

# THE ART OF CONSERVATION®

## Becoming an “Invader Crusader”

Introducing Youth to  
Aquatic Invasive Species!

[www.StateFishArt.org](http://www.StateFishArt.org)



THE **ART** OF CONSERVATION®

**Wildlife Forever**

# STATE-FISH ART Program

1999 - 2013



[www.StateFishArt.org](http://www.StateFishArt.org)

powered by **GenOn**™

# THE ART OF CONSERVATION®

## STATE-FISH ART Program

... using art as the springboard into  
the watery world of fish!

- ✓ Create awareness
- ✓ Learning → Action
- ✓ Future stewards



# THE ART OF CONSERVATION®

back in 1997 ...

An idea  
for a child's  
homework assignment  
became a  
nationwide  
art competition  
teaching aquatic education  
through the arts!

[www.StateFishArt.org](http://www.StateFishArt.org)



# THE ART OF CONSERVATION®

open to all children K-12

Three components -

Lesson Plan  
Contest

National Recognition !

[www.StateFishArt.org](http://www.StateFishArt.org)



# THE ART OF CONSERVATION®

## Lesson Plan

### Fish On!

- 65 pages total
- **FREE DOWNLOAD**  
at StateFishArt.info  
or request a CD  
by email (no charge)



[www.StateFishArt.org](http://www.StateFishArt.org)



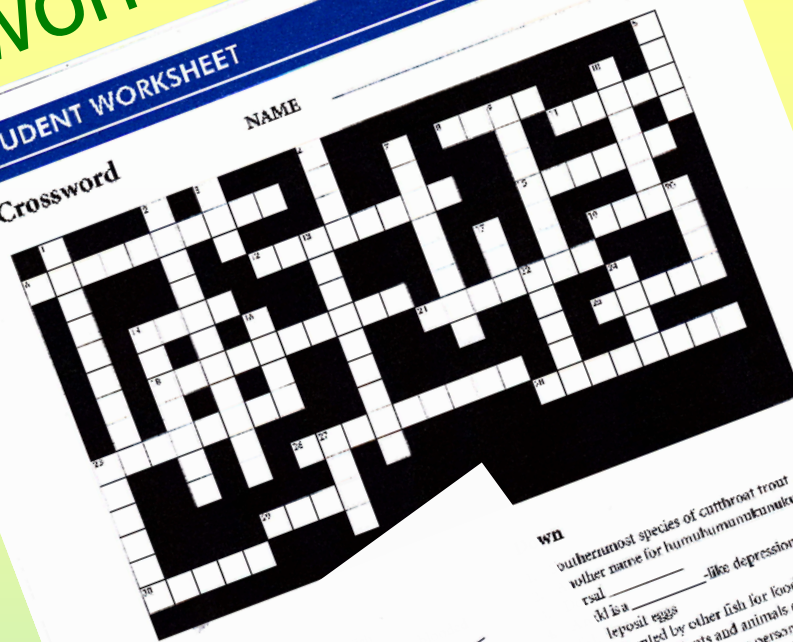
# worksheets

# Fish On! The Lesson Plan

# lessons

## STUDENT WORKSHEET

### Crossword



NAME \_\_\_\_\_

W

outhernmost species of cutthroat trout  
rather name for humuhumunukunuku  
real is a \_\_\_\_\_-like depression  
id is a \_\_\_\_\_  
leposit eggs  
hunted by other fish for food  
scopic plants and animals  
mit that allows a person  
y occurring species of  
eats other animals  
fresh water and s  
dark oval marks o  
bladder affe  
a high conc

Conservation: the care, wise use, and  
management of a resource.  
Consumer: a fish that gets its food from  
producers (plants).  
Courtship: behavior that attracts a mate in the  
state of reproductive readiness.  
Cover: naturally occurring sheltered areas, which  
provide concealment shelter, i.e. a submerged  
tree, log, or rock outcroppings.

**E**cosystem: an interacting system of plants,  
animals, soil, and climatic conditions in a  
swamp, lake, or stream.  
Endangered: a species in danger of becoming  
extinct due to declining population numbers.  
Environment: the entire surroundings of an  
organism.  
Estuary: area where fresh water and salt water meet.  
Extinct: a species that no longer exists or has  
died out.

**B**arbels: whisker-like appendages with sensory  
capabilities.  
Behavior: the way an animal responds to its  
environment.

**C**amouflage: a protective adaptation that  
enables a fish to disguise itself or blend with  
its surroundings.  
Carnivore: a fish that eats other animals, a meat  
eater.  
Carion: the body of a dead animal in the natural  
state of decay, which serves as a food source  
for some animals.  
Cold-blooded (ectothermic): an animal whose  
body temperature is dependent upon and  
varies with the temperature of its environment.  
Communications: any sound, scent, or behavior  
recognized by members of the same species.  
Competition: the result of different species of  
animals that use the same source for food or  
shelter.

**G**as bladder or swim bladder: an internal  
balloon-like organ which affects flotation  
by selectively taking in gases from the  
blood stream.  
Wildlife Forever • Fish On!

### Subjects

- Language Arts
- Art

### Skills

- Identify
- Research
- Write
- Illustrate

### Time

- 2 to 4 class periods

## Fish On!

### Objectives

Students will:

- 1) Label the parts of a fish and describe their function.
- 2) Outline a simple aquatic food chain.
- 3) Explain several characteristics associated with fish adaptation including gills, fins, and scales.
- 4) Describe specific examples of fish behavior including feeding and spawning.
- 5) Identify their state fish, its physical appearance, and its habitat requirements.

### Vocabulary

|              |              |            |
|--------------|--------------|------------|
| Anadromous   | Lateral line | Prey       |
| Camouflage   | Milt         | Redd       |
| Carnivore    | Omnivore     | Salt water |
| Cold-blooded | Plankton     | Vertebrate |
| Fresh water  | Predatory    |            |

### Background

How many different species of fish are there? How are fish adapted to life under water? How do fish reproduce? How can you determine the age of a fish? What do fish eat? What kind of defense mechanisms do fish have? What is a group of fish called?

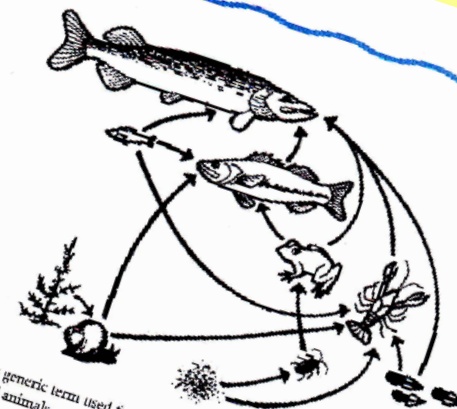
(Note: the answers to these questions are found throughout the text. However, for quick reference turn to the procedure section.)

There are over 25,000 different species of fish in the world and roughly 2,000 in North America. In fact, fish represent more



Pacific trout  
Illustration by Joseph Tinnelli

Wildlife Forever • Fish On!



Food web

plankton, which is the generic term used for microscopic plants and animals.  
All fish are members of a food chain, which is a group of plants and animals linked together as sources and consumers of food. Food chains linked together form a larger, more complex web.

Fish distribution, health, and population size is largely due to the quality and availability of food. Increased variety in food leads to increased diversification in a given area.

### Spawning

Most fish, fertilization is external. The male releases an amazing number of eggs, as a long, jelly-like strand depending on species.

ES

with Bass

## Muskellunge

*Esox masquinongy*

Illustration by Joseph Tinnelli

Common Names  
Identifying Features

TYPICAL ADULT  
Length  
Weight  
Life span  
Habitat

Feeding Behavior

Reproductive Behavior

Did you know?

Muskellunge have three distinct color phases: spotted, clear, and barred.

Wildlife Forever • Fish On!

## glossary

## illustrated fish species



# THE ART OF CONSERVATION®

## *Making Waves!*

Ontario Federation of Hunters & Anglers



Grade 4 Curriculum Kit

[www.StateFishArt.org](http://www.StateFishArt.org)





# Making Waves

## Lesson Plan

93 PAGES



[www.invadingspecies.com](http://www.invadingspecies.com)

### Table of Contents

|   |    |
|---|----|
| Introduction .....                              | 3  |
| Overview .....                                  | 5  |
| Introduction to Kit .....                       | 5  |
| Kit Objectives .....                            | 5  |
| Learning Goals .....                            | 6  |
| Curriculum Expectations (Quick Reference) ..... | 7  |
| Lesson Overview (Quick Reference) .....         | 8  |
| Warm-Up Activities/Wrap-Up Activities .....     | 10 |
| 1. A Change Over Time .....                     | 11 |
| 2. Fridge Fiasco .....                          | 12 |
| 3. The Preventable Problem .....                | 13 |
| 4. Songs for An Ecosystem .....                 | 14 |
| Lesson Plans .....                              | 15 |
| 1. Know Me, Know My Adaptations .....           | 16 |
| 2. Sun Block .....                              | 20 |
| 3. Changing Chains .....                        | 24 |
| 4. Aquarium Ownership is an Art .....           | 28 |
| 5. Musical Mussels .....                        | 32 |
| 6. Tough Ruffe .....                            | 36 |
| 7. Stow Aways and Crafty Ways .....             | 40 |
| 8. The Ultimate Species .....                   | 44 |
| Lesson Support Materials .....                  | 50 |
| Blackline Masters .....                         | 50 |
| Full Expectations Listing .....                 | 75 |
| Background Materials .....                      | 78 |
| All About Invasives .....                       | 78 |
| Invasive Species Teaching Resources .....       | 84 |
| Glossary .....                                  | 93 |

Introduction

Overview

Warm-up & Wrap-Up  
Activities

Lessons

Support & Background  
Materials

Glossary



# THE ART OF CONSERVATION®

## *Making Waves!*

### OBJECTIVES:

- Deeper understanding and greater ownership
- Science concepts through integrated activities
- Combining various subjects = “real life”
- Connections to previous experiences and the world around them



# THE ART OF CONSERVATION® Contest

## STATE-FISH ART Contest

Students create a learning portfolio which  
includes

**an original Art Illustration & Essay**  
related to their chosen state-fish.

**DEADLINE ALWAYS  
MARCH 31**

[www.StateFishArt.org](http://www.StateFishArt.org)



# THE ART OF CONSERVATION®

## STATE-FISH ART Contest

Entries divided into four grade categories

K-3

4-6

7-9

10-12

All children and educators receive  
a 'Certificate of Recognition'  
for participating in the Contest.

[www.StateFishArt.org](http://www.StateFishArt.org)





# THE ART OF CONSERVATION®



K-3

# THE ART OF CONSERVATION®



# THE ART OF CONSERVATION®



# THE ART OF CONSERVATION®



10-12



# THE ART OF CONSERVATION®

## STATE-FISH ART Contest

ART is the “hook”

- hand-done original
- any official state-fish
- creativity – right-brain
- art-infused education
- kids love it!

[www.StateFishArt.org](http://www.StateFishArt.org)



# THE ART OF CONSERVATION®

## STATE-FISH ART Contest

ESSAY shows their  
“connection”

- personal - in own words
- show knowledge & understanding
- one page essay, story, poem ...



THE ART OF CONSERVATION®

STATE-FISH ART Contest

new in 2012

Silent Invaders

**CATEGORY  
&  
NATIONAL AWARD**

[www.StateFishArt.org](http://www.StateFishArt.org)



THE ART OF CONSERVATION®

STATE-FISH ART Contest

# Invader Crusader

ARTWORK & ESSAY include both species  
...the state-fish & the invasive

All judged together for one National Award

\* ALSO ELIGIBLE FOR ALL STATE & OTHER NATIONAL  
AWARDS

[www.StateFishArt.org](http://www.StateFishArt.org)





# THE ART OF CONSERVATION®



- Wildlife Forever / Partners leaders in AIS Education
- Threat Campaign™
- Invasives 101 (website)
- Silent Invaders TV videos
- DVD's

[www.StateFishArt.org](http://www.StateFishArt.org)





# THE ART OF CONSERVATION® National Recognition!

## STATE-FISH ART EXPO



food



workshops



demos



family  
activities



awards  
&  
prizes



fishing





# THE **ART** OF CONSERVATION®

## STATE-FISH ART EXPO

### NATIONAL-LEVEL AWARDS

- **“NATIONAL” ART AWARDS**  
from all the first place state/international winners,  
first, second and third place national winners  
are selected in each grade category
- **“FISH MAKE YOU SMARTER” ESSAY AWARDS**  
one winner in each grade category (\*no essay in K-3)  
Sponsored by the U.S. Fish & Wildlife Service Fisheries Division
- **THE ART OF CONSERVATION® STAMP AWARD**
- **SMILE AWARD**
- **PEOPLE’S CHOICE AWARD**
- **Seth Thomas Spradlin BEST OF SHOW AWARD**

[www.StateFishArt.org](http://www.StateFishArt.org)





# THE ART OF CONSERVATION®

## STATE-FISH ART EXPO



Monika Daniels, 12 Grader from Louisiana

[www.StateFishArt.org](http://www.StateFishArt.org)





# THE ART OF CONSERVATION®

## STATE-FISH ART EXPO

2012

SILENT  
INVADER  
AWARD

largemouth bass  
&

invasive zebra mussels



[www.StateFishArt.org](http://www.StateFishArt.org)

# THE ART OF CONSERVATION®



Monika Daniels, LA

## Stop Hitchhiking Zebra Mussels!

 **CLEAN**  **DRAIN**  **DRY**

WildlifeForever.org

Wildlife Forever Great Lakes RESTORATION STOP AQUATIC HITCHHIKERS! NATIONAL PARK SERVICE U.S. FOREST SERVICE

BILLBOARDS ALONG HIGHWAYS  
TO RECREATIONAL WATERS

[www.StateFishArt.org](http://www.StateFishArt.org)





# THE ART OF CONSERVATION®

STATE-FISH ART EXPO

12 & 13 July 2013



Georgia Department of Natural Resources

Go Fish Education Center

Perry, Georgia

[www.StateFishArt.org](http://www.StateFishArt.org)



# THE ART OF CONSERVATION®

## STATE-FISH ART Contest

Becoming an

# “Invader Crusader”

- 2nd Year
- Local issues
- Information online

[www.StateFishArt.org](http://www.StateFishArt.org)



Becoming an  
“Invader Crusader”

Introducing Youth to  
Aquatic Invasive  
Species!

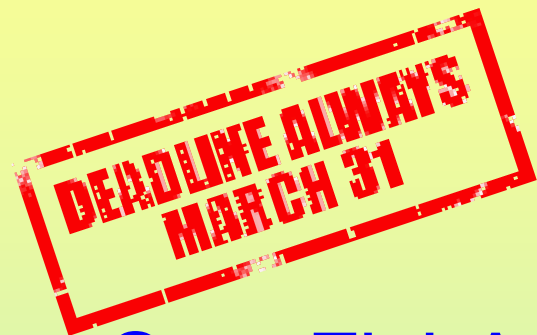
**instills hope for  
the future stewardship  
of our aquatic resources**

■



# THE ART OF CONSERVATION®

## State-Fish Art™ Program ~ K-12



StateFishArt.org - our website

StateFishArt.info - Fish On! Lesson Plan (*FREE download*)

info@WildlifeForever.org - request Fish On! CD (*no charge*)

WildlifeForever.org - Invasive Species 101 including TV videos

youtube.com/user/WILDLIFEFOREVER – videos here too

😊 facebook.com/StateFishArtContest - *Like Us!*

😊 twitter.com/StateFishArt - *Follow Us!*

Questions? [khollingsworth@StateFishArt.org](mailto:khollingsworth@StateFishArt.org)  
Direct Line: 651.213.0669

