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## Still making a splash

Scientist Lev Fishelson's career spans several decades, and includes the discovery of fish that can change their sex, the world's largest bacterium and a whole array of incredible underwater findings.

By Zafir Rinat | Mar.06, 2013 | 7:56 PM

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Israel's thrumming biological research and environmental-protection activities were started by a handful of scientists in the 1950s, and last week Tel Aviv University honored one of them, in honor of his 90th birthday.

For Prof. Lev Fishelson, the sea has been the love of his life.

Fishelson came to Palestine from Russia after World War II, with a background in biology. He is a member of the group of scientists headed by Prof. Heinrich Mendelssohn who founded Tel Aviv University. They were also among the founders of the Society for the Protection of Nature.

He acquired much of the knowledge of the field in which he was especially interested – the study of marine life – on his own. He took his first trip to Eilat in 1950. "I entered the water and after seeing what was there I decided that I wanted to study it," he said. According to Fishelson, not everyone was excited as he was: "Mendelssohn said that coral existed everywhere else in the world."

The marine scientists in Israel undertook research trips exploring the Gulf of Aqaba and the Red Sea, which Fishelson recently documented in a special document. These studies demonstrated that the reef in the gulf was rich in biodiversity. This knowledge has contributed towards raising public awareness of the need to protect it, and the scientists were among those who spearheaded the struggle to protect the coral reef in Eilat against contamination from various sources, including the city's sewage works.

### Sex-morphing fish

Fishelson was involved with the first stage of a study that was designed to improve the methods of increasing the growth of tilapia fish (locally known as "moosht" or "amnun"), and made a breakthrough in the field. He discovered that when two species of tilapia mate, they produce only male descendants.

This discovery was extremely important since it allowed growers to better regulate fish farming. It gave farmers the ability to raise tilapia in different regions across the globe, and to generate an important food source.

Later on he made other highly important scientific discoveries. One of the most prominent among these was exposing the ability of sea goldie fish (*Pseudanthias squamipinnis*), to change its sex from female to male. The phenomenon occurs in schools of fish when the males die out. The studies showed that in these cases, one of the females develops male characteristics within a short period time. Later on, it became apparent that other species of fish shared similar characteristics. Another interesting finding Fishelson made was the discovery of the world's largest bacterium in the digestive system of fish.

Fishelson also connected the local language to the underwater kingdom, giving scientific names in Hebrew to eight hundred species. Today there are more than twenty species of animals that were first identified by him, and are called Fishelson in their Latin names.

When scientists first began to study the sea in Israel, dumping sewage directly into the waters of the Gulf of Aqaba and the Mediterranean Sea was a widespread practice. Oil and kerosene pollution was an everyday occurrence. This all but disappeared over the years, thanks to the public activities of scientists and efficient work of the marine preservation department at the SPNI. Fishelson says that the marine environment possesses a remarkable ability to recover from these sorts of contamination, and species that disappeared from the Gulf of Aqaba have been seen again in recent years.

An important environmental phenomenon that was unknown a few decades ago is the takeover of the Red Sea of invading species from the eastern Mediterranean. Fishelson sees this phenomenon as the continuation of the many changes the Mediterranean has undergone throughout history. Fishelson emphasizes that this doesn't rescind the need for preservation efforts. "The fact that the biological make-up has changed and there are many invading species doesn't diminish the importance of preserving nature," he said.

Fishelson was involved in examining the effects of fish cages on the Gulf of Aqaba, and established an important rule: "Whatever doesn't need to be in the sea shouldn't be in the sea." In recent years, a similar question has arisen over offshore gas drilling that is planned off the coast of Israel, and which may harm the environment.

"The country needs energy, and we need to find a way to live with the drilling," Fishelson says. "The companies involved already know what disasters happened in other areas, and are therefore more aware of the environmental risks. What is clear is that the burden of proof that no damage will be done rests squarely upon them." What bothers him more is actually the development and construction of the coast, especially on the adjacent cliffs. "We should have reached a stage where it is obvious that this area should not be built upon," he adds. "I expect environmental organizations to be more active and involved in continuous protection of the coast, and not only to be satisfied with promoting protection laws."