4-H
Marine Biology and Oceanography Proficiency Program
A Member's Guide

OVERVIEW

The 4-H Marine Biology and Oceanography Proficiency program helps you learn what you need to know about your 4-H Marine Biology and Oceanography project. Through this project, you will learn the basic concepts of oceanography – dealing with tides and current, ocean biology, ocean food webs and transfer of energy. You will explore the identity of marine plants and animals and their habits. You will practice principles for beach and water safety.

There are many resources to help you learn more about your project:

- The 4-H Publications Catalog lists a variety of project materials and resources recommended for use in your project.
- The 4-H Educational Resources Lending Library at your county 4-H office includes other books, videos and reference materials that can be checked out by members and leaders.
- Local junior college and universities may offer classes in marine biology or oceanography and experts who may be able to come speak to your group. Don't hesitate to visit or telephone them for more information.

There are five levels in the Project Proficiency Program. You may choose how many levels you wish to complete.

- Level I - "Explorer", you begin to learn about many different aspects of Marine Biology and Oceanography.
- Level II - "Producer", you learn more about marine life, ecosystems and the ocean.
- Level III - "Consumer", you become experienced in many aspects of Marine Biology and Oceanography.
- Level IV - "Leader", allows you to show your own leadership potential.
- Level V - "Researcher", you carry out a demonstration or experiment on some aspect of Marine Biology and Oceanography, and prepare a paper or portfolio.

As you work through the Marine Biology and Oceanography proficiency program, have your leader initial and date each skill item when you have completed it. When you have finished all items in a proficiency level, have your leader sign the Certificate of Achievement and order a medal for you from the 4-H office.

Approved by Lake County 4-H Council, 1999

MARINE BIOLOGY AND OCEANOGRAPHY
Level I – Explorer

Date Completed

_____ 1. Explain seven beach safety tips and practice them at the beach.

_____ 2. Identify five species of marine mammals and describe where they can be found.

_____ 3. Describe the marine food web.

_____ 4. Identify the parts of a wave and describe how waves affect sea life.

_____ 5. Define: phytoplankton, zooplankton, estuary, wetlands, algae, crustacean, invertebrate, mammal, mullusk, ecology,

_____ 6. Explain the influence of the moon and the sun on tides.

_____ 7. Collect and identify ten seashells and explain how a seashell is formed.

_____ 8. Identify five intertidal animals and three intertidal plants.

_____ 9. Describe the regulations which protect marine plants and animals that live in the ocean, intertidal zone, wetlands, estuaries, dunes and marshes.

_____10. Complete an art project using some aspect of your project such as shell collage, sand painting, beach casting, fish print or rubbing, etc.

_____11 Identify seven marine birds and describe the differences in their bills, feet and wings. Record when and where each was sighted. Share this information with other members.

_____12. Find six examples of pollution in marine areas. Explain how each could be prevented.

_____13. Collect samples of, and explain the differences between sand particles found on two different beaches.

_____14 Identify five wildflowers found in sand dunes and five wildflowers found in salt marshes. Record when and where each was sighted. Share this information with other project members.

_____15. Identify the parts of a fish from a diagram or live example and explain the functions of the fins and the scales.

_____16. Define hypothermia and demonstrate the H.E.L.P. and Huddle positions.

Member Name:_____ Date:_____

Project Leader's Signature:_____ Date:_____

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MARINE BIOLOGY AND OCEANOGRAPHY
Level II – Producer

Date Completed

_____ 1. Describe ten ways we can keep our oceans, beaches, rivers and land as close to nature as possible.

_____ 2. Explain the importance of estuaries to marine life.

_____ 3. Name describe four dangerous marine animals and explain why they may be dangerous.

_____ 4. Assemble a beach safety kit.

_____ 5. Visit an established operation or expert in the field (such as a commercial fishing vessel, cannery, biologist, etc.) and learn what they do and how they do it.

_____ 6. Describe the function of dunes.

_____ 7. Using your local news media, identify a policy issue related to your project and explain its significance to another person.

_____ 8. Explain El Niño and describe how it affects the seafood industry.

_____ 9. Participate in a project related cleanup activity.

_____10. List five causes of boating accidents and explain how they can be avoided.

_____11 Explain upwelling and its effect on climate and marine life.

_____12. Collect and identify three different phytoplankton and three different zooplankton and explain how they are different.

_____13. Make a collage of photographs or drawings illustrating man's use of the marine environment and display it at a local fair, county 4-H event or similar public event.

_____14 Prepare one food dish from fresh fish and one food dish from marine algae.

_____15. Name five types of fish and/or shellfish produced by aquaculture.

_____16. Identify and describe three different types of fishing vessels and three different types of fish harvesting gear. Explain which vessel uses which gear to harvest which fish.

_____17. Identify three types of ropes and five knots used in the industry. Compare their relative strengths and where/how each might be used.

_____18. Determine the age of three fish samples by collecting and analyzing their scales.

_____19. Collect, press and mount three different algae and describe their physical characteristics.

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Project Leader's Signature:_____ Date:_____

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MARINE BIOLOGY AND OCEANOGRAPHY
Level III – Consumer

Date
Completed

_____ 1. Design, construct, rig and use one item for this project, such as a seine net, plankton net, poke pole, crayfish pot, etc.

_____ 2. Explain how seafood gets from the sea to the dinner table. Explain the career options in the various marketing channels.

_____ 3. Explain fishing license regulations.

_____ 4. Describe two commercial uses of marine algae

_____ 5. Describe the quality characteristics you would look for when purchasing fresh and frozen seafood.

_____ 6. Name and describe five marine careers and required qualifications. Identify five potential ocean related summer jobs.

_____ 7. Contact a local, state or national association related to your project and determine what this association has to offer its membership.

_____ 8. Invite a commercial fisherman or industry representative to discuss a local policy issue with your project group or club. Introduce the speaker to your group.

_____ 9. Give three examples of Native American historical use of marine resources and explain how they collected and prepared each item.

_____10. Compare the food habits of two species of fish by analyzing their stomach contents.

_____11. Demonstrate how to preserve fish utilizing two different methods.

_____12. Diagram the major currents of the North Pacific Ocean.

_____13. Record and analyze the distribution of one organism across the intertidal zone.

_____14 Describe the lifecycle/history of one marine mammal.

_____15. Keep a personal reference library of literature that will be helpful in your project.

_____16. Assist with a marine habitat improvement project.

_____17. Prepare a marine educational display for a local or county event.

Member Name:_____ Date:_____

Project Leader's Signature:_____ Date:_____

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MARINE BIOLOGY AND OCEANOGRAPHY
Level IV – Leader

Date
Completed

_____ 1. Explore and sample one recreational use of the marine land such as sailing, scuba diving, sand castle building, wind surfing, boating, fishing, etc.

_____ 2. Select one species of marine life such as whale, shark, crab, etc. name and describe ten varieties of that species and describe habitat, eating habits, migratory habits and reproductive habits of the species.

_____ 3. Serve as a Junior or teen leader in this project for one year.

_____ 4. Assist younger members in designing and constructing needed equipment.

_____ 5. Prepare teaching materials for use at a project meeting.

_____ 6. Develop and put on a demonstration or judging event or train a junior team for an event.

_____ 7. Speak on a project-based subject before an organization other than your 4-H group.

_____ 8. Assist younger members in actually learning a specific topic in the project.

_____ 9. Develop your own special project related activity. Chart your progress, plan the activities, analyze successes and problems, and report on findings.

_____10. Organize or participate in a public forum discussion/debate on a local, state, national or global issue related to your project.

_____11 Assist a local organization with a marine research project.

Member Name:_____ Date:_____

Project Leader's Signature:_____ Date:_____

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MARINE BIOLOGY AND OCEANOGRAPHY
Level V – Researcher

Date
Completed

_____ 1. Report on the results of a demonstration comparing measurable difference in some aspect of your project.

_____ 2. Prepare a paper of 300 words or more on one of the following topics:

- Commercial markets and methods of marketing
- Global fishing policies and problems
- The effects of temperature and light on marine organisms
- Ocean currents
- marine mammals
- Aquaculture
- History of the whaling industry
- Wetland species
- Local marine land pollution
- Other

_____ 3. Prepare a speech or illustrated talk to orally summarize your findings and present at a club, project meeting or other educational event.

Member's Name:_____ Date:_____

Project Leader's Signature:_____ Date:_____

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Certificate of Achievement

This certifies that

_____

has completed the _____ Proficiency

in _____ County.

Explorer	**Producer**	**Consumer**	**Leader**	**Researcher**
_____	_____	_____	_____	_____
Date	**Date**	**Date**	**Date**	**Date**
_____	_____	_____	_____	_____
Leader's Signature	Leader's Signature	Leader's Signature	Leader's Signature	Leader's Signature

NOTES

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Leader Tips for Utilizing the 4-H Project Proficiency Program

The goal of the Lake County 4-H Proficiency program is to give members recognition and rewards in a timely manner and in a variety of ways to meet the diverse needs of today's youth.

It is also designed to assist youth in measuring themselves against 'standards of excellence" Each proficiency is comprised of five skill levels and should be designed to increase in scope and difficulty. The levels are:

- Level I – Explorer
- Level II – Producer
- Level III – Consumer
- Level IV – Leader
- Level V – Researcher

The proficiencies are three-fold in purpose:

1) To provide youth opportunities to sample abroad array of experiences, measure personal progress, and become self-directed learners.

2) To provide a standard of excellence where members are recognized for knowledge and skills they have mastered.

3) To provide guidelines for leaders to enhance and expand project content and experiences.

The Proficiency program is **not** designed to be an award, or a prize for the best in competition. Instead, members are **rewarded** for their personal progress. The intent of the proficiency program is to increase performance, while allowing members to be motivated, to be creative and to take risks.

The proficiencies are not a test. Youth should not be quizzed at the end of each 4-H year to determine how much they have learned. The proficiencies should be given to each youth member as a set of goals that they, as individuals, can work toward over one or more years. Completion of all five levels of a proficiency indicates "mastery of a subject.

The proficiency program is voluntary. Not all youth will find this type of activity rewarding. Many youth enter projects with their own goals. They join to learn a specific skill or group of skills, but not to achieve mastery of a subject. Additionally, not all project leaders will choose to go into such depth for each subject area. Completion of Level I – **Explorer**, may be all that is offered by a particular project leader.

We encourage leaders to give proficiency guides to members sometime during the first or second year in a project. At this point, the leader allows the member to determine which skills and/or knowledge areas he or she wants to master. Youth members can work on skills in several levels at the same time. The leader's job is to check each item in a level when the member has completed it.

For the skill areas which require demonstration, youth members may demonstrate individually to the leader (project or teen), the group, or the club at a local meeting. Members are not required to demonstrate in front of a group as we are measuring mastery of a subject, not public speaking ability. Some leaders leave time at the end of each project meeting for members to work on their proficiencies.

Leaders are cautioned not to accept a questionable answer. This indicates an incomplete mastery of the particular skill or body of knowledge. If the youth member is unsure of the correct method or term, use this time to teach the individual and allow member a month to think about it and review. The youth member will return with the knowledge learned and present it with confidence.

Allow a significant amount of time (one month) to lapse between the time a skill is taught and a member demonstrates mastery. This allows time to practice and achieve mastery, not merely reflect on a newly learned skill.

Reward immediately! Recognition is most meaningful when it is presented immediately following a learning experience. Initial and date each item as the member completes the skill. When all items in a level are completed, sign the Certificate of Achievement and notify your County 4-H Office.

A Proficiency medal, will be sponsored by the Lake County Council and awarded at the county achievement program when a skill level is completed. Youth may receive more than one medal per year. They may do this by completing two or more consecutive levels in one project area, or by completing one level in two or more projects.

For members to qualify for proficiency awards they must complete all the requirements below and give a 4-H presentation during the 4-H year.

- Have up-to-date and complete enrollment packet and enrollment fees on file at the 4-H office.

- Attend 80% of club and project meetings.

- Members must provide 4-H Records to the club leader for project completion verification. Records must include **Personal Development Report** and **Annual Project Report** form for each project a member is applying for a Proficiency Award, and the completed Proficiency Form.