

# Biotechnology's New Wave in Florida



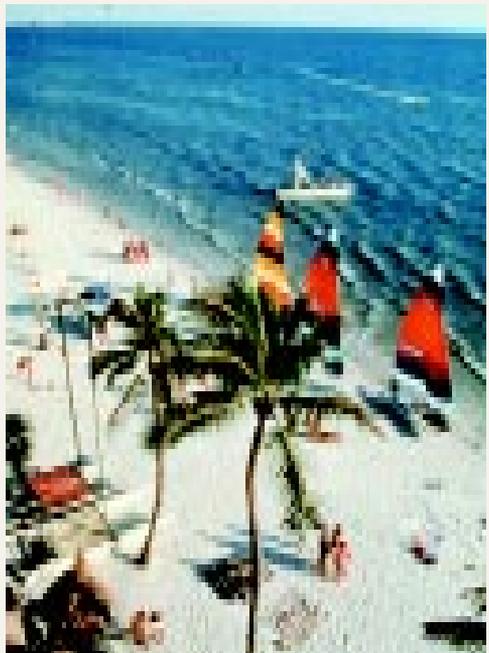
## **Issues and opportunities for developing ideas, products and services from the ocean**

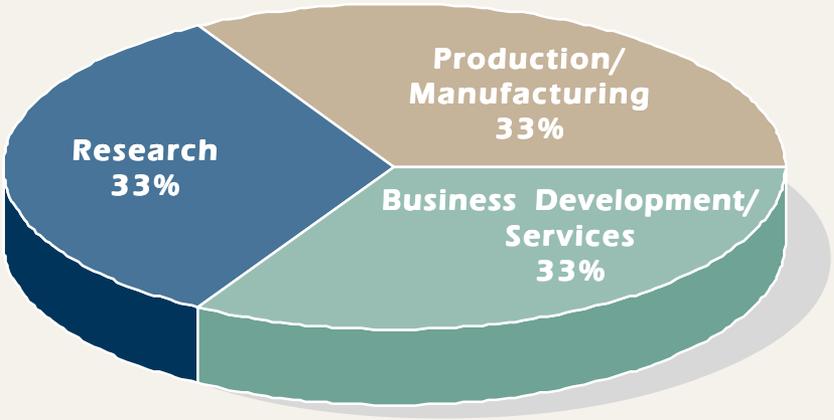
*Marine biotechnology is a new economic sector globally, and is in its infancy in Florida. As an industry, it is still a very small part of biotechnology overall, but one where Florida has potential and real advantages over many areas for developing a robust commercial, technical and educational investment.*

**F**lorida Sea Grant conducted a project to describe the awareness, interest and effort of a cross-section of Florida's biotechnology industry. Its aim was to characterize Florida business, including research and entrepreneurial interests in opportunities related to the resources of the ocean and its outlook to develop ocean-related products and processes. This study attempted to take the pulse of Florida's biotechnology industry in order to inform business leaders, university faculty, and government/legislative interests about possibilities for development of this sector.

Forty of the "core" organizational members of BIOFlorida (the industry's statewide trade association) were contacted and invited to participate. With guidance from the state's economic development agency, Enterprise Florida, questions were posed to determine each organization's effort in biotechnology overall, current or planned activity related to ocean resources, and level of interest in learning more about the field.

*Florida's coasts and ocean systems are major components of the state's economy. Beach tourism, fishing and boating are all economic powerhouses. Can 'marine biotechnology' attain such stature?*





Florida biotechnology companies emphasize three principal activities: production/manufacturing; research; and, business development/services.

## Good News, Bio-News

The good news is that there were 22 respondents out of the study sample of 40. Statistically, that represents a 55 percent return, and the study findings based on these responses provide a credible indicator of these respondents' position in the industry. The bio-news is that, without the cooperation of the other 18 firms that were contacted, it is not possible to project study findings in a way that can be fully representative of the state marine biotechnology industry. On the upside, despite this study limitation, important information can be summarized and generalized with confidence about the marine biotechnology industry in Florida.

# Findings

## **Many biotechnology companies in Florida are small.**

While 22 of them provided information for this study, in several other cases limited staff simply could not respond due to competing office needs and out-of-office workload.

## **Most Florida companies focus on medical aspects of biotechnology.**

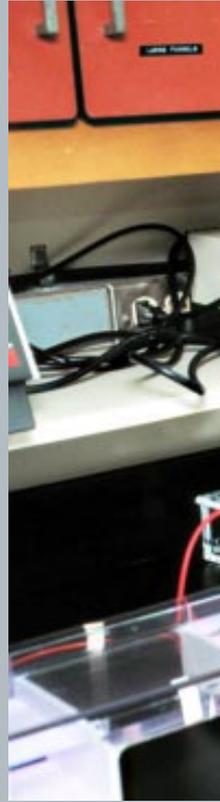
None of the firms or businesses reported that they address industrial compounds, quality of products or environment, or aquaculture.

## **Florida biotechnology companies emphasize three principal activities.**

There is equal emphasis among the three activities, namely production/manufacturing; research; and business development/services.

## **A majority of Florida biotechnology firms providing information expressed some level of interest in the potential of marine biotechnology.**

None of the five firms currently active in the field dismissed future activity. Of the 17 respondents not currently involved, more than half (9) indicated some interest in the field's potential.



Florida's small biotechnology firms focus on medical aspects of biotechnology, rather than industrial products or aquaculture.



technology sector may be poised to expand opportunities to develop medicines, and diagnostic procedures from the state's bountiful ocean systems.

## **Ocean-related biotechnology is at a low level in Florida.**

Five of the 22 businesses indicate involvement with aquatic and marine subjects, including two that focus on medical aspects of plant and fish physiological processes.

## **More than one third of respondents (8) expressed interest in an executive education course on marine biotechnology issues.**

The response represents 36 percent of the sample indicating interest in opportunities and practices that would enable informed decisions about level of involvement in the field.



A statewide consortium of university researchers is advancing Florida's marine biotechnological research and education.

## Enhancing the Marine Biotechnology Climate

The relatively low level of ocean-related effort in Florida's biotechnology industry is not surprising in view of the state's limited overall biotechnology effort (Florida ranks 10<sup>th</sup> nationwide in number of firms). But, it is surprising considering the state's extensive resources, natural and human. Currently, out-of-state firms not only hire Florida students away, but also sponsor and use research by Florida marine laboratories and university scientists.

For Florida's "New Wave" of biotechnology — specifically, marine biotechnology — to advance, it will have to capitalize on its advantages nationally. First, the state's natural environment is a huge resource because the high diversity of bays and oceans provides a storehouse of potential pharmaceutical, industrial and environmental products. A big plus: the only coral reef tracts in the mainland U.S. lie in the Florida Keys. From sponges, algae, coral and other organisms, research has already derived a popular cosmetic ingredient and techniques for "fingerprinting" marine products.

Second, a statewide consortium of university scientists is already tackling a range of issues including biomedical effectiveness of marine compounds, biosensors for detection of contaminants in marine waters and food products, and genetics. The effort is yielding not only trained students ready to work in industry, but also basic and applied technical

findings, patents and ideas ready for commercialization. Florida Sea Grant provides a directory (TP 110) describing the research of 76 faculty at major universities and marine research centers throughout the state (see web sites on final page).

These assets, coupled with state and local economic development initiatives, can only help propel Florida's ocean biotechnology efforts. Enterprise Florida plans to spend at least \$1 million on a marketing plan directed toward executives in the pharmaceutical and biotechnology industries, to encourage high tech companies to move to Florida, bringing knowledge-based jobs to the Sunshine State.

Florida's position among states that are national leaders in marine biotechnology has already been promoted through the partnering to date of state agencies, university and marine laboratory research, and the fledgling industry itself. What is needed is long-term funding for research, education and development, to capitalize on these existing partnerships.

The benefits from marine biotechnology will be many, including economic diversification, the creation of clean industry and high-paying jobs, and retention of well-trained students and expert scientists in Florida. More importantly, the development of products and services through marine biotechnology promises to improve the quality of our lives and the environment in which we live.



Mike Kane at the University of Florida has led research to develop a commercially viable technique for cloning sea oats. This superior sea oat is now widely used in coastal dune restoration efforts throughout Florida.



Researchers such as Shirley Pomponi of Harbor Branch Oceanographic Institution continue to develop bioactive compounds and pharmacological agents from organisms found naturally in the sea.

# For More Information

**Florida Sea Grant College Program**

<http://www.FlSeagrants.org>

**BIOFlorida**

<http://www.bioflorida.com>

**Biotechnology Industry Organization**

<http://www.bio.org>

**Enterprise Florida**

<http://www.eflorida.com>

**Florida Marine Biotechnology:** Research, development and training capabilities to advance science and commerce. TP 110. Available for download at:

[http://flseagrants.org/science/TP\\_110\\_Marine\\_Biotechnology.pdf](http://flseagrants.org/science/TP_110_Marine_Biotechnology.pdf)



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