



The Invading Species Awareness Program for Ontario

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Presentation Overview

- Program Background
- Program Initiatives
 - Information/Education
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- Future plans



Program Background

Goal: Implementation and coordination of programs and projects through partnerships and collaboration to prevent the introduction and spread of aquatic invasive species in Ontario waters

- Partnership initiative of the Ontario Federation of Anglers and Hunters and the Ontario Ministry of Natural Resources; initiated in 1992
- Focuses on prevention through information/education, monitoring, research and control initiatives
- Pathways approach-Recreational watercraft, horticulture (water gardens), aquariums, use of live bait, unauthorized fish introductions, live food fish industry
- Engages partners from all sectors, including all levels of government, industry and ENGOS.

Program Background

The Invading Species Awareness Program supports the principles and commitments of federal, provincial and international policies:

- **An Alien Invasive Species Strategy for Canada**
 - A Canadian Action Plan to Address the Threat of Aquatic Invasive Species
http://www.cbin.ec.gc.ca/issues/ias_invasives.cfm#acpwww
- National Code on Introductions and Transfers of Aquatic Organisms
http://www.dfo-mpo.gc.ca/science/aquaculture/code/prelim_e.htm
- **Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem**
<http://www.on.ec.gc.ca/coa/>
- **Ontario Biodiversity Strategy**
<http://www.mnr.gov.on.ca/mnr/biodiversity/>
- Our Sustainable Future- Ministry of Natural Resources' Strategic Directions
<http://www.mnr.gov.on.ca/mnr/biodiversity/>
- Great Lakes Panel on Aquatic Nuisance Species
<http://www.glc.org/ans/panel.html>

Program Initiatives: Information and Education

- Focused on pathways of introduction
- Priority species
- Partnerships with industry, ENGOS, academia, and governmental agencies.
- Evaluation
 - Program success
 - Public attitudes and behaviour



Information and Education Initiatives: Recreational Pathways

Working with industry and retailers to implement outreach initiatives focused on our target audiences (boaters, anglers, cottagers, gardeners and aquarium hobbyists)

- Incorporate AIS prevention and awareness within industry best management practices and training opportunities

- Clean Marine Program-Marina EcoRating
- Horticulture/Landscape Technician Program-Secondary School and College programs.
- DockTalk program for shoreline residents
- Baitfish Industry-AIS HACCP

- Encourage industry media/outreach to raise awareness of invasive species

- Publications/Newsletters
- Television
- Trade Shows
- Retailer Workshops and Outlets



Information and Education Initiatives: AIS HACCP-Training for Bait Operations

Identification of critical pathways that AIS or non-target fish can enter baitfish operations, and opportunities to prevent their transfer to new areas



AIS-HACCP for bait harvesters and retailers in Ontario is based on the original model produced by Sea Grant.

- Mandatory HACCP training for *all* bait harvesters and dealers in Ontario between 2006 and 2009
- HACCP plan must be approved by MNR and standard conditions related to HACCP plan will be applied to license
- 2007-100 bait harvesters were trained in northwestern Ontario- Rainy Lake, Lake of Woods and Thunder Bay/Lake Nipigon
- 2007-All bait retailers in province will complete a HACCP plan

Information and Education Initiatives: Citizen and Community Engagement

Outreach initiatives are conducted on a provincial and regional basis to engage citizens and communities in invasive species prevention.

- Provincial approach to public awareness
 - Collaboration with provincial organizations and agencies
 - Provincial mailings to targeted audiences
 - Media campaigns (print and television psas, news releases)
 - >500,000 educational materials distributed across the province
- Regional approach to community awareness
 - 15 summer staff, working with ENGOS and government offices
 - >150 workshops, events, presentations in summer 2007
 - Watercraft inspection initiatives with lake associations
 - Funding opportunities/shared resources
 - Support for airing public service announcements (>1800 radio spots, >200 television spots) and increased opportunity for news media exposure
- **Engaging over 300 community groups across the province**
- **Reaching 1 million citizens annually**



Program Initiatives: Invasive Species Monitoring

Priorities for Invasive Species Monitoring

- Early detection of AIS
- Tracking the spread and distribution of AIS
- Engagement of citizens and resource professionals in AIS monitoring and reporting
- Coordination of provincial invasive species database of reports
- Development of monitoring protocols and guidelines
- Incorporate AIS monitoring within existing and new activities



Monitoring: Invading Species Hotline and Website

- Toll-free, Invading Species Hotline and Website (citizen and agency reports)
- First reports of new introductions
- Increases opportunity for rapid response
- Enables the public to obtain information on invasive species distribution and prevention



The screenshot shows the homepage of the InvadingSpecies.com website. At the top, the site name "InvadingSpecies.com" is displayed along with a toll-free hotline number "1-800-563-7711". Navigation links for "HOME", "CONTACT", "SEARCH", and "LINKS" are visible. Below the header, there are three main images: a white water lily, a botanical diagram of a plant, and a green aquatic plant. A horizontal menu bar contains links for "About Us", "Invaders", "Prevention", "Programs", "Information", and "News & Alerts". A "Report a sighting online" button is prominently displayed. The main content area features a section titled "Invading Species Awareness Program" with text explaining the threat of invasive species to Ontario's biodiversity. To the right, an "INVASIVE NEWS" section lists recent updates, including the success of goby kills, the execution of a goby plan by the Ministry of Natural Resources, and amendments to fish regulations regarding gobies, snakeheads, and invasive carp. Below this, an "INVADERS" section lists "Rusty Crayfish".

Monitoring: Invasive Species Database

- 15 years of sighting information on priority species
 - Distribution maps
 - Analyse patterns of spread, and areas vulnerable to invasion
- Working with MNR's Natural Heritage Information Centre (NHIC) to manage AIS data using the Biotics Database from NatureServe (developing an invasive module)
- Working with MNR to contribute AIS layers to the Natural Resource Values Information System (NRVIS)
- Developing web interface with improved mapping capability



Monitoring: Coordination and Integration

- AIS Provincial Monitoring Survey 2005/2006
 - Few agencies conducted targeted AIS monitoring
 - AIS were noted in regular monitoring and assessment activities
 - Majority of organizations do not share this information
 - Lack of expertise in AIS identification
- AIS Field Guide
 - Development of series of AIS identification workshops
- Monitoring Protocols
 - Development of AIS specific protocols
 - Integration of AIS monitoring and reporting protocols in regular lake/stream assessment activities



Monitoring: Community Engagement



- **Invading Species Watch**
 - Volunteer lake monitoring for zebra mussels and spiny water fleas
 - Only active province-wide program specifically designed to detect invaders
 - >200 lakes monitored annually
 - 13 summer staff coordinate monitoring with regional organizations (CA, MNR district offices, OFAH clubs)
 - Support local community outreach efforts on invasive species

Program Initiatives: Research

Research Priorities:

- Pathways and mechanisms of dispersal and spread
- Efficacy of prevention and control measures
- Risk assessment
- Ecological/economic impacts



Research Initiatives: Canadian Aquatic Invasive Species Network

- Canadian Aquatic Invasive Species Network
 - Led by the University of Windsor, includes over 30 researchers from 17 partner universities, 5 federal laboratories across the country.
 - OMNR and OFAH are partners in this initiative
- Research Objectives
 - Identification and qualification of **vectors and pathways** that transport AIS to and within Canada.
 - Assessment of the physical, chemical and biological **factors that affect the establishment success** of AIS.
 - Development of **risk assessment models** of AIS enabling predictions of new invasions, ecological impacts and opportunities for prevention.



Research Initiatives: Risk Assessment

- Pathways Risk Assessment Surveys
 - Led by Fisheries and Oceans Canada, with support from OFAH and MNR
 - Great Canadian Baitfish Survey
 - Water Gardeners Survey
 - Aquarium Hobbyist Survey
- Recreational Angler Surveys
 - Survey conducted every 5 years (1997, 2004)
 - Assess angler knowledge and practices with respect to AIS
 - Guide education, policy and regulations on AIS



Other Research Initiatives:

- Impacts of spiny water flea on aquatic systems and management implications – **York University**
- Pathways of introduction to the Great Lakes Basin, determine potential risk of introduction and spread, and identify source populations of AIS – University of Windsor, **GLIER**
- Round goby management – University of Windsor
- Impacts of introduced zebra mussels on waterfowl staging on the Great Lakes – **Long Point Waterfowl and Wetlands Research Foundation**
- Impacts of introduced round goby in Lake Huron – **University of Toronto**
- Round goby dispersal mechanisms and barriers to dispersal in tributaries of the Great Lakes

Control Initiatives: Project Purple and Biological Control

- Focused education and control initiative aimed at purple loosestrife
- Conducted *Galerucella* beetle releases in every major watershed in Ontario (in northern Ontario, 40 release sites =200,000 beetles..initiated in 2004)
- Worked with landowners, community groups to conduct and monitor release sites
- Develop and implemented protocol to monitor release sites
- Track dispersal of beetles (biocontrol agent) and effectiveness of the program



Future plans

- Increase opportunities for **coordination** between agencies and organizations within Ontario to implement outreach, research, monitoring and control initiatives
 - Initiate and expand partnership opportunities with ENGOs and governmental agencies in northwestern Ontario within the Lake Superior watersheds for AIS prevention
- Work with industry to develop best management practices to reduce risk of AIS introductions
- Facilitate communication, education and **engage** the public to take action

Thanks to Our Partners!

Ontario Ministry of Natural Resources
O.F.A.H.
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Association
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Durham Region Stewardship Council
City of Welland
City of Oshawa
Welland River Keepers
Toronto Region Conservation Authority
Victoria Land and Water Stewardship
Peel Stewardship Council
York Stewardship Council
Muskoka Watershed Council
Peterborough Stewardship Council
Oshawa Second Marsh
Durham College
Canadian Food and Inspection Agency
Renfrew County Stewardship Council
Centre for Sustainable Watersheds
Ontario Wetland Habitat Fund

Transport Canada
Fisheries and Oceans Canada
Ontario Marina Operators Assoc.
Federation of Ontario Cottager's
Assoc.
Boat Guide Canada
Boats and Places Magazine
Toronto International Boat Show
Ontario Out of Doors
Outdoor Canada
Cottage Life
Tourist Outfitters
Ontario Wetland Habitat Fund
Ontario Beetles
Biological Alternatives
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Authority
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Oshawa Second Marsh
Central Lake Ontario Conservation
Pembroke Sportsmen Club

Mississippi Valley Conservation
Hastings/Prince Edward
Stewardship
Peterborough Stewardship
Wye Marsh
Friends of Fort Erie
Fort Frances Sportsmen Club
Ducks Unlimited Canada
Georgian Get Outdoors Club
Quinte Conservation
Moose FM (Bancroft, Parry
Sound)
Rock 95 (Barrie)
Country 105 (Peterborough)
MYFM (Renfrew)
Rainy Lake Conservancy
Atikokan Sportsmen Club
Kenora Anglers and Hunters
Kensington Conservancy
Lake of the Woods Property
Owners Association

Purple Loosestrife Biological Control: Evaluating Success



- Monitored 198 sites (1993-2002)
- Galerucella beetles impacting purple loosestrife at 83% of release locations
- Regional dispersal of beetles and control of purple loosestrife in 66% of release locations.
- Province-wide control is forecasted over the next decade.