

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



SAULT
COLLEGE

COURSE OUTLINE

COURSE TITLE: FISH CULTURE & MANAGEMENT

CODE NO. : NRT 253 **SEMESTER:** 4

PROGRAM: FISH & WILDLIFE TECHNICIAN

AUTHOR: VALERIE WALKER (EDITED BY R. NAMESPETRA)

DATE: DEC 2012 **PREVIOUS OUTLINE DATED:** JAN 2009

APPROVED: "C.Kirkwood"

	DEAN	DATE
TOTAL CREDITS:	3	
PREREQUISITE(S):	NONE	
HOURS/WEEK:	3	

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For additional information, please contact Colin Kirkwood,
Dean of Environment/Design/Business
School of Environment, Technology and Business
(705) 759-2554, Ext. 2688

I. COURSE DESCRIPTION:

This course concentrates on management strategies for the conservation and sustainability of Ontario's fisheries resource. Emphasis will be placed on management tools such as harvest control; habitat conservation, restoration and development as well as fish stocking. In addition, hatchery requirements and operation for the culture of cold-water fish such as trout and salmon will be featured. There will be onsite visits to area hatcheries.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:**1. Outline the history and importance of Canada's / Ontario's fisheries resource**Potential Elements of the Performance:

- discuss the state of Canada's commercial seafishery, freshwater fishery and aquaculture production
- summarizes the commercial fishing industry in the Great Lakes since the early 1900's
- detail the importance of Ontario's fisheries resource
- discuss the economics of recreational fishing in Ontario

This learning outcome will constitute approximately 15% of the course

2. Discuss the factors threatening Ontario's fisheries resourcePotential Elements of the Performance:

- list and describe the factors resulting in declining aquatic ecosystem health
- outline issues regarding the loss of fish habitat
- detail the history of fisheries exploitation in the Great Lakes and the resulting changes in fisheries communities
- list the various invasive species in the Great Lakes and their impact on indigenous fish stocks

This learning outcome will constitute approximately 15% of the course.

3. **Outline the general principles of fisheries conservation and management**

Potential Elements of the Performance:

- outline and discuss the three (3) general approaches to fisheries conservation and management
- list and briefly discuss methods of fisheries habitat conservation, restoration, protection and development
- list and explain various management prescriptions to manage the sustainable harvest of a recreation fishery
- outline the quota system for the sustainable management of a commercial fishery
- describe the various shareholders in a fisheries resource and issues with resource allocation

This learning outcome will constitute approximately 20% of the course.

4. **Critique Ontario's Strategic Plan for Fisheries Management**

Potential Elements of the Performance:

- discuss some of the important milestones in the management of the Great Lakes including the formation of the Great Lakes Fishery Commission (GLFC), the International Joint Commission (IJC) as well as notable international symposia focusing on key environmental and conservation issues
- state the goals and strategic management actions to resolve Ontario's important fisheries management issues (SPOF II)
- outline the highlights of "A New Ecological Framework for Recreational Fisheries Management in Ontario" (EFFM)
- review the province's regulatory guidelines for managing major sport fish through the use of Species Tool Kits.
- summarize federal initiatives to conserve, restore and develop fish habitat
- outline the province's strategy to develop and implement a national invasive species response plan and an accord for the management of invasive aquatic species
- discuss an example of a local enhanced fisheries stewardship initiative (sturgeon protection plan)
- summarize the highlights of Ontario's Great Lakes

Conservation Blueprint for Aquatic Biodiversity

This learning outcome will constitute approximately 25% of the course.

5. **Fish Culture in Ontario**

Potential Elements of the Performance:

- summarize basic concepts of aquaculture
- describe extensive/intensive systems
- outline hatchery operations
- discuss guidelines for stocking fish
- explain the role of hatcheries in the restoration of unique genetic fish stocks
- research stocking records in Ontario's water bodies
- discuss ecological impacts of fish introductions
- argue the pro's and con's of fish stocking as a management tool

This learning outcome will constitute approximately 25% of the course.

III. **TOPICS:**

1. The Importance of Ontario's fisheries
2. Factors Threatening Ontario's fisheries
3. General Principles of Fisheries Conservation and Management
4. Ontario's Strategic Plan for Fisheries Management
5. Fish Culture in Ontario

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Available on LMS

Environment Canada and the U.S. Environmental Protection Agency. 2007. **State of the Great Lakes 2007 Highlights**. (http://www.epa.gov/solec/sogl2007/SOGL2007_TOC_preface.pdf)

Finucan, S., McGovern, S., Deyne, G. Dunlop, W. 2000. **Northeast Region Fisheries Management Action Plan “Responding to Clients Needs”** 24pp.

Fisheries and Oceans Canada, Economic Analysis and Statistics Policy Sector. 2007. **2005 Survey of Recreational Fishing in Canada**. Ottawa, Ontario ©Her Majesty the Queen in Right of Canada

Fisheries and Oceans Canada, Economic Analysis and Statistics Policy Sector. 2007. **Canadian Fisheries Statistics 2004**. Ottawa, Ontario ©Her Majesty the Queen in Right of Canada

Fisheries and Oceans Canada, Fish Habitat Management Branch. **Policy for the Management of Fish Habitat. 1991**. Communications Directorate Ottawa, Ontario

Kerr, S.J. 2006. **An historical review of fish culture, stocking and fish transfers in Ontario, 1865-2004**. Fish and Wildlife Branch. Ontario Ministry of Natural Resources. Peterborough, Ontario. 154 pp.

Kerr, S. J. and R. E. Grant. 1999. **Ecological Impacts of Fish Introductions: Evaluating the Risk**. Fish and Wildlife Branch, Ontario Ministry of Natural Resources, Peterborough, Ontario. 473 pp.

Ontario Ministry of the Environment. 2007. **Guide to Eating Ontario Sport Fish 2007–2008**. Twenty-fourth Edition, Revised. Sport Fish Contaminant Monitoring Program. Environmental Monitoring and Reporting Branch. Queen’s Printer for Ontario. 279 pp.

Ontario Ministry of Natural Resources. 2002. **Guidelines for stocking fish in inland waters of Ontario**. Fisheries Section, Fish and Wildlife Branch. Peterborough, Ontario. 44pp.

Ontario Ministry of Natural Resources. 2005. **Our Sustainable Future**. Ministry of Natural Resources Strategic Directions. Queen’s Printer for Ontario. Queen’s Printer for Ontario. 25pp.

Wichert. G.A., K.E. Brodribb, B.L. Henson and C. Phair. 2005. **Great Lakes Conservation Blueprint for Aquatic Biodiversity. Volume 1**. Nature Conservancy of Canada. 86pp

ADDITIONAL RESOURCES:**Available on Reserve**

Kohler Christopher C. and Wayne A. Hubert (editors). 1993. ***Inland Fisheries Management in North America***. American Fisheries Society. Bethesda, Maryland.

McLarney, William. 1984. ***The Freshwater Aquaculture Book. A handbook for small scale fish culture in North America***. Hartley & Marks, Publishers. Vancouver, B.C.

Nielsen, Larry and David L. Johnson (editors). 1983. ***Fisheries Techniques***. The American Fisheries Society. Bethesda, Maryland.

Piper, Robert G., I.B. McElwain, L.E. Orme, J.P. McCraren, L.G. Fowler and J.R. Leonard. 1982. ***Fish Hatchery Management***. U.S. Fish & Wildlife Service, Washington, D.C.

Ross, Michael R. 1997. ***Fisheries Conservation and Management***. Prentice Hall. Upper Saddle River, New Jersey.

Sedgewick, Stephen, Drummond. 1985. ***Trout Farming Handbook*** (fourth edition). Fishing News books Ltd, Franham, Surrey, England.

Wedemeyer, G. (editor). Fish ***Hatchery Management*** (second edition). American Fisheries Society. Bethesda, Maryland

V. EVALUATION PROCESS/GRADING SYSTEM:

Tests	50%
Assignments	<u>50%</u>
	100%

Assignments and report values will be reduced at a rate of 10% per day for late submissions for a period of 5 days after the due date. After 5 days lab assignment/report value will be zero.

Labs and/or tests missed without documented health or personal reasons will be valued at zero.

The following semester grades will be assigned to students:

Grade	<u>Definition</u>	<i>Grade Point Equivalent</i>
A+	90 – 100%	4.00
A	80 – 89%	
B	70 - 79%	3.00
C	60 - 69%	2.00
D	50 – 59%	1.00
F (Fail)	49% and below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.	
NR	Grade not reported to Registrar's office.	
W	Student has withdrawn from the course without academic penalty.	

VI. SPECIAL NOTES:

Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.

VII. COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located on the portal form part of this course outline