BACCALAUREATE PROPOSAL APPLICATION
Form No. BAAC-02

Section 1007.33(5)(d), Florida Statutes, and Rule 6A-14.095, F.A.C., outline the requirements for a Florida College System baccalaureate program proposal. The completed Proposal form shall by submitted by the college president to the Chancellor of the Florida College System at ChancellorFCS@fldoe.org. In addition, a printed version shall be mailed to the Division of Florida Colleges at 325 West Gaines Street, Suite 1544, Tallahassee, Florida 32399-0400.

The proposal requires completion of the following components:

- Program summary
- Program description
- Workforce demand and unmet need
- Planning process
- Enrollment projections and funding requirements
- Student costs: tuition and fees
- Program implementation timeline
- Facilities and equipment specific to program area
- Library and media specific to program area
- Academic content
- Program termination
- Appendix tables
- Supplemental materials

Florida College System Institution Name: Florida Keys Community College
Institution President: Dr. Jonathan Gueverra

PROGRAM SUMMARY				
1.1	Program Name:	Marine Resource Management		
1.2	Degree type:	**X** Bachelor of Science	☐ Bachelor of Applied Science	
1.3	How will the program be delivered (check all that apply):	☐ Face-to-face	**X** Hybrid	☐ Online only
1.4	List the counties in the college's service district:	Monroe County, FL		
1.5	Degree CIP code (6 digit):	30.3201		
1.6	Anticipated program implementation date:	Fall Semester (August) 2020		
1.7	What is the primary associate degree pathway for admission to the program?	• Associate in Science in Marine Environmental Technology (AS-MET), or • Associate in Arts (AA)		

1.8	Is the degree a STEM focus area?	**X** Yes	☐ No
1.9	List program concentration(s) (if applicable):		
1.10	Will the program be designated such that an eligible student will be able to complete the program for a total cost of no more than $10,000 in tuition and fees?	**X** Yes	☐ No

PROGRAM DESCRIPTION

2.1 Describe the program.

The College will capitalize on its role as a leader in marine science education at the associate degree level, to develop an exceptional Bachelor of Science in Marine Resource Management (BS-MRM) degree. The focus of the BS-MRM will: (1) have a STEM-oriented curriculum (i.e. marine science, ecotourism, seamanship, forensic marine science, scientific diving, marine policy and management, geographic information systems (GIS), etc.) and (2) be designed to provide a practical, science and policy based education for entry into a variety of careers within the field of marine resource management. Marine resource management (MRM) differs from conventional management and administration because management and policy decisions are almost entirely based on marine science, research, and environmental assessments rather than on institutional policies and procedures. Thus training marine resource managers requires a very unique curriculum built on a foundation of environmental marine science and inclusive of contemporary marine policy and management. There are currently no undergraduate programs in the country, including Florida Keys Community College's (FKCC) AS-MET program that focus on these specific MRM training needs. Therefore, FKCC, which is the only public post-secondary academic institution located in Monroe County, will fill this important training void.

Given the continually evolving demands within this field, a traditional undergraduate degree in marine biology or marine science does not provide the specialized knowledge and skill-set required by today's employers. The proposed BS-MRM is the only undergraduate program in the country focused directly on developing marketable marine resource managers at the baccalaureate level. Graduates will acquire specialized skills based on industry protocols for: (1) marine resource monitoring and assessment, including forensic marine science (i.e. investigation of marine environmental issues or crises), (2) marine resource conservation and restoration strategies, (3) marine environmental policy and management, and (4) marine resource sustainability and resilience. The 2+2 model will allow students who have earned an associate degree in a qualifying discipline to continue their education and career progression at the College. There are two pathways for students to complete the BS-MRM. Students that have completed any AS degree, including AS-MET, will complete the required general

education courses and the BS-MRM core requirements. Students that have completed an AA degree will complete the lower-level technical courses and the BS-MRM core requirements.

The curriculum will focus on marine ecology (wetlands, coastal, and offshore ecosystems), conservation, and restoration strategies including those for submerged cultural resources (e.g. basic nautical archeology), GIS, forensic marine science, and marine policy and management. The proposed BS–MRM program overview and potential course offerings include the following:

Bachelor of Science - Marine Resource Management

Overview

The Bachelor of Science in Marine Resource Management (BS-MRM) degree is designed for graduates who have completed an Associate in Arts, Associate in Science, or equivalent (i.e. earned credit in no less than sixty (60) semester hours from a regionally accredited institution). The BS-MRM program includes coursework and field experience in marine resource management settings to enable students to integrate theory with practice. Graduates will acquire specialized skills in restoration and conservation biology/ecology, extensive practical skills in both remote and *in situ* data collection techniques and technology, a basic-level competence in GIS software applications, and an understanding of best management practices and policies for both biological and submerged cultural resources. Students will have exposure to marine resource management fieldwork and will demonstrate their acquired skills during the required four-credit capstone internship experience. Completion of this degree will provide an applied science-based education with professional experience for entry into a variety of careers within the field of marine resource management such that our graduates will be technician level reflective practitioners.

BS Marine Resource Management Degree Requirements

Students must have earned an Associate in Arts (AA), Associate in Science (AS) degree or equivalent (i.e. earned credit in no less than sixty (60) semester hours) from a regionally accredited institution(s). To graduate, students must earn a minimum of 120 credit hours, including successful completion of thirty-six (36) general education credit hours, twenty-seven (27) credit hours of lower level specialized and technical courses, forty (40) credit hours of upper-level required core courses, and seventeen (17) credit hours of electives. Mandatory advising will be required for all registration in the BS-MRM program. The College will utilize the policies codified in FKCC Board Rule 7.710 to complete prior learning assessments.

General Education (36 credits required)

Area I: Letters Requirements (6 credit hours)
A grade of "C" or higher is required in order to satisfy Rule 6A-10.030 Florida Administrative Code (F.A.C.) requirements.

Core Communication Requirements (6 credit hours)
The following courses each require significant college level writing that conforms to the Rule 6A-10.030 F.A.C. requirements.
ENC 1101 – English Composition I (3)
ENC 1102 – English Composition II (3)
Any course with an ENC prefix for which an ENC 1101 course is a prerequisite (i.e. English Composition II)

Optional Communication (Optional Communication courses count towards General Education Electives)
SPC 1608 – Intro to Speech Communication (3)

Area II: Humanities Requirements (6 credit hours)
The following courses each require demonstration of college level writing skills through multiple assignments and apply to the Rule 6A-10.030 F.A.C. requirements.

Core Humanities Requirements (choose at least 3 credit hours)
HUM 1020 – Introduction to Humanities (3)
PHI 2010 – Introduction to Philosophy (3)
ARH 1000 – Art Appreciation (3)
MUL 1010 – Music Appreciation (3)

Optional Humanities
ARH 1050 – Art History Ancient to 1400 (3)
ARH 1051 – Art History 1400 to present (3)
CRW 1001 – Creative Writing (3)
CRW 1300 – Beginning Poetry Writing (3)
CRW 2100 – Beginning Fiction Writing (3)
ENG 1300 – Writing About Film (3)
HUM 2250 – Humanities of the 20th Century (3)
LIT 2020 – Introduction to Short Fiction (3)
LIT 2380 – Women in Literature (3)
PHI 2600 – Intro to Ethics (3)
REL 2240 – New Testament Survey (3)
REL 2300 – World Religions (3)

Area III: Mathematics Requirements (6 credit hours)
A grade of "C" or higher is required in order to satisfy Rule 6A-10.030 F.A.C. requirements.

Core Mathematics Requirements (choose at least 3 credit hours)
MAC 1105 – College Algebra (3)
MAC 2311 – Calculus I (4)
MGF 1106 – Math for Liberal Arts I (3)
STA 2023 – Introduction to Probability and Statistics I (3)
Any course for which a Core General Education Mathematics course is the immediate prerequisite.

Optional Mathematics
MAC 1147 – Pre Calculus/Trigonometry (4)
MAC 2233 – Calculus for Business Majors (3)
MAC 2312 – Calculus and Analytic Geometry 2 (4)

Area IV: Natural Science (6 credit hours)

Core Natural Science Requirements (choose at least 3 credit hours)
AST 1002 – Astronomy (3)
BSC 1005 – Survey of Biological Science (3)
BSC 1010 – Principles of Biology I (3)
BSC 1085 – Anatomy and Physiology I (3)
CHM 1045 – General Chemistry I (3)
PHY 1053C – General Physics I (4)
Any course for which a Core General Education Natural Science course is the immediate prerequisite.

Optional Natural Science
BSC 1011 – Principles of Biology II (3)
BSC 1086 – Anatomy and Physiology II (3)
CHM 1046 – General Chemistry II (3)
MET 1010 – Intro to Meteorology (3)
PCB 2030 – Environmental Biology (3)

Area V: Social/Behavioral Sciences (6 credit hours)

Core Social Science Requirements (choose at least 3 credit hours)
AMH 2020 – History of the United States, 1876 to 1945 (3)
ECO 2013 – Macroeconomics (3)
POS 1041 – National Government (3)
PSY 2012 – General Psychology (3)
SYG 1000 – Introduction to Sociology (3)

Optional Social Science
AMH 2010 – History of the United States to 1876 (3)
AMH 2030 – Contemporary US History (3)
DEP 2004 – Human Growth & Development (3)
ECO 2023 – Microeconomics (3)
POS 1001 – Introduction to Political Science (3)
WOH 1012 – World History I (3)
WOH 1022 – World History II (3)

Area VI: Additional General Education Credits Requirements (6 credit hours)
Six (6) Credits from any of the above General Education Core or Optional courses

Recommended Lower-Level Technical Courses (27 credits required):
BSC - 1011 Principles of Biology or BSC 1005 Survey of Biology (3)
BSC - 1010L Principles of Biology Lab (1)
MTE - 1XXXC Motorboat Operation Certification Course (MOCC) (2)
MTE - 1052 2&4 Cycle Outboard Theory or MTE 1053C 2&4 Cycle Outboard Repair and Maintenance (3)
MTE - 1811 Basic Seamanship (3)
ISC - 2132 Basic Research Diving (4)
OCB - 1000 Introduction to Marine Biology (3)
OCB - 2102C Marine Data Collection (4)
OCB - 2263C Coral Reef Biology and Management (4)

Upper-Level Common Core Courses (40 credits required):
OCB - 3XXXC Nearshore and Offshore Ecology and Assessment (3)
OCB - 3XXX Marine Conservation (3)
OCB - 3XXX Marine Resource Economics (3)
ISC - 3132C Advanced Research Diving (3)
GIS - 3XXXC Geographic Information Systems (GIS) (3)
FAS - 3XXX Aquaculture and Seafood Policy (3)
OCB - 4XXX Forensic Marine Science (3)
OCB - 4XXXL Forensic Marine Science Lab (1)
OCB - 4XXX Marine Policy and Management (4)
OCB - 4XXX Seminar: Issues in Marine Resource Management (1)
OCB - 4XXX Marine Socioeconomics (3)
OCB - 4631 Estuarine and Coastal Ecology (3)
ZOO - 4894C Fisheries Management (3)
OCB - 4XXX Capstone Experience: Marine Resource Management Internship (4)

Electives (17 credits required)

Total Credit Hours Required: 120

Foreign Language Requirement

Prior to completion of the BS-MRM, students must demonstrate foreign language competence by providing evidence that documents the successful completion of two (2) credits of sequential high school foreign language instruction, or by passing the second level of foreign language at the college level. Students may demonstrate equivalent foreign language competence via the alternative methods specified by the Florida Department of Education including established minimum College Level Examination Program (CLEP) scores, or other methods as determined by the College. The College reserves the right to validate the foreign language competence of any student prior to awarding the BS-MRM through methods including, but not limited to, review of official transcripts, portfolio and performance reviews, competency testing, standardized testing, or other methods determined by the College that are designed to assess the foreign language competencies outlined in Rule 6A-10.02412 of the F.A.C.

The estimated total cost for the BS-MRM (AS-MET 2+2 model) is approximately $18,034 (tuition = $13,878 + lab fees = $4,156). This includes the current cost for the 62 credit AS-MET program including lab fees (approx. $8,836 = $6,772 tuition and $2,064 in lab fees) and the estimated cost of for the BS-MRM courses including lab fees (approx. $9,198 = $7,106 tuition and $2,092 in lab fees) (Table 1).

Similarly, the estimated total cost for the BS-MRM (AA 2+2 model) is approximately $17,416 (tuition = $13,878 + lab fees = $3,538). This includes the current cost for the 60 credit AA program (approx. $6,553 = $6,553 lower level tuition) and the estimated cost of for the BS-MRM courses including lab fees (approx. $10,862 = $7,325 tuition and $3,538 in lab fees) (Table 1).

There is an option for eligible students to complete this degree for a total cost of no more than $10,000 in tuition and fees, described at the end of this section.

Table 1. Cost calculation for the proposed Bachelor of Science in Marine Resource Management (BS-MRM) at Florida Keys Community College. The final estimated cost of the BS-MRM is a combination of the cost associated with the 2 + 2 model.

			AS Marine Environmental Technology	AA (General)
Bachelor of Science in Marine Resource Management	Associate's Coursework	Tuition (In-state)	$ 6,772	$ 6,553
		Lab Fees	$ 2,064	$ -
	Bachelor's Coursework	Tuition (In-state)	$ 7,106	$ 7,325
		Lab Fees	$ 2,092	$ 3,538
	Total Cost		$ 18,034	$ 17,416

An academic advisor will conduct a review of courses for students entering the BS Marine Resource Management program, to determine the best academic path for completion.

One option available to secondary students to lower the cost of college in the State of Florida is participation in dual enrollment (DE) programs. The DE program allows enrollment of an eligible secondary student in a college level course while satisfying the requirements for a high school diploma (Florida Statute 1007.271). Locally, the College has worked with the Monroe County School District and has developed an articulation agreement and a formal academic pathway encouraging high school dual enrollment. This option is also available to students throughout the State of Florida. Many of the courses required for the proposed BS-MRM are currently available to Monroe County high school students as DE courses (e.g. general education courses like OCB 1000 Introduction to Marine Biology, OCE 1001 Introduction to Oceanography, etc.), and those that participate in the program are not required to pay tuition or lab fees. Since the fall of 2016, students have earned 5,258 credits through DE courses at FKCC. The College has served 757 DE students during this period. Therefore, DE has the potential to substantially reduce the cost of the BS-MRM degree and incentivizes secondary students to pursue post-secondary education at the College by: (1) reducing the overall cost of college, and (2) accelerating the time to earn a certificate or degree.

Moreover, the College has an option for students to complete the baccalaureate degree for $10,000 or less including lab fees and tuition, in accordance with F.S. 1009.26. Eligible students can achieve a Bachelor of Science for no more than $10,000 by meeting the following eligibility requirements:

1. Must have a 3.0 cumulative high school GPA.
2. Earned a minimum of twelve college credit hours from DE, Advanced Placement (AP), or International Baccalaureate (IB).
3. Must be a Florida resident in accordance with F.S. 1009.21.
4. Must maintain a 3.0 cumulative GPA throughout enrollment in both the associate and baccalaureate programs.
5. If student does not qualify as exempt under F.S. 1008.30, student must be college ready as demonstrated by acceptable standardized tests as described in Rule 6A-10.0315 F.A.C.).
6. Must be a native FKCC student.
7. Must indicate interest in the AA or AS-MET to BS-MRM program prior to enrolling at the College.
8. Must maintain full-time enrollment and complete a minimum of 30 credit hours per year. Full-time enrollment is tracked through FKCC's Enterprise Resource Planning (ERP) software, Banner.
9. Must maintain good standing in accordance with FKCC academic policies.

Students that meet all of the criteria will be placed on a contract with the Business Office exempting the student from tuition and fees, which exceed the $10,000 cap. Students may apply for the exemption, and enter a contract, once they meet the eligibility requirements listed above and have declared interest in the BS-MRM as their intended program of study.

WORKFORCE DEMAND AND UNMET NEED

3.1 Describe the career path and potential employment opportunities for graduates of the program.

While the minimum educational requirement for marine resource managers and related fields is a Bachelor's degree, there is currently no clear undergraduate academic path to a career as a marine resource manager. Students are forced to choose from academic programs in related fields like marine biology, or natural resource management, none of which provides the ideal applied skill set for this career path. Furthermore, these options are expensive and do not provide the requisite knowledge and skills for the field.

Students graduating from the BS-MRM program will be prepared to effectively lead and manage: (1) marine environmental assessment projects, including forensic marine science, (2) marine resource conservation, and/or (3) marine restoration operations in a variety of marine environments (i.e. coastal, nearshore, and offshore). In addition to these environmental management careers, the program offers elective credits that will allow interested graduates to effectively lead and manage projects focused on abiotic submerged cultural resources (e.g. archaeological projects, artificial reefs, etc.). Bureau of Labor and Statistics for the State of Florida indicate that marine resource managers, or managers in a related field can expect to earn on average between $24.40/hr - $40.40/hr (an estimated annual salary of $57,752 - $84,032) (Table 2).

Table 2. Estimated hourly earnings for targeted occupations for marine resource managers (U.S. Bureau of Labor and Statistics- EMSI Q3 2018 Data Set September 2018; www.economicmodeling.com).

Occupation	SOC	25th Percentile Earnings	Median Earnings	75th Percentile E
Natural Sciences Managers	11-9121	$33.58	$45.62	$61.07
Zoologists and Wildlife Biologists	19-1023	$17.19	$22.14	$28.77
Biological Scientists, All Others	19-1029	$21.42	$31.11	$40.30
Environmental Scientists and Specialists, Including Health	19-2041	$19.37	$24.90	$32.61
Physical Scientists, All Other	19-2099	$30.42	$36.57	$39.25
Average Percentile Earnings		**$24.40**	**$32.07**	**$40.40**

3.2 Describe the workforce demand, supply and unmet need for graduates of the program that incorporates, at a minimum, the shaded information from appendix tables A.1.1 to A.1.3.

Utilizing the College Projections Portal, it was determined that in 2018 there were 1,246 job postings in Monroe and Miami-Dade Counties for fields related to marine resource management. The job opportunities are expected to grow in the region by approximately 8.4% over the next eight years resulting in 981 new jobs or about 123 new jobs per year (Table 3).

Table 3. Targeted Occupations for Marine Resource Managers (see Table A.1.1).

MIAMI-DADE AND FLORIDA KEYS COLLEGES AREA - MIAMI-DADE AND MONROE COUNTIES

SOC Code	SOC Title	Employment				Total Job Openings	2017 Hourly Wage*		Florida Education Level
		2018	2026	Growth	Percent Growth		Entry	Median	
11-9121	Natural Sciences Managers	165	182	17	10.3	126	27.81	48.18	Bachelor's
19-1023	Zoologists and Wildlife Biologists	135	140	5	3.7	98	17.48	28.91	Bachelor's
19-1029	Biological Scientists, All Other	439	453	14	3.2	317	25.54	39.95	Bachelor's
19-2041	Environmental Scientists and Specialists, Including Health	426	478	52	12.2	378	17.76	31.40	Bachelor's
19-2099	Physical Scientists, All Other	81	91	10	12.4	62	18.62	32.40	Bachelor's
	Totals =	1,246	1,344		Avg. = 8.4	Total = 981		Avg. = 36.17	

* Hourly wages for teaching occupations were calculated using a 40-hour work week for 9½ months per year.

Source:Florida Department of Economic Opportunity, Bureau of Labor Market Statistics - May 2019

Although there is a substantial need for skilled marine resource managers, there are currently no undergraduate programs dedicated to training marine resource managers within Monroe or Miami-Dade Counties, the State of Florida, or the United States. Furthermore, there are no institutions in the State University System (SUS) that offer baccalaureate degree programs utilizing CIP 30.3201 (Marine Science) (https://www.flbog.edu/resources/iud/enrollment_results.php). Graduates from academic programs in related fields (e.g. marine biology, oceanography, natural sciences, etc.), locally, regionally, and nationally, have supplied the current workforce demand for marine resource managers.

Several universities in Florida offer related programs. For example, Florida Gulf Coast University (FGCU) offers a Bachelor of Science in Marine Science (CIP 03.0205: Water, Wetlands, and Marine Resource Management), but this program focuses mostly on hard sciences (i.e. biology, chemistry, geology, ecology, oceanography, etc.) and very little on marine resource management. The University of West Florida (UWF) also has a related program offering a Bachelor of Science in Maine Biology (CIP 26.1302: Marine Biology and Biological Oceanography). However, this program requires no course work in policy or management of marine resources, but rather focuses on traditional marine biology curriculum centered on biology, physiology, ecology, and behavior. One of the closest neighboring universities, Florida International University (FIU), also has an undergraduate marine biology program within the Department of Biology and a graduate level marine science program. FIU has provided a letter of support for the FKCC BS-MRM (Appendix A. Combined Letters of Support).

Therefore, because there is no program targeted specifically to the needs for marine resource managers, these related fields and associated academic programs are less appropriate than the proposed BS-MRM. These related programs are mostly conceptual and theoretical with very little hands-on or professional development training, especially with regard to policy and management of marine resources. As evidence to support this statement, several job vacancy announcements, with descriptions of primary responsibilities and basic requirements, are attached for review (Appendix B. Resource Manager Job Vacancy Announcements). Requirements for employment

included a Bachelor's degree with experience in environmental science, sustainability, ecology, water resources, conservation, biology, and environmental performance, measurement or reporting.

Hence, the College intends to fill the gaps and to supply the growing workforce demand for marine resource managers by developing a baccalaureate level program that specifically targets the marine resource management workforce needs. The BS-MRM will incorporate hands-on, field-oriented training, including the following industry certifications: (1) American Academy of Underwater Sciences Scientific Diver, (2) University of Florida/Institute of Food and Agricultural Sciences Master Naturalist, (3) Yamaha Introduction to Outboard Engines, (4) Divers Alert Network Diving Emergency Management Provider, and (5) Emergency First Response Primary and Secondary Care. A professional development capstone internship, with the requisite conceptual and theoretical knowledge to create a very competitive educational opportunity tailored for future marine resource managers, is a requirement for students in the program. As reflective practitioners, the recipients of the BS-MRM will be well positioned for entry-level jobs in the field and their ability to integrate fieldwork with theory and practice will be critical to the success of our regional efforts to conserve and to sustain our fragile marine ecosystems.

3.3 Describe any other evidence of workforce demand and unmet need for graduates as selected by the institution, which may include qualitative or quantitative data information, such as local economic development initiatives, emerging industries in the area or evidence of rapid growth, not reflected in the data presented in appendix tables A.1.1 to A.1.3. For proposed programs without a listed SOC linkage, provide a rationale for the identified SOC code(s).

Effective 2016, voters in the State of Florida passed Amendment 1 for Water and Land Conservation, which pledges 33% of the incentive tax revenue collected over the next 20 years for the acquisition and conservation of land and water resources (http://www.flsenate.gov/Laws/Constitution#A10S28).

In addition to Amendment 1, the Florida Keys Stewardship Act (House Bill 0447 introduced by Florida Representative, Holly Raschein) was signed into law by Governor Rick Scott on April 14, 2016. This new law is intended to invest $25 million per year for 10 years towards the Florida Keys' most significant environmental needs including water projects and land acquisition (https://www.flsenate.gov/Session/Bill/2016/0447).

During the first quarter of his term in 2019, Florida Governor Ron DeSantis defined himself as a steward for the environment and outlined an aggressive environmental conservation agenda. He appointed a chief science officer, Thomas Frazier (former Director of University of Florida's School of Natural Resources and Environment), to lead the newly created Office of Resilience. Therefore, it is anticipated that there will be an

increased need for marine resource managers to help meet the workforce needs for the Governor's new agenda.

These recent legislative activities provide evidence that marine resource management in Florida, and especially the Florida Keys is of critical importance and that workforce opportunities for marine resource managers has tremendous growth potential in the near future. As the only public institution of higher education in Monroe County - a county whose lands have been designated an area of critical state concern, surrounded by the Florida Keys National Marine Sanctuary, and immediately proximal to the Everglades National Park - the College is ideally situated to meet the current and future needs for educating and training marine resource managers. Therefore, the development of a Bachelor of Science in Marine Resource Management is timely, has value, and will be beneficial for students, employers, the marine environment, and the economy.

Additionally, two Florida universities, Florida Atlantic University (FAU) and Florida Institute of Technology (FIT), offer master's degree programs in marine science. FAU offers one master's degree in Marine Science and Oceanography. FIT offers two Master's degree programs, one in Coastal Zone Management and the other in Environmental Resource Management. These programs provide a clear pathway for articulation for graduates of the BS-MRM program. Both FAU and FIT have provided letters of support indicating guaranteed acceptance of successful FKCC BS-MRM graduates (Appendix A. Combined Letters of Support).

3.4 If the education level for the occupation identified by the Florida Department of Economic Opportunity presented in appendix table A.1.1 is below a bachelor's degree, provide justification for the inclusion of that occupation in the analysis.

All occupations identified by the Florida Department of Economic Opportunity (FDEO) as related to marine resource management require a Bachelor's degree (Table 3).

PLANNING PROCESS

4.1 Summarize the internal planning process.

In August 2008, to capitalize on the unique position of the College at the epicenter of marine science, research, and conservation, the College started planning and preparing for bachelor's degrees in several marine-related fields. In 2009, the College's Marine Environmental Technology Advisory Committee participated in the initial plans and helped to steer the development and evolution into the current proposed Bachelor's degree. However, changes in executive leadership over the following several years postponed the effort until 2015 when the new President of FKCC resurrected the BS-MRM project as well as two other baccalaureate degrees.

The College first focused its efforts to attain approval on the implementation of a BAS-Supervision and Management (BAS-SM), a Bachelor of Science in Nursing (BSN), and lastly the BS-MRM. The BAS-SM was launched in 2017, and the BSN will launch in fall 2019. In early 2017, an advisory committee was established to steer the continued process for development of a new BS-MRM program (Table 4).

Table 4. The Florida Keys Community College Bachelor of Science – Marine Resource Management Advisory Committee.

Program			Member Name	Organization Affiliation	Position
Marine Resource Management			Dr. Billy Causey (Billy.Causey@noaa.gov)	NOAA Office of National Marine Sanctuaries East Quay Road Key West, Florida 33040	Regional Director Southeast Atlantic, Gulf of Mexico and Caribbean Region
Frequency of Meetings (please check one)			Michael W. Feeley, Ph.D. (Michael_Feeley@nps.gov)	National Park Service South Florida/Caribbean Network 18001 Old Cutler Rd. #419 Palmetto Bay, FL 33157	Marine Ecologist
Monthly	Quarterly	Semi-Annually	Dr. Nicole Haynes McCoy (Nicole.mccoy@fkcc.edu)	Florida Keys Community College 5901 College Road Key West, FL 33040	Natural Resource Policy and Economics Adjunct Instructor of Economics
		X	Michael Buchman (Mike.Buchman@noaa.gov)	Florida Keys National Marine Sanctuary Key West Office Nancy Foster Florida Keys Environmental Complex 33 East Quay Rd. Key West, FL 33040 Phone: 305-809-4700	Chief of Staff
			Dr. Andrew Bruckner (Andy.Bruckner@noaa.gov)	Florida Keys National Marine Sanctuary Key West Office Nancy Foster Florida Keys Environmental Complex 33 East Quay Rd. Key West, FL 33040 Phone: 305-809-4700	Research Coordinator
			Dr. Refik Orhun (Refik.Orhun@noaa.gov)	NOAA Fisheries Service Southeast Fisheries Science Center 75 Virginia Beach Drive Virginia Key, FL 33149	Research Fishery Biologist
			John Hunt (John.Hunt@MyFWC.com)	Florida Fish and Wildlife Conservation Commission Fish and Wildlife Research Institute 2796 Overseas Highway, Suite 119 Marathon, FL 33050	Program Administrator
			Gustavo Rios (Gus.Rios@dep.state.fl.us)	Department of Environmental Protection 2796 Overseas Highway Marathon, FL 33050	Program Administrator
			Shelly Kruger (ShellyKrueger@ufl.edu)	Florida Sea Grant University of Florida IFAS Extension, Monroe County 1100 Simonton Street, Suite 2-260, West, FL 33040	Extension Agent

Given the recent state governmental environmental initiatives, the College's immersion in marine science education and industry, partnerships with regional institutions of higher education (e.g. Florida International University, University of Miami, and Nova Southeastern University), and the absence of any other public institutions of higher education in the Florida Keys or the College's service area, the College recognizes and acknowledges that the time is appropriate to launch this workforce program. Therefore, upon the necessary internal (i.e. District Board of Trustees) and external (State Board of Education) approvals, the College intends to launch the proposed BS-MRM in fall 2020. Funds to implement and support the program will be included in the College's annual budget.

4.2 Summarize the external planning process.

Although there are no other public college/university campuses within the service area of Florida Keys Community College (i.e. Monroe County, FL) the College has contacted several institutions of higher education (See Section 4.3 below), some of which are partners with the College and serve its graduates (e.g. Florida International University, University of Miami, and Nova Southeastern University).
The College has received many letters of support (Appendix A. Combined Letters of Support) from the primary employers in the region, several of which have representatives on the BS-MRM Advisory Committee. Some of these agencies include the following:

Federal Agencies
- NOAA Florida Keys National Marine Sanctuary
- NOAA National Marine Fisheries Service
- United States Geological Survey

State Agencies
- Florida Fish and Wildlife Conservation Commission
- Florida Department of Environmental Protection

County
- Monroe County Government

Municipalities
- City of Key West
- City of Marathon
- Village of Islamorada
- City of Layton
- Key Colony Beach

Non-Governmental Organizations
- Mote Marine Laboratory
- National Association of Environmental Professionals
- Florida National Association of Environmental Professionals
- The Nature Conservancy
- Reef Environmental Education Foundation
- Coral Restoration Foundation

Private Businesses
- Amec, Foster, Wheeler Environment and Infrastructure
- Sandy Walters Consulting Inc.

4.3 **List engagement activities; this list shall include APPRiSe, meetings, and other forms of communication among institutional leadership regarding evidence of need, demand, and economic impact.**

	Date(s)	Institution	Description of activity
APPRiSe	10/3/18		Entered program in APPRiSe (CIP 30.3021)

Public universities in college's service district	3/5/15 3/16/16 2/23/17 5/24/2017	Florida International University (FIU)	Vice President Snyder discussed the BS-MRM program with Vice President, Elizabeth Bejar, via telephone and email. FKCC received a letter of support from FIU (Appendix A. Combined Letters of Support).
	3/19/19	Florida Institute of Technology (FIT)	VP Snyder received a letter of support for the creation of an articulation agreement providing a pathway for MRM graduates to enter two of FIT's master's degree programs from Ocean Engineering and Marine Sciences Program Chair, Dr. Steven Lazarus (Appendix A. Combined Letters of Support).
	5/21/13	Miami Dade College (MDC)	President Gueverra met with President Padron and discussed the BS-MRM.
	2/28/17		Vice President Snyder discussed the BS-MRM with Executive Vice President Rodicio via email.
	9/13/18		Vice President Snyder discussed the BS-MRM with the Vice Provost for Academic Affairs Julie Alexander via telephone.
	9/26/18		President Gueverra received a Letter of Support (LOS) for the MRM program from Miami-Dade College

			(Appendix A. Combined Letters of Support).
Regionally accredited institutions in the college's service district*	8/17/2017	Nova Southeastern University (NSU)	The FKCC Chief Science & Research Officer (CSRO) discussed BS-MRM with Dean and Executive Director, National Coral Reef Institute, Dr. Richard Dodge, via telephone and email (Appendix A. Combined Letters of Support).
	8/18/2017	University of Miami (UM)-RSMAS	CSRO communicated with the office of UM- RSMAS Dean, Dr. Roni Avissar via telephone and email about the BS-MRM and requested a LOS. Dean Avissar's Office scheduled a conference call for Sept. 11, 2017 at 2 PM to discuss the LOS and potential articulation of the FKCC BS-MRM with UM Master of Science in Marine Professional Studies. The meeting was interrupted by Hurricane Irma.
	9/5/2018		The CSRO received an email from the Office of Dean Avissar indicating no objections to the proposed BS-MRM**.**
	9/28/2018	Florida Atlantic University (FAU)	The CSRO received a LOS from FAU Harbor Branch Oceanographic Institute (Appendix A. Combined Letters of Support).
	12/14/2016	Barry University	FKCC's Office of the President made multiple

			attempts to set up meetings with the President to discuss the BS-MRM program.
	9/11/2018		The CSRO requested an LOS via email from the Dean of Arts and Science at Barry University, Dr. Karen Callaghan but received no reply.
	12/14/2016	Saint Leo University**	FKCC's Office of the President made multiple attempts to set up meetings with the St. Leo President to discuss the BS-MRM.
	9/11/2018		The CSRO received an email from Director of the Key West, FL Center, Alania Plowdrey, stating support for the MRM program stating the intention to send any prospective marine science students to FKCC for the MRM (Appendix A. Combined Letters of Support).
	10/18/2018	Florida Gulf Coast University (FGCU)	The CSRO emailed FGCU Marine Science Faculty/Program Coordinator, Dr. Felix Jose.
	10/19/2018		The College received a reply from Dr. Jose, stating the proposed BS-MRM "would be interesting". He agreed to forward the information to the Marine Science Department Chair, Dr. Greg Tolley.

	10/19/2018		The CSRO emailed the FGCU Office of the Dean of the College of Arts & Science, Dr. Aswani Voltey. To date, no reply.
	10/19/2018	University of West Florida (UWF)	The CSRO emailed the Associate Dean of the Hal Marcus College of Science & Engineering, Dr. Matthew Schwartz. To date, no reply.

*The College took it upon itself to include other regionally accredited institutions adjacent to its service district, in order to apprise neighboring institutions of the College's intent to offer the BS-MRM.

**St. Leo University is the only regionally accredited institution in the College's service district.

ENROLLMENT PROJECTIONS AND FUNDING REQUIREMENTS

5.1 Provide a brief explanation of the sources and amounts of revenue that will be used to start the program.

Florida Keys Community College plans to admit 30 students in the first academic term. Students will be able to attend full-time or part-time. To develop a budget, FKCC surveyed (See Appendix C. MRM Student Survey) all students in the Division of Marine Science and Technology to obtain information on the number of students that indicated interest in enrolling in the BS-MRM program and potential enrollment status (i.e. full-time or part-time). The College estimates 70% of BS-MRM students will be full-time taking a minimum of 30 credits per year, and 30% of students will enroll part-time taking 12 credit hours or less per year. Revenue will be generated from student tuition and fees.

The Florida Keys Educational Foundation (FKEF) has been active in fundraising for program support and scholarships for the College. For example, in 2019, the FKEF raised $52,000 for student scholarships during the annual Seaside Soiree. In addition, the FKEF applied for a community grant and was awarded $97,500. This funding will provide scholarships for students as well as programmatic support. During the 2018 fiscal year, the FKEF awarded approximately $150,000 in scholarships and has budgeted to award $200,000 during the 2019 fiscal year. More specifically, the FKEF has supported students in the AS-MET program by providing funding for students to attend and present at national conferences (e.g. Marine Aquarium Conference of North America (MACNA), World Aquaculture Society (WAS), and Reefapalooza). Community members have been very responsive and supportive of the proposed baccalaureate program.

In addition, over the past several years, the College and more specifically the Division of Marine Science and Technology, has positioned itself to generate income for programmatic support through a variety of revenue generating activities including research and program income (i.e. products created during educational activities like high value marine ornamental fish production from the Marine Aquaculture Program and charter of College's marine vessels, etc.). Although to date the College is only beginning to realize these revenue generating resources (currently estimated at about $5,000 from research and vessel charters), the revenue is anticipated to increase exponentially as markets for FKCC products mature.

5.2 Provide a narrative justifying the estimated and projected program enrollments, outcomes, revenues and expenditures as they appear in Appendix Table A.2.

The College will incur operational expenses for the program's upper-level courses beginning in fall 2020. Operational costs will include faculty salaries and benefits, and instructional materials, supplies, and equipment. Operational costs for the upper-level courses are estimated to total $116,533 in 2020-2021 and will increase, as enrollments in the program increase. Estimated costs for 2021-2022, 2022-2023, and 2023-2024 are $201,772, $282,670, and $284,545, respectively.

In 2020-2021, the total cost per FTE for upper-level instruction is estimated at $4,737, assuming an upper-level enrollment of 30 students producing 24.6 FTE. This estimation is based on the results in the BS-MRM Survey (Appendix C. MRM Student Survey) which concluded that 70% of interested students would be enrolled as full-time students. As enrollment increases, the cost per FTE will increase to $4,996 in 2022-2023 when upper-level enrollment reaches an anticipated 69 students resulting in 56.6 FTE. The increase in enrollment in 2022-23 will require the addition of a full time faculty member therefore increasing the cost per FTE. In 2023-2024, the total cost per FTE for upper-level instruction is estimated at $5,029 assuming an upper-level enrollment of 69 students producing 56.6 FTE.

Salaries and Benefits

A full-time faculty member will be hired starting in 2020-2021 to teach the upper-level course offerings. The Marine Environmental Technology Department Chair has been overseeing the development and implementation of the program. Salary and benefits for the full-time faculty member total $82,530. In addition, lab assistants are necessary to assist with non-dive related lab activities. Lab assistants will be required to provide proper supervision during underwater activities and enhance the quality of instruction. For underwater activities, the ratio will not exceed eight students per staff member, in order to adhere to industry standards. For 2020-2021, an estimated $4,570 will be necessary to provide faculty support. Due to the expected increase in course offerings, by 2021-2022 the salary and benefits required

to provide faculty support will increase to $6,594. In addition, a full-time lab technician will be necessary to support the BS-MRM program at an estimated salary of $49,563 including benefits (faculty support = $6,594+$49,563 = $56,157). By 2021-2022, part-time faculty will be utilized to teach 12 upper-level credit hours per year, in order to meet student demand. Total salaries and benefits for the part-time faculty in 2021-2022 are estimated to be $7,828. In 2022-23, due to the increase in FTE and enrollment, the College will hire an additional full time faculty member therefore eliminating the need for part time faculty. The anticipated full time faculty salaries including benefits in 2022-23 is $161,439. By 2023-24, the College will have two full time faculty members, a full time lab technician, and part time lab assistants to support the program. A projected 2% annual increase in salary and benefits was applied.

Materials, Supplies and Equipment

The College has existing office furniture that it can utilize to support the implementation of this program. A new computer and iPad will be purchased for the new full-time faculty member in 2020-21 and again in 2022-23. In addition, each year, the projected budget includes $200 for office materials; such as notepads, pens, binders, and file folders. The remaining operating expenses will be supported by lab fees. Materials, supplies, and equipment will be purchased for courses that have a lab component. Another $60 is budgeted each year so that the program can notice upcoming advisory committee meetings in the newspaper.

The College has a dive facility equipped with 52 sets of dive gear and a fill station that is used for the AS-MET program. In addition, the College owns a 45-foot Corinthian catamaran that is used for educational purposes. Students in the BS-MRM program will utilize this existing equipment, however, equipment will have to be replaced more frequently due to the increase of use. In addition, students in the BS-MRM will learn how to utilize a variety of specialty research and data collection equipment (e.g. autonomous underwater and remotely operated vehicles, transect lines, seine nets, quadrats, etc.). The College has a Marine Aquaculture Research and Education Center (MAREC) to support its Tropical Ornamental Mariculture Technician program. This facility requires support from lab assistants and technicians and routine upkeep of equipment and husbandry of marine life. Lab fees will support use of the Corinthian, MAREC, purchasing and maintenance of scuba equipment, data collection tools, and specialty research equipment.

STUDENT COSTS: TUITION AND FEES

6.1 Anticipated cost for a baccalaureate degree (tuition and fees for lower and upper division credit hours) at the proposing FCS institution (tuition and fees x credit hours).

	Cost per credit hour			Number of credit hours		Total cost
Tuition & Fees for lower division:	$109.22	**X**	Credit hours	80	**=**	$8,738
Tuition & Fees for upper division:	$128.50	**X**	Credit hours	40	**=**	$5,140
Tuition & Fees (Total):	$	**X**	Credit hours	--	**=**	$13,878

6.2 Estimated cost for a baccalaureate degree (tuition and fees) at each state university in the college's service district.

Institution Name: N/A

Tuition & Fees:	$	**X**	Credit hours	--	**=**	$-,---

Institution Name:

Tuition & Fees:	$	**X**	Credit hours	--	**=**	$-,---

6.3 Estimated cost for a baccalaureate degree (tuition and fees) at each nonpublic institution in the college's service district (if available)*

Institution Name: St. Leo University (on base of Naval Air Station Key West)

Tuition & Fees:	$580	**X**	Credit hours	120	**=**	$69,600

Institution Name:

Tuition & Fees:	$	**X**	Credit hours	--	**=**	$-,---

Institution Name:

Tuition & Fees:	$	**X**	Credit hours	--	**=**	$-,---

Institution Name:

Tuition & Fees:	$	**X**	Credit hours	--	**=**	$-,---

Note. *If the institution does not provide the tuition cost per credit hour, please provide the cost information provided on the institution's website.

PROGRAM IMPLEMENTATION TIMELINE

7.1	APPRiSe notice:	10/03/2018
7.2	Board of Trustees approval (Appendix G. Board of Trustee Meeting Minutes):	10/26/2015
7.3	Notice of Intent:	12/12/2018

7.4	Completed proposal submission:	4/22/2019
7.5	Targeted State Board of Education consideration:	05/22/2019
7.6	Targeted SACSCOC approval (if applicable):	07/01/2020
7.7	Targeted initial teacher preparation program approval(if applicable):	N/A
7.8	Targeted date upper division courses are to begin:	Fall Semester 2020

FACILIITES AND EQUIPMENT SPECIFIC TO PROGRAM AREA

8.1 Describe the existing facilities and equipment that will be utilized for the program.

See Appendix D. MRM STEM Facilities, Equipment, and other Resources.

8.2 Describe the new facilities and equipment that will be needed for the program (if applicable).

No new facilities will be needed for the BS-MRM program. No additional educational equipment will be needed for the BS-MRM program, as the equipment utilized in the AS-MET degree program will support the BS-MRM program. Additional office equipment; such as computers will be needed for additional faculty required to teach the BS-MRM program.

LIBRARY AND MEDIA SPECIFIC TO PROGRAM AREA

9.1 Describe the existing library and media resources that will be utilized for the program.

Florida Keys Community College continues to rely heavily upon its relationships and collaborations with other educational institutions to support its programs, particularly the proposed bachelor degree program. The College is part of the Florida Virtual Campus (FLVC), which is a collaboration of the College Center for Library Automation, Florida Center for Library Automation, the Florida Distance Learning Consortium, and the Florida Center for Advising and Academic Support. This collaboration allows FKCC group licensing of databases, interlibrary loan, and technical support for the statewide library management system. FKCC also maintains a subscription to Online Computer Library Center (OCLC) which provides international interlibrary loan access. Through this partnership, FKCC students have access to a content-rich web portal, Library Information Network of Community Colleges Web (LINCCWeb), to locate information and perform research. LINCCWeb features a statewide collection of eResources (eBooks, full-text journals, articles, and databases), and a shared catalog of library materials that enable students to search for materials in any Florida College System library.

The College's Learning Resource Center (LRC) supports the needs of all students, faculty, and staff. The LRC staff works individually and with faculty and staff to provide services which include bibliographic instruction, orientations and workshops, traditional electronic library services, reference assistance, collection development and access to internet-enabled computers. The LRC staff work with program staff and faculty to ensure that sufficient and current resources not currently owned will be available to support the curriculum.

The LRC currently has a collection of over 35,000 print volumes and 120 online databases available to students, faculty, and staff. The online resources provide access to nearly 40,000 eBooks, 45,000 journals, and 2,000 newspapers. Access to journals specifically relating to the BS-MRM include *Fish and Fisheries, Arctic Review on Law and Politics, Conservation Letters, Doklady Earth Sciences, Reviews in Fish Biology and Fisheries, Coastal Management, and PLoS ONE.* The LRC provides access to over 100 databases for student research. Access is available twenty-four hours a day and seven days a week through the LRC website.
The LRC has four-full time staff positions, two of which are MLIS certified librarians. The library facility is open 64.5 hours each week and provides 38 computer workstations, two study rooms, and one open classroom. LRC staff members develop program-specific websites. The current LRC staff members are adequate to support both collection development and student needs, including information literacy instruction for the specific classes.

9.2 Describe the new library and media resources that will be needed for the program (if applicable).

To ensure additional support of the program, LRC staff reviewed core collections in marine resource management at other Florida academic libraries. Database resources specific to the proposed program include ten databases including *SAGE* journals, five journals such as *Marine Resource Economics* and the *Journal of Coastal Research*, and almost 90 films from Films on Demand database. An initial collection review indicated over ten circulating books specific to the BS-MRM, such as *Striking a Balance: Improving Stewardship of Marine Areas*, *Marine and Coastal Protected Areas: A Guide for Planners and Managers, Urban Growth and Sustainable Habitats: Case Studies of policy conflicts in South Florida's Coastal Environment*.

ACADEMIC CONTENT

10.1 List the admission requirements for the program.

Admission to the BS-MRM program requires an AA degree, AS degree or the equivalent (i.e. earned credit in no less than sixty (60) semester hours) from a regionally accredited institution, and at least a 2.0 grade point average on a 4.0-point scale. If the student's associate's degree is from a non-regionally accredited institution, but one that is accredited by a body that is recognized by the US Department of Education, a course-by-course evaluation will be done according to Florida Keys Community College's transfer practices and policies. Applicants who have earned 60 credit hours or more from a regionally accredited institution, but do not have a conferred associate degree, may appeal for an exception to the program admission policy. Appeals will be reviewed on a case-by-case basis.

10.2 What is the estimated percentage of upper division courses in the program that will be taught by faculty with a terminal degree?

Florida Keys Community College will initially use both current faculty and one new full-time faculty member. In 2022-23, an additional full-time faculty member will be hired. The new faculty members will be required to have earned a terminal degree in Marine Resource Management, Biology, Marine Biology, Environmental Science, or related field. Using the current faculty members and two new faculty members, both degree tracks will have 100 % of their upper level courses taught by a faculty member with a terminal degree (e.g. PhD, EdD). Each course in the BS-MRM will have an appropriately qualified instructor that satisfies the required qualifications as listed in the Florida College System's *Guidelines on Transfer Agreements and Faculty Credentials and Qualifications*

Additionally, the College has received strong support from Mote Marine Laboratory (Mote). Mote and FKCC have a Memorandum of Understanding (Appendix E. MOU-FKCC and Mote Marine Lab) that represents a multi-year collaboration supporting marine research and education. Mote has many employees with a terminal degree. Mote has pledged to provide their support and expertise with regard to enabling their highly qualified experts to teach the upper-level courses, whenever possible. Mote employees that teach BS-MRM courses will need to apply to the College as an adjunct instructor and go through FKCC's credentialing process.

10.3 What is the anticipated average student/teacher ratio for each of the first three years based on enrollment projections?

Overall, the College has approximately a 12:1 student to teacher ratio. Projected enrollment for fall 2020 is 30 students. The student teacher ratio will be 30:1 in core-requirement courses in the degree program. For the second year and third year, there will be additional courses scheduled. In 2021-22, with the addition of a part-time faculty member(s), the ratio will remain at 30:1 for core-requirement courses.

	In 2022-23, with the addition of a full-time faculty member, the ratio will remain at 30:1 for core-requirement courses.
10.4	What is the anticipated SACSCOC accreditation date, if applicable? Florida Keys Community College will submit a prospectus for substantive change to offer the BS-MRM no later than December 2019, for consideration at the July 2020 SACSCOC Board Meeting. The anticipated accreditation date is July 2020.
10.5	What is the anticipated Florida Department of Education initial teacher preparation approval date, if applicable? N/A
10.6	What specialized program accreditation will be sought, if applicable? N/A
10.7	What is the anticipated specialized program accreditation date, if applicable? N/A
10.8	Are there similar programs listed in the Common Prerequisites Manual for the CIP code (and track, if any) proposed for this program? ☐ Yes ☒ No
10.9	List the established common prerequisites for this CIP code (and track, if any) as listed in the Common Prerequisites Manual proposed for this program: N/A
10.10	Describe any proposed revisions to the established common prerequisites for this CIP (and track, if any). N/A
10.11	List all courses required once admitted to the baccalaureate program by term, in sequence. For degree programs with concentrations, list courses for each concentration area. Include credit hours per term, and total credits for the program: The BS-MRM will be a 120 credit hour program consisting of 36 hours of general education courses, 44 credit hours of lower-level specialized, technical, and elective courses, and 40 credit hours of upper-level required core courses. For students with an existing AS-MET degree, 62 credit hours would articulate into the BS-MRM including 18 credit hours of general education courses and 44 credit hours of lower level specialized courses. Once accepted into the BS-MRM program,

these students would complete an additional 18 credit hours of general education courses (total = 36 general education) and 40 credit hours of upper-level courses.

Students who have an AS degree, other than MET, may also articulate into the BS-MRM program. These students will transfer 60 credit hours. Once accepted into the program, these students would: (1) complete the requisite number of general education hours to meet the required 36 hours, (2) will also need to take additional hours of general education or lower-level specialized courses from an approved list of courses, and (3) complete 40 credit hours of upper-level courses that equate to the required 120 hours.

Students who have an AA degree may also articulate into the BS-MRM program. They will transfer 60 credit hours that include 36 credit hours of general education courses. Once accepted into the program, these students would complete an additional 20 hours of lower-level specialized courses from an approved list of courses and 40 credit hours of upper-level courses.

In addition, all BS-MRM students will be required to demonstrate foreign language competence (Rule 6A– 10.02412 of the Florida Administrative Code). Students must demonstrate foreign language competence by providing evidence that documents the successful completion of two (2) credits of sequential high school foreign language instruction, or by passing the second level of foreign language at the college level. Students may demonstrate equivalent foreign language competence via the alternative methods specified by the Florida Department of Education including established minimum CLEP scores, or other methods as determined by the College.

For students who have not completed an AS-MET, the following technical electives are suggested for BS-MRM course work:

- BSC 1010 - Principles of Biology or BSC 1005 Survey of Biology (3)
- BSC 1010L - Principles of Biology Lab (1)
- MTE 1XXXC - Motorboat Operation Certification Course (MOCC) (2)
- MTE 1052 - 2&4 Cycle Outboard Theory or MTE 1053C - 2&4 Cycle Outboard Repair and Maintenance (3)
- MTE 1811 - Basic Seamanship (3)
- ISC2 132 - Basic Research Diving (4)
- OCB 1000 - Introduction to Marine Biology (3)
- OCB 2102C - Marine Data Collection (4)
- OCB 2263C - Coral Reef Biology and Management (4)

For students who have additional general education requirements to complete, the following courses are required:

- ENC 1102 - English Composition (3)
- Additional College Level Mathematics Course (3)

- Additional Humanities Course (3)
- Additional Natural Science Course (3)
- Additional Social/Behavioral Science Course (3)
- Additional General Education Core or Optional Course (3)

Sequence 3rd and 4th Year AS-MET to BS-MRM

Course #	Course Name	Credit Hours
Junior Year Fall		
ENC 1102	English Composition II	3
MAC 1105, MGF 1106, or STA 2023	Optional Mathematics	3
OCB 3XXX	Nearshore and Offshore Ecology and Assessment	3
OCB 3XXX	Marine Conservation	3
OCB 4XXX	Marine Socioeconomics	3
		Total: 15
Junior Year Spring		
AMH 2010, AMH 2030, DEP 2004, ECO 2023, POS 1001, WHO 1012, or WHO 1022	Optional Social Science	3
ARH 1050, ARH 1051, CRW 1001, CRW 1300, CRW 2100, ENG 1300, HUM 2250, LIT 2020, LIT 2380, PHI 2600, REL 2240, or REL 2300	Optional Humanities	3
GIS 3XXXC	Geographic Information Systems	3
FAS 3XXX	Aquaculture and Seafood Policy	3
OCB 3XXX	Marine Resource Economics	3
		Total: 15
Senior Year Fall		
General Education Elective	General Education Elective	3
MTE 1XXXC	Motorboat Operation Certification Course	2
OCB 4XXX	Forensic Marine Science	3
OCB 4XXXL	Forensic Marine Science Lab	1
OCB 4XXX	Marine Policy and Management	4
ISC 3132	Advanced Research Diving	3
		Total: 16
Senior Year Spring		
General Education Elective	General Education Elective	3
OCB 4XXX	Seminar: Issues in Marine Resource Management	1
ZOO 4894C	Fisheries Management	3
OCB 4631	Estuarine and Coastal Ecology	3
OCB 4XXX	Capstone Experience: Marine Resource Management Internship	4
		Total: 14

Sequence 3rd and 4th Year AA to BS-MRM

Course #	Course Name	Credit Hours
Junior Year Fall		
Technical Elective	Technical Elective	3
Technical Elective	Technical Elective	3
OCB 3XXX	Nearshore and Offshore Ecology and Assessment	3
OCB 3XXX	Marine Conservation	3
OCB 4XXX	Marine Socioeconomics	3
		Total: 15
Junior Year Spring		
Technical Elective	Technical Elective	3
Technical Elective	Technical Elective	3
GIS 3XXXC	Geographic Information Systems	3
FAS 3XXX	Aquaculture and Seafood Policy	3
OCB 3XXX	Marine Resource Economics	3
		Total: 15
Senior Year Fall		
Technical Elective	Technical Elective	3
MTE 1XXXC	Motorboat Operation Certification Course	2
OCB 4XXX	Forensic Marine Science	3
OCB 4XXXL	Forensic Marine Science Lab	1
OCB 4XXX	Marine Policy and Management	4
ISC 3132	Advanced Research Diving	3
		Total: 16
Senior Year Spring		
Technical Elective	Technical Elective	3
OCB 4XXX	Seminar: Issues in Marine Resource Management	1
ZOO 4894C	Fisheries Management	3
OCB 4631	Estuarine and Coastal Ecology	3
OCB 4XXX	Capstone Experience: Marine Resource Management Internship	4
		Total: 14

10.12	Is the program being proposed as a limited access program? (If yes, identify admission requirements and indicate enrollment capacity):	☐ Yes	☒ No

PROGRAM TERMINATION

11.1 Plan of action if program must be terminated, including teach-out alternatives for students.

In the event that it becomes necessary for FKCC to terminate the BS-MRM program, the following procedures will be instituted after District Board of Trustees approval:

1. College administration will establish a timeline for phase-out for the program and notify SACSCOC six months prior to the initiation of the phase-out period
2. A moratorium on program enrollment will be enacted.
3. Enrolled students will be notified of the intent to terminate the program and will be required to seek academic advisement for how to complete the existing program or how to transfer to another program of their choice.
4. Program faculty and staff will be notified and transitioned to other positions, as available.
5. The phase-out period will last up to two years. All course work will be offered in sequence one last time. Student progress in these courses will be monitored closely to verify they are fully aware of the program status and their options toward degree completion.

Appendix Table A.1.

INSTRUCTIONS FOR COMPLETING THE DEMAND SECTION OF APPENDIX TABLE A.1.1 and A.1.1.2: To complete the following table, use the CIP to Standard Occupational Classification (SOC) crosswalk of the U.S. Department of Education to identify the SOC codes for occupations associated with the proposed program's CIP code. Fill in Table A.1.1 using the employment projections data produced by the Florida Department of Economic Opportunity (DEO), pursuant to Section 445.07, F.S., for the workforce region aligned with the college's service district for each SOC code associated with the proposed program's CIP code. The employment projections data may be accessed at http://www.floridajobs.org/labor-market-information/data-center/statistical-programs/employment-projections. For proposed programs without a listed SOC linkage, identify the appropriate SOC codes for which the program prepares graduates. Insert additional rows as needed. The total job openings column value shall be divided by eight to reflect total annual job openings. The annualized salary shall be calculated by multiplying the average hourly wage times 40, and then multiplying that value times 52. Complete table A.1.1.2 in the same manner as A.1.1 for any additional sources of employment projections. Duplicate Table A.1.1.2 for additional sources as needed.

DEMAND: FLORIDA DEPARTMENT OF ECONOMIC OPPORTUNITY (DEO) EMPLOYMENT PROJECTIONS										
A.1.1	Occupation			Number of Jobs				Salary		Education Level
	Name/Title	SOC Code	County / Region	Base Year	Projected Year	Level Change	*Total Annual Job Openings (divided by 8 for annual est.)	Avg. Hourly Wage**	Annualized Salary	
	Natural Science Managers	11-9121	23	165	182	17	16	$48.18	$100,214	Bachelor's
	Zoologists and Wildlife Biologists	19-1023	23	135	140	10	12	$28.91	$60,133	Bachelor's
	Biological Scientist, All Other	19-1029	23	439	453	14	40	$39.95	$93,096	Bachelor's
	Environmental Scientists & Specialists, Including Health	19-2041	23	426	478	52	47	$31.40	$65,312	Bachelor's

Physical Scientists, All Other	19-2099	23	81	91	10	8	$32.40	$67,392	Bachelor's
Total						123	$36.17	$77,229	

INSTRUCTIONS FOR COMPLETING THE SUPPLY SECTION OF APPENDIX TABLE A.1.2: To complete the following table, use the Integrated Postsecondary Education Data System of the National Center for Education Statistics to identify the number of degrees awarded by other regionally accredited postsecondary institutions in the college's service district under the same or related CIP code(s) as the proposed program. The data center is located at http://nces.ed.gov/ipeds/datacenter/. Include degrees awarded for the most recent year available and for the four prior years for each program. If the program has not had degrees awarded for five years or more, add the degrees awarded for the years available, and divide by that number of years, for the average.

SUPPLY: NATIONAL CENTER FOR EDUCATION STATISTICS, INTEGRATED POSTSECONDARY EDUCATION DATA SYSTEM

A.1.2 Program		Number of Degrees Awarded					
Institution Name	CIP Code 30.3201	Prior Year 4 (2011-12)	Prior Year 3 (2012-13)	Prior Year 2 (2013-14)	Prior Year 1 (2014-15)	Most Recent Year (2015-16)	5-year avg. or avg. of years if < 5 yr. available
N/A							
Total						0	0

INSTRUCTIONS FOR COMPLETING THE ESTIMATES OF UNMET NEED SECTION OF APPENDIX TABLE A.1.3: To complete the following table, column A should be derived from Tables A.1.1 and A.1.1.2 and the totals in columns B and C should be derived from Table A.1.2. Input the figures in the "Total" row in Table A.1.1 and A.1.1.2 for total job openings and Table A.1.2 for most recent year and 5-year average (these figures should be same for all sources). The range of estimated unmet need should be derived from 1) subtracting the figure in column B from the figure in column A and 2) subtracting the figure in column C from the figure in column A. Add rows for additional sources as needed.

ESTIMATES OF UNMET NEED

A.1.3

	DEMAND	SUPPLY		RANGE OF ESTIMATED UNMENT NEED	
	(A)	(B)	(C)	(A-B)	(A-C)
	Total Job Openings (divided by 8)	Most Recent Year	5-year average or average of years available if less than 5 years	Difference	Difference
DEO	123	0	0	123	123
Other: (List here)					

Appendix Table A.2

INSTRUCTIONS FOR COMPLETING THE PROJECTED BACCALAUREATE PROGRAM ENROLLMENT SECTION OF APPENDIX TABLE A.2: To complete the following table, enter the projected enrollment information for the first four years of program implementation. Unduplicated headcount enrollment refers to the actual number of students enrolled. Full-time equivalent (FTE) refers to the full-time equivalent of student enrollment.

PROJECTED BACCALAUREATE PROGRAM ENROLLMENT					
		Year 1	Year 2	Year 3	Year 4
A.2.1	Unduplicated headcount enrollment:				
A.2.1.1	Admitted Student Enrollment (First-time)	30	30	30	30
A.2.1.2	Total Admitted Student Enrollment	30	60	69	69
A.2.2	FTE Enrollment:				
A.2.2.1	Program Student Credit Hours (Resident)	657	1314	1511	1511
A.2.2.2	Program Student Credit Hours (Non-resident)	81	162	187	187
A.2.2.3	Total Program Student Credit Hours	738	1476	1697	1697
A.2.2.4	Program FTE (30 credits) - (Resident)	21.9	43.8	50.4	50.4
A.2.2.5	Program FTE (30 credits) - (Non-resident)	2.7	5.4	6.2	6.2
A.2.2.6	Total Program FTE	24.6	49.2	56.6	56.6

INSTRUCTIONS FOR COMPLETING THE PROJECTED DEGREES AND WORKFORCE OUTCOMES SECTION OF APPENDIX TABLE A.2: To complete the following table, enter the projected number of degrees awarded, the projected number of graduates employed and the projected average starting salary for program graduates for the first four years of program implementation.

PROJECTED DEGREES AND WORKFORCE OUTCOMES					
		Year 1	Year 2	Year 3	Year 4
A.2.3	Degrees	0	8	16	28
A.2.4	Number Employed	0	8	16	28
A.2.5	Average Starting Salary	$0	$77,229	$77,229	$77,229

INSTRUCTIONS FOR COMPLETING THE REVENUES AND EXPENDITURES SECTION OF APPENDIX TABLE A.2: To complete the following table, enter the projected program expenditures and revenue sources for the first four years of program implementation.

REVENUES AND EXPENDITURES				
I. PROJECTED PROGRAM EXPENDITURES	Year 1	Year 2	Year 3	Year 4
INSTRUCTIONAL				
1. Faculty Full-Time FTE	1	1	2	2
2. Faculty Part-Time FTE	0	0.33	0	0
1. Faculty Full-Time Salaries/Benefits	82,530	84,181	161,439	164,668
2. Faculty Part-Time Salaries/Benefits	0	7,828	0	0
3. Faculty Support: Lab Assistants and Lab Technicians	4,570	56,157	57,280	58,426
OPERATING EXPENSES				
1. Academic Administration	0	0	0	0
2. Materials/Supplies	26,873	53,546	61,391	61,391
3. Travel	0	0	0	0
4. Communication/Technology	0	0	0	0
5. Library Support	0	0	0	0
6. Student Services Support	0	0	0	0
7. Professional Services	0	0	0	0
8. Accreditation	0	0	0	0
9. Support Services	60	60	60	60

CAPITAL OUTLAY				
1. Library Resources	-	-	-	-
2. Information Technology Equipment	2,500	-	2,500	-
3. Other Equipment	-	-	-	-
4. Facilities/Renovation	-	-	-	-
TOTAL PROJECTED PROGRAM EXPENDITURES	116,533	201,772	282,670	284,545
II. NATURE OF EXPENDITURES				
1. Recurring	114,033	201,772	280,170	284,545
2. Nonrecurring	2,500	0	2,500	0
TOTAL	116,533	201,772	282,670	284,545
III. SOURCES OF FUNDS				
A. REVENUE				
1. Special State Nonrecurring	0	0	0	0
2. Upper Level - Resident Student Tuition Only	84,401	168,803	193,506	193,506
Upper Level - Nonresident Student Fees Only	10,432	20,863	23,916	23,916
Upper Level - Other Student Fees	26,673	53,346	61,191	61,191
3. Contributions or Matching Grants	0	0	0	0
4. Other Grants or Revenues	0	0	0	0
5. Florida College System Program Funds	0	0	0	0
6. Unrestricted Fund Balance	7,749	0	0	0
7. Interest Earnings	0	0	0	0
8. Auxiliary Services	0	0	0	0
9. Federal Funds – Other	0	0	0	0
B. CARRY FORWARD	0	12,722	53,962	49,905
TOTAL FUNDS AVAILABLE	129,255	255,734	332,575	328,518
TOTAL UNEXPENDED FUNDS (CARRY FORWARD)	12,722	53,962	49,905	43,973

Supplemental Materials B.1

SUPPLEMENTAL MATERIALS

B.1 Summarize any supporting documents included with the proposal, such as meeting minutes, survey results, letters of support, and other supporting artifacts.

Appendix A. Combined Letters of Support
Appendix B. Resource Manager Job Vacancy Announcements
Appendix C. MRM Student Survey
Appendix D. MRM STEM Facilities, Equipment, and Other Resources
Appendix E. MOU FKCC and Mote Marine Lab
Appendix F. Advisory Committee Meeting
Appendix G. Board of Trustees Meeting Minutes 102615

B.2 List any objections or alternative proposal received from other postsecondary institutions for this program.

To date, no objections have been received.