Standing Committee on Agriculture and Fisheries

Hon. Robert Mitchell, Minister
Kate MacQuarrie, Director of Forests Fish and Wildlife
September 2017

Prince Edward Island CANADA
Communities, Land and Environment

Presentation Overview

Hal Perry (Chair)
Peter Bevan-Baker
Bush Dumville
Hon. Sonny Gallant
Colin LaVie
Hon. Tina Mundy
Bradley G. Trivers

The Committee will receive a briefing on **fish kills** from Hon. Robert Mitchell, Minister of Communities, Land and Environment; and Kate MacQuarrie, Director of Forests, Fish and Wildlife.

Types of Fish kills: Natural

Spawning mortality

Types of Fish kills: Natural

Winter / Spring die-off
(*Spring turn-over*)

Types of Fish kills: Human-related

Angling Mortality

Commercial by-catch

Types of Fish kills: Human-related

Land use: anoxia

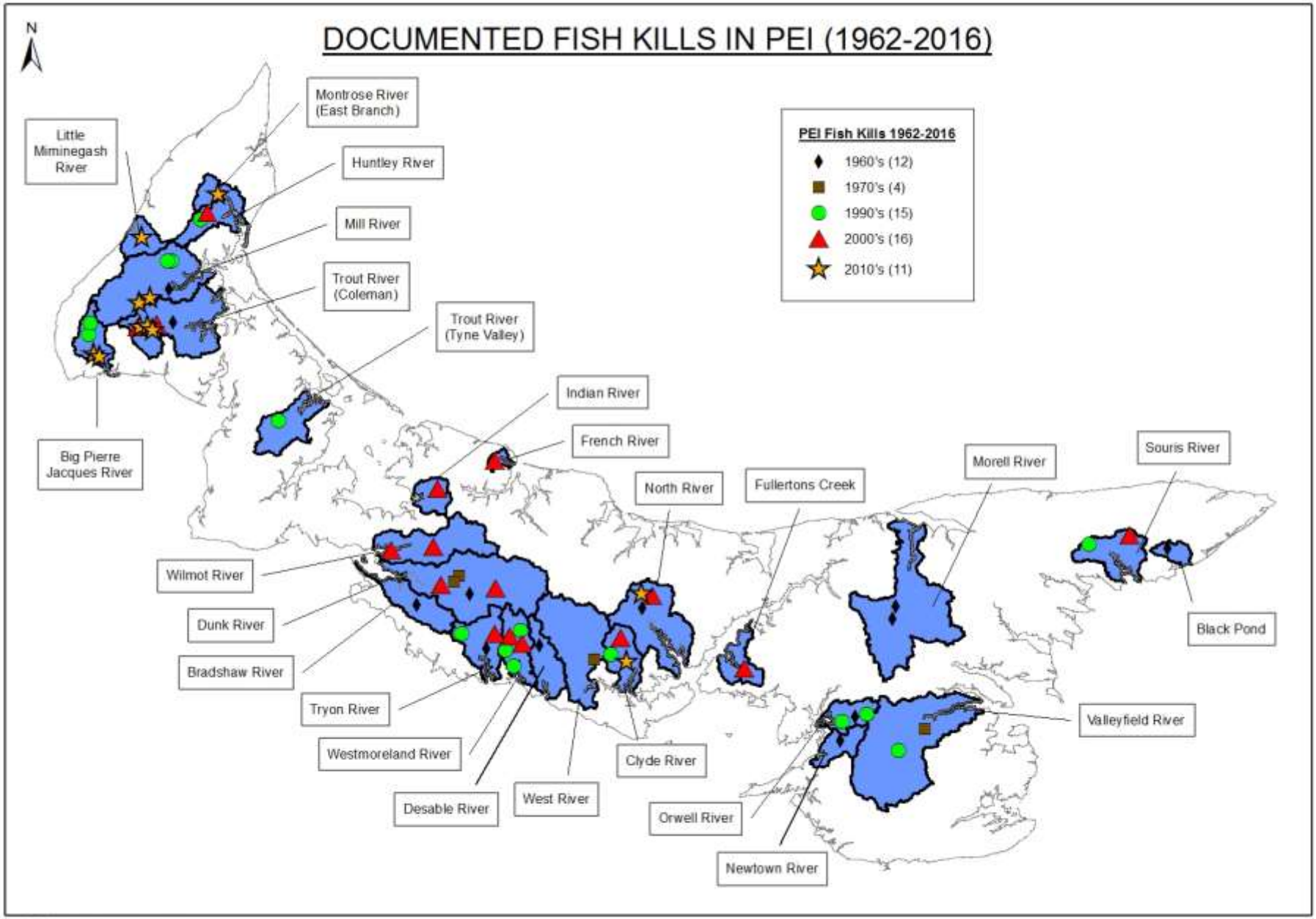
https://www.princeedwardisland.ca/en/information/communities-land-and-environment/anoxic-events

Types of Fish kills: Human-related

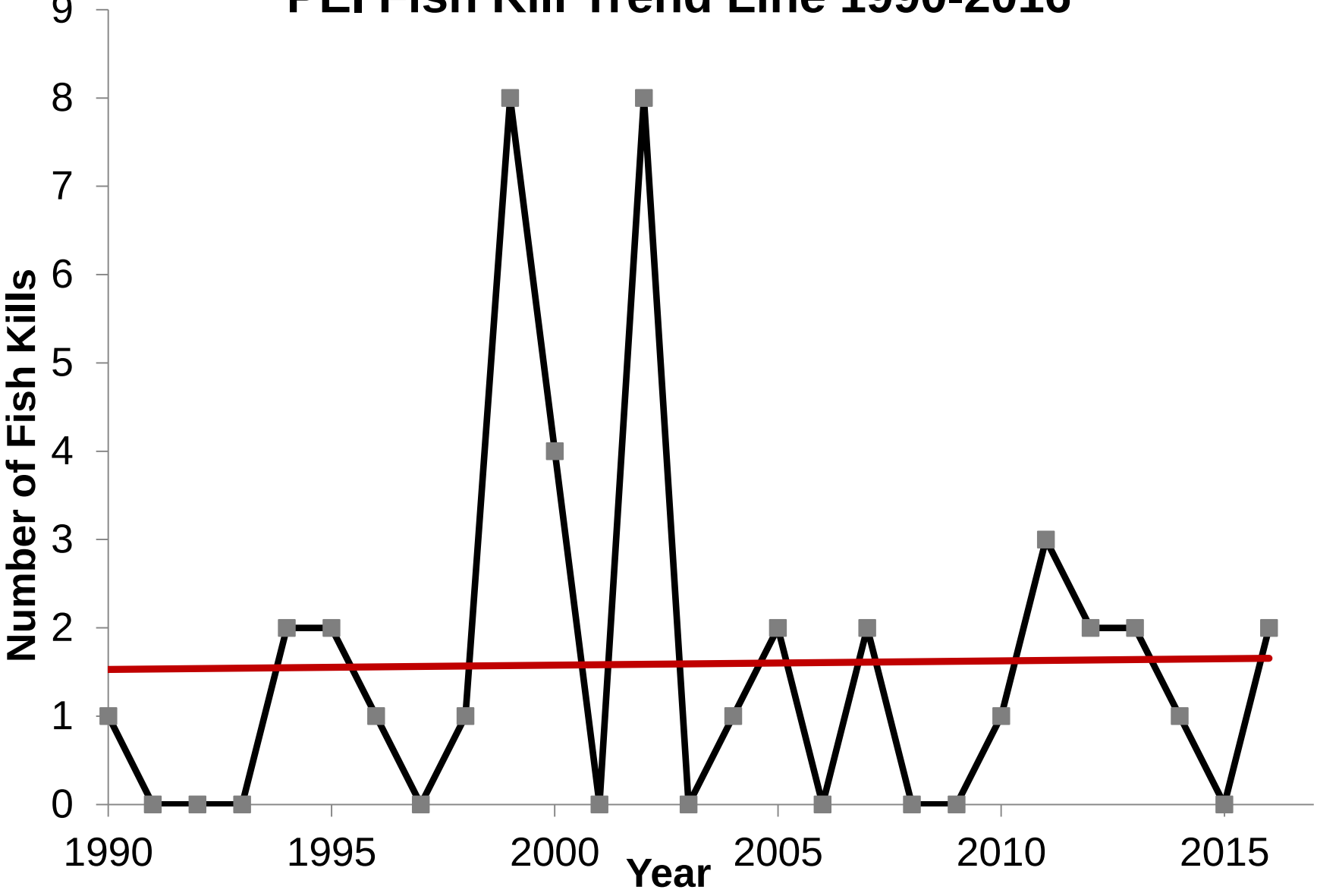
Land use: anoxia

Land use: rain/runoff

https://www.princeedwardisland.ca/en/information/communities-land-and-environment/fish-kill-information-and-statistics


DOCUMENTED FISH KILLS IN PEI (1962-2016)
N
PEI Fish Kills 1962-2016
1960's (12)
1970's (4)
1990's (15)
2000's (16)
2010's (11)
Little Mimmegash River
Montrose River (East Branch)
Huntley River
Mill River
Trout River (Coleman)
Trout River (Tyne Valley)
Big Pierre Jacques River
Indian River
French River
North River
Fullertons Creek
Morell River
Souris River
Black Pond
Wilmot River
Dunk River
Bradshaw River
Tryon River
Westmoreland River
Desable River
West River
Clyde River
Orwell River
Newtown River
Valleyfield River
Communities, Land & Environment
Forest, Fish and Wildlife
March 2016
0 5 10 20 30 40 50
Kilometers
This map is not intended for legal description or to calculate exact land dimensions.

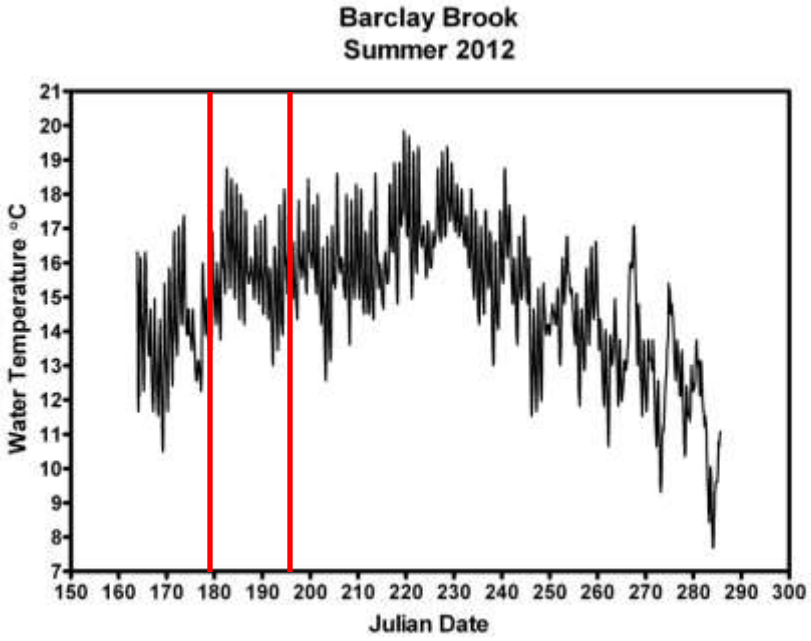
PEI Fish Kill Trend Line 1990-2016

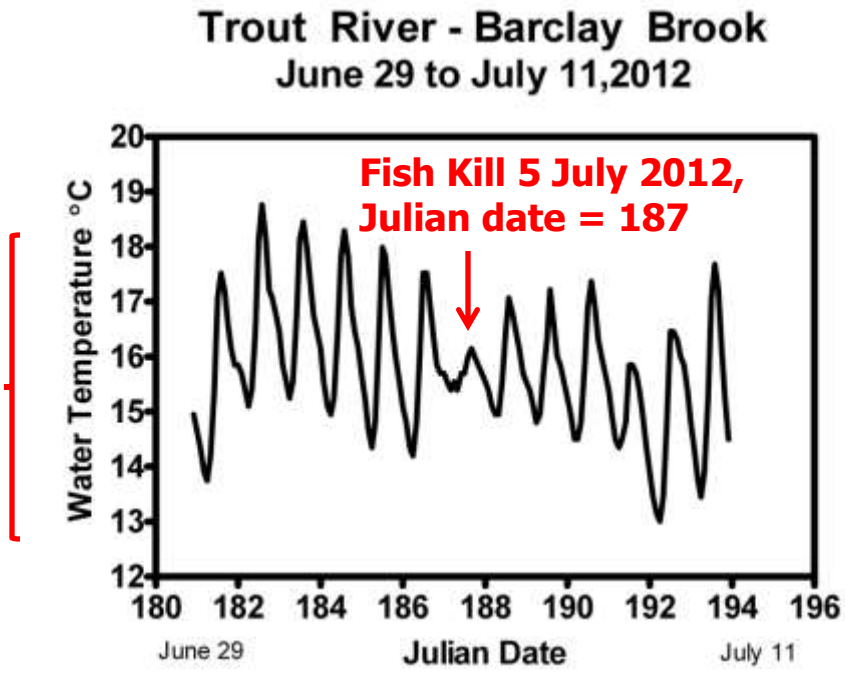


M. Vandenheuvel – UPEI/CRI

Common Factors

- Sudden fish die off
- July/August
- Prior heavy rainfall
- Multiple age classes & species
- Full stomachs, no disease
- Normal dissolved oxygen
- Normal temperature

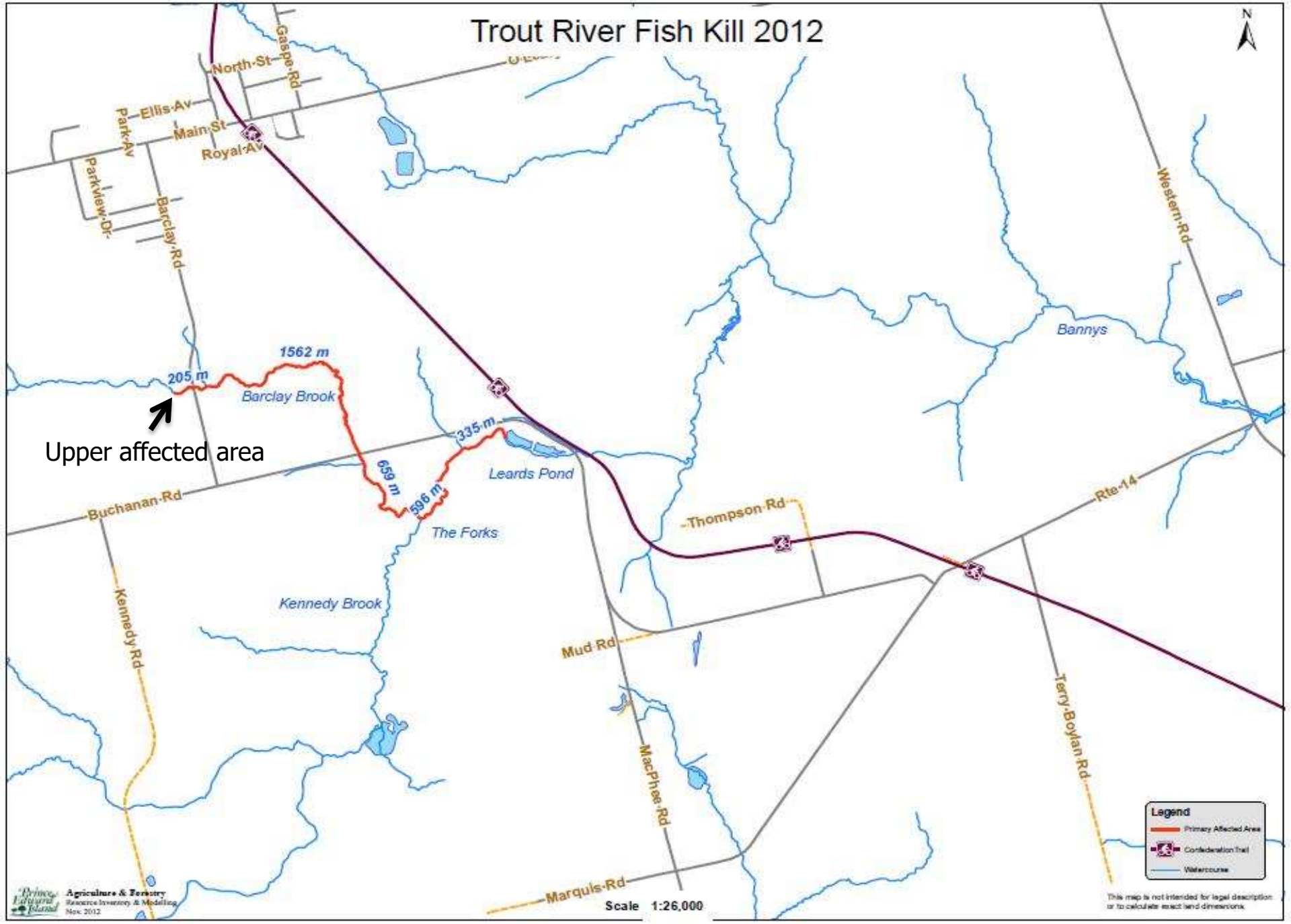




Optimum range for trout & salmon is 13-18°C

Fish Kill Response

- Fish kill is discovered.
- Call made to Coast Guard Environmental Emergency 24-hour line (1-800-565-1633).
- Justice & Public Safety; Communities, Land & Environment; and Environment Canada respond.


Trout River Fish Kill 2012
N
North St
Gaspe Rd
Ellis Av
Park Av
Main St
Royal Av
Parkview Dr
Barclay Rd
Western Rd
Bannys
1562 m
205 m
Barclay Brook
Upper affected area
335 m
659 m
596 m
Leards Pond
Buchanan Rd
Thompson Rd
Rte 14
The Forks
Kennedy Brook
Kennedy Rd
Mud Rd
MacPhee Rd
Terry Boylan Rd
Marquis Rd
Legend
Primary Affected Area
Confederation Trail
Watercourse
Scale 1:26,000
Agriculture & Forestry
Resource Inventory & Modelling
Nov. 2012
This map is not intended for legal description or to calculate exact land dimensions.

Following the trail

Roles and Responsibilities

- Communities, Land and Environment:
  - **First response**. With JPS confirm whether it is a fish kill requiring investigation;
  - **Notification**: internal, non-government groups, public;
  - **Site Assessment**: verify length of stream affected;
  - **Clean-up**: recover, measure and document fish killed;
  - **Mitigation**: request angling closure from DFO, post "*no fishing*" signs, complete population assessments, determine re-stocking needs, assess recovery in future years;
  - **Reporting**: complete a preliminary report.

Roles and Responsibilities

- Justice and Public Safety:
  - **On-site Coordinator**: coordinate the integrity of the site, sample / evidence collection, & field investigation and release site to CLE for clean-up once investigation is complete;
  - **Investigation**: receive sample results, interview people as needed, determine if provincial charges are to be laid;
  - **Release file**: release information to CLE at the conclusion of any legal action.
- Environment Canada:
  - **Investigation**. With JPS, collect samples / evidence receive sample results, interview people as needed, determine if Federal charges are to be laid.

Roles and Responsibilities

- Agriculture and Fisheries:

  - **Soil Conservation**. Once the site is released by JPS, contact CLE and watershed group to ID areas of concern;

  - Contact landowners and assess fields to determine if soil conservation and/or land management practices are needed;

  - Make recommendations to landowners and implement options (Agricultural Stewardship Program, ALUS) as appropriate.

Sample Collection

- **Water** for pesticide analyses and water chemistry
  - stream samples upstream and downstream from point of entry
  - standing water samples in potential suspect field
  - water temperature and dissolved oxygen
- **Soil**
  - From suspected point of entry
- **Vegetation**
  - From suspected point of entry

Water, soil & vegetation samples go to Environment Canada lab in Moncton

Sample Collection

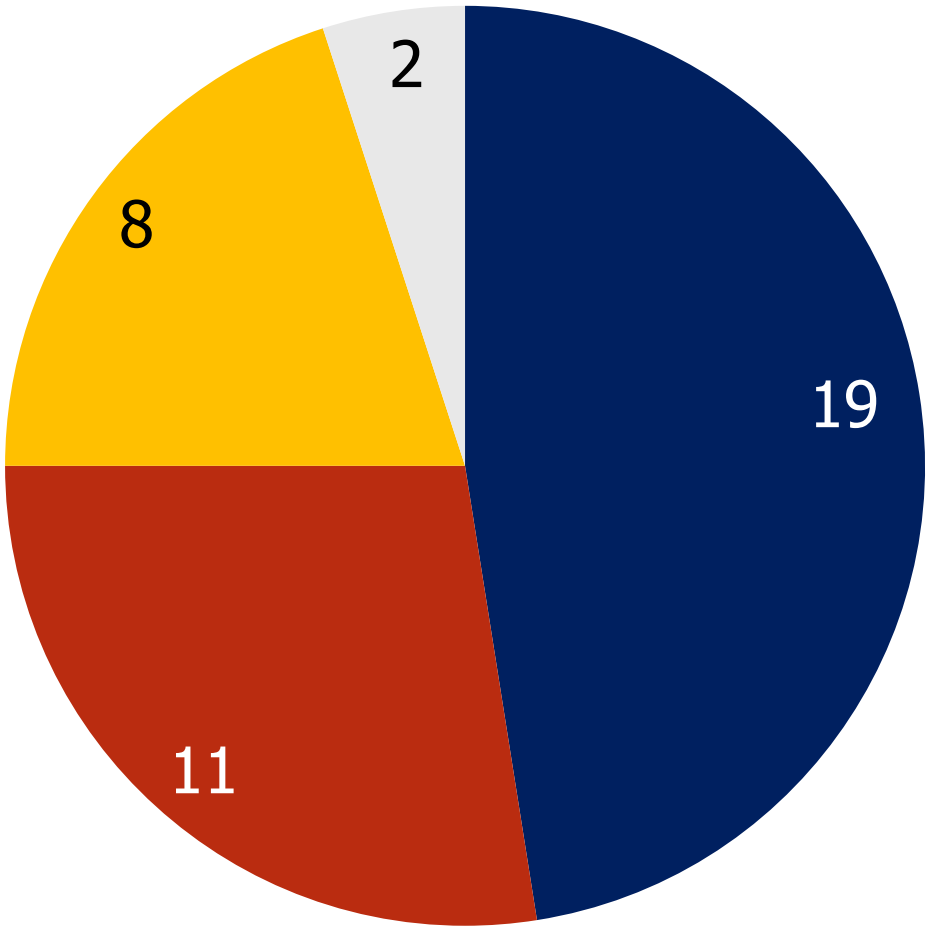
- **Fish**
  - Samples sent to AVC for necropsy
  - Samples sent to Environment Canada for pesticide analyses


WILDLIFE DIAGNOSTIC REPORT

WILDLIFE HEALTH COOPERATIVE

Water, soil, vegetation and fish samples take 3 or more months to be processed. Results are not released until the conclusion of any legal proceedings, which may take years (6 months to 5 years to lay a charge, typically 1-3 years in court).

Chemicals detected in fish kills 1990-2016



- Chlorothalonil (Bravo / Echo, fungicide)
- Azinphos methyl (APM, Guthion, insecticide)*
- Endosulfan (Thiodan, insecticide)
- Mancozeb (Dithane, Manzate, fungicide)

**In 2002, PEI restricted use of Azinphos methyl on fields that border waterways. The product has been prohibited in Canada since 2005.*

Chlorothalonil Product Label

ENVIRONMENTAL HAZARDS

- This product is toxic to fish, aquatic invertebrates and marine/estuarine organisms. Runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. DO NOT apply directly to water.

- Keep out of lakes, streams, and ponds. DO NOT contaminate water by cleaning of equipment, or disposal of wastes. DO NOT apply where runoff is likely to occur. DO NOT apply when weather conditions favour drift from areas being treated.

Contributing Factors

- Toxicity of product used
- Location in the watershed
- Intensity of rainfall
- Timing of spraying in relation to rainfall
- Slope and slope length
- Soil organic matter
- Field engineering (eg. terraces, grassed waterways, grassed headlands)
- Nature of cultivation

What has been done

- Land Management Practices – Soil Conservation
- Alternate Land Use Services Program
- Barclay Brook project
- Ag- Environment Unit
- Action Committee recommendations

Land Management Practices – Soil Conservation

Land Management Practices – Soil Conservation

ALUS

Category	Hectares	Acres
Expanded buffer	660	1,630
Tree establishment in 15m buffer	274	708
Grassed headlands	470	1,162
High slope (>9%) land retirement	1,580	3,904
Terraces	254	627
Grassed waterways	574	1,420
Farmable berms	72	178
TOTALS	**3,884**	**9,627**

On the ground

Grassed waterway

Expanded buffer zone

Riparian planting

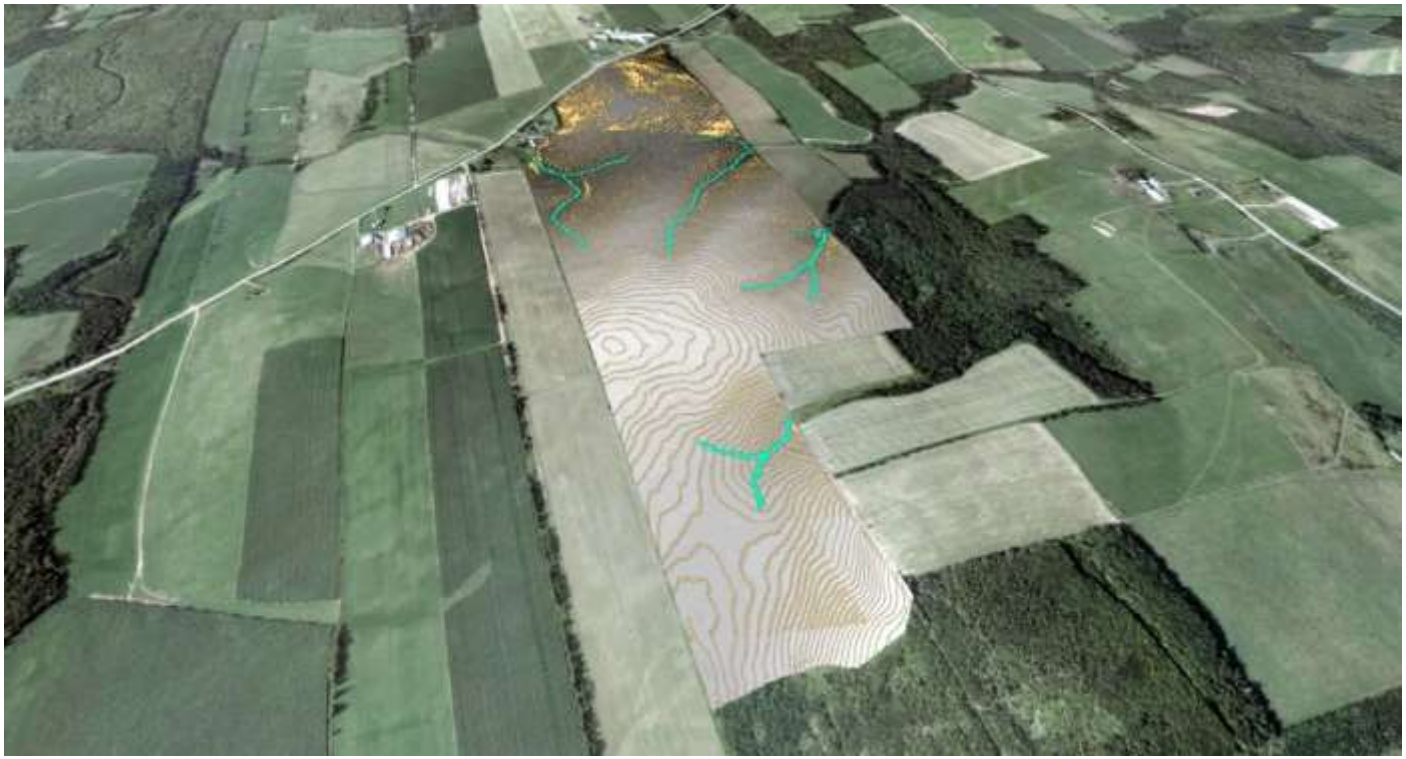
High slope land retirement

Barclay Brook

- Recommendation of the 2012 Action Committee
- Included soil engineering work, use of lower-risk pesticides, and taking high-risk land out of production
- **Partnership:**
  - Government – staff and funding (soil conservation, land retirement)
  - Industry – support and funding (lower risk pesticides, land retirement)
  - Producers – implemented the work
  - Watershed group – manage retired land (96 acres)

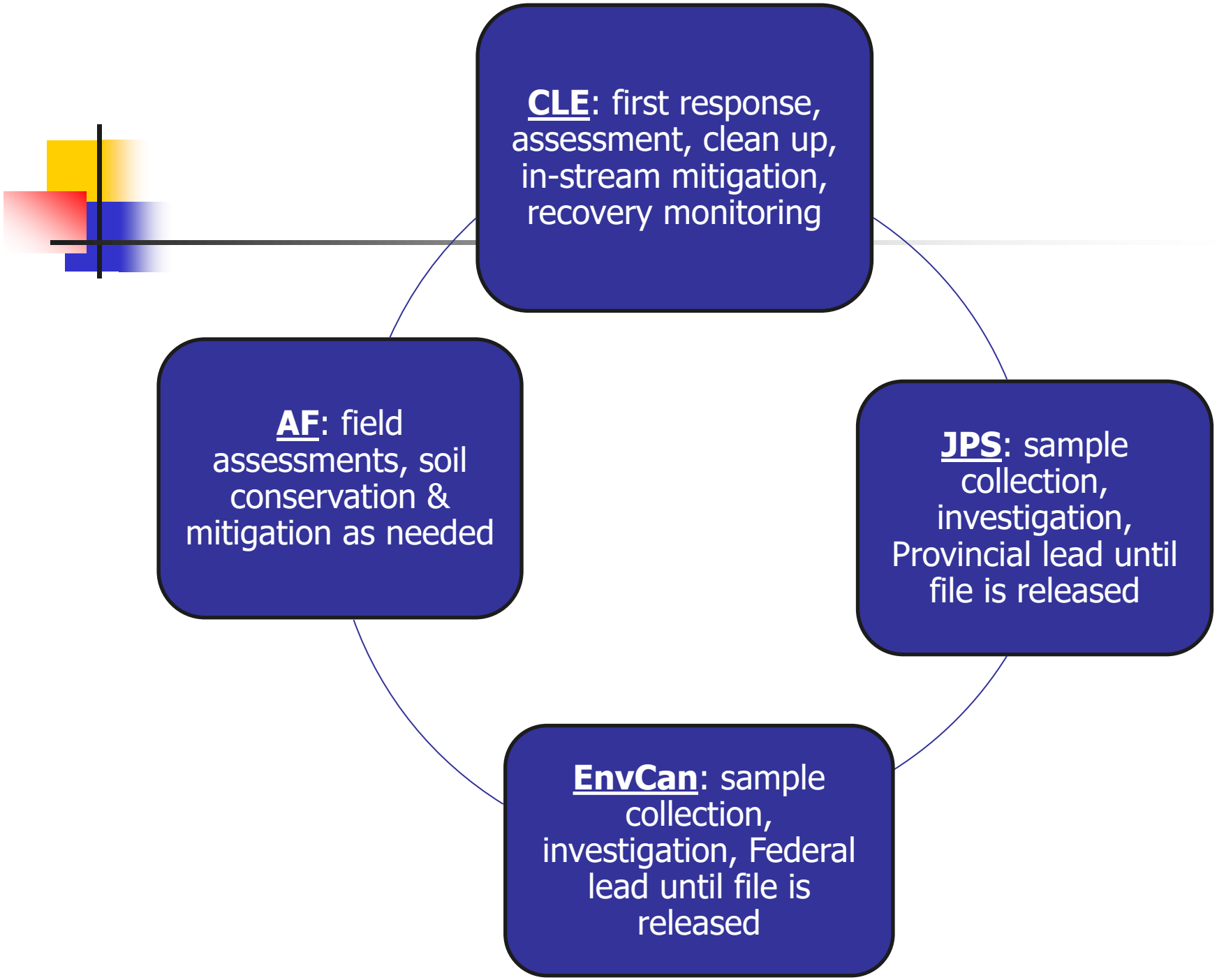
What can been done

- Agriculture Soil Engineering Assessments (id high risk / concentrated flow areas).



What can been done

- Field-specific management
  - Every field is different: some areas may not be appropriate for specific crops or products
- Partnerships
  - Many sectors agree: legislation is not the answer
  - No one agency can solve this issue
  - Government, industry, producers and watershed groups need to be involved.


CLE: first response, assessment, clean up, in-stream mitigation, recovery monitoring
JPS: sample collection, investigation, Provincial lead until file is released
EnvCan: sample collection, investigation, Federal lead until file is released
AF: field assessments, soil conservation & mitigation as needed