

Example: Penna model with fishing

◆ The Penna population class was:

```
◆ class Population {
    ... constructors and more ...
    void simulate(int years); // the full simulation
    void step(); // one year
}

◆ void Population::simulate(int years)
{
    while (years-->0)
        step();
}

◆ void Population::step()
{
    ... lots of work to do one year ...
}
```

Example: Penna with fishing (part 2)

◆ Now we want to do a new simulation with fishing

◆ We want to reuse code and not copy&paste

```
◆ class FishingPopulation : public Population
{
    ... constructors ...
    void step(); // one year
}

◆ void FishingPopulation::step()
{
    Population::step(); // do the normal aging
    ... then implement fishing ...
}
```

Example: Penna with fishing (part 3)

- ◆ This will not do what we want since `Population::simulate` does not call the step function of `FishingPopulation`

```
◆ void Population::simulate(int years)
  {
    while (years-- > 0)
      step();
  }
```

- ◆ Solution: need to make `step()` a virtual function

```
◆ class Population {
  ... constructors and more ...
  void simulate(int years); // the full simulation
  virtual void step(); // one year
}
```