



Striper Science Essential Understandings (Many taken from Ocean Literacy: The Essential Principles of Ocean Sciences K-12 at http://www.coexploration.org/oceanliteracy/scopeandsequence/publicreview/index.html)	Building Blocks (vocabulary)	Guiding Questions	Enabling Activities/Materials on-line	Massachusetts Science Frameworks Connections 
Due to interactions of abiotic factors such as salinity, temperature, oxygen, pH, light, nutrients, pressure, substrate and circulation, ocean life is not evenly distributed temporally or spatially, i.e., it is “patchy”.	salinity, distribution, estuary	Do salinity levels impact fish distribution in an estuary?	Where in the Bay? (PowerPoint and Activity) By Pat Harcourt & Liz Duff	Inquiry SIS1, Grades 6-8 Earth Science Mapping The Earth 1, Grades 6-8 Life Sciences: Living Things and Their Environment 12
1. Salinity impacts the distribution of adult fish in an ecosystem. 2. Different fish species are tolerant of different levels of salinity.	distribution, estuary, fish migration, juvenile, predator, prey, salinity, schoolies	Is the distribution of striped bass prey impacted by salinity levels?	Striper Prey and Salinity: Lesson Plan and PowerPoint by Liz Duff, Optional Inquiry using ELMR (NOAA) on-line database	Inquiry SIS1, SIS3, Grades 6-8 Earth Science Mapping the Earth 1, Grades 6-8 Life Sciences: Living Things and Their Environment 12, Energy and Living Things 14,
Understanding the ocean is more than a matter of curiosity. Exploration, inquiry and study are required to better understand ocean systems and processes.	database, data analysis	How can we use collected data to better understand what is happening in our estuaries?	Exploring ELMR Estuary Data (By Pat Harcourt)	Inquiry:SIS3
Estuaries provide important and productive nursery areas for many marine and aquatic species.	spawn	Where do striped bass spawn?	Searching for Striper Spawn - On-line Inquiry lesson using ELMR (NOAA) database at http://www8.nos.noaa.gov/biogeo_public/elmr.aspx	Inquiry SIS1, SIS3, Life Science(Biology) Gr. 3-5:Characteristics of Living Things 3, Evolution and Biodiversity Gr. 3-5: 7, Gr. 6-8: 17, Ecology: Living Things & Their environment Gr. 3-5: 8, 10, HS: 6.1, 6.2.

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Ocean biology provides many unique examples of life cycles, adaptations, and important relationships among organisms (such as symbiosis, predator-prey dynamics and energy transfer) that do not occur on land.	abundance, anesthetic, caloric, coastal migratory stock, distribution, ectotherm, estuary, foraging, gastric lavage, invertebrates	Why do you think the striped bass travel from as far south as Maryland to Massachusetts?	Why Stripers Go: Video of Mather and Ferry Research, Worksheets & Answer sheets by Liz Duff	Life Science Gr. 3-5 Adaptations of Living Things, Energy and Living Things, Life Science Gr. 6-8 Living Things & Their Environment, 13, 14, H.S. Ecology 6.3
Coastal species have physical and behavioral adaptations that allow them to meet their needs in a coastal ecosystem.		What striper prey species may be living near our coasts?	Seine Surveys: Inquiry Based Field Trip to the Coast by Liz Duff	Inquiry SIS1, SIS2, Life Science Gr. 3-5 Adaptations of Living Things, Gr. 3-5 Life Sciences Characteristics of Plants and Animals Gr. 6-8 Life Sciences: Characteristics of Living Things, Living Things and Their Environment 13,
The Ocean is largely unexplored. New technologies, sensors and tools are expanding our ability to explore the ocean and estuaries.	acoustic telemetry, angling, contingent, estuary, foraging, migratory, natal ground, schoolie, spawn, spawning or natal ground, trajectory	How are striped bass using the estuary? Are they randomly distributed or clumped in groups?	Bass Habitat Use: Video of Mather and Pautzke Research, Worksheets & Answer sheets by Liz Duff	Inquiry SIS3 Life Science Gr. 3-5 Adaptations of Living Things, Energy and Living Things, Life Science Gr. 6-8 Living Things & Their Environment, 13, 14, H.S. Ecology 6.3 

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The ocean and humans are inextricably interconnected. The ocean is a source of inspiration, recreation, rejuvenation and discovery.		How are local citizens connected to striped bass?	Interviewing Anglers: Interview form by Bob Muth	Inquiry SIS1, H.S. Ecology 6.2
Fisheries can be managed to support a sustainable annual amount of catch. Humans affect the ocean in a variety of ways. Laws, regulations and resource management affect what is taken out and put into the ocean. Humans have removed most of the large vertebrates from the ocean.	Vertebrates, sustainable,	What are ways to ensure that fish are harvested in a sustainable way?	Sustainable fishing Scales and Tails Activity by Pat Harcourt and Melissa Sanderson	Inquiry: SIS1 , SIS2, Gr. 6-8 Life Sciences: Changes in Ecosystems Over Time, 17 H.S. Ecology 6.2
Everyone is responsible for caring for the ocean. The ocean sustains life on Earth and humans must live in ways that sustain the ocean. Individual and collective actions are needed to effectively manage ocean resources for all.	climate change,		Investigate: Impact of Climate Change on Striped Bass by Liz Duff	Inquiry SIS1, SIS3 H.S. Ecology 6.2

SIS1. Make observations, raise questions, and formulate hypotheses.

SIS2. Design and conduct scientific investigations.

SIS3. Analyze and interpret results of scientific investigations.