		179,532	465,005	285,473
TOTAL OPERATING		**22,341,612**	**23,768,598**	**1,426,986**
CAPITAL				
	Rolling Stock/Fleet Repair	8,175,334	17,747,668	9,572,334
	Bus Facilities/Charging Stations	180,000	8,164,494	7,984,494
	Bus Shelter Construction/Bench	200,000	100,000	(100,000)
	Land	600,000	600,000	-
	HOP Lot Constuction/Leeds Ave.	2,200,000	2,200,000	-
	Security/Cameras	173,541	97,440	(76,101)
	Capital (IT, Facility Repairs/Maint)	175,735	17,286	(158,449)
	ITS System	325,000	-	(325,000)
TOTAL CAPITAL		**12,029,610**	**28,926,888**	**16,897,278**

Tab | 4

TOWN COUNCIL

Agenda Item

TOWN OF Kiawah Island

4475 Betsy Kerrison Parkway | Kiawah Island, SC 29455 | (843) 768-9166 | Fax (843) 768-4764 | www.kiawahisland.org

2021
ARTS & CULTURAL EVENTS COUNCIL

Committee members are appointed by Town Council and serve one year terms.
All terms expire on January 31.

David Wohl, Chairman
157 Governors Drive
Kiawah Island, SC 29455
304-552-9060 cell
Dwohl23@gmail.com

Bill Blizard
736 B Virginia Rail Road
Kiawah Island, SC 29455
843-768-3303
843-906-7666 cell
billblizard@gmail.com

Judy Chitwood
4817 Green Dolphin Way
Kiawah Island, SC 29455
843-693-4565 cell
j_e_chitwood@yahoo.com

Becky Hilstad
33 Marsh Edge Lane
Kiawah Island, SC 29455
843-469-3271 cell
bthilstad@aol.com

Van McCollum
508 RuddyTurnstone
Kiawah Islnd, SC 29455
404-401-0678
vanmccollum982@gmail.com

Jodi Rush
143 Flyway Drive
Kiawah Island, SC 29455
843-641-0096
703-966-5351 cell
jrush25@comcast.net

Joan Collar
194 Sanderling Court
Kiawah Island, SC 29455
843-768-0474
843-224-9455 cell
jcfromsc@aol.com

Kristin Thompson
101 Shoolbred Court
Kiawah Island, SC 29455
443-254-8616 cell
kristin@rhettsbluff.com

Staff Support:

Stephanie Braswell Edgerton
843-768-5113
843-532-3269 cell
sbraswell@kiawahisland.org

Revised 7/2/2021

Kristin B. Thompson
101 Shoolbred Court
Kiawah Island, SC 29455
kristin@rhettsbluff.com
443-254-8616

Education

Wheaton College
Norton, MA
AB Government 1973

University of MD
College Park, MD
55% completion
Masters in Management
1990 – 1994

Professional Service

Member – Industry Advisory Council (IAC)
Associated Luxury Hotels (ALHI)
1995 – 2017

Member – Association Executives Council (AEC)
National Association of Wholesaler-Distributors (NAW)
1998 – 2017

Member – Council of Manufacturing Associations (CMA)
National Association of Manufacturers (NAM)
2005 – 2017

Member - Marriott Masters Council
Marriott Hotels International
2012 - 2017

Professional Experience

1972 – 1979
Finance Director
U.S. Senator Edward W. Brooke
Managed campaign finances, assisted with fundraising activities for two campaigns 1972 and 1978. Maintained records, filed reports, served as main Federal Elections Commission contact during non-campaign years.

1973 – 1980
Political Campaign Management
Provided campaign support for Gubernatorial campaign of Elliot Richardson, Attorney General campaign of William Cowin and Presidential campaign of John Anderson – all in the state of Massachusetts.

1981 – 1985
Accounting Office Supervisor
WGBH Boston, Massachusetts
Supervised accounting staff, including A/P, P/R and fund accounting for 550 employees of public television and radio stations in Boston and Springfield, Massachusetts. Served on management team for live auction and other productions of WGBH, including *Victory Garden*, *Julia Child, This Old House and Masterpiece Theatre.*

1987- 1994
Synopsis Writer, head of Synopsis project, International visitor coordinator
State of Maryland, Department of Legislative Reference
Annapolis, Maryland
Started as writer of synopsis of the 2,500 – 2,800 bills introduced each year by members of the Maryland House and Senate; became lead and supervisor of team of five writers. Concluded career by heading the legislative visitors' program, coordinating and conducting visits to the legislature by school groups and International dignitaries.

1993 – 2017
Thompson Management Associates, LLC
Annapolis, Maryland
Owner, CFO, COO and Director of Communications and Conventions
Started this multiple management firm with one client, growing to nine associations and 18 staff. Provided all management functions (membership, budgets and finance, newsletters, meetings, etc.) on a shared basis for seven international trade associations and two educational collaboratives. Negotiated contracts with hotels, speakers, entertainers for meetings and conventions ranging in size from board meetings of 12 to multi-day conventions of 100 – 1,200 attendees. Supervised the day-to-day staffing of meetings, wrote and produced promotional and on-site materials and marketed by hard copy and electronic means.

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TOWN COUNCIL

Agenda Item

Integrated Watershed Study

Project Proposal to the Town of Kiawah Island

FY 2021-2022

Revised July 27, 2021

INTEGRATED WATERSHED STUDY ($50,000)

Tidal marshlands and adjacent estuarine areas are some of the most biologically productive habitats in the world, providing many ecosystem services to both human and wildlife communities (Millennium Ecosystem Assessment, 2005; Costanza et al., 2014; Sandifer et al., 2015). These services include nutrient cycling, carbon sequestration, property protection from storm surge, and erosion control, among others, which have been valued at producing up to $78,510 per acre per year (USD $ 2007) in benefits to the community (Costanza et al., 2014). This suggests the tidal salt marshes around Kiawah Island, roughly 3,500 acres, produce up to $274.8 million in ecosystem services for wildlife and property owners each year. Sea-level rise, climate change, and anthropogenic impacts significantly impact tidal marshes, with current projections suggesting 46-78% will lost by the year 2100 without significant mitigation efforts (Spencer et al., 2016). Understanding the impacts to these habitats and monitoring areas to inform management practices will help to protect our wetlands to allow them to continue providing services for human and wildlife communities.

Tidal salt marsh habitats are very dynamic in nature and influenced by local mesotidal changes, groundwater discharge, severe weather, and runoff generated from upland areas. There is a constant flux of saline water, suspended sediments, contaminants, and organic matter among others, which creates a very complex, dynamic aquatic environment. Making further contributions to this on Kiawah Island is the introduction of brackish water at the terminus of each pond outfall. Rainfall events introduce freshwater in upland areas and percolate into the shallow subsurface aquifer, referred to as 'groundwater' (Callahan et al., 2012). This recharges the groundwater and increases the elevation of the groundwater table. This freshwater reserve is gradually reduced overtime via plant uptake, evaporation, discharge into ponds, and discharge into the tidal marsh. Groundwater discharge through the marsh platform in coastal environments typically occurs during low tide events (Barlow, 2003). This produces a mechanism where freshwater is gradually introduced into the marsh to flush nutrients and salts within the soil, as well as allow groundwater levels to reach a stable equilibrium with adjacent tide levels.

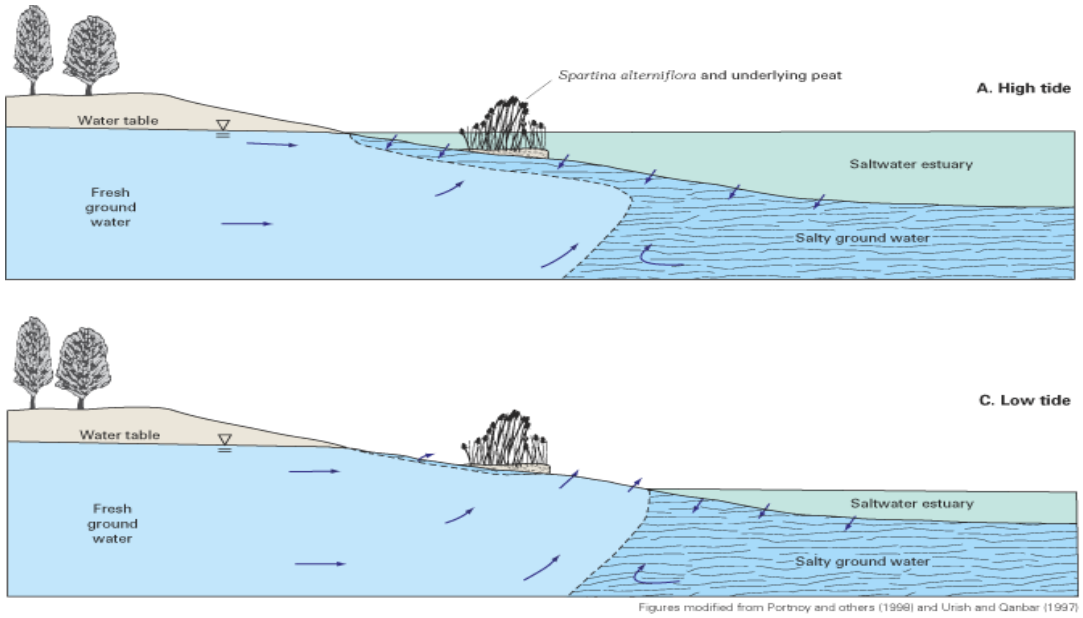

Figure 62 from USGS Circular 1262 describing energy and water flow between groundwater and saltwater estuarine areas (Barlow, 2003)

Residential development inhibits the replenishment of groundwater due to the change in landcover, mostly from the introduction of impervious surfaces (e.g., driveways, boardwalks, roofs). These surfaces cover or alter exposed soils, which would naturally facilitate the percolation of accumulated rainfall into the ground. Landscape changes, such as removing trees and installing turfgrass, reduce the ability for stormwater to infiltrate soils within the suburbanized forest. For instance, live oaks can intercept up to 30% of the rainfall intercepted by their canopy before it reaches the soil (Kim Morganello, personal communication, 2021). Turfgrass also impedes the infiltration of water due to their dense root structure, causing it to shed water similarly to impervious surfaces.

This creates conditions that increase the volume of excess stormwater runoff that flows into Kiawah Island's interconnected stormwater pond system. For the most part, each parcel on the island is graded in order to allow the conveyance of stormwater into low-lying areas and roadways during a rainfall event. The water then flows to the lowest points in the roads and directed into the stormwater pond network. The volumetric flow of stormwater in this process is influenced by the permeability of land cover, ground saturation, and any obstruction in drainage. If stormwater runoff is conveyed into the drainage network too quickly due to too much impervious cover, there is less of a chance for replenishing groundwater reserves and a higher risk of overtaxing our stormwater infrastructure in major rainfall events (i.e., 50-year rainfall). Alternatively, if the same system's conveyance were slowed without any intervention to promote infiltration, you could see localized flooding. At the terminus of the pond systems, excess stormwater flows into tidal saltmarshes via the outfalls during low tide events, similar to the mechanisms behind groundwater discharge.

Along with the changes in the quantity of water being increased during rainfall events, water quality within aquatic environments is impacted as well. In nearby estuarine systems, water quality has been monitored for decades by the National Estuarine Research Reserve System [NERRS] at sentinel sites within the ACE Basin and North Inlet – Winyah Bay. The publicly available data collected in these NERRS sentinel sites provides a wealth of knowledge on changes to aquatic environments within the coastal region. However, because this information is site specific and not being collected locally, water quality within Kiawah Island's estuarine environment is not well understood.

Adjacent upland coverage also differs between Kiawah Island and NERRS sites, with the probability that impervious surfaces and stormwater contribute to differing environmental conditions within the former. Furthermore, comparisons between tidal creeks with varying impacts from stormwater runoff can provide information on changes to the estuarine environment following rainfall, severe weather, and extreme tide events. Monitoring estuarine and tidal creek areas with similar equipment and techniques used by NERRS and local ecologists will facilitate avenues for comparing data collected in similar aquatic environments within the nearby coastal region.

Studying aquatic environments also involves developing a comprehensive understanding of the hydrological cycle. Previous monitoring efforts provide key components to improve understanding of water resources within our coastal environment: frequent pond level monitoring, groundwater monitoring (Callahan et al., 2012; Kassabian et al., 2015), the Kiawah River Bridge tidal gauge, Ocean Park tide gauge, and the various weather station locations. Expansion of monitoring efforts helps to capture conditions within specific regions with different stormwater runoff regimes. In particular, weather conditions (e.g., wind, rainfall, temperature) vary throughout Kiawah Island, resulting in microclimates and differing conditions within individual watersheds at any given point

in time. For instance, one region of the island may receive a burst of rainfall while another will receive little to no rainfall in the same day. The distribution of rainfall accumulation on the island can help identify areas where stormwater recharges groundwater and freshwater wetland levels most efficiently. Placing additional weather stations will capture meteorological conditions to provide more precise data for each watershed region.

Furthermore, efforts to integrate the various environmental monitoring efforts through the development of a water budget will provide a comprehensive assessment of conditions within each watershed region. A well-developed understanding of water resources provides the means for evaluating availability and sustainability of natural water supplies and provides a foundation for effectively managing and planning for water resources (Healy et al., 2007; Kassabian et al., 2015). This would also integrate data related to landscape irrigation on the island, which accounted for 587 million gallons of water introduced to the hydrological system in 2017 (TOKI Sea Level Rise Subcommittee, 2018, p. 73). Water budgets are especially important in this regard, as water resources govern ecosystem functions that provide benefits to both humans and wildlife. As a result of integrating water resource data and expanding efforts to study inputs to the hydrologic system, land managers on Kiawah Island can further develop an ecosystem-based management approach to improve the resilience of the local hydrological system and protect estuarine habitats.

Water Quality Monitoring. Multiparameter water quality sondes are used by SCDHEC, USGS, USEPA, and NOAA's National Estuarine Research Reserves System [NERRS] to monitor water quality and influence management decisions. These are typically equipped with several sensors to capture data on various conditions within the marsh. NOAA-NERRS uses multiparameter sondes with sensors to monitor temperature, depth, conductivity, pH, turbidity, dissolved oxygen, chlorophyll, and nutrients (NOAA). These sondes are deployed directly into aquatic areas to collect data continuously.

The use of Town funds under this proposal item will be used to purchase a pair of multiparameter water quality sondes and the necessary components. The procured sondes will be the YSI EXO series multiparameter sondes used in practice by federal agencies, universities, and local ecologists. Sondes such as these can be easily deployed into any coastal aquatic environment and moved to different locations based on current needs. YSI Exo 3 sondes come with 4 sensor ports to measure these parameters. Recommended parameters to include in the available ports include conductivity + temperature, dissolved oxygen, depth, and turbidity. Additional parameter sensors can be purchased and deployed on the sondes to supplement collect data collection based on future needs.

These sondes would allow for additional monitoring of aquatic conditions in pond and estuarine environments. The sondes can be moved further upstream into various stormwater ponds or further downstream into the marsh based on future needs. Monitoring data collected by KICA and the Conservancy will be shared to study aquatic conditions and their responses to focusing events (e.g., rainfall, saltwater inundation, tides). KICA has historically gathered data within the interconnected stormwater pond system for the past 30 years. The study herein would focus efforts on analyzing water quality in estuarine areas downstream from the system at pond outfalls where monitoring has not yet occurred.

Previous discussions have indicated two areas where the volumetric majority of water is evacuated from the system: the Canvasback Pond outfall and Beachwalker Drive outfall. These two areas will be initial focus of the monitoring efforts through the proposed project. Sondes will be deployed

near pond outflows into the marsh and provide information on areas where the greatest complexity of water conditions occurs due to salinity changes, tidal regimes, and flow of nutrients. Watershed maps showing the land mass where runoff originates will be created to provide a geographical unit for further analysis with water budgets (see subsequent section). Areas where pond discharge does not occur will also be considered for control sites to make comparisons.

Weather Monitoring. Gaining a better understanding of rainfall accumulation by installing monitoring stations in different sites provides additional information on the various microclimates on our island. Currently, two weather stations with data accessibility are on the island: Town-supported station located on the Timbers and KICA's newly installed station adjacent to Kestrel Court. Both weather stations are Davis Vantage Pro 2 models, which collects temperature, accumulated rainfall, wind speed and direction, barometric pressure, ultraviolet radiation, solar radiation, and relative humidity. Both of these stations provide data on local meteorological conditions for the western region of Kiawah Island. However, conditions can differ in areas further east on the island.

With funding from the Town, two (2x) Davis Vantage Pro 2s and ancillary equipment for logging data will be purchased to establish two additional weather stations. These will be near Canvasback Pond and the center of the island where we currently do not have equipment to collect and monitor climatic data. With the supporting equipment, data will be automatically sent to Weatherlink, an online repository for weather data, via nearby WiFi connections. Potential sites include the fire station along Governors Drive, Turtle Point Clubhouse, Cinder Creek Pavilion, and-or nearby residential areas. Information gathered from the weather station can be used to generate localized information specific for different regions on Kiawah Island. This ultimately provides more precise data on meteorological conditions to create regionalized water budgets for managing water resources.

Preliminary Water Budgets. Efforts within this project also include the development of water budgets for major drainage watersheds on Kiawah Island. Watersheds would be based on local monitoring efforts (i.e., weather stations, groundwater wells, stormwater drainage), as validated by KICA staff. A water budget allows a community to assess and manage the physical conditions of water stored in a regional hydrological system, which is balanced by the water introduced into and released from the system. Generally, this would provide information to help predict flooding conditions within specific watersheds, identify areas where soil infiltration rates are impaired, and help manage stormwater pond levels. Water budgets also provide guidance on mitigating changes to groundwater elevation and saltwater intrusion, both of which can severely impact the health of maritime forest vegetation and cause it to convert into wetlands (Kirwan & Gedan, 2019). They also provide a means for prioritizing areas to promote the use of nature-based solutions to enhance the infiltration of stormwater into the subsurface aquifer.

The inclusion of groundwater, rainfall, standing water (i.e., tide levels, pond levels) and evapotranspiration data (Pyzoha et al., 2008) can be used to calculate a water budget in a coastal environment. There are several methods for determining the potential evapotranspiration [PET] for developing water budgets in shallow aquifers in the lower coastal plain, as discussed by Kassabian et al. (2015). One method is the Hamon PET model, which uses daytime length (Ld,

measured in x/12 hours), saturated vapor density (RHOSAT; measured inches), and a calibration coefficient (KPEC, = 1.2) to calculate PET in mm/day:

$$PET\ (mm/day) = 0.1651 \cdot\ Ld \cdot RHOSAT \cdot\ KPEC$$

Another method is the Modified Hargreaves - Samani model (Dai et al., 2013; Kassabian et al., 2015) which calculates PET using daily mean air temperature (T; measured in Celsius), extraterrestrial solar radiation (Ra; measured in MJ m^{-2} day^{-1}), and daily difference in max/min temperature (TD):

$$PET = 0.408 \cdot 0.0021 \cdot Ra \cdot TD\ 0.50 \cdot (T + 17.8)$$

Data from the installed weather stations mentioned previously will be used to calculate these measurements. Coupled with the collection of rainfall and groundwater data, monitoring the evapotranspiration will provide sufficient information to create a water budget for a given ecosystem. The following calculation is used to create a water budget where ΔS is the change in storage, P is precipitation, and ΔG is change in groundwater levels. Groundwater is also normalized with specific yield (Sy) calculated using precipitation (P) divided by changing groundwater table following a rain event (ΔWT) (Kassabian et al., 2015):

$$\Delta S = P - PET + \Delta G$$
$$\Delta G = \bar{x}Sy \quad where \quad Sy = P / \Delta WT$$

Because land cover and runoff conditions vary across Kiawah Island, localized water budgets would provide more accurate information. Watershed data generated by KICA staff will be used to define management areas to calculate localized water budgets. This would include analyzing land cover (e.g., impervious versus pervious surfaces) and specific yield of soil types within the defined watershed areas. Priority will be placed on defining land areas that feed stormwater runoff into the major stormwater pond outfalls at Canvasback Pond and Beachwalker Drive where water quality monitoring equipment will be deployed. Additional analysis will occur on the remaining watersheds, with future potential monitoring efforts providing more site-specific data.

Reasoning

- Tidal estuaries and marshes are the most biologically productive habitats in the world and provide many benefits to humans and wildlife.
- Water resources in coastal habitats are very dynamic and can be impacted by various contributing factors to water quality.
- Rainfall accumulation and stormwater runoff significantly influence quality of water resources on Kiawah Island.
- Water budgets can be developed to help plan land management practices to conserve natural groundwater resources.
- Understanding the impact of water quality and quantity on the entire hydrological system helps to prioritize management efforts and restoration practices to benefit the community.

Objectives

- Obtain equipment and capacity to continuously monitor water quality in estuarine waters around Kiawah Island.
- Expand monitoring of climatic conditions into other regions of Kiawah Island.
- Analyze and integrate climate data into comprehensive, integrated assessments.
- Create localized water budgets for Kiawah Island using a watershed approach.

Requirements and approximate costs associated or needed to accomplish this project

- Use of tidal salt marsh areas, aquatic environments, and adjacent properties for the deployment and anchoring of equipment.
- Coordination and collaboration with KICA, TOKI, and other on-island partners.
- Use of buildings to attach weather monitoring stations, with prior approval from property owner(s)
- Use of data from the Town's weather station, KICA's weather station, and the Kiawah River Bridge Tide Station.
- Conservancy staff time and effort for deploying equipment, data collection, and equipment maintenance.
- Use of open-source statistics software (R Statistical Package) for analyzing data.
- Total funds necessary for carrying out the project (**$50,000**)
    - Purchase of water quality monitoring equipment (**$33,000**).
        - *Two multiparameter water quality sonde(s) with recommended sensors and equipment (Total: Initial sonde w/ sensors - $17,862; Second sonde w/ sensors $13,267).*
        - *Housing and anchoring within aquatic environments ($1,871).*

            <u>Note</u>: Optional sensory and deployment equipment to incorporate with EXO Sonde at future dates shown in optional equipment below
    - Purchase of Davis Vantage Pro 2 weather stations, WeatherLink, and related equipment (**$3,000 total**, $1,500 each).
    - Additional organizational capacity for data collection and analysis: either 1) staffing of graduate assistant or intern with the Conservancy, or 2) contract efforts with external parties (e.g., SCDNR) for analyzing water samples (**$14,000**)

Outcomes

- Better understand water resources on Kiawah Island through integrative analysis.
- Initiate water quality monitoring within Kiawah Island's tidal salt marshes.
- Develop a water budget for planning preservation and restoration efforts, low-impact development practices, and green-infrastructure projects.
- Enhance monitoring of localized rainfall accumulation on Kiawah Island.
- Assist the Town in pursuing goals listed in the amended comprehensive plan by providing information about protecting natural resources and promoting community resilience:
    - Land Use goal 5b - Consideration of development strategies based on objective data to better respond to impacts due to flooding and sea level rise.
    - Natural Resources goal 2b - Going forward with recommendations from scientists at the College of Charleston to incorporate a better understanding of impacts to marsh.
    - Natural Resources goal 6a - Understanding the health of tidal salt marshes and influencing land use based on efforts through a federally funded resilience project (NFWF ECRF 2019).
- Improve the community's FEMA CRS rating by measuring environmental data and highlighting the need for green-infrastructure practices to promote onsite infiltration and treatment of stormwater runoff (several FEMA CRS Manual references below)
    - 330 Outreach – Provide additional content for messaging related to flooding and flood mitigation, as well as prioritize communication efforts.
    - 510 Floodplain Management Planning - Additional projects and measures that will reduce the adverse impact of the hazard on the community and help meet other community needs.
    - 530 Flood Protection - Utilization of small/minor structural flood control projects for protecting buildings.

General Line Items	Cost
(2x) EXO Sondes for Water Quality Monitoring	$33,000
(2x) Davis Vantage Pro2 for Climatic Monitoring	$3,000
Graduate Assistant or Intern	$14,000
Total	$50,000

Required Equipment	Price
EXO3 Sonde, 10m Depth, 5 Sensor Ports, Central Wiper Compatible	$5,599.00
EXO Wiped Conductivity/Temperature Sensor	$1,700.00
EXO Optical DO Sensor, Ti	$1,999.00
EXO Central Wiper, EXO2, Ti	$1,225.00
EXO 10-m Field Cable	$645.00
C-Spray (1 bottle) 100-mL Unique nanopolymer coating that inhibits biofouling attachment	$40.00
EXO Handheld Display, 2.0 Handheld interface for EXO Sondes with standard features to include GPS, Temperature Compensated Barometer, Color LED Screen, Built-in Help Menus, Rechargeable Li-Ion Battery, USB On-The-Go Data Backup, Wet-Mate Connector, and IP-67 Rating	$2,765.00
EXO Signal Output Adapter - USB Allows for USB connection to computers	$405.00
3169 Conductivity Calibrator, 50,000-umhos/cm (8 ea, pint)	$133.00
EXO Turbidity Sensor, Ti Reads from 0-4000 FNU (Formazin Nephelometric Units)	$1,845.00
6073G Turbidity Std. 100 NTU (6026), 126 NTU (6136), 1 Gallon	$352.00
3824 pH Buffer, Assorted Case	$85.00
EXO2 Anti Fouling Guard	$899.00
EXO2 Probe and Sonde Anti-Fouling Sleeves (10 Disposable)	$85.00
Anti-Fouling Tape - Used to wrap all standard YSI probes - Customer re-apply as needed	$85.00
Initial Sonde Equipment Total	$17,862.00
Additional Sonde w/ Sensors	$13,267.00
Total w/o tax	**$31,129.00**

Optional Equipment Considerations	List Price
EXO Total Algae - PE Sensor, Ti - Optimized for saltwater use - Phycoerythrin - Includes chlorophyll and blue green algae sensors in a single sensor	$3,500.00
EXO fDOM Sensor, Ti - AKA CDOM or UV Fluorometer - Tested and used by North Inlet - Winyah Bay NERRS	$2,660.00
EXO GO wireless bluetooth communication device - Features GPS, Barometer, Rechargeable Li-Ion Battery, Wet- Mate Connector, and IP-67 rating	$995.00
EXO ISE06 pH/ORP Sensor Assembly, Unguarded, Ti	$699.00
Zobell Solution, ORP Calibrator 250 mL	$53.00
DB600 buoy with Ai1 system Includes: -Verizon 4G modem, solar charger, solar panels and lithium-ion battery, and navigation beacon	$9,999.00
2 Way Cellular Communications, 12 Months, NEW	$530.00
Software, LoggerNet Data Logger Software	$860.00
HydroSphere Cloud based data hosting and visualization platform. Includes: Alarms, data exports, public website, scalable user roles, and more. Monthly service fee for new accounts.	$9.99 / month ($119.88 / year)
Total (Comprehensive)	$14,921.00
Subsequent Costs	$650 / year

Weather Station	
Equipment	**Cost per unit**
Davis Instruments Vantage Pro2 (model 6163) - Wireless Weather Station - Sensors: ultraviolet, solar radiation, rainfall, wind speed + direction, humidity - 24-hour Fan Aspirated Radiation Shield - Further documentation and specifications: https://www.davisinstruments.com/products/wireless-vantage-pro2-plus-with-24-hr-fan-aspirated-radiation-shield - Can withstand winds up to 200mph and salt corrosion	$1074.00
Davis 7717 Mounting Pole Kit - For mounting on structures and surfaces	$52.00
Davis 6100 WeatherLink Data Collection Hub - For cloud-based datalogging of weather data	$195.00
Approximated total per unit w/o tax	$1321.00
Cost of two units (proposed) w/o tax	**$2642.00**

Resources

Bailey, H., & Secor, D. H. (2016). Coastal evacuations by fish during extreme weather events. Scientific reports, 6(1), 1-9. Retrieved from: https://www.nature.com/articles/srep30280

Barlow, P. M. (2003). Ground water in freshwater-saltwater environments of the Atlantic coast (Vol. 1262). Geological Survey (USGS). Retrieved from: https://pubs.usgs.gov/circ/2003/circ1262/#figurecaption56179976

Callahan, T. J., Vulava, V. M., Passarello, M. C., & Garrett, C. G. (2012). Estimating groundwater recharge in lowland watersheds. Hydrological Processes, 26(19), 2845-2855. Retrieved from: https://onlinelibrary.wiley.com/doi/pdf/10.1002/hyp.8356?casa_token=GyTcQPeutnMAAAAA:W-TfmpopTqYTRAMtkzYPPu4Fh-h5dJkUd9L3AnENZMXEq4s8O0cY7p0pfnM5-zwsXy66wSlaEaY3rw8

Costanza, R., De Groot, R., Sutton, P., Van der Ploeg, S., Anderson, S. J., Kubiszewski, I., Farber, S., & Turner, R. K. (2014). Changes in the global value of ecosystem services. Global environmental change, 26, 152-158. Retrieved from: https://wwfit.awsassets.panda.org/downloads/changes_in_global_value_of_ecosystem_services.pdf

Healy, R.W., Winter, T.C., LaBaugh, J.W., and Franke, O.L. (2007). Water budgets: Foundations for effective water-resources and environmental management: U.S. Geological Survey Circular 1308, 90 p Retrieved from: https://water.usgs.gov/watercensus/AdHocComm/Background/WaterBudgets-FoundationsforEffectiveWater-ResourcesandEnvironmentalManagement.pdf

Higgins, Patrick (2014). Southeastern Estuarine Research Society Meeting fDOM Sensor Research. Web. Retrieved from: https://www.ysi.com/ysi-blog/water-blogged-blog/2014/07/ southeastern-estuarine-research-society-meeting-fdom-sensor-research

Kassabian, R. L., Callahan, T. J., & Upchurch, S. (2015). Water Budget of a Shallow Aquifer in the Lower Coastal Plain: ACE Basin, SC. *Journal of South Carolina Water Resources*, *2*(1), 3. Retrieved from: https://tigerprints.clemson.edu/cgi/viewcontent.cgi?article=1012&context=jscwr

Kirwan, M. L., & Gedan, K. B. (2019). Sea-level driven land conversion and the formation of ghost forests. Nature Climate Change, 9(6), 450-457. Retrieved from: https://par.nsf.gov/servlets/purl/10109781

Lin, W. C., Brondum, K., Monroe, C. W., & Burns, M. A. (2017). Multifunctional Water Sensors for pH, ORP, and Conductivity Using Only Microfabricated Platinum Electrodes. Sensors (Basel, Switzerland), 17(7), 1655. https://doi.org/10.3390/s17071655

Millennium Ecosystem Assessment (2005). Ecosystems and human well-being. World Health Organization. Retrieved at: https://www.millenniumassessment.org/documents/document.357.aspx.pdf

NOAA (n.d). Monitoring Estuaries: Estuaries Tutorial. National Ocean Service website. Retrieved from: https://oceanservice.noaa.gov/education/tutorial_estuaries/est10_monitor.html

Nolte, S., Koppenaal, E. C., Esselink, P., Dijkema, K. S., Schuerch, M., De Groot, A. V., Bakker, J. P., & Temmerman, S. (2013). Measuring sedimentation in tidal marshes: a review on methods and their applicability in biogeomorphological studies. *Journal of Coastal Conservation*, *17*(3), 301-325. Retrieved from: https://www.jstor.org/stable/42657025?seq=1#metadata_info_tab_contents

Pyzoha, J. E., Callahan, T. J., Sun, G., Trettin, C. C., & Miwa, M. (2008). A conceptual hydrologic model for a forested Carolina bay depressional wetland on the Coastal Plain of South Carolina, USA. Hydrological Processes: An International Journal, 22(14), 2689-2698. Retrieved from: https://onlinelibrary.wiley.com/doi/pdf/10.1002/hyp.6866?casa_token=h9gPKzFn_XkAAAAA:if7DAV1dhHKLwBabiypVzMuomPuSokOU2_JR66JunC83dz3fOj7MRtIwX6QFGnxOToQcdtqeuesvBqo

Sandifer, P. A., Sutton-Grier, A. E., & Ward, B. P. (2015). Exploring connections among nature, biodiversity, ecosystem services, and human health and well-being: Opportunities to enhance health and biodiversity conservation. Ecosystem services, 12, 1-15. Retrieved at: https://core.ac.uk/download/pdf/82072537.pdf

SCDNR (2019). Summary of Living Shoreline Research to Inform Regulatory Decision-Making in South Carolina. Charleston, SC: South Carolina Marine Resources Division. Technical Report No. 110. 49 p. Retrieved from: www.nerrssciencecollaborative.org/media/files/SCDNRLivingShorelinesSummaryDocument_20190731.pdf

Sea Level Rise Subcommittee (2018). Flood Mitigation and Sea Level Rise Adaptation for Kiawah Island, SC. Town of Kiawah Island, SC. Retrieved from: https://www.kiawahisland.org/wp-content/uploads/2018/08/FINAL-Flood-Sea-Level-Rise-Report-clickable-links-1-1.pdf

Smith, Stephanie (2016). Harmful Algal Bloom Water Quality: Everything You Need To Know. Webpage. Retrieved from: https://www.ysi.com/ysi-blog/water-blogged-blog/2016/09/harmful-algal-blooms-everything-you-need-to-know

Spencer, T., Schuerch, M., Nicholls, R. J., Hinkel, J., Lincke, D., Vafeidis, A. T., ... & Brown, S. (2016). Global coastal wetland change under sea-level rise and related stresses: The DIVA Wetland Change Model. Global and Planetary Change, 139, 15-30. Retrieved from: https://www.sciencedirect.com/science/article/pii/S0921818115301879?casa_token=oShwKdQOTkgAAAAA:qxEbD5v-7kPIomOHqQVle2qxDuTRu9B-2oXZfyNVkCujSwzmVVMKtbuRtoOsyQvxtIJdjrxGJA

Szögi, A. A., Hunt, P. G., Sadler, E. J., & Evans, D. E. (2004). Characterization of oxidation-reduction processes in constructed wetlands for swine wastewater treatment. Applied Engineering in Agriculture, 20(2), 189. Retrieved from: https://www.ars.usda.gov/ARSUserFiles/60820000/Manuscripts/2004/Man675.pdf

U.S. Environmental Protection Agency (USEPA)(no date). National Recommended Water Quality Criteria - Aquatic Life Criteria Table. Webpage. Retrieved from: https://www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table

U.S. Geological Survey (n.d.). Oxidation/Reduction (Redox). Water Resources website. Retrieved from: https://www.usgs.gov/mission-areas/water-resources/science/oxidationreduction-redox?qt-science_center_objects=0#qt-science_center_objects

Tab | 6

TOWN COUNCIL

Agenda Item

Town of Kiawah Island Proposal

Project Title: Kiawah Island Dolphin Education Program

Applicants: PI: Lauren Rust, Lowcountry Marine Mammal Network, Lauren@lowcountrymarinemammalnetwork.org ; Collaborator: Wayne McFee, National Ocean Service, Wayne.mcfee@noaa.gov

Project Description:

"Strand feeding" is a unique hunting behavior in which bottlenose dolphins (*Tursiops truncatus*) work together in small groups to herd fish towards the shore. They then use a powerful wave to push the fish onto the shore and then lunge onto the shore to grab the fish. Giving the dolphins their space while strand feeding is important to ensure they are not harassed and this specialized hunting strategy is not disrupted. Each year, NOAA Fisheries receives reports of people trying to illegally interact with (touch, chase, or swim with) or even hand feed the dolphins as they strand on the beaches of Kiawah Island, South Carolina; these interactions are violations of the Marine Mammal Protection Act (MMPA). The purpose of this project is to reduce disturbance to strand feeding dolphins and minimize violations of the MMPA, as well as better understand the local dolphin population and this feeding strategy. Components of this project include community outreach on/near the beaches where dolphins are known to strand feed, as well as distribution of outreach materials throughout the Kiawah Island Community. Also, data will be collected to help biologists better understand this unique strand feeding behavior (i.e., frequency, number of dolphins, photo documentation).

Kiawah Island is one of a few locations in the US that dolphins are known to strand feed. Disturbing the animals can disrupt their behaviors and could result in changes or abandonment of this foraging behavior. Strand feeding can be observed from shore, kayaks and boats, and has become somewhat of a spectacle to onlookers.

This project aims to increase awareness of the importance of maintaining a distance from strand feeding dolphins and how to responsibly view them without causing harassment during important foraging activities, thus, preserving this extremely unique viewing experience and allow for Kiawah Island to become leaders in this conservation effort. Identifying feeding hotspots will allow us to focus conservation efforts on those areas as well as understand the impacts on individual strand feeders if these habitats are lost or if the behavior is abandoned. Implementation of an educational program will involve monitoring on the beach during peak times for strand feeding to observe and record dolphin behavior and engage the public about maintaining a safe viewing distance. Educational materials will be available and provided to local residents and businesses both directly and at local events on Kiawah. The project team will establish relationships with the Town of Kiawah to better understand the value of this behavior to the community while working together towards the conservation of a rare and unique behavior.

This project has seen direct benefits from the on-site educators. We have seen fewer human interactions when educators are present and there has been a reduction in harassment reports filed. The dolphin data has also been very useful in understanding the dolphin's use of the inlet. Twelve individual dolphins have been positively identified as "strand feeders" frequently visiting the inlet

for food. Several of these animals have sighting histories over 20 years long. We have also observed a mother teaching her young to strand feed, resting animals and mating in the inlet leading us to believe the inlet is an important area for the dolphin's home range. We cannot stress enough the importance of the inlet to this portion of the Charleston dolphin population for several behaviors and hope Kiawah continues to support the efforts to protect this area from harassment.

Conservation Plan Goals:

This project will educate local residents and visitors about dolphin conservation, in hope to reduce disturbance to strand feeding dolphins. Educators will educate residents and visitors that Kiawah Island is very unique because it is one of the few places where dolphins are known to strand feed and the public can easily access the area where strand feeding occurs and view this behavior. Development of this land and increased boat traffic has the potential to increase threats and/or introduce new threats to these dolphins. The project will further educate the community about dolphin conservation by requesting local businesses (i.e. hotels, marinas, bait shops, boat retail facilities) to help distribute outreach materials. Dolphin conservation educational displays will be set-up at local events and presentations given to local community groups. Lastly, more interpretive signs about strand feeding will be installed.

Problem Statement and Objectives:

The unique strand feeding behavior of bottlenose dolphins on Kiawah Island is threatened by human disturbance.

Objective 1: Increase awareness of residents and visitors of Kiawah Island about conservation of the bottlenose dolphin population that resides in and around Capt. Sam's Inlet.

Objective 2: Educate both local residents and visitors about dolphin strand feeding behavior. Provide information about the unique behavior, laws protecting wild dolphins from illegal feeding and harassment, as well as ways to safely view the behavior and animals without disturbing them.

Objective 3: Gain information about habitat use and individual strand feeding dolphins to help understand the broader impact of habitat destruction and its effects on this population of dolphins.

Methods:

The project will include:

- Educators will be present on the beach, daily through the summer and during peak weekends during other parts of the year, at times in which biologists believe strand feeding is most likely to occur, two hours before to two hours after low tide. They will ask the public to follow the following viewing guidelines to reduce disturbance to strand feeding dolphins and more likely allow them to observe this unique behavior:
    - View dolphins from a distance and get a better view using binoculars.
    - Give dolphins plenty of space and keep dogs away from the shore where dolphins may be present.
    - Avoid loud or sudden movements.
    - Do not feed or attempt to feed wild dolphins! Feeding or attempting to feed dolphins in the wild is both harmful and illegal – this includes throwing fish on the shore back to dolphins while they are strand feeding.

- Collection of data that could be used by PIs, collaborators, resource managers and law enforcement to better understand types and frequency of MMPA violations.
- Collection of data that could be used by PIs, collaborators, and resource managers to better understand the resident population of dolphins, estimate the number of dolphins in the immediate area and/ or how many participate in strand feeding.
- Photos of dorsal fin taken and used to identify individuals and compared to a long-standing photo-id catalogue housed at NOAA/NOS.
- Distribution of outreach materials and installation of interpretive signs. Work with local businesses (i.e. hotels, marinas, bait shops, boat retail facilities) to help distribute materials.
- During the summer, dolphin conservation educational displays will be set-up at local events and presentations given to local community groups and water enthusiasts.

Expected Outcomes:

The expected results of this project include a reduction in disturbance to strand feeding dolphins, an increased number of residence and visitors to Kiawah Island educated about dolphin conservation, and a better understanding of dolphin strand feeding behavior, local bottlenose dolphin population, and MMPA violations. We aim to educate the community about the importance of reducing human interference, both from the beach and water, during this behavior for risk of the dolphins abandoning this behavior altogether. This project will also allow us to monitor the strand feeders to gain more insight into the behavior, and will help us understand if the behavior is increasing or decreasing among animals, identify individual strand feeders through photo-identification and determine if there is seasonality relevance to strand feeding. This information will allow us to continue to monitor the behavior and understand the risks of human interactions. With this information, we could publish our findings in a peer-reviewed publication, provide information content for Kiawah Island website, and facilitate training and materials for Kiawah Island Naturalists.

Anticipated benefits:

The main anticipated benefit is the safety of both humans and dolphins on Kiawah Island. By minimizing disturbances to the animals and their natural habitat, we want to reduce human interactions that can harm or alter the behavior of the strand feeders and preserve this unique foraging strategy. Strand feeders benefit from this behavior and if forced to abandon the behavior, could have detrimental impacts on individuals. Increased knowledge and monitoring of this behavior will allow us to increase our understanding of the use of Capt. Sam's Inlet as a preferred location for this behavior. This information would allow us to provide scientific data on how the development of Capt. Sam's Inlet could affect the dolphin's behavior. Lastly, this project allows us to continue to provide public outreach about how a community can both enjoy and preserve this fascinating behavior unique to Kiawah Island. We want to encourage Kiawah Island residents and business owners to spread this information throughout the community, thus strengthening the impact. During this project, the educators will provide verbal and informational brochures on the beach and at Island events, and give presentations to Kiawah Island community organizations and local school groups surrounding Kiawah Island.

Budget:

Activity	Time	Est. Cost
Beach observations	1 x week/ 52 weeks	$5,304.00
Additional weekly maintenance (volunteers and data)	2 hr/week/52 weeks	$1,040.00
Travel	52 site visits/60 mi RT/. 56c mi	$1,747.00
Program supplies		$700.00
	TOTAL	**$8,791.00**

Budget Justification:

Beach observations are the main focus of the study. During these observations, animal behavior data will be collected and the educator will have the opportunity to talk with the public and answer questions about strand feeding behavior and encourage safe viewing. Observations will last 4 hours a day and will be conducted once weekly (September-August). Interns and volunteers will conduct surveys on the other days so the week is covered during the peak season. The rate is $17/hour for the 4-hour observation plus two hours of drive time. Two hours of volunteer and data maintenance per week is $10/hour. Travel is the government mileage rate (.56c) and covers the 52 site visits throughout the year. Program supplies accounts for gear, datasheets, chairs, signs, and t-shirts for volunteers. Lastly, presentations will be given to community members and/or local schools. This number will likely fluctuate with interest. Presentations typically last about 1 hour with two hours' drive time. There will be no indirect costs for this project.

Collaborations:

The Lowcountry Marine Mammal Network will collaborate with NOAA/NOS as they have 30 years' experience working with our local dolphin population and a network of volunteers that can provide additional help if needed. Their input into project design and dolphin biology will help steer the educational program. NOAA/NOS also holds the Bottlenose Dolphin Charleston Estuarine System Stock photo-id catalogue, which include Kiawah sightings, and will be instrumental in matching individual dolphins from this study. Kiawah project will then continue throughout the year when NOAA Fisheries cannot typically provide interns and would otherwise have no data collected. Collecting data throughout the year is critical in understanding seasonal trends and the proposed project would allow us to collect that data.

Appendix A:

Qualifications:

Lauren Rust is the director and founder of the Lowcountry Marine Mammal Network, an organization dedicated to increasing the community's knowledge about our local marine mammals and ways to conserve their habitats. Lauren holds a BS in Marine Biology from The College of Charleston and MS in Ecology from the University of Wales in which she focused on dolphin daily behavioral budgets. She has 16 years' experience working with several marine mammal species in a variety of settings including nonprofit and government agencies such as NOAA, NIST and The Marine Mammal Center. She has lived in Charleston for over 12 years and is well connected in the environmental community.

Wayne McFee is the PI of the Coastal Marine Mammal Assessment division at the National Ocean Service in Charleston, SC. Mr. McFee has nearly 25 years of experience handling stranding events in South Carolina, and has authored or co-authored nearly 40 manuscripts in peer-reviewed journals related to dolphin life history (diet, pathology, reproduction, age, etc), contaminants, and human interaction. He is a member of numerous government sponsored working groups including the Crab Pot/Dolphin interaction working group, the Mid-Atlantic Unusual Mortality Event Population Dynamics Team, and the Southeast Regional Wildlife Impacts from Marine Debris working group. Mr. McFee received a MS degree in Biology from Northeastern University where he studied mass strandings of pilot whales on Cape Cod.