EXECUTIVE SUMMARY

Mote Marine Proposal for "Red Tide Monitoring" totaling $3,800

OBJECTIVE: Review and recommend ongoing support of Mote Marine Red Tide Reporting System.

CONSIDERATIONS: In response to numerous phone calls to Mote Marine Laboratory during the red tide bloom of 2005 from people who wanted to know which beaches were affected by red tide, Dr. Barbara Kirkpatrick developed a tool for responding to these calls, which is officially known as the Beach Conditions Reporting System.

The System was implemented in Sarasota County in 2006 with initial funding provided by the Florida Department of Health. An FWCC grant in 2007 allowed the program to expand to seven reporting sites in Collier County. Unfortunately, that funding source has been closed due to the shortfall in the State's budget. Unless funding revenue can be found, the Beach Conditions Reporting System in Collier County will be closed June 30, 2010.

Currently, the daily system reports are used by the following:

- **NOAA HAB forecasters** who utilize the twice daily data to enhance their modeling techniques for where and when a red tide may hit a coastal beach and for real-time observations of how patchy or continuous a bloom is on the coastline (validation of their forecasts)

- **NOAA National Weather Service** – collaboration enhances the model of the forecasting of rip currents and beach erosion factors

- **General Public**
  - Mothers with infants wanting to find the calmest surf condition**s**
  - Surfers checking the site
  - Asthmatics who know they should not be exposed to the red tide aerosols
  - Pet owners who know red tide and contaminated dead fish can harm their animals
  - Snorkelers looking for best visibility
  - Visitors with mobile computer access

If a Red Tide incident is detected, the beach maintenance team is informed to install the "Red Tide Information "signs that are stationed along the Collier beaches. These signs were a split funded project of Category A and B funds. The data collected from our beach maintenance team is transmitted from wireless "Blackberry" devices directly to Mote Marine and the posted on their website. There is a link to the beach conditions report on the CVB website, www.paradisecoast.com.

The data on the website allows visitors and residents to make good, informed choices about which beaches to visit each day. It also offers those at risk for respiratory problems the information that allows them to protect themselves and, in some cases, avoid a trip to the emergency room.

FISCAL IMPACT:

Budget: The annual budget needed to keep the Beach Conditions Reporting System 'live' is $17, 174 for all the Counties involved. Collier County's share would be $3,800 for 12 months, July 1, 2010- June 30, 2011.

Personnel: The following Mote Marine personnel are involved with maintaining the website and uploading date from the Blackberry's. A portion of their salary and benefits is included in the annual cost above.

Ms. Kate Nierenberg, 5% effort for on-site, one-on-one training of personnel, troubleshooting via telephone or in person, and is the end user contact for all questions/concerns.

Mr. Robert Currier, 5% effort. Provides programming, data transfer to the NOAA HAB Bulletin and HAB Research Centers, web page and voice interface.

Wireless Internet Support

Wireless Internet service for 7 Collier County reporting sites, plus a back up unit is requested at $60/month for 12 months.

RECOMMENDATION: The Red Tide Reporting System has proven to be a good tool in keeping the public informed of beach conditions. The recommendation is to split the funding for this project between Category A and Category B funds at $1900 each.

SUBMITTED BY: Jack Wert, Tourism Director

The Beach Conditions Reporting System for Collier County: Continuing Support

I. Introduction

Recent research has shown significant health effects from aerosolized *Karenia brevis* blooms. People with chronic respiratory illnesses are particularly sensitive to the toxins and should avoid exposure. The Beach Conditions Reporting System provides near real time beach conditions to allow people to select their beach recreation site to minimize their exposure to these toxins.

Florida red tides of the dinoflagellate, *Karenia brevis*, produce neurotoxins. These neurotoxins become part of the marine aerosol and beachgoers inhale these toxins. Recent research has demonstrated changes in symptoms and pulmonary function in asthmatics after a one hour walk on the beach during a Florida red tide. Other collaborative studies have shown an increase in respiratory admission to Emergency Rooms during red tide and have shown that asthmatics report increased symptoms for several days after a one-hour beach exposure to red tide aerosols. The emerging public health science indicates there is a need to minimize human exposure to these airborne toxins.

In addition to the impacts on human health, the impacts of significant red tide blooms on Florida's tourism and recreational sectors which have typically made up about 75% of the state's total economy are substantial. The southwest Gulf coast suffered mightily during the red tide blooms of 2004, 2005, and 2006. Some estimates of losses to waterfront businesses range from $2.8 million to $3.7 million per month.

II. Project Description – Beach Conditions Reporting System: Collier County

A. Introduction

Traditionally, Florida red tide monitoring has been by microscopic cell counts. Although extremely accurate, results may take several days to be reported, and by that time, conditions at any specific beach have changed. The measurement of toxins in the air is also extremely accurate, but requires sophisticated equipment and intense laboratory analysis methods. With the recent research on health impacts to sensitive populations such as asthmatics, there is a need to report beach conditions, specifically the effects of toxins in the air, so people can adjust their beach selection and/or day selection accordingly. People are very good sentinels of the red tide aerosols, with even healthy subjects reporting a dry, tickling type cough when toxins are present. Therefore, subjective monitoring of respiratory irritation is an excellent surrogate for objective toxin measurement.

In addition to the value of alerting citizens and visitors who may need to avoid the beaches affected by red tide for health reasons, this System also provides a unique tool for those going to beaches for strictly recreational

reasons. They may check the conditions at numerous local beaches to select ones not impacted by red tide or they may choose to visit other tourist attractions in the area on a "bad" beach day, knowing that tomorrow may present a "good" beach day. This information allows alternative activity decisions to be made which may very well keep them in a coastal community for their entire vacation rather than leaving prematurely.

B. Beach Conditions Reporting System Operation

In response to numerous phone calls to Mote Marine Laboratory during the red tide bloom of 2005 from people who wanted to know which beaches were affected by red tide, Dr. Kirkpatrick's ingenuity led her to develop a tool for responding to these calls and the Beach Conditions Reporting System was born.

The System was implemented in Sarasota County in 2006 with initial funding provided by the Florida Department of Health. Dr. Kirkpatrick successfully competed for a FWCC grant in 2007 that allowed her to expand to the 7 sites in Collier County. Unfortunately, that funding source has been closed due to the shortfall in the State's budget. Unless funding revenue can be found, the Beach Conditions Reporting System in Collier County will be closed June 30, 2010.

Currently, the daily reports are used by the following:

- **NOAA HAB forecasters** who utilize the twice daily data to enhance their modeling techniques for where and when a red tide may hit a coastal beach and for real-time observations of how patchy or continuous a bloom is on the coastline (validation of their forecasts)

- **NOAA National Weather Service** – collaboration enhances the model of the forecasting or rip currents and beach erosion factors

- **General Public –** who uses the beach conditions reports and how?
  - Mothers with infants wanting to find the calmest surf conditions
  - Surfers checking the site
  - Asthmatics who know they should not be exposed to the red tide aerosols
  - Pet owners who know red tide and contaminated dead fish can harm their animals
  - Snorkelers looking for best visibility

All of those members of the general public cited above may be tourists and the impact of having the information from the Beach Conditions Reporting System may be substantial. The data allows tourists to make good, informed choices about which beaches to visit each day. It also offers those at risk for respiratory problems the information that allows them to protect themselves and, in some cases, avoid a trip to the emergency room. In addition, tourism officials use the site to entice tourists to choose their beaches rather than communities without daily beach reports.

C. Project Management

Dr. Barbara Kirkpatrick, Senior Scientist at Mote Marine Laboratory and Program Manager of the Environmental Health Program, is the project manager. She has a proven track record of project coordination including multi-institutional field studies with the currently funded NIEHS project. She is responsible for budget management, media requests, invoices and progress reports. Dr. Kirkpatrick is also a leading researcher on the impacts of red tide on human health.

D. Budget

The annual budget needed to keep the Beach Conditions Reporting System 'live' is $17, 174.

E. Budget Justification

Personnel

Ms. Kate Nierenberg, 5% effort. Ms. Nierenberg is be responsible for on-site, one-on-one training of personnel, troubleshooting via telephone or in person, and is the end user contact for all questions/concerns.

Mr. Robert Currier, 5% effort. Mr. Currier provides programmed PDAs, technology transfer to MML COOL room, web page and voice interface. Mr. Currier makes changes to data submission page and/or website at the direction of Dr. Kirkpatrick. Mr. Currier will be responsible for the data transfer to the NOAA HAB Bulletin and HAB Research Centers, and any other agencies requesting the data.

Mote's fringe benefit is calculated at 35% based on salary. The indirect rate is 78% on salary and fringe only.

Wirless Internet Support

Wireless Internet service for 7 Collier County reporting sites, plus a back up unit is requested at $60/month for 12 months.