Marine Biology and the Human Connection

Commercial Use of Sponges

Large species of sponges of the class Demospongia are harvested for commercial use. Their dried sponging skeletons can hold as much as 35 times their weight in liquid. In the early days of sponge fishing, divers would weight themselves down with heavy rocks while harvesting the sponges. Although today most sponge fishers use diving equipment, sponge divers who fish off the coast of Tunisia still use a lead weight and a rope. For thousands of years, Kalynos, Greece, was a major port for sponge fishers, until a disease killed off the rich sponge beds. Many Greek sponge fishers emigrated to Tarpon Springs, Florida, where their descendants still fish the sponge beds off the Florida coast.

It takes approximately 5 years for a sponge in the wild to reach a marketable size (12.5 centimeters, or 5 inches), and it will retail for about $10.00. Although this is expensive when compared with the price of synthetic sponges, many people are willing to pay the extra money for a sponge that is superior to any synthetic product. For some applications, such as polishing metal, there is no good substitute for a natural sponge.

Sponges may also prove to be sources of novel medications for fighting diseases. A chemical called cytosine arabinoside blocks DNA synthesis in tumors and is used in the treatment of cancer. This substance is isolated from a Caribbean sponge, *Cryptotethya crypta*. Sponges produce antibacterial chemicals and are thus generally free from bacterial infections. These chemical are being studied to see if they might have uses in the treatment of bacterial diseases of humans and livestock. Other potentially useful drugs from sponges are also being studied.

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Commercial Use of Sponges

1. What class in particular of sponges is harvested?
2. How many times their weight can sponges hold?
3. Where are sponges typically harvested from?
4. What are some uses for sponges?
5. How long does it take for a sponge to reach a marketable size?
6. What does the chemical cytosine arabinoside block?
7. Where is this chemical cytosine arabinoside isolated from?
8. What is another potential medicinal use of sponges?