

## AQUATIC & WATER SCIENCE VIDEOS

SCIENCE LESSONS WITH DR. RUDY ROSEN FROM TEXAS AQUATIC SCIENCE

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## Aquatic and Water Science Videos

Science Videos

Aquatic Science Lessons with Dr. Rudy Rosen is an on-line video curriculum arranged into 13 lessons in YouTube Playlists. Each lesson covers a major subject area and is broken down into short sub-topic video presentations. These short videos covering important aquatic science topics can be used in teaching instruction or for self-education. An overview-summary video is included for each lesson. A glossary of new terms is included for 12 of the 13 lessons. The online curriculum is based on *Texas Aquatic Science* with expanded illustrations and explanations. A list and links to each lesson and sub-topic videos follow below.

### Aquatic Science Video Lessons with Dr. Rudy Rosen



#### Water is Life – Lesson 1

LESSON 1

Water is Life is Aquatic Science STEM curriculum Lesson 1 that includes relevant science topics in 9 videos: What is water and why is water important? What is the hydrosphere? What are the special properties of water and why are they important? What is the hydrosphere and what is its importance to life on Earth? What are natural resources? What are aquatic resources? How do we use water? How much water is available for human use? What is conservation? Why is it important? How can we tell if water is polluted or clean? How does water pollution affect aquatic life? How does water's temperature affect the amount of oxygen in it? What is water quality? How do humans affect water quality?



#### Hydrologic Cycle – Lesson 2

LESSON 2

The Hydrologic Cycle is Aquatic Science STEM curriculum Lesson 2 that includes relevant science topics in 8 videos: What is water and why is water important? What is the hydrosphere? What are the special properties of water and why are they important? What is the hydrosphere and what is its importance to life on Earth? What are natural resources? What are aquatic resources? How do we use water? How much water is available for human use? What is conservation? Why is it important? How can we tell if water is polluted or clean? How does water pollution affect aquatic life? How does water's temperature affect the amount of oxygen in it? What is water quality? How do humans affect water quality?



#### Watersheds – Lesson 3

LESSON 3

Watersheds is Aquatic Science STEM curriculum Lesson 3 that includes relevant science topics in 7 videos: What is a watershed? Which watershed do you live in? When it rains at your home, what creek and river does the water travel to? How does the watershed affect the water body into which it drains? How do human activities affect the quality and quantity of water in a watershed? What is point-source pollution? What is non-point source pollution? What are examples of each? What is erosion? What causes it? What is sediment? Where does it come from? How does human activity affect erosion and sedimentation? What is the impact of erosion and sedimentation on aquatic resources? What are Texas' natural regions? Is the water in your region drinkable, swimmable and fishable? How does your location within a watershed affect the quality of water where you live? How can you influence the quality of water for others in your watershed?



#### Life in Water – Lesson 4

LESSON 4

Life in Water is Aquatic Science STEM curriculum Lesson 4 that includes relevant science topics in 13 videos: What is a species? What is an adaptation? What adaptations do fish and other aquatic animals possess to survive in an aquatic habitat? How do specific adaptations provide survival advantages to a particular species? Name some adaptations of different fish species in Texas? How do fish swim? How do fish see, smell, hear, taste and feel? Do fish have other senses that we don't have?



#### Aquatic Communities – Lesson 5

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#### Aquatic Ecosystems – Lesson 6

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Aquatic Ecosystems is Aquatic Science STEM curriculum Lesson 6 that includes relevant science topics in 3 videos: What is an ecosystem? What are some of the parts of an ecosystem? How do the parts of an ecosystem interact with one another? What kinds of aquatic ecosystems do we have in Texas? How are they alike or different from one another? What is biodiversity? Why is it important? How do humans impact aquatic ecosystems? How can we help conserve aquatic ecosystems? How is the diversity of species in a state's aquatic ecosystems connected to the economic well-being of the state's citizens?



#### Aquifers and Springs – Lesson 7

LESSON 7

Aquifers and Springs is from Aquatic Science STEM curriculum Lesson 7 that includes relevant science topics in 8 videos: What is an aquifer? What is groundwater? How are aquifers similar? How do they differ? How do aquifers recharge? What is a playa lake? What role does it play in Texas? What kinds of aquatic ecosystems exist in groundwater? What adaptations enable aquatic life to exist underground? What is a spring? What is a headwaters? How have springs influenced history? How can we help conserve groundwater? How is your life connected to aquifers? Which aquifer provides groundwater where you live? How is your groundwater being used? Is it being conserved or is it being depleted?



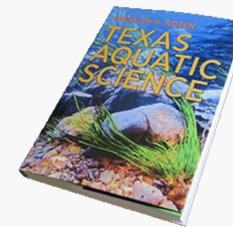
#### Rivers and Streams – Lesson 8

LESSON 8

Streams and Rivers is Aquatic Science STEM curriculum Lesson 8 that includes relevant science topics in 9 videos: What are the parts of a stream? How do they function together? What is the riparian zone? Why is it



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#### CREDITS

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important to have plenty of plants growing alongside a stream? What is the floodplain? Are floods natural disasters? What is stream order? How can it help us understand the aquatic community living in a particular place? What can the presence or absence of aquatic invertebrates tell us about the health of a stream? How are plants and animals adapted to living in flowing water? How can rivers and streams be kept healthy? How are healthy streams valuable to people? What is the significance of the phrase, “everyone lives downstream from someone else?”



## Lakes and Ponds – Lesson 9

LESSON 9

Lakes and Ponds is Aquatic Science STEM curriculum Lesson 9 that includes relevant science topics in 9 videos: Where are ponds and lakes in your community? What role do they play in your economy? How are lakes similar to ponds? How are they different? What kind of organism makes up the greatest amount of living material in a pond? Besides providing food, what other roles do plants have in lake and pond ecosystems? How are plants that live under water similar to plants that live on land? How are they different? How do temperature and oxygen levels in ponds change during each 24-hour period? How do ponds change over time? What are the benefits and costs of building new reservoirs as a solution for Texas' future water needs?



## Wetlands – Lesson 10

LESSON 10

Wetlands is Aquatic Science STEM curriculum Lesson 10 that includes relevant science topics in 9 videos: What is a wetland? What factors must be present for a place to be considered a wetland? What are some of the different types of wetlands found in Texas? What are the differences and similarities between them? What are some examples of the special adaptations found in wetland plants and animals? How are wetlands important to fish, birds, and other wildlife? How do wetlands improve water quality? How do wetlands provide natural flood control? How do wetlands recharge aquifers? Why should we protect wetlands? How can we protect wetlands? How does your community affect wetlands?



## Bays and Estuaries – Lesson 11

LESSON 11

Bays and Estuaries is Aquatic Science STEM curriculum Lesson 11 that includes relevant science topics in 9 videos: How do bays differ from estuaries? How are they similar? Why is freshwater inflow important in bays and estuaries? What is a hypersaline bay? What kind of plants are there in coastal wetlands? Compare the adaptations of the spotted sea trout and the red drum. How do these adaptations affect their life in bays and estuaries? What causes tides? Why is there a high and low tide? How does this changing flow of water affect aquatic life in bays and estuaries? Why is the Gulf coast important to a bird that nests in Canada or Venezuela? What are some of the economic impacts of bays and estuaries. Has your life been affected by bays and estuaries? How can you help maintain healthy coastal ecosystems?



## Oceans: Gulf of Mexico – Lesson 12

LESSON 12

Oceans: Gulf of Mexico is Aquatic Science STEM curriculum Lesson 12 that includes relevant science topics in 7 videos: Which states share Gulf waters? Which other countries share the Gulf? What are some of the industries in the Gulf? How can people in these industries help keep Gulf waters healthy for aquatic life? What influence does the Mississippi River have on the Gulf? What is a hypoxic zone and its impacts? How are hypoxic zones formed? How can they be prevented? What are some of the ecosystems in the Gulf and what kind of organisms would you find in them? How are oil and gas platforms similar to coral reefs? What might you see on a Texas beach? What are currents? What do they do in the Gulf? How can you help marine mammals or sea turtles? What do you think scientist Sylvia Earle meant when she referred to the Gulf of Mexico as America's Sea? What does it mean to you?



## Water for People and the Environment – Lesson 13

LESSON 13

Water for People and the Environment is Aquatic Science STEM curriculum Lesson 13 that includes relevant science topics in 8 videos: What is the purpose of the Clean Water Act? What kind of water pollution is it intended to prevent? Why does the Act not stop all water pollution? What is watershed action planning? What should people where you live consider when conducting watershed action planning? In Texas, who “owns” surface water? Who “owns” groundwater? Since all water is connected, why do we have different systems of regulation? What is a “water right?” What are the impacts of prior allocation? What is “rule of capture?” What rights and responsibilities are associated with it? What are environmental flows? How are they obtained? What will influence your water supply for the future?



## Credits, Thanks and Project Overview

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## Master List of all 111 Aquatic and Water Science Lesson Videos



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### About Dr. Rudy Rosen

For information about Dr. Rudy Rosen please click here: [About Rudy](#)

## Water Science Videos Closed Captioned

Science Videos

Aquatic Science closed captioned lessons with Dr. Rudy Rosen is an English language closed captioned on-line video curriculum arranged into 13 lessons in YouTube Playlists. Each lesson covers a major subject area and is broken down into short sub-topic video presentations. These short closed captioned videos covering important aquatic science topics can be used in teaching instruction or for self-education. An overview-summary closed captioned video is included for each lesson. A video of a glossary of new terms is included for 12 of the 13 lessons, but is not closed captioned because closed captioning is not necessary. The closed captioned online curriculum is based on *Texas Aquatic Science* with expanded illustrations and explanations. A list and links to each lesson and sub-topic videos follow below.

### Water Science Closed Captioned Video Lessons with Dr. Rudy Rosen



#### Water is Life – Lesson 1 Closed Captioned English

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#### Hydrologic Cycle – Lesson 2 Closed Captioned English

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#### Watersheds – Lesson 3 Closed Captioned English

LESSON 3

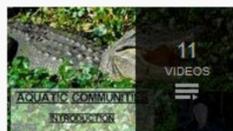
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#### Life in Water – Lesson 4 Closed Captioned English

LESSON 4

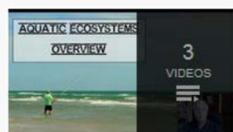
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#### Rivers and Streams – Lesson 8 Closed Captioned English

LESSON 8



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### Wetlands – Lesson 10 Closed Captioned English

**LESSON 10**

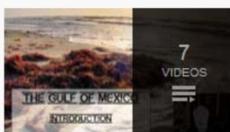
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### Bays and Estuaries – Lesson 11 Closed Captioned English

**LESSON 11**

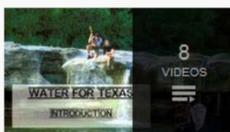
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### Oceans: Gulf of Mexico – Lesson 12 Closed Captioned English

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**About Dr. Rudy Rosen**

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