Novel Genes Lead to a New Understanding of Life Case Study

In 2000, genomic researcherJ. Craig Venter stood with physician and geneticist Francis Collins and U.S. President Bill Clinton to announce that the Human Genome Project, a worldwide effort to identify all the genes in a human being, was essentially complete. Two years later, Venter was aboard his 95-foot sailboat, the *Sorcerer II,* “fishing” for new genomes to map—those of microorganisms living in the ocean.

As the *Sorcerer II* sailed the Sargasso Sea, Venter and his assistants collected 200-liter samples of seawater and filtered them so that only organisms 1 to 3 μm in size were retained. They then froze these life forms onto filter paper and sent them to Venter’s facility in Rockville, Maryland, for analysis. Using molecular biology techniques first developed for the Human Genome Project, Venter hoped to classify the new life forms by identifying novel genes without having to coax organisms to grow in the lab. Venter’s efforts were so successful that many people compared his voyage to that of the British naturalist Charles Darwin, which had occurred over 170 years earlier and led to Darwin’s theory of evolution, a premise that underlies nearly every aspect of biology today.

* What are some possible benefits of discovering new microbial species?
* What does the theory of evolution state?