



THE UNIVERSITY OF
MAINE
Cooperative Extension



4-H STEM Toolkit

Sustainable Fishing – Introduction

Coastal Maine ecosystems are important and unique to Maine for many reasons, one of them being Maine’s fishing industry, which has undergone changes in the last century. Some of these changes include warming temperatures, population collapses, stories of resiliency, and migrating species. With a collaborative community mindset, Maine is looking for ways to restore and progress sustainable practices to ensure that Maine’s coastal ecosystems thrive both environmentally and economically.

The **Sustainable Fishing 4-H Science Toolkit** was developed to introduce youth in Grades 3-5 to what kinds of animals are fished for in Maine, what the difference between sustainable and unsustainable fishing is, and how DNA can be used to track what species are present and/or absent in Maine waters. In this toolkit, youth will explore and investigate various methods of finding fish, including modeling how DNA is used to detect species’ presence in the water.

This curriculum is made up of a collection of eight engaging lessons designed to be hands-on and youth-centered. These activities were developed in collaboration with researchers on the Maine eDNA (environmental DNA) project.

In this new, innovative toolkit youth will explore a variety of animals that are fished for in Maine and the various methods of how to find them. Bodies of water are huge! How can we narrow down where fish could be found and if they are

actually there? In a series of eight activities, youth will create maps with fish species, scavenge for evidence of animals, and model how DNA can be used to determine whether an animal is present in a body of water. By exploring relevant phenomena, youth have the opportunity to persevere through puzzling activities, catch each other’s fish populations and investigate as crime scene scientists. Throughout these fishing-related activities, youth will consider which practices are sustainable versus unsustainable, working towards bettering the ways we interact with the environment and fishing industries.

- Activity 1: Getting to Know Aquatic Animals
- Activity 2: Species Range
- Activity 3: Finding Fish
- Activity 4: Battle for Fish
- Activity 5: Sustainable Fishing
- Activity 6: Crime Scene Scientists
- Activity 7: DNA
- Activity 8: eDNA

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