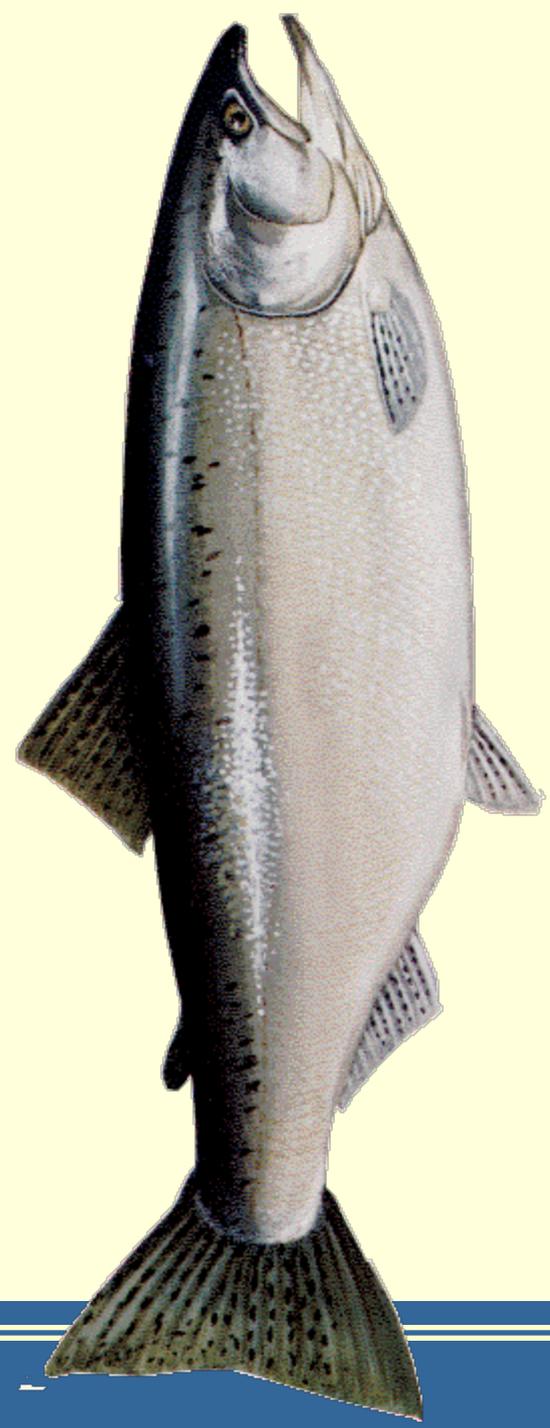


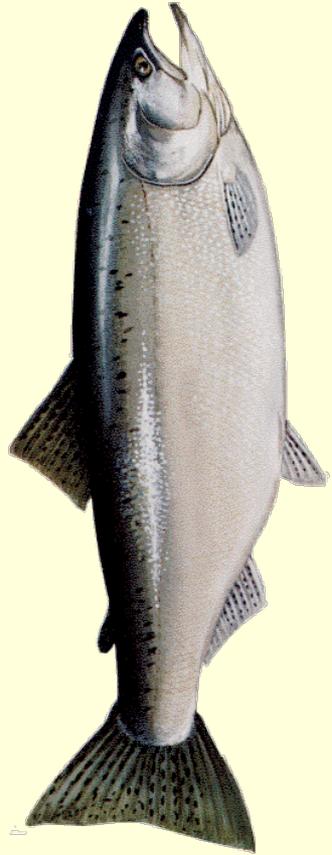
Salmon in the Classroom Year at a Glance



Shana Ramsey
November 12, 2015



Salmon Sense Newsletter

The cover of the Salmon Sense newsletter features a photograph of two young girls smiling and holding a clear plastic bag filled with water. The DNR logo is in the bottom left corner of the cover. The title 'Salmon Sense' and 'Michigan Department of Natural Resources' are prominently displayed.

Salmon Sense
Michigan Department of Natural Resources

September 2015

- [Visit Us!](#)
- [Woodworkers Wanted](#)
- [The Nitrogen Cycle in Your Tank](#)
- [Sponge Filters: What you need to know](#)
- [How many salmon were released as part of the SIC program in the spring of 2015?](#)
- [FREE Field Trips to Complement SIC](#)
- [Workshops for New Teachers and Sponsors](#)
- [Permitting and Reporting](#)
- [How-to Videos](#)
- [2015 Egg Pick-up Dates and Directions](#)
- [Still have questions? Contact Us...](#)

Visit Us!

DNR staff will be running an Aquatic WILD professional development workshop at the Oct. 9-11, 2015 Michigan Alliance for Environmental and Outdoor Education (MAEOE) Conference in the UP at the Soo. For more information visit www.maeoe.com.

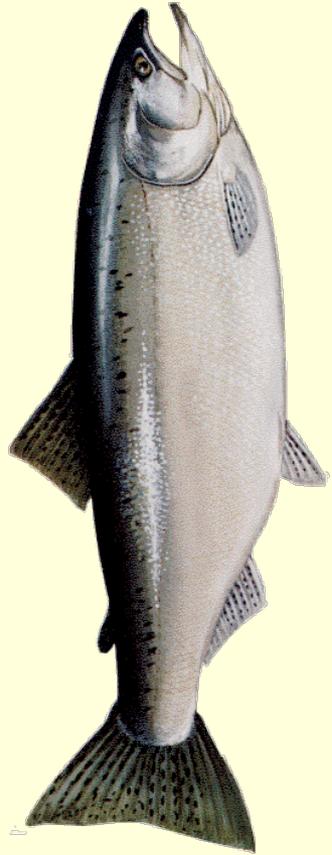
We'll also have a DNR centric classroom full of engaging sessions at this year's Michigan Science Teachers Association (MSTA) Conference in Lansing, March 3-5, 2016 at the Radisson. For more information visit www.msta-mich.org/.

- September
- December
- March

Michigan DNR: MIDNR@govsubscriptions.michigan.gov



Scientific Collectors Permit



 RICK SNYDER GOVERNOR	STATE OF MICHIGAN DEPARTMENT OF NATURAL RESOURCES LANSING	 KEITH CREAUGH DIRECTOR
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Date Issued:

CULTURAL COLLECTOR'S PERMIT
Fish

Under the provisions of Part 487, Act 451, P.A. 1994, as amended, being section 324.48735, permission is hereby granted to:

Name: _____ Driver's License No.: _____

Address: _____

to possess **salmonines** from waters within the jurisdiction of this State, as specified below in the special provision section. Any work under this permit shall be **approved in advance** by a fisheries biologist in the Fisheries Management Unit for the watershed where salmon will be raised.

SPECIAL PROVISIONS: The permittee is authorized to possess trout eggs, trout fingerlings, and young-of-the-year trout for a special student research project at the above listed school. Trout produced in this experiment may only be released into public waters of the State of Michigan and must have the approval of the Michigan Department of Natural Resources, Fisheries Management Supervisor responsible for managing those public waters.

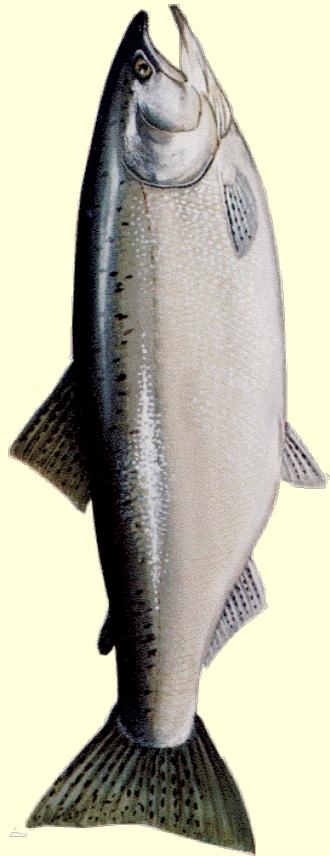
GENERAL PROVISIONS: This permit must be in permittee's possession during collection and release of salmon, must be made available upon request of any Department representative, and must be posted in the classroom for the duration of the experiment. This permit is not transferable. Collection is limited to species not threatened or endangered. This permit is not transferable. This permit does not provide any authorization to circumvent any federal, state, or local laws and ordinances, including, but not limited to restricted entrance to refuges or other areas closed to the public without written permission of the land administrator.

Any violation of the conditions of this permit may result in revocation of this permit and misdemeanor penalties of imprisonment for not more than 90 days or a fine of not more than \$500 or all of the above. Unless revoked, this permit **expires on 5/31/2013**.

By 
Natalie Elkins
Preschool – 12 Education Specialist



Setting Up Your Tank



The screenshot shows the Michigan Department of Natural Resources website. The main heading is "Michigan Department of Natural Resources". Below this, there is a navigation menu with options like "Michigan.gov Home", "DNR Home", "Links", "Contact DNR", "DNR Mobile Apps", and "Site Map". The page title is "Aquarium Setup". The content includes a list of links on the left, a central image of an aquarium, and a list of steps for setting up the aquarium. The steps are:

1. Choose a suitable location for your aquarium. Your aquarium should be in a location that is easily accessible from all sides, well-lit, close proximity to an electrical outlet, near a water source if possible and in an area that where the aquarium is readily visible to students and visitors.
2. Setup aquarium in chosen location. Be sure that the area is properly ventilated so the filter does not overheat.
3. Place gravel in bottom of aquarium.
4. Add filter to aquarium. Set to all degrees Fahrenheit. Follow manufacturer instructions.
5. Add filter. Follow manufacturer instructions.
6. Add aeration air stone.
7. Fill aquarium with water. Purging municipal water, according to manufacturer instructions.
8. Test water quality including pH, nitrate, nitrite, phosphate, ammonia, hardness and alkalinity. See below for further instructions.
9. Monitor the tank for proper temperature and water quality for a period of approximately two weeks prior to receiving salmon eggs.

Water Quality Monitoring: Test the water for pH, ammonia, nitrite, nitrate, hardness and alkalinity upon completion of aquarium set up. It is important to obtain baseline levels when you set up your tank to help you recognize when levels change throughout the year. [Click here](#) to access a water quality monitoring sheet to help you keep track.

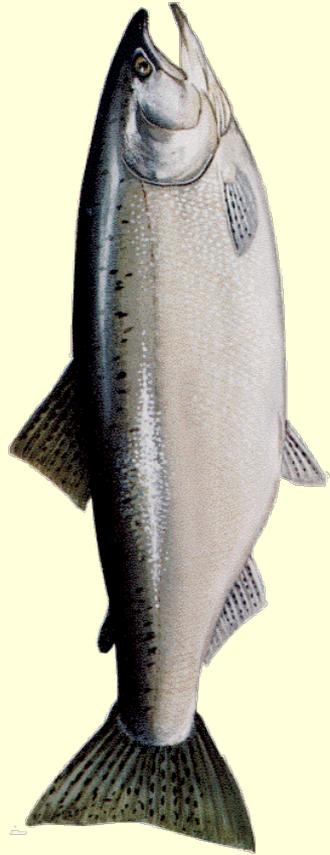
Temperature: Water temperature in the aquarium should be within a degree or two of the temperature you have the filter set to.

Other: Slight water quality fluctuations are relatively normal. However, if they do occur, it is important to determine if

- Ideally 6 weeks ahead of getting eggs
- Properly cycle tank
- Cultured sponge filter-Preuss Pets



Green Eggs



Michigan Department of Natural Resources

DNR Home Links Contact DNR DNR Mobile Apps Site Map

Egg Pick-up Procedures and Dates (NEW every September)

GREEN EGGS (returning teachers only)

Lille Marston Weir, Marston
Dool, Ben (doolben, Fisheries Technician Supervisor)
(313) 388-2551
ben.dool@dnr.state.mi.us
October 3 - 7
Call for specific details.

Swan River Weir, Rogers City
Pat Vandorpe, Fisheries Technician Supervisor
(989) 732-2541
pat.vandorpe@dnr.state.mi.us
Call for specific details.

BYRD EGGS First year teachers will receive eggs at the end of their workday.
Walt Lake State Fish Hatchery, Holland, MI
(No pre-sched/acc appointment is necessary)
Matt Hughes, Hatchery Biologist
matt.hughes@dnr.state.mi.us
November 7 - 13
Weekdays 9 a.m. - 7:30 p.m.
Saturdays 10 a.m. - 7 p.m.

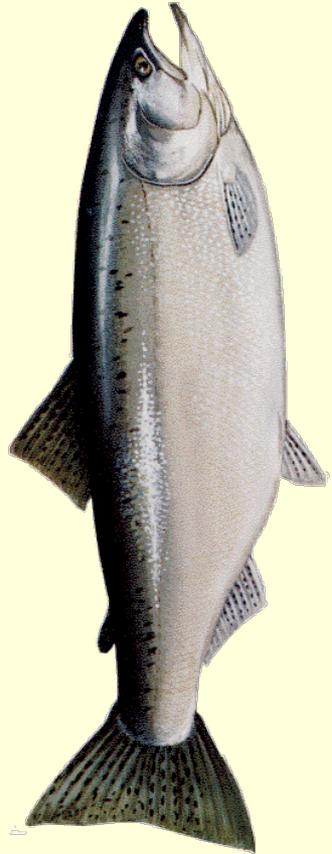
Platte River State Fish Hatchery, DeWitt, MI
(No pre-sched/acc appointment is necessary)
Aaron Swick, Hatchery Biologist
aaron.swick@dnr.state.mi.us
November 9 - 10
9 a.m. - 7:30 p.m.

Thompson State Fish Hatchery, Marquette, MI
Randy Espinosa, Hatchery Biologist
randy.espinosa@dnr.state.mi.us
Call for specific details.
November 18-22

- Check out egg pick-up details online
- Returning teachers only
- Travel to weir required
- Small and variable pick-up window
- 300 eggs
- **Pro:** Students see entire life cycle
- **Con:** Less time to remove non-viable eggs & more potential for mortality

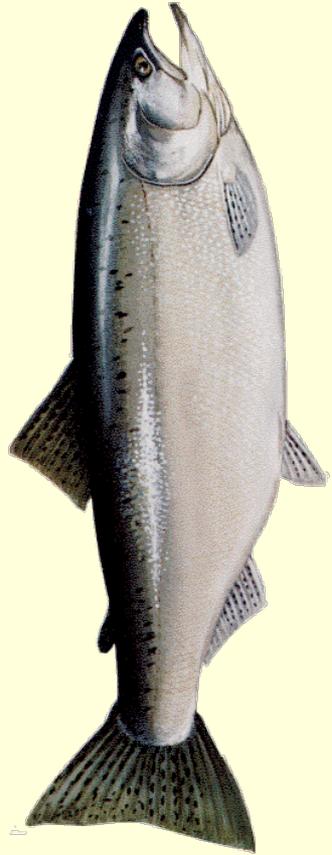


Eyed Eggs



- Check out egg pick-up details online
- New and returning teachers
- Travel to Wolf Lake, Platte, Lake Orion, Marquette or Thompson
- Pre-set dates for pick up
- 200 eggs
- Pro: Less potential for mortality
- Con: Students miss one life stage

Acclimating Eggs

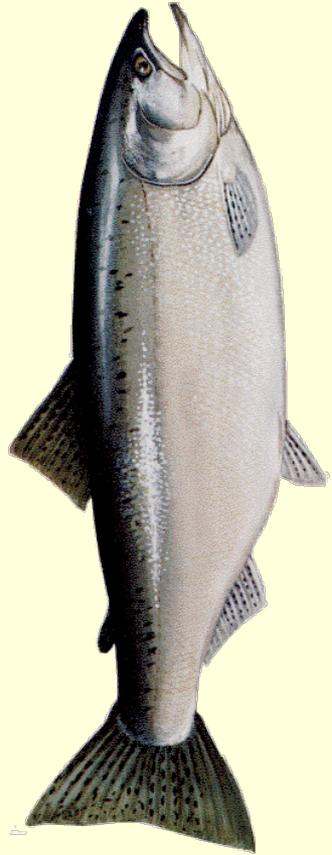


- http://www.michigan.gov/dnr/0,4570,7-153-10369_50075-200499-,00.html



Tank Maintenance

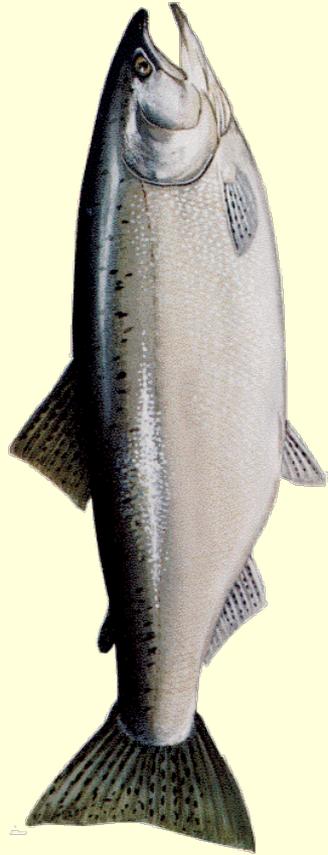
Before they absorb yolk sac



1. Maintain tank temperature: of 47-52F
2. Record observations
3. Monitor water quality
4. Remove dead eggs

Tank Maintenance

After they absorb yolk sac

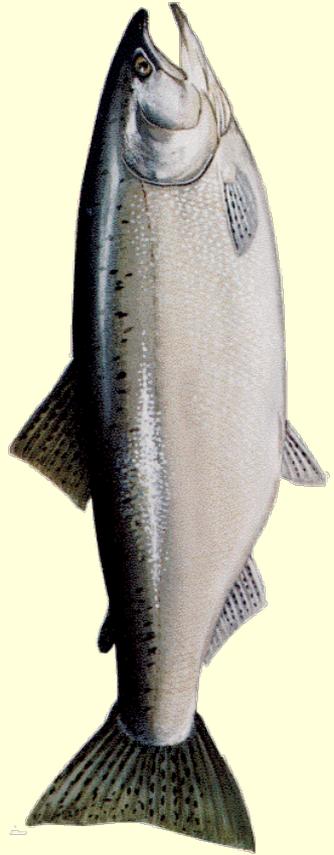


Date	Temperature: Ideal range is 57° - 60° max up to 62°	pH: Ideal 7 - 7.5	Nitrate: less than 40 ppm	Nitrite: less than 5 ppm	Ammonia: 0 ppm	Chlorine: 0 ppm	Hardness: 75 + ppm	Ammonia: 0 ppm	Mortality	Notes/ Observations/ Steps taken to correct tank problems

1. Maintain tank temperature: 52F
2. Maintain Water Quality: page 22
 1. Daily: observe fish behavior, test water quality
 2. Weekly: siphon 2x/week minimum- more as needed
3. Feed as directed: pages 20 - 21

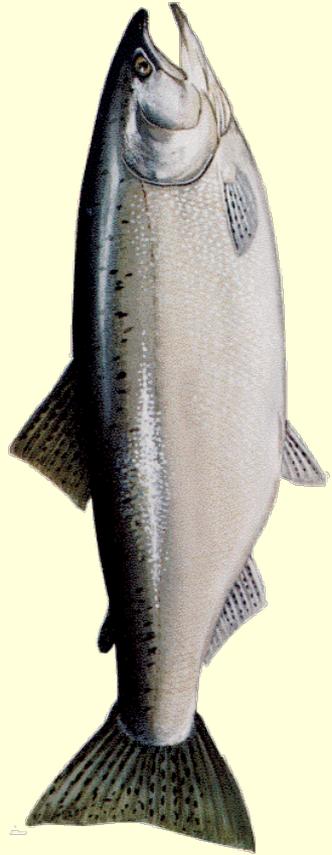


Feeding Your Salmon

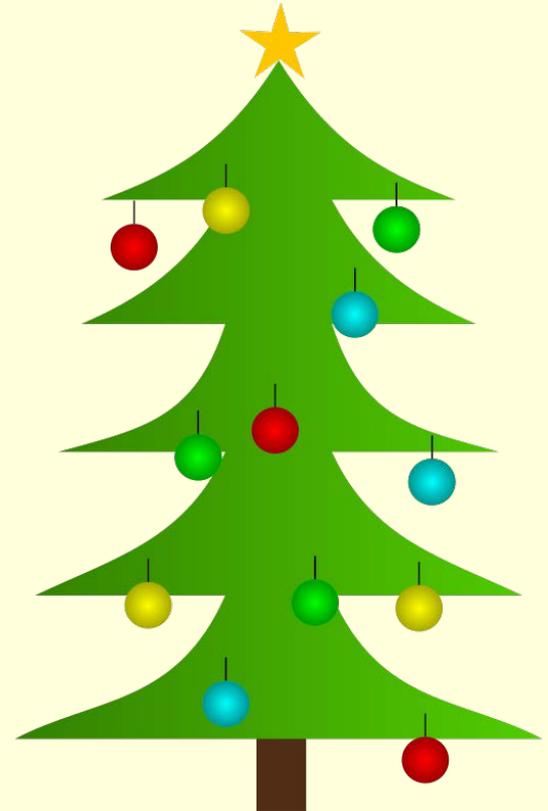


- Feed when 80% have absorbed yolk sac and actively swimming
- Underfeed rather than overfeed
- Several small feedings

Weekends, Christmas & Easter Breaks

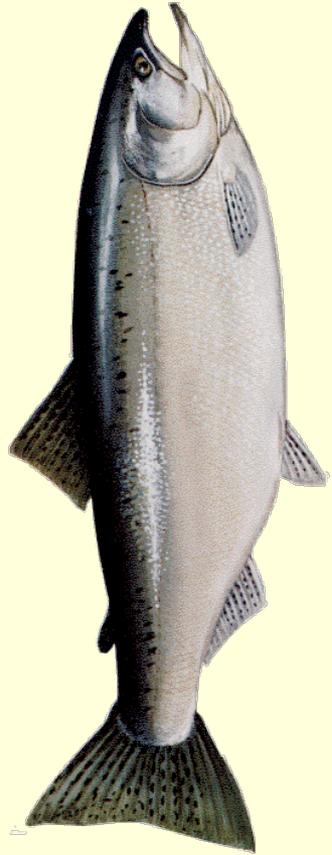


- Weekends:
 - Late on Friday afternoon, first thing on Monday morning
- Christmas Break:
 - Check in at least 2x/week
 - Feed daily, if needed
- Easter Break: Feed daily





Troubleshooting

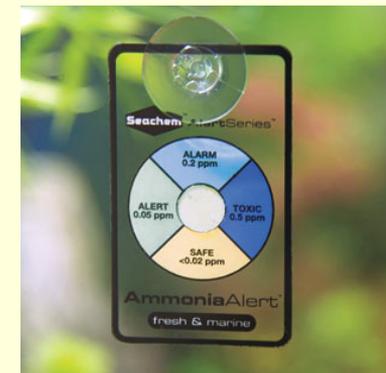


- **Early Mortality Syndrome (EMS)**

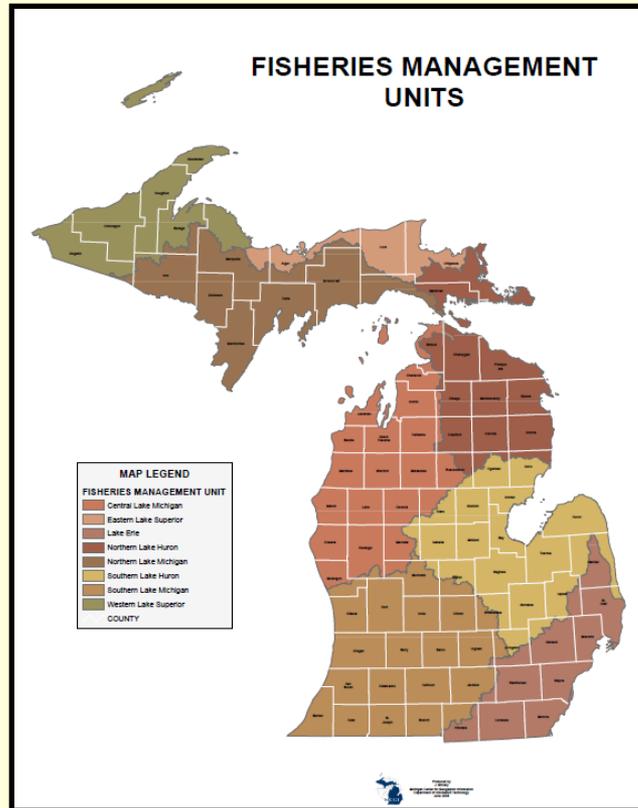
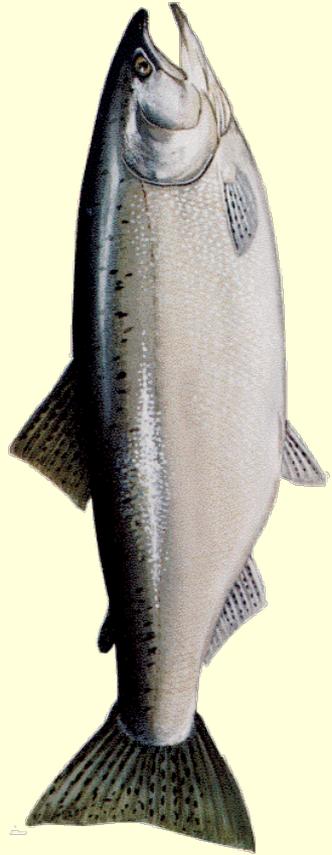
- Caused by thiamine deficiency
- Treatment at weir
- Fish lying on bottom
- Spinning, swimming on side

- **Ammonia**

- Ideally = ZERO
- Created by excess fish food and fish waste
- Will cause mortality if left untreated

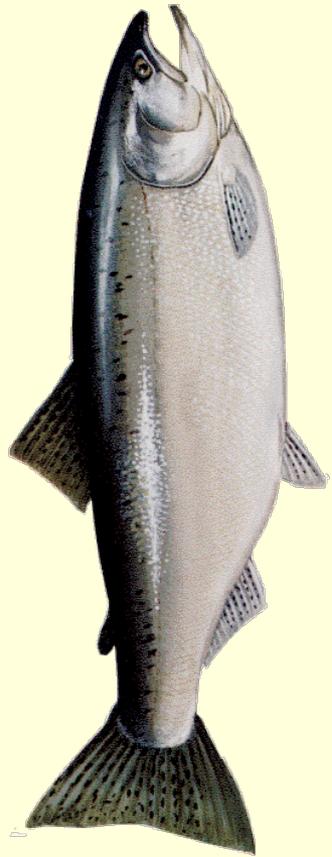


March



- **Smoltification begins**
 - fish begin losing “parr marks”
 - become more silvery in appearance
- **Begin preparation for Salmon Release**
 1. Determine what FMU you are located
 2. Choose pre-approved stocking location within your FMU
- **Feed salmon over spring break**

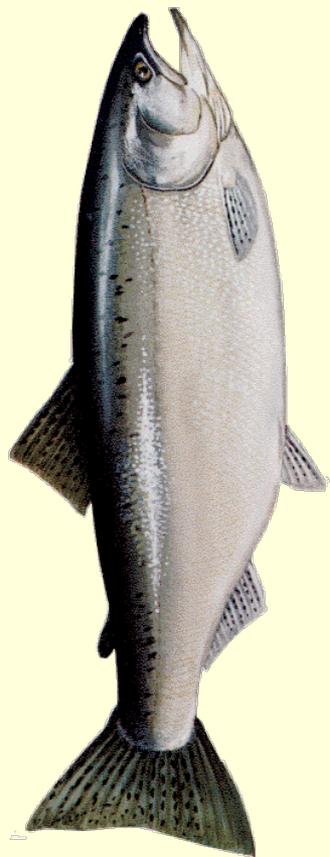
Releasing Your Salmon



- **Best time**
 - Last week in April and first week in May
- **How to**
 - Less time in bucket, the better
 - Aerate or ice bucket
 - 25 - 30 fish per 5 gallon bucket
 - Acclimate to within 5 degrees
- **Stocking Permit:** legally required at time of release
- **Pages 27 - 29**

Stocking Permit, Report & Questionnaire

1. Permit legally required in your possession at time of release
2. Submit Report & Questionnaire **within 14 days of release**
3. Send to Polly Gray at grayp@michigan.gov or



Michigan Department of Natural Resources - Marketing and Outreach Division

SALMON IN THE CLASSROOM
PERMIT TO STOCK FISH INTO PUBLIC WATERS OF MICHIGAN

This permit is issued under the authority of Section 46725 of Part 467, Sport Fishing, of Act 475, P.A. 1994, as amended. Failure to comply with the conditions of this Act and permit shall be cause for revocation of this permit. The penalty for stocking fish into public waters of the state without a permit is a misdemeanor, punishable by imprisonment for not more than 90 days, or a fine of not more than \$500.00, or both.

FOR TEACHERS HOLDING A VALID SCIENTIFIC COLLECTOR'S PERMIT FOR THE SALMON IN THE CLASSROOM PROGRAM, AUTHORITY IS HEREBY GRANTED TO STOCK FISH INTO PUBLIC WATERS OF THE STATE. FISH MAY BE STOCKED ONLY IN PRE-APPROVED LOCATIONS (for a list of locations, go to www.dnr.state.mi.us/sic/).

Teacher's Name: _____ School Name: _____ School Telephone: _____

LAW, CODES AND PERMITS. Permittee recognizes that this permit does not obviate other requirements of federal, state, or local law. Permittee agrees to comply with all applicable laws, regulations, and codes, and shall obtain any other necessary permits in connection with the activities that are the subject of this permit.

LIABILITY. Permittee hereby releases, waives, discharges and covenants not to sue the State of Michigan, its departments, officers, employees and agents, from any and all liability to Permittee, its officers, employees and agents, for all losses, injury, death or damage, and any claims or demands thereon, on account of injury to person or property, or resulting in death of Permittee, its officers, employees or agents, in inference to the activities authorized by this permit.

INDEMNIFICATION. Permittee hereby covenants and agrees to indemnify and save harmless, the State of Michigan, its departments, officers, employees and agents, from any and all claims and demands, for all loss injury, death or damage, that any person or entity may have or make, in any manner, arising out of any occurrence related to (1) issuance of this permit; (2) the activities authorized by this permit; and (3) the use or occupancy of the premises which are the subject of this permit by the Permittee, its employees, contractors, or its authorized representatives.

Kenn W. Grady 4/5/2015
Michigan DNR, Michigan Service Manager
Michigan Department of Natural Resources

Page 1 of 2 PERM-100-2015-0001

MICHIGAN DNR
Attn: Polly Gray
525 West Allegan
Lansing, MI 48933

SALMON IN THE CLASSROOM
PUBLIC WATERS STOCKING REPORT
SUBMIT WITHIN 14 DAYS OF STOCKING

This report is required under the authority of Section 46725, Part 467, Sport Fishing, of Act 475, P.A. 1994, as amended.

Teacher's Name: _____ School Name: _____ School Telephone: _____

Agency Address: _____ Agency Phone/Fax (optional): _____ Teacher's Address: _____

1. If you are not stocking any fish back into a Michigan waterway due to fish die off, please explain the probable cause (i.e., bacteria, chemical levels in the water, equipment failure, or no obvious cause, etc.):

2. Are you planning to participate in the Salmon in the Classroom program again next year? Answering "Yes" here qualifies as your moral consent and you need not reapply for a SIC Permit for 2015/2016.
 Yes No Uncomfortable at this time
3. If your answer is "Yes", are there any changes to the previous permit? I.E., name of school, school address and/or phone number, e-mail contact information, teacher change, etc.

4. How many students participated in your SIC program this year? (Participation is defined as students who followed all or part of the curriculum over a length of time, not just walked by the aquarium to see it once)

5. Student grade level:

6. How many hours each week were spent using the SIC curriculum?

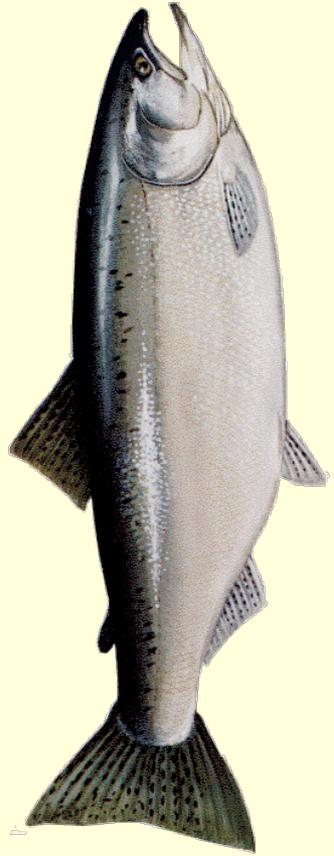
7. What single improvement would make this program better for your classroom?

Mail/Email or fax completed report to:
Polly Gray - grayp@michigan.gov FAX: (517) 373-1547
Michigan Department of Natural Resources
P.O. Box 30028
Lansing, MI 48930

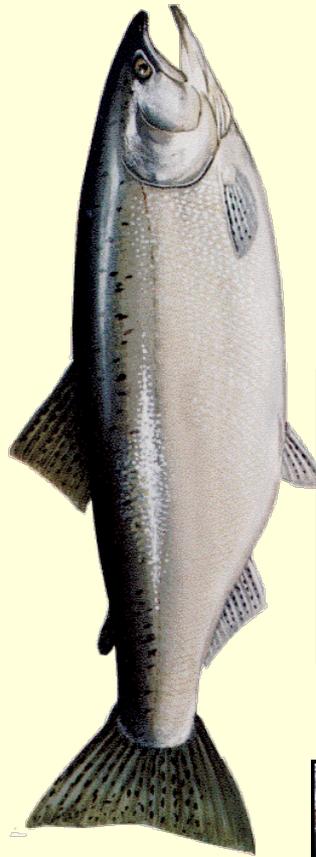
Page 2 of 2 PERM-100-2015-0001



Automatically Renewed!



- By turning in your Stocking Permit and Report within 14 days after your release you will trigger an auto renewal!
- The next fall you will receive your Scientific Collectors Permit in the mail by the first week in October.
- No need to apply again.



Questions?

