



Lesson Plan

Member Rides the Waves of Award-Winning Crabbing SAE

Created: 02/2021 by the National FFA Organization

Description of Lesson: This lesson takes a detailed look at a unique supervised agriculture experience (SAE) of working at a Virginia-based crabbing operation. Students will learn about the Virginia seafood industry, the production method of blue crabs and more.

Student Learning Objectives:

After completing these activities, students will ...

1. Identify components of the student's SAE as described in the article.
2. Identify components of the Virginia seafood industry.
3. Research and describe various careers related to the fish/seafood industry.
4. Explain the production process of blue crabs.
5. Compare and contrast the different production methods of blue crabs.

Time Required: 60 minutes

Resources/References:

1. Website: Virginia Seafood, <http://www.virginiaseafood.org/about-virginia-seafood/>
2. Website: AgExplorer, AgExplorer.FFA.org/
3. Website: Naturalist's Notebook: How to Nab A Crab, <https://ncseagrant.ncsu.edu/coastwatch/previous-issues/2010-2/spring-2010/naturalists-notebook-how-to-nab-a-crab/>
4. Website: Blue Crab, <https://www.fisheries.noaa.gov/species/blue-crab#overview>
5. Website: Blue Crab Facts, <https://www.thoughtco.com/blue-crab-facts-4770253>
6. Website: Value Chain, FFA.org/value-chain/
7. Article: Member Rides the Waves of Award-Winning Crabbing SAE, <https://www.ffa.org/ffa-new-horizons/member-rides-the-waves-of-award-winning-crabbing-sae/>

Related Resources:

1. Video: Specialty Animal Production-Seafood SAE | Kent Sloan, <https://vimeo.com/368426767>
2. Lesson Plan: Kent Sloan-Clams, ([Word](#)) ([PDF](#))

Equipment and Supplies Needed:

1. A copy of the "Member Rides the Waves of Award-Winning Crabbing SAE" worksheet for each student
2. Internet access to access websites for certain activities

Vocabulary:

1. Unconventional
2. Cultivate
3. Pursue
4. Deckhand
5. Crabbing

Cross-Curricular Connections:

English/Language Arts

Students will research and record information about various careers in the fish/seafood industry, production methods, fish/seafood industry in Virginia, etc.

Virtual Instruction Ideas:

For virtual instruction, the website and article links needed to complete the activities are all included. These activities can be delivered in-person or virtually through any learning management system.

Student Activity Sheets:

Direct access to student activity sheets without lesson plan or answer key for easy upload to a learning management system or printing for classwork.

Link (<https://ffa.box.com/s/tsbkhq3w5ekq2rqvrz8vmy2b0gl47fi>)

Link (<https://ffa.box.com/s/5wydh959u7udq2lqwquw4r8o1l7yx5n7>)

These Activities are Aligned to the Following Standards:

AFNR Performance Element

- CS.05. Describe career opportunities and means to achieve those opportunities in each of the Agriculture, Food & Natural Resources career pathways.

FFA Precept

- FFA.PL-A.Action: Assume responsibility and take the necessary steps to achieve the desired results, no matter what the goal or task at hand.
- FFA.PL-C.Vision: Visualize the future and how to get there.
- FFA.PL-E.Awareness: Understand personal vision, mission and goals.
- FFA.PG-J.Mental Growth: Embrace cognitive and intellectual development relative to reasoning, thinking and coping.
- FFA.CS-M.Communication: Effectively interact with others in personal and professional settings.
- FFA.CS-N.Decision Making: Analyze a situation and execute an appropriate course of action.

Common Career Technical Core

- AG5 Describe career opportunities and means to achieve those opportunities in each of the Agriculture, Food and Natural Resources Career Pathways.

Common Core – Reading: Informational Text

- CCSS.ELA-Literacy.RI.9-10.2 Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.
- CCSS.ELA-Literacy.RI.9-10.4 Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language of a court opinion differs from that of a newspaper).

Common Core – Writing

- CCSS.ELA-LITERACY.W.9-10.2 Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.
- CCSS.ELA-Literacy.W.9-10.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

Common Core – Speaking and Listening

- CCSS.ELA-LITERACY.SL.9-10.2 Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.
- CCSS.ELA-LITERACY.SL.9-10.4 Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.

Common Core – Literacy in Science & Technical Subjects: Writing

- CCSS.ELA-Literacy.WHST.9.10.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- CCSS.ELA-Literacy.WHST.9.10.6 Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.

AFNR Career Ready Practices

- CRP.02: Apply appropriate academic and technical skills. Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive.
- CRP.04: Communicate clearly, effectively, and with reason. Career-ready individuals communicate thoughts, ideas and action plans with clarity, whether using written, verbal and/or visual methods.
- CRP.06: Demonstrate creativity and innovation. Career-ready individuals regularly think of ideas that solve problems in new and different ways, and they contribute those ideas in a useful and productive manner to improve their organization.
- CRP.08: Utilize critical thinking to make sense of problems and persevere in solving them. Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem.

Partnership for 21st Century Skills

- Communication
- Critical Thinking and Problem Solving
- Flexibility and Adaptability
- Initiative and Self-Direction
- Information, Communications, and Technology Literacy
- Leadership and Responsibility
- Think Creatively

Lesson Plan:

1. **Bellringer:** What skills have you learned from your SAE, or if you do not have an SAE, what do you think would be the benefits and skills learned from an SAE?
2. **Introduction:** *Today, we are going to read an article about an FFA member and his unique SAE. We will take a deeper look into what the unique product is, including how it is produced.*
3. **Activity:** Each student needs a copy of the worksheet “Member Rides the Waves of Award-Winning Crabbing SAE”
 - a. **Part 1:** Have students read the article “Member Rides the Waves of Award-Winning Crabbing SAE” (<https://www.ffa.org/ffa-new-horizons/member-rides-the-waves-of-award-winning-crabbing-sae/>) and answer questions to check for understanding of the article.
 - b. **Part 2:** Students will follow this link, <http://www.virginiaseafood.org/about-virginia-seafood/>, to learn about the economic impact of the seafood/crab industry in Virginia and answer the questions in the worksheet.
 - c. **Part 3:** Students will research and learn about four careers related to the fish/seafood industry by going to AgExplorer, AgExplorer.FFA.org/. Students will learn about two of the responsibilities, educational requirements and potential employers for the careers.
 - d. **Part 4:** Students will learn more about blue crabs in this part. Students will become familiar with the shape and detail by drawing a blue crab, learn the scientific name of the blue crab and the location where blue crabs live. Students will also learn steps about the production of blue crab and the equipment used. Lastly, students will match the crab production step with the corresponding step in the AFNR Food Value Chain. Students will utilize these websites in this part: <https://www.fisheries.noaa.gov/species/blue-crab>, <https://www.fisheries.noaa.gov/species/blue-crab#commercial>, <https://ncseagrant.ncsu.edu/coastwatch/previous-issues/2010-2/spring-2010/naturalists-notebook-how-to-nab-a-crab/> and FFA.org/value-chain/.
4. **Follow-up:** What is the most unique fact you learned today about blue crabs?
5. **Optional – Extended Learning Opportunities (Not factored into time requirement):**
 - a. Using the websites listed in the resource section, have students research the type of habitats and the diet of blue crabs.
6. **Exit Ticket:** What are three facts that you learned today about blue crabs? What is one question that you still have?

Name: _____

Member Rides the Waves of Award-Winning Crabbing SAE

Part 1

Directions:

Read the article "Member Rides the Waves of Award-Winning Crabbing SAE" found at <https://www.ffa.org/ffa-new-horizons/member-rides-the-waves-of-award-winning-crabbing-sae/> and complete the following activities.

1. What is Tanner's SAE?

2. What are his main tasks?

3. Additionally, Tanner obtained his

_____ license, which included a

_____ -week course and a _____ test in

the _____ Bay.

4. How did his experience in FFA help?

6. What two areas does Tanner harvest blue crabs from?

5. Tanner says, "I'm so glad I did because I really enjoy _____, and I've been able to use the _____ skills I developed in FFA to help with the _____ relations _____ of the business.



7. Tanner also serves as a _____

for _____ Tug Co., and in the

future, he hopes to continue

expanding his skill _____ and

attend the _____ Mechanic

Institute.

Why are the crabs blue?

<https://www.thoughtco.com/blue-crab-facts-4770253>



Name: _____

Part 2

Directions:

Follow this link, <http://www.virginiaseafood.org/about-virginia-seafood/>, to learn about the economic impact of the seafood/crab industry in Virginia and then answer the questions below.

1. Virginia is the nation's _____ largest producer of _____ products and is only out paced by what two states?
_____ and _____

2. Fish and shellfish are harvested, processed and shipped within _____ hours to domestic and _____ markets.

3. According to data from the U.S. Department of Commerce, Americans consume _____ pounds of fish and _____ per person.

Using the space below, identify the top ten most popular seafood items:



4. Virginia commercial watermen _____ harvest enough seafood to produce over _____ meals.

5. Virginia's watermen harvest _____ commercially valuable species.

- a. 60 c. 65
b. 50 d. 75

6. Identify and list the species that are harvested in order of economic value:

- | | | |
|----|----|----|
| 1. | 5. | 9. |
| 2. | 6. | |
| 3. | 7. | |
| 4. | 8. | |

7. How much seafood did Virginia export in 2017 and to how many countries?



Name: _____

Part 3

Directions:

Follow this link, AgExplorer.FFA.org/ to learn about careers related to the fish/seafood industry and complete the following activities. Research four careers related to fish/seafood and respond below.

Career Title:

What are two of the responsibilities of this career?

Who are potential employers?

What education/training is required?



Career Title:

What are two of the responsibilities of this career?

Who are potential employers?

What education/training is required?

For additional careers related to fish/seafood industry, here is a direct link to additional possible careers:

<https://agexplorer.ffa.org/search/fish>

Name: _____

Career Title:



What are two of the responsibilities of this career?

Who are potential employers?

What education/training is required?

Career Title:

Which career did you find most interesting and why?

What are two of the responsibilities of this career?

Who are potential employers?

What education/training is required?

Name: _____

Part 4

Directions:

Follow this link, <https://www.fisheries.noaa.gov/species/blue-crab>, to answer the questions below.

1. Draw a picture of a crab in the space below:

Draw a star next to the locations where blue crabs live.



2. What is the scientific name of the blue crab?

3. List the equipment used when harvesting blue crabs.
<https://www.fisheries.noaa.gov/species/blue-crab#commercial>

- | | |
|----|----|
| 1. | 4. |
| 2. | 5. |
| 3. | |

Follow these links, <https://ncseagrant.ncsu.edu/coastwatch/previous-issues/2010-2/spring-2010/naturalists-notebook-how-to-nab-a-crab/> and [FFA.org/value-chain/](https://www.ffa.org/value-chain/), to answer the questions below.

4. What are the steps commercial fisherman take to catch blue crabs?

Step 1:

Step 2:

In the AFNR Food Value Chain, where does Step 1 of blue crab production fall?

In the AFNR Food Value Chain, where does Step 2 of blue crab production fall?

5. Explain recreational crabbing methods:

When fishermen market their product, what does that fit in the AFNR Food Value Chain?

What is similar about commercial and recreational crabbing methods?

What is different about commercial and recreational crabbing methods?

Name: _____

KEY: Member Rides the Waves of Award-Winning Crabbing SAE

Part 1

Directions:

Read the article "Member Rides the Waves of Award-Winning Crabbing SAE" found at <https://www.ffa.org/ffa-new-horizons/member-rides-the-waves-of-award-winning-crabbing-sae/> and complete the following activities.

1. What is Tanner's SAE? Working at Lipsomb's Crabs, a Virginia-based crabbing operation.

2. What are his main tasks?

The main tasks include harvesting and sorting blue crabs and steaming them to prepare them for purchase.

3. Additionally, Tanner obtained his

boating license, which included a

six-week course and a driving test in

the Chesapeake Bay.

4. How did his experience in FFA help?

The skills he learned in FFA helped him effectively communicate with customers and market products.

6. What two areas does Tanner harvest blue crabs from?

Rappahannock River and Mechims Creek

5. Tanner says, "I'm so glad I did because I really enjoy crabbing, and I've been able to use the communication skills I developed in FFA to help with the customer relations side of the business.



7. Tanner also serves as a deckhand

for Norfolk Tug Co., and in the

future, he hopes to continue

expanding his skill sets and

attend the Marine Mechanic

Why are the crabs blue? <https://www.thoughtco.com/blue-crab-facts-4770253>

The color comes mainly from the blue pigment alpha-carustacyanin and the red pigment astaxanthin. When the crabs are cooked, heat deactivates the blue pigment and turns the crab red.

Name: _____

Part 2

Directions:

Follow this link, <http://www.virginiaseafood.org/about-virginia-seafood/>, to learn about the economic impact of the seafood/crab industry in Virginia and then answer the questions below.

1. Virginia is the nation's third largest producer of marine products and is only out paced by what two states?

Alaska and Louisiana

2. Fish and shellfish are harvested, processed and shipped

within 24 hours to domestic and

international markets.

3. According to data from U.S. Department of Commerce, Americans consumed 16 pounds of fish and shellfish per person.

Using the space below, identify the top ten most popular seafood items:

Oysters, clams, blue crab, sea scallops, menhaden, conchs, striped bass, summer flounder, spot and Atlantic croaker



4. Virginia commercial watermen annually harvest enough seafood to produce over 123,000,000 meals.

5. Virginia's watermen harvest _____ commercially valuable species.

a. 60

c. 65

b. 50

d. 75



7. How much seafood did Virginia export in 2017 and to how many countries?

\$47.3 million and to 20 countries



6. Identify and list the species that are harvested in order of economic value:

1. Sea scallops

5. Clams

9. Spot

2. Oysters

6. Flounder

3. Blue crabs

7. Striped bass

4. Menhaden

8. Croaker

Name: _____

Part 3

Directions:

Follow this link, AgExplorer.FFA.org/ to learn about careers related to the fish/seafood industry and complete the following activities. Research four careers related to fish/seafood and respond below.

Career Title:

Meat Inspector

What are two of the responsibilities of this career? **Inspect and grade various types and cuts of meat, inspect live animals for signs of disease; ensure that unfit meat is destroyed properly; conduct post-mortem examinations on diseased animals; examine samples for bacterial or non-desirable excess material; prepare reports from test results; observe employees and daily procedures to assure standards are met; send animal tissue to lab for testing; perform quality control analysis; serve as the on-site liaison with regulatory officials; manage vendor certification program; direct and perform shelf-life inventory-related studies; manage labeling and nutritional labeling requirements**

Who are potential employers? **Meat inspectors work for food or meat processing companies and state and federal government agencies.**

What education/training is required? **A bachelor's degree in food science, microbiology or meat science is required.**



Career Title:

Aquaculture Hatchery Manager

What are two of the responsibilities of this career? **track fish life cycles to determine the proper time for harvesting or release; look for disease and treat as needed; find ways to trap and breed in an environmentally friendly and economical way; oversee water quality assurance/quality control program; maintain current knowledge of industry trends and information regarding hatchery equipment and operations; develop and track hatchery budget; manage fish care, maintenance, packing and transfer activities; hire and train hatchery staff and supervise employees; maintain records and prepare reports on hatchery operations; ensure worker safety requirements are met; work with nutritionists to develop feeding rations and schedules needed for specified growth rates for a variety of aquatic species; meet with federal and state officials to establish priorities for fish production and coordinate research projects; conduct hatchery tours; explain operations and answer questions on fish production**

Who are potential employers? **Aquaculture hatchery managers are employed by large commercial fisheries that produce and harvest fish. They may also be employed by state and government environmental agencies.**

For additional careers related to fish/seafood industry, here is a direct link to additional possible careers:

<https://agexplorer.ffa.org/search/node/fish>

Name: _____

Career Title:

Aquaculturist

What are two of the responsibilities of this career? assist with all aspects of aquatic animal production and care; grow fish and shellfish as cash crops or for release into freshwater or saltwater; supervise and train aquaculture and fish hatchery support workers; collect and record growth, production and environmental data; conduct and supervise stock examinations to identify diseases or parasites; sort different types of breeding stock; incubate and care for fish in net pens or small ponds; perform routine maintenance of facilities and equipment; operate and maintain freshwater and/or seawater aquaculture systems; provide insight into planning facilities and construction of new aquaculture systems; manage automated building and equipment control systems; provide technical support for various projects with researchers and universities; assist those interested in aquaculture in the development of commercially viable aquaculture systems; design, supervise and implement biological studies on aquatic resources; assess fish populations in various bodies of water; compile, analyze and interpret biological data and compile technical reports; identify and treat diseases found in fish populations; manage fish inventory and production in a hatchery; administer and execute policies relating to operations, training, supervising and assisting hatchery workers; provide leadership for delivering education, training and information to a variety of audiences that may include farmers, educators, agency personnel and citizens; find ways to improve spawning, setting, growth rates and disease prevention in hatcheries

Who are potential employers? Aquaculturists may be employed by large commercial fisheries who produce and harvest fish as well as biological companies who study the environmental impacts of and on aquatic species. They may also be employed by state and government environmental agencies or at parks and aquariums.

Career Title:

Fisheries Technician

What are two of the responsibilities of this career? assist biologists and technicians in various natural resource management tasks; assist in habitat enhancement and management; operate high-pressure spray pumps, outboard motors, air boats and other equipment; provide technical support and assistance to personnel engaged in fish production and freshwater mussel propagation at a disease-free hatchery; prepare diets for fish, collect fish broodstock; sort and spawn fish; clean aquaculture equipment and tanks; keep records

Who are potential employers? Fishery technicians work for privately owned fisheries, but government and state agencies also employ fishery technicians.

What education/training is required? A bachelor's degree in aquaculture,

Which career did you find most interesting and why?

Answers will vary.

Name: _____

Part 4

Directions:

Follow this link, <https://www.fisheries.noaa.gov/species/blue-crab>, to complete the questions below.

1. Draw a picture of a crab in the space below:



Draw a star next to the locations where blue crabs live. **Up and down Atlantic Coast and in the Gulf of Mexico**



2. What is the scientific name of the blue crab?

Callinectes sapidus

3. List the equipment used when harvesting blue crabs. <https://www.fisheries.noaa.gov/species/blue-crab#commercial> Usually harvested with simple gear such as:

- | | |
|------------------|-------------|
| 1. Pot | 4. Handline |
| 2. Trotline | 5. Dip |
| 3. Net or scrape | |

Follow these links, <https://ncseagrant.ncsu.edu/coastwatch/previous-issues/2010-2/spring-2010/naturalists-notebook-how-to-nab-a-crab/> and [FFA.org/value-chain/](https://ffa.org/value-chain/), to answer the questions below.

4. What are the steps commercial fisherman take to catch blue crabs?

Step 1: They are first lured into the pots with bait.

Step 2: Once inside, and unable to reach the food, they swim to the upper portion of the pot, called the "parlor," to try and escape. Undersized crabs escape through openings called cull rings.

In the AFNR Food Value Chain, where does Step 1 of blue crab production fall?
Pre-production

In the AFNR Food Value Chain, where does Step 2 of blue crab production fall?
Production

5. Explain the recreational crabbing methods:

Recreational crabbing methods are lower tech and less expensive. A handline, a baited string attached to a weight and a dip net. Ideal for family and friends because it requires a team effort. Using a wooden block as a weight, attach it to a baited string about seven feet in length. Throw the baited line into a shallow area and slowly pull it across the ocean floor until a crab catches the bait. Once the crab has tucked into its meal, have a partner scoop it up with a dip net.

When fishermen market their product, what does that fit in the AFNR Food Value Chain?

Sales, Service and Support

What is similar about commercial and recreational crabbing methods?

Both use bait and pots and both have the crabs gathered into the pot and then scooped up.

What is different about commercial and recreational crabbing methods? **Recreational crabbing is lower tech and less expensive.**