Marine Biology Simulation Case Study

*Fish: act method (with breeding and dying)*

**General Outline:**

**Fish act method**
A. calls `inEnv` to verify that fish is still in environment
B. calls `breed`
C. if fish did not breed, calls `move`
D. calls `RandomNumGenerator.getInstance`, which returns a Random object
E. asks the Random object for a random double
F. uses the random double as a probability to determine whether to die
G. calls `die` if necessary (which calls Environment's remove method to remove the fish from the environment)

**Overview:**
- Cast of Characters
- The Driver

**Initial Program:**
- Simulation: `step`
- Fish: `act` and `move`
- `nextLocation`
- `emptyNeighbors`

**Breeding and Dying:**
- Fish: modified `act` method
- `move`
- `breed`
- `die`

**Specialized Fish:**
- DarterFish
- DarterFish: `move`
- SlowFish: `nextLocation`

**Environment Implementations:**
- Environment Class Hierarchy

---

This diagram created using Inspiration® by Inspiration Software, Inc.