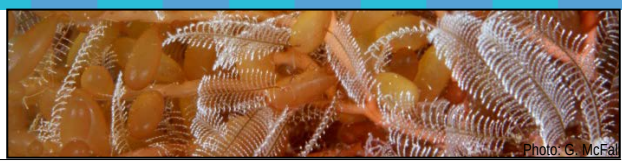
It's Alive! Algal Diversity in Gray's Reef



A diver examines macroalgae in Gray's Reef

Fun Algae Facts:

- Algae come in three different colors: green, brown, and red.
- The oceans cover 71% of the Earth's surface and it is estimated that algae produce up to 87% of the world's oxygen.
- Kelps are the largest variety of algae and can grow to be more than 200 feet tall.
- Microalgae called zooxanthellae live inside and provide food for corals.
- Seaweeds are not true plants because they don't have roots, stems, or leaves, but instead have holdfasts, stipes, and fronds or blades.
- Some seaweeds are only one cell thick.
- Some animals such as the leafy sea dragon look like seaweed to hide from animals that want to eat them.
- The seaweed extract in ice cream is used to keep it crystal free.
- Scientists are developing ways to grow algae as a source for biofuel to

Why are Algae Important?

Algae live underwater and can be microscopic (called microalgae) or large enough to see with your eyes (called seaweed or macroalgae). Have you ever eaten algae before? Chemical extracts from algae are added to many ice creams, yogurts, ketchups, and toothpastes. The tropical and subtropical beaches in south Florida and the Caribbean have calcareous sand that comes from, among other things, the carbonate bodies of algae after they die. Algae are also the base of the food chain in the ocean. As primary producers, they use sunlight to make sugar for their food. Other animals can eat the algae and gain some of the energy absorbed by the algae from the sunlight. If there were no algae we wouldn't have many animals in our oceans and our ice cream wouldn't taste as good. Gray's Reef wouldn't have schools of fish or sea turtles swimming through its reefs either.

History of Algae in Gray's Reef

Comprehensive macroalgal surveys in Gray's Reef were last conducted from 1983-1987 by Richard B. Searles. He collected seaweed at four sites in the northern part of the sanctuary and found 65 different kinds or species. He also saw that there were more species of macroalgae in Gray's Reef in the summer months.

Searching for Algae

Throughout June and July 2011, Nisse Goldberg and John Heine, from Jacksonville University, looked for macroalgae at the same four sites Searles searched in the 1980s in addition to four new sites in the southern part of the sanctuary in what is now the Gray's Reef Research Area. Once the SCUBA divers were on the bottom, they randomly placed a square made out of plastic (quadrat) on live bottom reef. The quadrat measured 8x8 inches. The divers then collected all of the seaweed within the quadrat. They repeated this process six different times at each of the eight sites. After they were done with the quadrats, divers swam nearby and collected samples of algae for 20 minutes. Onboard the boat, the scientists froze the seaweed samples until they could identify them.

Seaweed that Succeed!

The scientists identified 55 different species of seaweed from this survey in Gray's Reef. Out of those, 47 were the same species identified by Searles in the 1980s. Eight of the 55 newly surveyed macroalgae were new to Gray's Reef and four were new to Georgia entirely. All seaweed surveyed in Gray's Reef will help support its abundant animal life.

Collecting seaweed samples

Seaweed growing in Gray's Reef