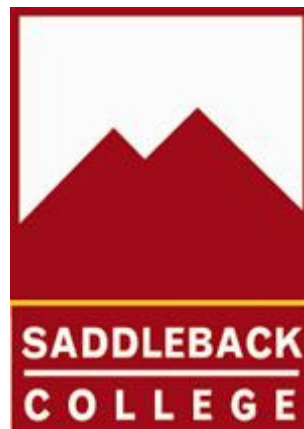


**Saddleback College
Program Review**

Marine Science Technology



Submitted Spring 2008

Table of Contents

Team Members and Approval Page.....	3
Program Review Checklist.....	4
Program Overview	5
Review Report	11
Needs Assessment.....	17
Appendices.....	19

Program Review Team Members and Approvals

Program Review Team Chair:

Morgan E. Barrows

Program Review Team Members:

Morgan E. Barrows

Mark Howe

Marc Hughston

Ron Grant

Don Taylor

Approvals:

Division Dean

Program Review Chair

Academic Senate President

Vice President of Instruction

Program Review Checklist

Date Completed	Action
November 2006	Contact Program Review Chair for orientation
November 2006	Form Program Review Team
Spring 2007	Gather documents (Org Chart/Staffing Profile/SLO Assessment Forms/Data Sets)
Spring 2007	Solicit input from faculty and students
Spring 2007	Determine if additional research is needed
November 2006	Contact College Research Analyst if necessary
Fall 2007/Spring 2008	Write Program Review report
Spring 2008	Submit report to Dean and Program Review Chair for approval
Spring 2008	Report submitted to Academic Senate for approval
Spring 2008	Report submitted to Office of Instruction for approval
Spring 2008	Report submitted to College President and the Office of Institutional Effectiveness
Spring 2008	Report posted to the IE web site
Spring 2008	Open, formal presentation to the Program Review Committee and other interested parties

Section I: Program Overview

A. The Mission of the Program and its Link to the College's Mission and Goals

A1. Overview

The mission, philosophy, functions and goals of the South Orange County Community College District require that a systematic review of all Programs/Curricula be conducted to ensure quality and relevance, and the effective and efficient use of resources. This systematic review is the process of Program Review and Improvement, which must be a cooperative process, utilizing the knowledge and expertise of faculty, administrators, current and former students, employers and advisory committee members.

The results of program review will be incorporated into the strategic planning processes that the college Budget and Planning Council presents to the college. Program Review will also support the Western Association of Schools and Colleges (WASC) accreditation standards, interface with the college Enrollment Management Plan and most importantly, provide information for program planning and improvement. The major objectives of Program Review are to measure and improve the quality of instructional programs, support services and student learning

An overview of the Marine Science Technology Department and key recommendations are presented in this section. The overview details the mission and goals of Saddleback College, the Advanced Technology and Applied Science Division (ATAS), and the Marine Science Technology Department. The main document provides recommendations for the: curriculum, instruction, student success, staffing and resources, staff development, community outreach, articulation, and accreditation.

The Marine Science Technology department offers three certificates: Seamanship; Marine Science Technician; and Aquarium and Aquaculture Science. It is important to note that this Program Review does not cover the Aquarium and Aquaculture certificate. Although, there is definite overlap, especially between the Marine Science Technician and the Aquarium and Aquaculture certificate, it was determined by the department chair that it would be best to separate them in order to get a better understanding of each program.

A2. College Mission and Goals

Mission Statement of Saddleback College

To provide access to learning opportunities that promote student success; to foster intellectual growth, individual expression, and character development; and to support a dynamic and diverse environment of innovation and collegiality.

Goals of Saddleback College

The primary goal of Saddleback College is to provide a comprehensive postsecondary education and a full range of student services. Emphasis is placed on open access to all students, including a changing and diverse student population. Academic success and student achievement are joint responsibilities of the students, the staff, and the College. To this end, the College will:

- Provide educational programs leading to the Associate in Arts and Associate in Science degrees.
- Provide a comprehensive, broad range of high-quality courses and programs to enable students to pursue their educational objectives and career goals.
- Provide a meaningful general education program including baccalaureate-level transfer and occupational curricula.
- Provide necessary developmental, remedial, and basic skills instruction so that students may be successful in their chosen course of study.
- Provide access for the community to the educational, cultural, and recreational resources of the College.
- Provide counseling and other support services which are responsive to the needs of the students.
- Provide opportunities in continuing education and community services, including courses for skills upgrading and retraining for professionals and life-long learning for older adults.
- Provide opportunities for the promotion of economic development within the scope of the mission of the District and the College.

A3. Mission Statement of the Advanced Technology and Applied Science Division

To provide quality technical instruction and career preparation to our students and to participate in the vision and mission of Saddleback College.

A4. Goals of the Marine Science Technology Department

The goal of the Marine Science Technology Department is to provide quality instruction leading to an AS degree, certificate, or successful employment in the ocean related environment. The Marine Science Technology Seamanship program is designed to train individuals as crew and operators of marine vessels, and technicians to assist scientists, engineers, and research personnel both aboard ship and ashore. It may also prepare students for Coast Guard licensing while developing marketable skills in the technical areas of navigation, marine electronics, and sails and rigging. In the past, the Program has trained students in marine coatings, fiberglass materials technology, engines and power trains and other marine systems.

The MST Seamanship program relates directly to the larger mission of the Marine Science Technology program and the College by providing learning opportunities that

promote student success, and preparing individuals for their roles in an ocean oriented occupation.

B. Historical Background and Unique Characteristics of the Program

The MST seamanship program was inaugurated in the early 1970s to encourage and provide the knowledge and skills needed for the safe operation of marine vessels both as crew and as captain. At the same time, a Marine Science Technician program was developed to encourage and provide knowledge and skills needed by those employed on vessels studying ocean science. These two programs ran parallel utilizing facilities offered by the Floating Laboratory Programs of the Orange County Department of Education, donated KC 40 foot ketches, and various marine laboratory and diving programs offered by Saddleback College. Over the following two decades, many students graduated to jobs made possible by their Marine Science Technician training. Many courses were developed, the certificate programs came into being, and all was accomplished using a group of part-time instructors.

In May of 1990, the Technology and Applied Science Division generated a three-year plan with the mission of:

- A strong transfer program providing an important transition between high schools and upper division course work at four-year institutions.
- A highly developed occupational and technical curriculum serving business and industry by providing well-trained personnel in a rapidly expanding economy.
- A flexible continuing education program to assist students to retrain and maintain competencies in a very competitive and complex society.
- A highly developed articulation program that deals effectively with local high schools, regional occupational programs, and four-year institutions.

The Marine Science Technology portion of this mission was described as follows:

"Located within 7 miles of one of the fastest growing commercial and pleasure harbors in Southern California, Marine Science Technology is charged with preparing individuals for their roles in an ocean oriented community. Divided into three certificate options, Marine Science Technology is designed to train individuals as crew and operators of marine vessels, divers, and technicians to assist scientists and engineers and research personnel. Training in all areas includes classroom and laboratory work both on campus and on college operated vessels."

At the dawn of a new decade, the operative phrase was "rapidly expanding"; the economy, technology, and the demands of both students and industry were expanding rapidly. An active Advisory Committee instituted expansion of the diving program, a program to prepare students for Coast Guard licensing, the development of new

modular classes such as sails and rigging, marine coatings, fiberglass materials technology, engines and power trains and other marine systems such as marine electronics/electrical and marine plumbing.

A full-time Marine science instructor was recommended, and it was felt that such a position would be critical if expansion of the program were to develop efficiently and effectively. Unfortunately, the Marine Science Technology Department has never had a full-time faculty member

In the fall of 1990, expansion came to an end. During an advisory committee meeting, the Division Dean announced that there was no money to implement any of the plans we had developed and indeed currently offered courses would perforce be reduced or eliminated. At this time, most four-unit classes became three unit classes and several were eliminated entirely. During the mid to late 1990s, the Marine Science Technician Certificate was emasculated; the requirements degenerated into a hodgepodge of miscellaneous classes with no apparent cohesiveness or value. The Marine Science Technician certificate was generally ignored except when a student realized they could receive it as part of their aquarium certificate course work. There was even talk of eliminating the certificate entirely.

The only program to survive was Seamanship with its expanded goal of obtaining a Coast Guard Vessel Operators License. While many earlier students in the Seamanship program had gone on to apply for and receive their Coast Guard license, it now became an avowed goal of the certificate program.

During the spring of 2004, there was discussion among faculty of making changes in the Seamanship Certificate Program to reflect more accurately the needs of students wanting employment, and perhaps careers in seagoing vessel operation. There was also a rebirth of interest in reviving the Marine Science Technician certificate to make it of real interest and value for students desiring employment in seagoing scientific endeavors. The concept was developed of having a core of required courses with a number of choices between more specialized classes in addition to the required courses.

During the fall of 2004, some progress was made in organizing courses and certificates, but it was not until the fall of 2005 that major design changes, curricular additions, and marketing decisions were implemented. Employers were surveyed, the programs of other schools were analyzed, and our own faculty's sense of advances in the technology of maritime trades was added to the process.

In summary, organizational changes implemented in 2005 and brought to fruition over the intervening years have made exciting new curriculum choices and opportunities available to students. Extremely effective marketing instruments have been developed and employed including an excellent short video showcasing the programs. Much larger numbers of students are entering the programs with a view to earning a Marine Science Certificate and/or employment on the seas. Tolerance by the College of low

enrollment in specialized classes, together with greater flexibility within specific course requirements, has produced the possibility for students to earn their certificate in less than two years. This has been viewed favorably by both students and their prospective industry employers.

In conclusion, after considerable effort to respond to industry request, student interest, and new technology in a rapidly changing maritime universe, major additions, revisions, and reorganization were made to the MST Certificate programs during the fall of 2005 to take effect in the fall of 2006.

C. Progress Since the Last Program Review

This is the first program review to be conducted.

D. Current Strengths, Opportunities, and Challenges

D1. Strengths

The greatest strength this department has is its faculty. The associate faculty have an incredible depth and breadth of knowledge that is brought into the classroom to be shared with the students. The faculty also showcase their skill and commitment to innovative instruction despite the many challenges they face.

This program provides students with a great variety of classes, including very technical classes, and gives students access to lots of different boats inexpensively. In addition, Lab classes are often taught at Dana Point Harbor, which is minutes away from campus. This proximity to Dana Point Harbor allows students to learn in real world settings. Students are also in close proximity to the Dana Point Ocean Institute and its Marine Aquarium, Marine Life Refuge and Floating Laboratory, which are incorporated into the curriculum.

D2. Opportunities

While students frequently enroll in the Marine Science Technology classes to learn how to sail, the Department has the opportunity to expand the program to encourage students to gain skills for employment in the field. Also, with the addition of new more technical classes, such as geographical information systems (GIS) and sub-sea remote observational vehicles, students will be better prepared for a career in the marine science field. Since employment opportunities in this arena generally involve one or more of: a.) Vessel operations or b.) Vessel service and support or c.) Technical marine expertise associated with seagoing maritime research, the MST program has an opportunity to strengthen its offerings to address this fact.

Another opportunity is to close the loop in the license preparation offering by conducting Coast Guard license examinations on campus. Incorporating this aspect of the licensing process makes the Seamanship program a one-stop shop and will attract a far

greater number of students, produce a far greater number of licensed mariners, and increase the odds of their long-term success.

D3. Challenges

There are many challenges that must be resolved for this program to be successful if the program is to accomplish its mission and prepare students for employment opportunities. First and foremost, is to hire a full-time Marine Science Technology instructor who then could be a full-time champion for the MST program's efficient and effective expansion and development. It is incredibly difficult to run a program successfully without a full-time instructor.

Another challenge the Program faces is low enrolled classes. Although the actual sailing classes can meet enrollment criteria, the other classes still have difficulties. The exact reason for the low enrollment is unknown at this time, and can actually be due to a variety of reasons. Regardless, it is near impossible to run classes with less than 10 students on a regular basis.

An additional challenge is maintaining the Department's fleet of 16 boats. Currently, there are only part-time faculty in the Department and they try to look after the boats, but there really needs to be someone who can maintain them. The boats need regular maintenance to ensure safe operations, which can be expensive.

The Department uses classroom facilities at the Dana Point Youth Facility, but there has been a recent turnover of management there and now they want to charge an hourly fee for use of its facilities. Although, the Saddleback College campus is near the harbor, it is much more convenient for faculty and students to hold lectures at the harbor so they can use the harbor for demonstrations and there is no loss of time commuting from campus for lecture to the harbor for labs.

Finally, rising fuel prices have impacted the budget of the Marine Science Technology department. Fuel money comes from the budget and not from Student Material Fees, and although the budget has increased slightly over the years, the increase is not comparable to the increase in fuel prices. Therefore, if the class is low enrolled it becomes even more difficult to justify the class.

Section II: Review Report

A. Faculty and Staff

- a. 0 full-time faculty members
- b. 4 part-time (associate) faculty members
- c. 0 part-time/full-time classified staff
- d. 1 Dean (administrator)

The MST Seamanship program faculty is 100% part-time. This ratio negatively affects the program's ability to fulfill its mission because very simply, a full-time champion is what the programs needs, and a full-time champion cannot be made from a part-time instructor.

The principal change needed to make this program more effective is the hiring of a full-time Marine Science instructor to be a full-time champion for the MST Seamanship program's efficient and effective expansion and development.

There is also a great need for classified staffing. It is extremely difficult to run and maintain a program, especially one that is primarily off campus, without staff and a full time faculty member. There is no one to oversee the boats to make sure they are maintained and are operating properly and safely. Therefore, it is absolutely critical to have support staff of at least 20 hours. Due to the desperate need for help, the environmental studies lab technician helps out in the MST department when needed, but this then distracts from his areas he supports.

The Marine Science Technology Department is fortunate to have a Dean that supports the program and needs of its students. Therefore, it is believed that there does not currently need to be a change in administration. In terms of faculty, it is believed that recruiting new associate faculty members with diverse technical qualifications may breathe new life into the low enrolled or unoffered MST classes. The Department will also have to hire more associate faculty members if it plans on growing and adding more classes.

B. Curriculum and Instruction

The Marine Science Technology department offers three certificates: Seamanship; Marine Science Technician; and Aquarium and Aquaculture Science. It is important to note that this Program Review does not cover the Aquarium and Aquaculture certificate. Although, there is definite overlap, especially between the Marine Science Technician and the Aquarium and Aquaculture certificate, it was determined by the department chair that it would be best to separate them in order to get a better understanding of each program.

The Marine Science Technology Department offers courses for a variety of educational paths. Most of the classes are designed to satisfy certificate requirements in the three programs. The Department does not offer transfer, general education, and information competency courses, but students can earn an A.S. degree if they complete the certificate requirements and take a minimum of 60 units including general education requirements with an overall GPA of 2.0. The majority of the students (37%) taking marine science technology studies classes have an educational goal of education development (Table 1). However, over 14% of the marine science technology students take classes to earn an AA/AS degree and transfer to a four-year university (Table 1). Therefore, it is necessary to offer a variety of classes that meet the different needs of the students.

Table 1 – Summary of Educational Goals by Year/Term

	AA/AS and transfer	Transfer w/o AA/AS	AA/AS w/o Transfer	Voc. Cert. w/o transfer	Discover interests	Acquire job skills	Update job skills	Ed development
Spring 2001	14.5%	4.3%	0.0%	4.3%	2.9%	7.2%	4.3%	53.6%
Fall 2001	9.3%	5.8%	0.0%	2.3%	17.4%	15.1%	2.3%	37.2%
Spring 2002	8.5%	1.7%	0.0%	3.4%	8.5%	8.5%	0.0%	61.0%
Fall 2002	18.1%	6.0%	0.0%	1.2%	8.4%	7.2%	4.8%	37.3%
Spring 2003	13.6%	6.2%	0.0%	3.7%	11.1%	21.0%	4.9%	32.1%
Fall 2003	19.1%	7.4%	0.0%	3.2%	7.4%	10.6%	6.4%	27.7%
Spring 2004	9.7%	8.3%	0.0%	6.9%	1.4%	15.3%	6.9%	30.6%
Fall 2004	27.3%	4.0%	1.0%	10.1%	12.1%	9.1%	3.0%	21.2%
Spring 2005	14.3%	3.6%	0.0%	7.1%	5.4%	16.1%	1.8%	41.1%
Fall 2005	10.8%	6.0%	0.0%	7.2%	6.0%	14.5%	9.6%	32.5%
Average	14.52%	5.33%	0.10%	4.94%	8.06%	12.46%	4.40%	37.43%

Data Source: SOCCCD Management Information System (MIS) Data Warehouse November 2006

The Department offers an average of five sections each semester and one section in the summer for the last five years (Table 2). The average enrollment per section ranged from 11 to 24 students (Table 2). In the last five years, there has only been one semester that has an average above the 22 minimum enrollment criteria (Table 2).

Table 2 – Access and Productivity

	Academic Year									
	2001/2002		2002/2003		2003/2004		2004/2005		2005/2006	
	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring
Number of Course Sections Offered	5	5	5	5	4	5	6	5	5	N/A
End of Term Headcount	86	59	83	81	94	72	99	56	83	N/A
Average Enrollment per Section	17.2	11.8	16.6	16.2	23.5	14.4	16.5	11.2	16.6	N/A

Data Source: SOCCCD Management Information System (MIS) Data Warehouse November 2006

All courses in the Marine Science Technology Department were reviewed by faculty and presented to the College Curriculum Committee in Fall 2005 and will be done again Fall 2008. The department chair, advisory committee, and the associate faculty work together to make sure that the program continues to offer appropriate classes in the

environmental field. Not only are businesses asked what classes and information they would like to see our students learning, but curriculum at other colleges and universities are evaluated. Curriculum is reviewed every two years and it is at that time necessary changes are made, including adding and deleting classes.

Instructional goals and objectives are documented in the course curriculum. The faculty use a variety of methods to assess student success including hands on labs and demonstrations, quizzes, exams, homework, projects, reviews of notebooks and journals, and research papers. All instructors follow the adopted topical course outline, although each instructor may place special emphasis on selected topics in which he/she is especially versed.

Student Learning Outcomes were written and submitted in Fall 2005 for the program and were assessed Summer 2006. The biggest challenge to the Student Learning Outcome process is the lack of clear understanding from a college-wide perspective. Also, the Outcomes were submitted in September 2005 and it was not until May 2006, did the Marine Science Technology Department find out they were accepted.

Technology is just starting to be incorporated into classes that are offered in the Marine Science Technology program. At a bare minimum it will be incorporated into lectures, but will be emphasized in the field, as well.

C. Student Success

Table 3 – Summary of Success and Retention by Year/Term

	Success	Retention
Spring 2001	82.6%	97.1%
Summer 2001	88.9%	100.0%
Fall 2001	79.1%	91.9%
Spring 2002	84.7%	93.2%
Summer 2002	93.3%	100.0%
Fall 2002	71.1%	90.4%
Spring 2003	72.8%	92.6%
Summer 2003	90.9%	100.0%
Fall 2003	69.1%	94.7%
Spring 2004	68.1%	88.9%
Summer 2004	86.1%	100.0%
Fall 2004	81.8%	94.9%
Spring 2005	62.5%	96.4%
Summer 2005	75.0%	84.4%
Fall 2005	53.0%	90.4%
Average	77.27%	94.33%

Data Source: SOCCCD Management Information System (MIS) Data Warehouse November 2006

The Marine Science Technology Department has an Average Successful Course Completion Rate of 77% with a high 94% Average Course Term Retention Rate since

Spring 2001 (Table 3). The Department will focus on improving the Average Successful Course Completion Rate and although the department currently has a high Average Course Term Retention Rate it is important to make sure that the numbers stay high.

The Marine Science Technology Department has a very low completion rate for certificates. Between 2002 and 2006, only one student earned a certificate in the Marine Science Technician program (Table 4). However, I do believe there may have been an error in the data gathering process. Therefore, the number of certificates may in fact be higher than what has been reported. However, the actual number of certificates is still believed to be incredibly low. A lot of our students are interested in personal educational development and are not actually interested in obtaining a degree or certificate. Also, low enrolled classes have had to be canceled and this is believed to have had an impact on the number of certificates earned by students. As the program grows, it is believed the number of degrees and certificates obtained will also increase. Faculty members are encouraging Marine Science Technology students to get their degrees and/or their certificates. For example, it has been pointed out to the faculty and the students that in order to obtain a certificate, it is not enough to take the classes, but in fact the student has to apply for the certificate. Knowing that, faculty members are handing out the certificate form to their students at the end of the semester. Regardless, the low completion rate of certificates is a concern for the Department and concerted efforts will be made to increase these numbers as well as documenting the number of Coast Guard licenses earned.

Table 4 – Awards for Marine Science Technology Certificate

Marine Science Technology	2005-06
Marine Science Technician	1

Data Source: SOCCCD Management Information System (MIS) Data Warehouse November 2006

Table 5 – Ethnicity by Year/Term

	Asian	African-American	Hispanic	White	Other/Unknown
Spring 2001	1.4%	0.0%	0.0%	81.2%	17.4%
Summer 2001	5.6%	2.8%	2.8%	69.4%	19.4%
Fall 2001	8.1%	1.2%	5.8%	69.8%	15.1%
Spring 2002	3.4%	0.0%	1.7%	78.0%	16.9%
Summer 2002	3.3%	0.0%	20.0%	60.0%	16.7%
Fall 2002	4.8%	0.0%	6.0%	67.5%	21.7%
Spring 2003	4.9%	1.2%	6.2%	71.6%	16.1%
Summer 2003	13.6%	0.0%	18.2%	54.5%	13.7%
Fall 2003	3.2%	0.0%	5.3%	74.5%	17%
Spring 2004	1.4%	0.0%	5.6%	61.1%	31.9%
Summer 2004	8.3%	2.8%	11.1%	58.3%	19.5%
Fall 2004	6.1%	0.0%	8.1%	70.7%	15.1%
Spring 2005	3.6%	1.8%	10.7%	69.6%	14.3%
Summer 2005	9.4%	0.0%	6.3%	78.1%	6.2%
Fall 2005	3.6%	0.0%	13.3%	72.3%	10.8%
Average	5.38%	0.65%	8.07%	69.11%	16.79%

Data Source: SOCCCD Management Information System (MIS) Data Warehouse November 2006

Looking at the gender breakdown for Maine Science Technology for the last five years, it was 37% female and 63% male. Department faculty members intend to increase promotional efforts to attract female students to enroll in our classes to make it more evenly distributed. As the statistics show, the majority of the students enrolled in Marine Science Technology classes are White (69%), Hispanic (8%), and Asian (5%) (Table 5). Upon reviewing this information, the Department will try to identify new methods to increase the underrepresented ethnicities in the classes. It is extremely important to the Department to promote diversity in all of the classes.

D. Facilities, Technical Infrastructure, and Resources

D1. Facilities

The Marine Science Technology Department does not have dedicated classroom space. While on campus, classes are generally held in TAS 116 or Library 213 (computer classroom). Classes are also held at the Dana Point Youth Group Facility (DPYGF) at Dana Point Harbor. The biggest challenge has been scheduling classes down at the DPYGF because of the recent turnover of management. Not knowing where classes will be taught is incredibly nerve-racking not only for the faculty but for the students as well.

Another challenge deals with boat storage and supply space. There is limited storage space for equipment and supplies in TAS 116, including maps, charts, ropes, tools, and safety equipment. As for the boats and trailer, they have to be stored down at Dana Point Harbor where there is little supervision. There is no one down at the Harbor who oversees the boats on a regular basis. The associate faculty do monitor them, but during times when classes are not in session then it becomes a problem.

D2. Technical infrastructure

Currently, the technical infrastructure is adequate for completion of the instructional mission of providing a high quality teaching environment for Marine Science Technology students. In the future, the department would like to invest in more electronics and GIS technology.

D3. Resources

The operational budget of the Marine Science Technology Department (approx. \$6000) has remained constant despite rising costs due to inflation and is provided by the college. Unfortunately, the Department's budget must be supplemented with funds from other sources including use of (1) Non-Competitive Equipment funds, (2) Competitive Equipment funds, (3) grants from the Saddleback College Foundation, (4) Marine Science Technology Foundation funds, (5) Technology funds, (6) ASG funds, and (7) ATAS Division supply budget

The biggest budget constraint is the price of fuel. There is simply not enough money in the budget to run the sailing trips. More money is desperately needed to buy more fuel, maintenance of boats, motors, and related equipment. The Seamanship program operation is very expensive and cannot be supported with current monies.

Although, it can be a challenge to obtain funds for purchasing needed equipment, the Marine Science Technology Department has been fortunate to have a Dean that is actively trying to find money to support the Department and its needs.

E. Service, Community Outreach, and Economic Development

The Marine Science Technology Department participates in community service and outreach. For example, the cooperation with public agencies and sailing associations is deep with the existing faculty.

The Marine Science Technology faculty have used their professional expertise and networking ability to come up with instructional material and opportunities for Saddleback College students.

The Department has also created a video that promotes the certificates offered in Marine Science Technology. The video has been burned onto CDs where they have been handed out at outreach events and it is streamed on the Department's website.

The Department also participates in activities such as Senior Day, Family Night, and Welcome Day to help promote the classes and get people interested in the marine environment. The Department also participates by doing an open house in campus tours for local high school students throughout the school year.

The biggest challenge to community service and outreach is time. There simply is not enough time to get everything done. For example, it would be nice for a faculty member to personally contact all of the local high schools and talk about the program, but that is quite difficult so instead brochures are sent out. The associate faculty in the Department takes on this recruiting effort.

Section III: Needs Assessment

A. Human Resource Needs

A fulltime faculty member is needed to strengthen the Program and continue to build on the momentum of a new program. The Program's success relies on a leader for the program and is an absolute must to build strength and develop cohesiveness within the instructional delivery. It is amazing that the program has come to fruition without a fulltime faculty member to take lead. A fulltime faculty member is needed to coordinate the efforts currently performed by informal meetings between part time faculty members and advisory board members in reviewing curriculum, improving existing courses, adding additional courses and developing learning outcomes.

The Department technically does not have any classified support although the Environmental Studies lab technician helps the Department occasionally. Ideally, the Department would like to hire a 20 hour per week laboratory technician to oversee the needs of the Marine Science Technology program, including Aquarium and Aquaculture.

B. Instructional Needs

The Marine Science Technology Department has been very fortunate with obtaining instructional equipment; however, the Department could still use more to help continue to make the boats state of the art. It is important that the needs continue to be met and all equipment remain working properly and kept current and maintained. Also, as the field becomes more technologically advanced, the Department will want to invest in technology, such as GIS electronic navigation systems and other related hardware and software.

C. Research Needs

Even after this program review, the Department will continue to research its institutional effectiveness and identify needed improvements or areas of concern. In addition, the Department will continue to maintain and further develop Student Learning Outcomes and use this information to help with future program reviews.

More research will also need to be done in order for the programs and classes to remain current. As technology continues to evolve and new issues emerge, it will be important that the Department incorporate those changes into the curriculum. It is also essential to continue to research the needs of businesses and the community in general. Finally, continual research is necessary to help with the recruitment process of associate faculty and students.

D. Technical, Equipment and Other Resource Needs

In order to modernize the Department, updated equipment and technology will be essential and this will take money, which currently is limited. Furthermore, maintaining proper running boats safely will require additional funds as supplies, equipment, and technology needs to be maintained, replaced, or added.

E. Facilities Needs

The biggest need is a classroom down at Dana Point Harbor. Hopefully, the challenges that have occurred at the Dana Point Youth Group Facility will be resolved in the near future.

F. Marketing and Outreach Needs

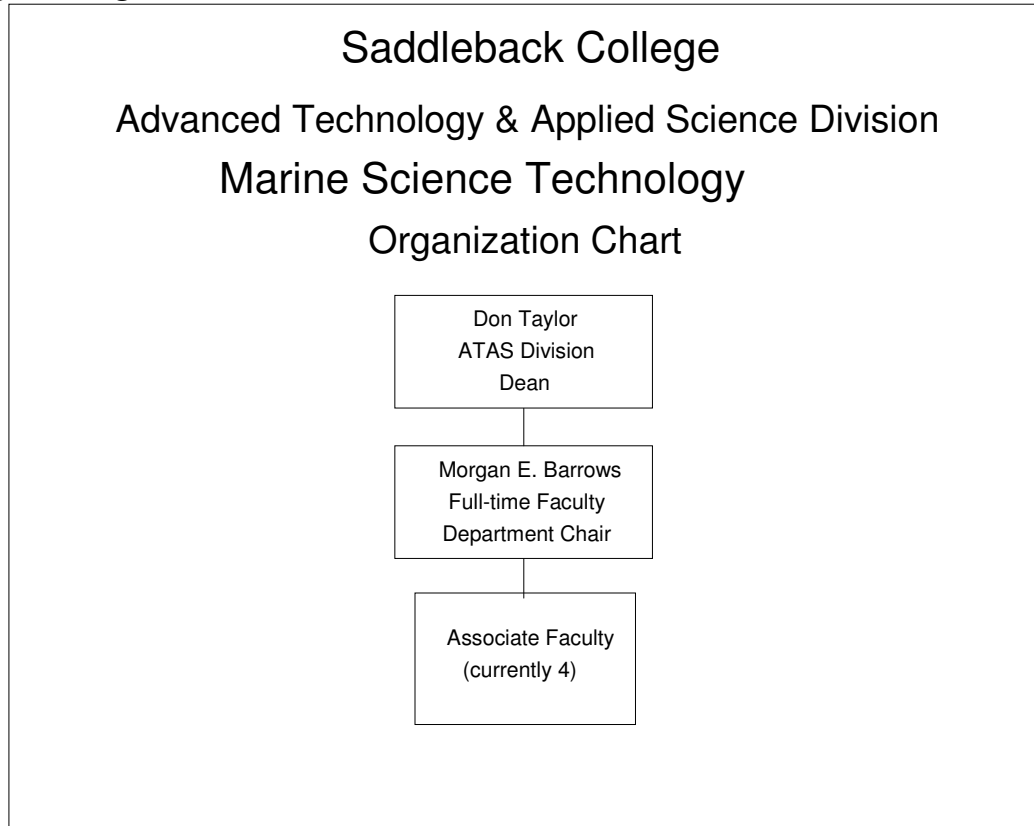
The Marine Science Technology program is marketed in various ways since the students vary from recent high school graduates to people seeking to change careers or learn a new hobby. Our current and future marketing efforts include:

- the Saddleback College schedule of classes.
- department brochures produced by the ATAS division staff and stocked at local Marine related businesses and venues.
- department pages linked to the college internet website.
- advertising on Channel 39, KSBR, and college marquees.
- promotional paper fliers posted on various college bulletin boards.
- participation in Welcome Day, Senior Day, Career Day, Family night and Counselors' Day.
- a Department website.
- faculty participation as guest speakers at local events.
- publication of monthly events and achievements in the ATAS Division "Good Stuff" electronic newsletter.
- informal but useful email and phone communication with area employers.
- active participation in helping alert students to job openings from local to international companies and organizations, that directly relate to the subjects being taught.
- tours of the department's facilities to various groups and visiting officials.
- presentations to Saddleback College Counselors and local high school academic advisors.
- active Advisory Committees, yielding direct input from community professionals.
- Use of the Lariat newspaper highlighting the program.

One of our most successful recruitment tools is "word-of-mouth" between students who are satisfied with their coursework in Marine Science Technology.

Section IV: Appendices

A. Program Organizational Chart



B. Five-Year Program Staffing Profile

Marine Science Technology Department						
Position	Staffing Levels in the Past 5 Years					% Change from Year 1 to Year 5
	2001-02	2002-03	2003-04	2004-05	2005-06	
Administration	1	1	1	1	1	0
Classified FT	0	0	0	0	0	0
Classified PT	0	0	0	0	0	0
Faculty FT	0	0	0	0	0	0
Faculty PT	4	4	4	4	4	0

C. SLO Assessment Forms

**Marine Science Technology
09/2007**

I	II	III	IV	V
Expanded Statement of Institutional Purpose	Program Student Learning Outcomes	Assessment Method and Criteria for Success	Assessment Results	Use of Results
<p>Saddleback College Goals: Provide a comprehensive, broad range of high-quality courses and programs to enable students to pursue their educational objectives and career goals</p> <p>Marine Science Technology: To provide quality instruction leading to an AS degree, certificate, or successful employment in the ocean related environment.</p>	<p>Graduates of the Marine Science Technology Program will be successfully employed in the maritime field.</p>	<p>Survey graduating students after completion of the program – should indicate 75% success rate.</p>		

Expanded Statement of Institutional Purpose	Program Student Learning Outcomes	Assessment Method and Criteria for Success	Assessment Results	Use of Results
<p>Saddleback College Goals: Provide a comprehensive, broad range of high-quality courses and programs to enable students to pursue their educational objectives and career goals</p> <p>Marine Science Technology: To provide quality instruction leading to an AS degree, certificate, or successful employment in the ocean related environment.</p>	<p>Graduates of the Marine Science Technology Program will be technically proficient in their chosen maritime field.</p>	<p>Near completion of program, 90% of potential graduates will be able to score 85% or more on a written assessment exam and 90% on technical skills assessment.</p>		

I	II	III	IV	V
Expanded Statement of Institutional Purpose	Program Student Learning Outcomes	Assessment Method and Criteria for Success	Assessment Results	Use of Results
<p>Saddleback College Goals: Provide a comprehensive, broad range of high-quality courses and programs to enable students to pursue their educational objectives and career goals</p> <p>Marine Science Technology: To provide quality instruction leading to an AS degree, certificate, or successful employment in the ocean related environment.</p>	<p>Employers of the Marine Science Technology Program graduates will be satisfied with the scope and rigor of their training.</p>	<p>Survey employers every 2-3 years – 85% should be pleased with the quality of graduates and would employ future graduates.</p>		

D. Data Sets

Marine Science Technology

**Seamanship Certificate and Marine Science Technician
Certificate
Program Review Data Set
November 2006**

Seamanship Certificate and Marine Science Technician Certificate Program Review Data Set

The following pages include:

1. **Course Section Count**
2. **C1 & End of Term Headcount**
3. **Overview of Courses, Grades, Success/Retention**
4. **Course Grades, Success/Retention**
5. **Seamanship Certificate and Marine Science Technician Certificate Programs Students' Duplicated Headcount**
 - a. **Gender**
 - b. **Zip Code**
 - c. **Age Groups**
 - d. **Ethnicity**
 - e. **Educational Goal**
6. **Awarded Certificates**

**Data Source: SOCCCD Management Information System (MIS) Data Warehouse November 2006
Prepared by Shouka Torabi, Research and Planning Specialist, Saddleback College**

Section Count

Marine Science and Seamanship Courses Course and Section Count by Term and Year

	Fall					Summer						Spring					
	2001	2002	2003	2004	2005	2001	2002	2003	2004	2005	2006	2001	2002	2003	2004	2005	2006
	Section Count	Section Count	Section Count	Section Count	Section Count	Section Count	Section Count	Section Count	Section Count	Section Count	Section Count	Section Count	Section Count	Section Count	Section Count	Section Count	Section Count
MST 100	1	1	1	1	1	0	0	0	0	0	0	0	0	1	0	0	0
MST 101	1	0	0	0	0	0	0	0	1	0	0	0	1	1	1	1	1
MST 201	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
MST 202	0	1	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0
MST 205	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
MST 210	0	1	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0
MST 211	1	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0
MST 212	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0
MST 214A	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
MST 214B	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1	1	1
MST 215	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1
MST 216	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	2	0
Total	5	5	4	6	5	1	1	1	2	1	1	6	5	5	5	5	3

Census Headcount

Marine Science and Seamanship Courses C1 Headcount by Course/Term/Year

	Fall					Summer						Spring					
	2001	2002	2003	2004	2005	2001	2002	2003	2004	2005	2006	2001	2002	2003	2004	2005	2006
	C1 Headcount	C1 Headcount	C1 Headcount	C1 Headcount	C1 Headcount	C1 Headcount	C1 Headcount	C1 Headcount	C1 Headcount	C1 Headcount	C1 Headcount	C1 Headcount	C1 Headcount	C1 Headcount	C1 Headcount	C1 Headcount	C1 Headcount
MST 100	23	25	29	17	19	.	.	.	.	.	.	.	.	26	.	.	.
MST 101	0	.	.	.	.	.	.	.	0	.	.	.	0	13	13	0	0
MST 201	17	13	15	14	.	.	.	.	.	.	.	.	.	.	.	.	.
MST 202	.	11	13	.	16	.	.	.	.	.	.	0	.	.	.	.	.
MST 205	.	.	.	15	.	.	.	.	.	.	.	.	.	.	.	.	.
MST 210	.	12	.	13	10	.	.	.	.	.	.	19	13	.	.	.	.
MST 211	15	.	.	.	.	.	.	.	.	.	.	0	.	17	13	.	.
MST 212	0	0	36	0	0	0	0	0	0	32	0	.	.	.	.	.	.
MST 214A	.	.	.	.	11	.	.	.	.	.	.	.	.	.	.	.	.
MST 214B	.	.	.	16	.	.	.	.	.	.	.	0	22	19	0	0	0
MST 215	.	.	.	.	.	.	.	.	.	.	.	0	3	4	0	0	0
MST 216	.	.	.	.	.	.	.	.	.	.	.	18	10	.	18	15	.
Total	55	61	93	75	56	0	0	0	0	32	0	37	48	79	44	15	0

End of Term Count

Marine Science and Seamanship Courses End of Term Enrollment by Course/Term/Year

	Fall					Summer						Spring					
	2001	2002	2003	2004	2005	2001	2002	2003	2004	2005	2006	2001	2002	2003	2004	2005	2006
	End of Term Enrollment	End of Term Enrollment	End of Term Enrollment	End of Term Enrollment	End of Term Enrollment	End of Term Enrollment	End of Term Enrollment	End of Term Enrollment	End of Term Enrollment	End of Term Enrollment	End of Term Enrollment	End of Term Enrollment	End of Term Enrollment	End of Term Enrollment	End of Term Enrollment	End of Term Enrollment	End of Term Enrollment
MST 100	23	26	29	18	19	0	0	0	0	0	0	0	0	26	0	0	0
MST 101	12	0	0	0	0	0	0	0	6	0	0	0	11	15	14	14	8
MST 201	17	13	16	14	0	0	0	0	0	0	0	0	0	0	0	0	0
MST 202	0	11	13	0	16	0	0	0	0	0	0	1	0	0	0	0	0
MST 205	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0	0
MST 210	0	12	0	13	10	0	0	0	0	0	0	19	13	0	0	0	0
MST 211	15	0	0	0	0	0	0	0	0	0	0	1	0	17	13	0	0
MST 212	19	21	36	23	27	36	30	22	30	32	30	0	0	0	0	0	0
MST 214A	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0
MST 214B	0	0	0	16	0	0	0	0	0	0	0	26	22	19	24	20	21
MST 215	0	0	0	0	0	0	0	0	0	0	0	4	3	4	3	6	3
MST 216	0	0	0	0	0	0	0	0	0	0	0	18	10	0	18	16	0
Total	86	83	94	99	83	36	30	22	36	32	30	69	59	81	72	56	32

Summary of All Courses by Grade/Success/Retention

Marine Science and Seamanship Courses Summary of All Courses by Grade/Success/Retention

		Grades										success	retention	
		A	B	C	CR	D	F	I	NC	W	XX	Total		
		Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Percent	Percent
2001	Spring	14	29	14	0	0	8	0	1	2	1	69	82.6%	97.1%
	Summer	23	7	2	0	2	2	0	0	0	0	36	88.9%	100.0%
	Fall	34	20	13	1	4	4	0	1	7	2	86	79.1%	91.9%
2002	Spring	25	16	7	2	0	3	2	0	4	0	59	84.7%	93.2%
	Summer	17	7	4	0	0	2	0	0	0	0	30	93.3%	100.0%
	Fall	36	13	9	1	2	12	0	1	8	1	83	71.1%	90.4%
2003	Spring	25	16	11	7	2	11	0	2	6	1	81	72.8%	92.6%
	Summer	6	8	6	0	1	1	0	0	0	0	22	90.9%	100.0%
	Fall	39	18	6	2	6	5	0	5	5	8	94	69.1%	94.7%
2004	Spring	22	14	9	4	2	5	0	5	8	3	72	68.1%	88.9%
	Summer	17	3	8	3	1	3	0	1	0	0	36	86.1%	100.0%
	Fall	41	19	11	10	1	5	0	3	5	4	99	81.8%	94.9%
2005	Spring	16	10	6	3	1	10	0	5	2	3	56	62.5%	96.4%
	Summer	13	8	1	2	2	1	0	0	5	0	32	75.0%	84.4%
	Fall	26	8	5	5	1	12	0	14	8	4	83	53.0%	90.4%
2006	Spring	7	4	6	7	1	2	0	3	1	1	32	75.0%	96.9%
	Summer	11	9	2	5	1	2	0	0	0	0	30	90.0%	100.0%

Grade XX = None of the above/unknown.

Success Rate: Percent of students successful in courses out of total enrolled in courses (RP Group, 1996).

The success rate is calculated by dividing the numerator (number of students duplicated with A, B, C, CR) by the denominator (number of students with A, B, C, D, F, CR, NC, W, I, XX)

Retention Rate: Percent of students retained in courses out of total students enrolled in courses (RP Group, 1996).

The retention rate is calculated by dividing the numerator (number of students duplicated with A, B, C, D, F, CR, NC, I, XX) by the denominator (number of students with A, B, C, D, F, CR, NC, W, I, XX).

Summary of MST 100 & MST 101 by Grade/Success/Retention

Marine Science and Seamanship Courses Courses by Grade/Success/Retention

			Grades									success	retention		
			A	B	C	CR	D	F	I	NC	W	XX	Total		
			Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Percent	Percent
MST 100	2001	Fall	10	2	3	0	2	2	0	0	2	2	23	65.2%	91.3%
	2002	Fall	8	2	4	1	1	8	0	0	2	0	26	57.7%	92.3%
	2003	Spring	9	6	2	2	2	4	0	0	1	0	26	73.1%	96.2%
		Fall	6	5	4	0	1	4	0	1	2	6	29	51.7%	93.1%
	2004	Fall	5	5	2	1	0	2	0	0	0	3	18	72.2%	100.0%
	2005	Fall	5	0	0	0	0	7	0	3	0	4	19	26.3%	100.0%
MST 101	2001	Fall	5	1	1	0	2	2	0	1	0	0	12	58.3%	100.0%
	2002	Spring	7	0	1	0	0	1	2	0	0	0	11	72.7%	100.0%
	2003	Spring	6	0	2	0	0	4	0	0	3	0	15	53.3%	80.0%
	2004	Spring	7	4	0	0	2	1	0	0	0	0	14	78.6%	100.0%
		Summer	2	1	0	0	0	3	0	0	0	0	6	50.0%	100.0%
	2005	Spring	5	3	0	0	0	6	0	0	0	0	14	57.1%	100.0%
2006	Spring	3	3	2	0	0	0	0	0	0	0	8	100.0%	100.0%	

Grade XX = None of the above/unknown.

Success Rate: Percent of students successful in courses out of total enrolled in courses (RP Group, 1996).

The success rate is calculated by dividing the numerator (number of students duplicated with A, B, C, CR) by the denominator (number of students with A, B, C, D, F, CR, NC, W, I, XX)

Retention Rate: Percent of students retained in courses out of total students enrolled in courses (RP Group, 1996).

The retention rate is calculated by dividing the numerator (number of students duplicated with A, B, C, D, F, CR, NC, I*, XX) by the denominator (number of students with A, B, C, D, F, CR, NC, W, I, XX).

Summary of MST 201 & MST 202 by Grade/Success/Retention

Marine Science and Seamanship Courses Courses by Grade/Success/Retention

			Grades									success	retention	
			A	B	C	CR	D	F	NC	W	XX	Total		
			Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Percent	Percent
MST 201	2001	Fall	6	5	3	0	0	0	0	3	0	17	82.4%	82.4%
	2002	Fall	9	1	1	0	0	0	0	2	0	13	84.6%	84.6%
	2003	Fall	8	5	1	0	0	0	0	1	1	16	87.5%	93.8%
	2004	Fall	4	3	1	5	0	0	0	1	0	14	92.9%	92.9%
MST 202	2001	Spring	0	1	0	0	0	0	0	0	0	1	100.0%	100.0%
	2002	Fall	2	2	1	0	1	3	1	0	1	11	45.5%	100.0%
	2003	Fall	5	1	0	2	0	0	4	0	1	13	61.5%	100.0%
	2005	Fall	5	1	0	3	0	0	3	4	0	16	56.3%	75.0%

Grade XX = None of the above/unknown.

Success Rate: Percent of students successful in courses out of total enrolled in courses (RP Group, 1996).

The success rate is calculated by dividing the numerator (number of students duplicated with A, B, C, CR) by the denominator (number of students with A, B, C, D, F, CR, NC, W, I, XX)

Retention Rate: Percent of students retained in courses out of total students enrolled in courses (RP Group, 1996).

The retention rate is calculated by dividing the numerator (number of students duplicated with A, B, C, D, F, CR, NC, I*, XX) by the denominator (number of students with A, B, C, D, F, CR, NC, W, I, XX).

Summary of MST 205, MST 210, & MST 211 by Grade/Success/Retention

Marine Science and Seamanship Courses Courses by Grade/Success/Retention

			Grades									success	retention	
			A	B	C	CR	D	F	NC	W	XX	Total		
			Count	Count	Count	Count	Count	Count	Count	Count	Count	Count	Percent	Percent
MST 205	2004	Fall	5	5	1	1	1	1	0	0	1	15	80.0%	100.0%
MST 210	2001	Spring	6	8	4	0	0	0	0	1	0	19	94.7%	94.7%
	2002	Spring	5	6	1	0	0	0	0	1	0	13	92.3%	92.3%
		Fall	4	4	0	0	0	0	0	4	0	12	66.7%	66.7%
	2004	Fall	7	1	2	2	0	0	1	0	0	13	92.3%	100.0%
	2005	Fall	4	2	2	0	0	0	1	1	0	10	80.0%	90.0%
MST 211	2001	Spring	0	0	1	0	0	0	0	0	0	1	100.0%	100.0%
		Fall	3	6	4	0	0	0	0	2	0	15	86.7%	86.7%
	2003	Spring	6	4	4	0	0	0	0	2	1	17	82.4%	88.2%
	2004	Spring	5	2	3	0	0	0	0	1	2	13	76.9%	92.3%

Grade XX = None of the above/unknown.

Success Rate: Percent of students successful in courses out of total enrolled in courses (RP Group, 1996).

The success rate is calculated by dividing the numerator (number of students duplicated with A, B, C, CR) by the denominator (number of students with A, B, C, D, F, CR, NC, W, I, XX)

Retention Rate: Percent of students retained in courses out of total students enrolled in courses (RP Group, 1996).

The retention rate is calculated by dividing the numerator (number of students duplicated with A, B, C, D, F, CR, NC, I*, XX) by the denominator (number of students with A, B, C, D, F, CR, NC, W, I, XX).

Summary of MST 212 by Grade/Success/Retention

Marine Science and Seamanship Courses Courses by Grade/Success/Retention

			Grades								success	retention	
			A	B	C	CR	D	F	NC	W	Total		
			Count	Count	Count	Count	Count	Count	Count	Count	Count	Percent	Percent
MST 212	2001	Summer	23	7	2	0	2	2	0	0	36	88.9%	100.0%
		Fall	10	6	2	1	0	0	0	0	19	100.0%	100.0%
	2002	Summer	17	7	4	0	0	2	0	0	30	93.3%	100.0%
		Fall	13	4	3	0	0	1	0	0	21	95.2%	100.0%
	2003	Summer	6	8	6	0	1	1	0	0	22	90.9%	100.0%
		Fall	20	7	1	0	5	1	0	2	36	77.8%	94.4%
	2004	Summer	15	2	8	3	1	0	1	0	30	93.3%	100.0%
		Fall	14	3	4	0	0	1	1	0	23	91.3%	100.0%
	2005	Summer	13	8	1	2	2	1	0	5	32	75.0%	84.4%
		Fall	10	4	3	2	1	3	4	0	27	70.4%	100.0%
	2006	Summer	11	9	2	5	1	2	0	0	30	90.0%	100.0%

Grade XX = None of the above/unknown.

Success Rate: Percent of students successful in courses out of total enrolled in courses (RP Group, 1996).

The success rate is calculated by dividing the numerator (number of students duplicated with A, B, C, CR) by the denominator (number of students with A, B, C, D, F, CR, NC, W, I, XX)

Retention Rate: Percent of students retained in courses out of total students enrolled in courses (RP Group, 1996).

The retention rate is calculated by dividing the numerator (number of students duplicated with A, B, C, D, F, CR, NC, I*, XX) by the denominator (number of students with A, B, C, D, F, CR, NC, W, I, XX).

Summary of MST 214A & MST 214B by Grade/Success/Retention

Marine Science and Seamanship Courses Courses by Grade/Success/Retention

			Grades								success	retention	
			A	B	C	CR	F	NC	W	XX	Total		
			Count	Count	Count	Count	Count	Count	Count	Count	Count	Percent	Percent
MST 214A	2005	Fall	2	1	0	0	2	3	3	0	11	27.3%	72.7%
MST 214B	2001	Spring	2	11	2	0	8	1	1	1	26	57.7%	96.2%
	2002	Spring	9	4	3	2	2	0	2	0	22	81.8%	90.9%
	2003	Spring	2	6	2	5	3	1	0	0	19	78.9%	100.0%
	2004	Spring	4	3	1	2	4	4	6	0	24	41.7%	75.0%
		Fall	6	2	1	1	1	1	4	0	16	62.5%	75.0%
	2005	Spring	3	3	0	2	4	3	2	3	20	40.0%	90.0%
2006	Spring	3	1	4	6	2	3	1	1	21	66.7%	95.2%	

Grade XX = None of the above/unknown.

Success Rate: Percent of students successful in courses out of total enrolled in courses (RP Group, 1996).

The success rate is calculated by dividing the numerator (number of students duplicated with A, B, C, CR) by the denominator (number of students with A, B, C, D, F, CR, NC, W, I, XX)

Retention Rate: Percent of students retained in courses out of total students enrolled in courses (RP Group, 1996).

The retention rate is calculated by dividing the numerator (number of students duplicated with A, B, C, D, F, CR, NC, I*, XX) by the denominator (number of students with A, B, C, D, F, CR, NC, W, I, XX).

Summary of MST 215 & MST 216 by Grade/Success/Retention

Marine Science and Seamanship Courses Courses by Grade/Success/Retention

			Grades								success	retention	
			A	B	C	CR	D	NC	W	XX	Total	Percent	Percent
			Count	Count	Count	Count	Count	Count	Count	Count	Count		
MST 215	2001	Spring	1	2	1	0	0	0	0	0	4	100.0%	100.0%
	2002	Spring	2	0	0	0	0	0	1	0	3	66.7%	66.7%
	2003	Spring	2	0	1	0	0	1	0	0	4	75.0%	100.0%
	2004	Spring	1	0	1	0	0	1	0	0	3	66.7%	100.0%
	2005	Spring	3	0	0	0	1	2	0	0	6	50.0%	100.0%
	2006	Spring	1	0	0	1	1	0	0	0	3	66.7%	100.0%
MST 216	2001	Spring	5	7	6	0	0	0	0	0	18	100.0%	100.0%
	2002	Spring	2	6	2	0	0	0	0	0	10	100.0%	100.0%
	2004	Spring	5	5	4	2	0	0	1	1	18	88.9%	94.4%
	2005	Spring	5	4	6	1	0	0	0	0	16	100.0%	100.0%

Grade XX = None of the above/unknown.

Success Rate: Percent of students successful in courses out of total enrolled in courses (RP Group, 1996).

The success rate is calculated by dividing the numerator (number of students duplicated with A, B, C, CR) by the denominator (number of students with A, B, C, D, F, CR, NC, W, I, XX).

Retention Rate: Percent of students retained in courses out of total students enrolled in courses (RP Group, 1996).

The retention rate is calculated by dividing the numerator (number of students duplicated with A, B, C, D, F, CR, NC, I*, XX) by the denominator (number of students with A, B, C, D, F, CR, NC, W, I, XX).

Gender by Year/Term

Marine Science and Seamanship Courses Gender by Year/Term Duplicated Headcount

		F		M		Total	
		Count	Row %	Count	Row %	Count	Row %
2001	Spring	16	23.2%	53	76.8%	69	100.0%
	Summer	23	63.9%	13	36.1%	36	100.0%
	Fall	38	44.2%	48	55.8%	86	100.0%
2002	Spring	22	37.3%	37	62.7%	59	100.0%
	Summer	14	46.7%	16	53.3%	30	100.0%
	Fall	19	22.9%	64	77.1%	83	100.0%
2003	Spring	27	33.3%	54	66.7%	81	100.0%
	Summer	10	45.5%	12	54.5%	22	100.0%
	Fall	38	40.4%	56	59.6%	94	100.0%
2004	Spring	19	26.4%	53	73.6%	72	100.0%
	Summer	13	36.1%	23	63.9%	36	100.0%
	Fall	43	43.4%	56	56.6%	99	100.0%
2005	Spring	13	23.2%	43	76.8%	56	100.0%
	Summer	15	46.9%	17	53.1%	32	100.0%
	Fall	27	32.5%	56	67.5%	83	100.0%
2006	Spring	11	34.4%	21	65.6%	32	100.0%
	Summer	9	30.0%	21	70.0%	30	100.0%

Courses by Zip Code

Marine Science and Seamanship Courses by Zip Code Duplicated Headcount

		Saddleback		Irvine		Out of District		Total	
		Count	Row %	Count	Row %	Count	Row %	Count	Row %
2001	Spring	57	82.6%	1	1.4%	11	15.9%	69	100.0%
	Summer	33	91.7%	0	.0%	3	8.3%	36	100.0%
	Fall	66	76.7%	7	8.1%	13	15.1%	86	100.0%
2002	Spring	52	88.1%	0	.0%	7	11.9%	59	100.0%
	Summer	27	90.0%	0	.0%	3	10.0%	30	100.0%
	Fall	72	86.7%	3	3.6%	8	9.6%	83	100.0%
2003	Spring	61	75.3%	4	4.9%	16	19.8%	81	100.0%
	Summer	21	95.5%	0	.0%	1	4.5%	22	100.0%
	Fall	75	79.8%	2	2.1%	17	18.1%	94	100.0%
2004	Spring	59	81.9%	1	1.4%	12	16.7%	72	100.0%
	Summer	32	88.9%	0	.0%	4	11.1%	36	100.0%
	Fall	83	83.8%	2	2.0%	14	14.1%	99	100.0%
2005	Spring	43	76.8%	1	1.8%	12	21.4%	56	100.0%
	Summer	26	81.3%	3	9.4%	3	9.4%	32	100.0%
	Fall	62	74.7%	2	2.4%	19	22.9%	83	100.0%
2006	Spring	26	81.3%	1	3.1%	5	15.6%	32	100.0%
	Summer	24	80.0%	0	.0%	6	20.0%	30	100.0%

Age Group Distribution by Year/Term

Marine Science and Seamanship Courses Age Group Distribution by Year/Term Duplicated Headcount

		Age Groups														Total	
		Below 17		18-21		22-25		26-35		36-50		51-65		Over 65			
		Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %		
2001	Spring	5	7.2%	7	10.1%	3	4.3%	10	14.5%	30	43.5%	13	18.8%	1	1.4%	69	100.0%
	Summer	1	2.8%	4	11.1%	2	5.6%	10	27.8%	15	41.7%	4	11.1%	0	.0%	36	100.0%
	Fall	1	1.2%	15	17.4%	11	12.8%	10	11.6%	23	26.7%	24	27.9%	2	2.3%	86	100.0%
2002	Spring	3	5.1%	6	10.2%	4	6.8%	6	10.2%	28	47.5%	12	20.3%	0	.0%	59	100.0%
	Summer	4	13.3%	3	10.0%	3	10.0%	5	16.7%	9	30.0%	5	16.7%	1	3.3%	30	100.0%
	Fall	2	2.4%	21	25.3%	7	8.4%	15	18.1%	25	30.1%	12	14.5%	1	1.2%	83	100.0%
2003	Spring	2	2.5%	21	25.9%	13	16.0%	14	17.3%	21	25.9%	9	11.1%	1	1.2%	81	100.0%
	Summer	1	4.5%	4	18.2%	1	4.5%	7	31.8%	7	31.8%	2	9.1%	0	.0%	22	100.0%
	Fall	5	5.3%	27	28.7%	16	17.0%	12	12.8%	21	22.3%	9	9.6%	4	4.3%	94	100.0%
2004	Spring	2	2.8%	14	19.4%	6	8.3%	13	18.1%	19	26.4%	16	22.2%	2	2.8%	72	100.0%
	Summer	2	5.6%	3	8.3%	6	16.7%	8	22.2%	13	36.1%	4	11.1%	0	.0%	36	100.0%
	Fall	6	6.1%	30	30.3%	14	14.1%	17	17.2%	23	23.2%	7	7.1%	2	2.0%	99	100.0%
2005	Spring	2	3.6%	10	17.9%	4	7.1%	9	16.1%	22	39.3%	9	16.1%	0	.0%	56	100.0%
	Summer	1	3.1%	3	9.4%	1	3.1%	8	25.0%	14	43.8%	5	15.6%	0	.0%	32	100.0%
	Fall	2	2.4%	14	16.9%	4	4.8%	16	19.3%	31	37.3%	15	18.1%	1	1.2%	83	100.0%
2006	Spring	0	.0%	9	28.1%	2	6.3%	3	9.4%	12	37.5%	6	18.8%	0	.0%	32	100.0%
	Summer	2	6.7%	3	10.0%	5	16.7%	13	43.3%	3	10.0%	3	10.0%	1	3.3%	30	100.0%

Ethnicity by Year/Term

Marine Science and Seamanship Courses Ethnicity by Year/Term Duplicated Headcount

		Ethnic Groups																	
		Asian		African American		Hispanic		American Indian/Alaskan Native		Other		Pacific Islander		White		Unknown		Total	
		Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %	Count	Row %
2001	Spring	1	1.4%	0	.0%	0	.0%	2	2.9%	0	.0%	0	.0%	56	81.2%	10	14.5%	69	100.0%
	Summer	2	5.6%	1	2.8%	1	2.8%	0	.0%	1	2.8%	0	.0%	25	69.4%	6	16.7%	36	100.0%
	Fall	7	8.1%	1	1.2%	5	5.8%	1	1.2%	1	1.2%	1	1.2%	60	69.8%	10	11.6%	86	100.0%
2002	Spring	2	3.4%	0	.0%	1	1.7%	1	1.7%	1	1.7%	0	.0%	46	78.0%	8	13.6%	59	100.0%
	Summer	1	3.3%	0	.0%	6	20.0%	1	3.3%	0	.0%	0	.0%	18	60.0%	4	13.3%	30	100.0%
	Fall	4	4.8%	0	.0%	5	6.0%	0	.0%	3	3.6%	2	2.4%	56	67.5%	13	15.7%	83	100.0%
2003	Spring	4	4.9%	1	1.2%	5	6.2%	0	.0%	3	3.7%	1	1.2%	58	71.6%	9	11.1%	81	100.0%
	Summer	3	13.6%	0	.0%	4	18.2%	0	.0%	0	.0%	0	.0%	12	54.5%	3	13.6%	22	100.0%
	Fall	3	3.2%	0	.0%	5	5.3%	0	.0%	0	.0%	1	1.1%	70	74.5%	15	16.0%	94	100.0%
2004	Spring	1	1.4%	0	.0%	4	5.6%	1	1.4%	0	.0%	1	1.4%	44	61.1%	21	29.2%	72	100.0%
	Summer	3	8.3%	1	2.8%	4	11.1%	0	.0%	0	.0%	0	.0%	21	58.3%	7	19.4%	36	100.0%
	Fall	6	6.1%	0	.0%	8	8.1%	1	1.0%	0	.0%	0	.0%	70	70.7%	14	14.1%	99	100.0%
2005	Spring	2	3.6%	1	1.8%	6	10.7%	1	1.8%	0	.0%	0	.0%	39	69.6%	7	12.5%	56	100.0%
	Summer	3	9.4%	0	.0%	2	6.3%	0	.0%	0	.0%	0	.0%	25	78.1%	2	6.3%	32	100.0%
	Fall	3	3.6%	0	.0%	11	13.3%	2	2.4%	0	.0%	0	.0%	60	72.3%	7	8.4%	83	100.0%
2006	Spring	1	3.1%	0	.0%	4	12.5%	0	.0%	0	.0%	1	3.1%	22	68.8%	4	12.5%	32	100.0%
	Summer	5	16.7%	0	.0%	4	13.3%	1	3.3%	0	.0%	0	.0%	17	56.7%	3	10.0%	30	100.0%

Educational Goals by Year/Term

Marine Science and Seamanship Courses Educational Goals by Year/Term Duplicated Headcount

	2001				2002				2003				2004				2005				2006	
	Spring		Fall		Spring		Fall		Spring		Fall		Spring		Fall		Spring		Fall		Spring	
	Count	Column %	Count	Column %	Count	Column %	Count	Column %	Count	Column %	Count	Column %	Count	Column %	Count	Column %	Count	Column %	Count	Column %	Count	Column %
AA/AS and transfer	10	14.5%	8	9.3%	5	8.5%	15	18.1%	11	13.6%	18	19.1%	7	9.7%	27	27.3%	8	14.3%	9	10.8%	6	18.8%
Transfer w/o AA/AS	3	4.3%	5	5.8%	1	1.7%	5	6.0%	5	6.2%	7	7.4%	6	8.3%	4	4.0%	2	3.6%	5	6.0%	1	3.1%
AA/AS w/o transfer	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	1	1.0%	0	.0%	0	.0%	0	.0%
2-yr Voc. w/o transfer	0	.0%	0	.0%	2	3.4%	4	4.8%	0	.0%	1	1.1%	0	.0%	1	1.0%	0	.0%	1	1.2%	0	.0%
Voc. certif. w/o transfer	3	4.3%	2	2.3%	2	3.4%	1	1.2%	3	3.7%	3	3.2%	5	6.9%	10	10.1%	4	7.1%	6	7.2%	1	3.1%
Discover interests	2	2.9%	15	17.4%	5	8.5%	7	8.4%	9	11.1%	7	7.4%	1	1.4%	12	12.1%	3	5.4%	5	6.0%	2	6.3%
Acquire job skills	5	7.2%	13	15.1%	5	8.5%	6	7.2%	17	21.0%	10	10.6%	11	15.3%	9	9.1%	9	16.1%	12	14.5%	7	21.9%
Update job skills	3	4.3%	2	2.3%	0	.0%	4	4.8%	4	4.9%	6	6.4%	5	6.9%	3	3.0%	1	1.8%	8	9.6%	3	9.4%
Maintain cert. or lisc.	1	1.4%	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	1	1.4%	1	1.0%	0	.0%	0	.0%	0	.0%
Ed. development	37	53.6%	32	37.2%	36	61.0%	31	37.3%	26	32.1%	26	27.7%	22	30.6%	21	21.2%	23	41.1%	27	32.5%	7	21.9%
Basic Skills	2	2.9%	0	.0%	1	1.7%	1	1.2%	0	.0%	1	1.1%	4	5.6%	0	.0%	2	3.6%	4	4.8%	2	6.3%
HS or GED	0	.0%	0	.0%	0	.0%	0	.0%	0	.0%	2	2.1%	1	1.4%	1	1.0%	1	1.8%	0	.0%	0	.0%
Undecided	3	4.3%	9	10.5%	2	3.4%	7	8.4%	6	7.4%	13	13.8%	9	12.5%	8	8.1%	3	5.4%	6	7.2%	3	9.4%
Unknown	0	.0%	0	.0%	0	.0%	2	2.4%	0	.0%	0	.0%	0	.0%	1	1.0%	0	.0%	0	.0%	0	.0%
Total	69	100.0%	86	100.0%	59	100.0%	83	100.0%	81	100.0%	94	100.0%	72	100.0%	99	100.0%	56	100.0%	83	100.0%	32	100.0%

Awarded Certificates by Academic Year

Marine Science Technology	2005-06
Marine Science Technician	1

Data Source: SOCCCD Awards Management System, November 6, 2006