

A New Regulatory Regime for Yukon Placer Mining



September 2006

Prepared for Community and First
Nation Information Meetings

Today's Presentation

- Will be made by representatives of the Yukon Placer Secretariat & its partners (Yukon Government, Council of Yukon First Nations, Fisheries & Oceans Canada)
- Introduces the key concepts of the proposed Placer Regime
- Begins the Secretariat's consultation process
- The first of three consultation meetings in your community

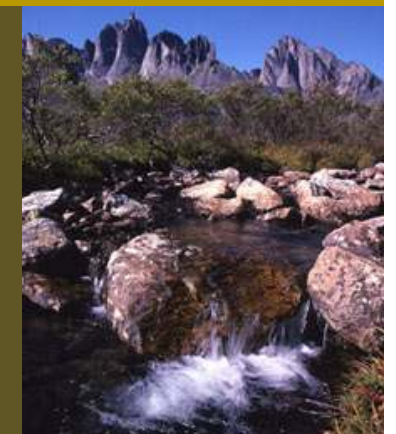
Outline

- Why is a new regime necessary?
- Understanding Placer Mining & Its Effects on Fish
- Yukon Placer Authorization vs Proposed Regime
- Risk Management Framework
- An Overview of the Process
- Yukon Placer Secretariat
- Consultation
- Implementation



Why is a new regime necessary?

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Federal Fisheries Act

Section 35(1)

“No person shall carry on any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat.”

Section 35(2)

“No person contravenes subsection (1) by causing the alteration, disruption or destruction of fish habitat by any means or under any conditions authorized by the Minister... under this Act.”

The proposed Regime sets out how new Fisheries Act authorizations will be made.

Why must the existing Regime be replaced?

- A comprehensive review of the Yukon Placer Authorization (1993) was completed in 2002
- June 2002 - Fisheries and Oceans Canada received recommendations from the Yukon Placer Committee
- Dec 2002 – Fisheries and Oceans Canada decision to phase-out the Yukon Placer Authorization



Progress Toward a New Regime

May 2003 - Fisheries and Oceans Canada, Yukon & Council of Yukon First Nations signed Record of Agreement, which:

- Recognized the importance of a sustainable placer industry and the importance of conservation of fish and fish habitat supporting fisheries
- Recognized the Minister of Fisheries and Oceans decision to replace the YPA with a new regime
- Mandated the parties to develop a new regime for implementation by 2007



Record of Agreement

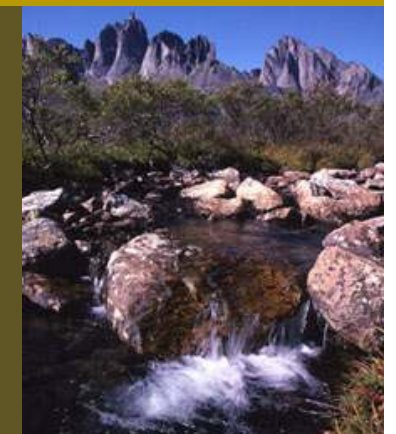
The new Regime must:

- Be fair & understandable to industry
- Be achievable and science-based; incorporate experience and traditional knowledge
- be responsive to area and topographical differences



Understanding Placer Mining and Its Effects on Fish

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Placer Mining

- Uses no chemicals
- Creates no toxic by-products
- Uses water, motion & gravity



What is Placer Gold?

- Flakes or nuggets of gold which eroded from hard rock and were carried downstream by streams and rivers.
- Deposited in stream and river valleys when currents slow down and are no longer strong enough to suspend the gold in water.
- Over thousands of years streams and rivers changed course, and valleys filled up with sediments, including placer gold deposits.
- The heavy placer gold migrates downward through the sediments and is concentrated at the bedrock level, often covered by 50 feet or more of sediments.



How do Placer Miners Recover Gold?

- Sediments covering the “pay dirt” above the bedrock are removed.
- The gravels are “sluiced” or washed in flowing water, so that the heaviest particles (gold) settle out.



Richard Hartmier Photo

Placer Mining & Water

- The sluicing process can result in high concentrations of sediment within the waste water.
- Settling ponds are used to settle out the sediments before the water is discharged back into the stream. Some mines recycle the water for more sluicing.



Effects on Fish & Fish Habitat

Stream channel changes or increases in sediment concentrations can affect benthic invertebrates, or insects in larval form. Their populations can decline or the species types may change.

The larvae and their adult forms are the key source of food for juvenile salmon as well as adult and juvenile freshwater fish.

Important species of benthic invertebrates include:

- Caddisflies
- Dragonflies
- Mayflies
- Stoneflies
- Blackflies



Caddisfly Larvae

Effects on Fish & Fish Habitat

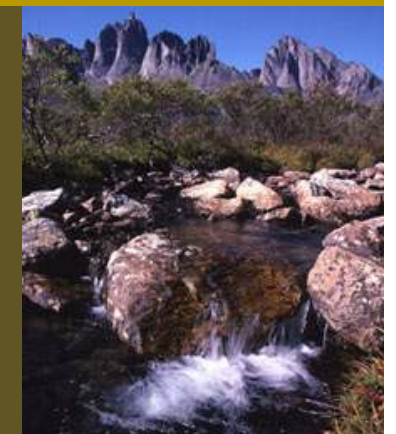
- **Fish Reproduction** - may be irregular, less successful or absent.
- **Fish Growth** - may be reduced.
- **Fish Body Condition** – may be reduced.
- **Fish Survival** – may be reduced (in extreme conditions)





Yukon Placer Authorization vs. Proposed Regime

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Yukon Placer Authorization (YPA) 1993

- Identified allowable sediment discharges at “end-of-pipe” only
- Rules and Requirements determined by stream classification based on presence or absence of fish
- Provided for “deferment” of fish habitat values (water quality or habitat)



What is Proposed in the New Placer Regime

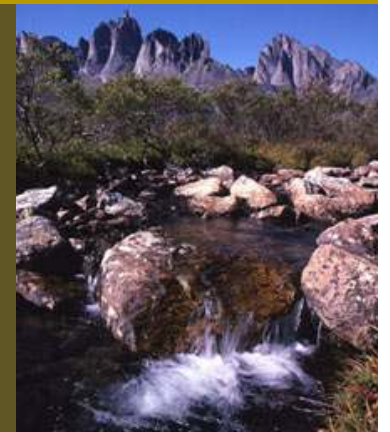
- Identifies “end-of-pipe” and “in stream” water quality objectives
- Rules and Requirements based on Watershed Sensitivity and Suitability of Habitat For Fish
- Ongoing Aquatic Ecosystem and Industry Health monitoring
- Adaptive Management process for effectiveness reviews and long-term adjustments
- Risk-based decision making process





Risk Management Framework

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Risk Management Framework

Risk Management Decision-Making

- Pathway of Effects Analysis
- Risk Management Matrix

Watershed Health Approach

- Watershed sensitivity
- Fish habitat suitability classification

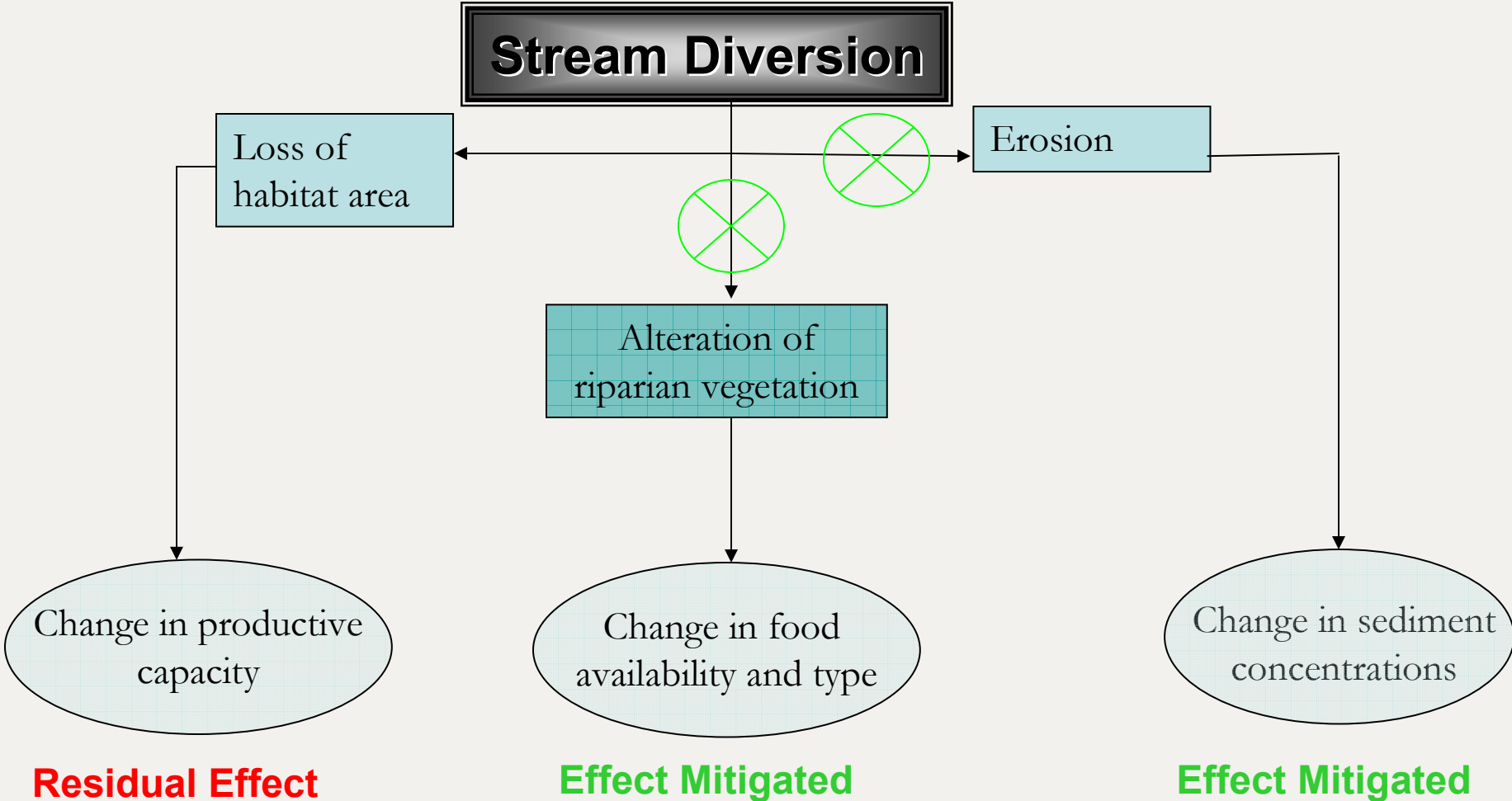
Compliance and Enforcement

- Water quality objectives and sediment management
- Action Level approach

Adaptive Management

- Monitoring Protocols

Pathway of Effects Analysis



What Placer Mining Activities Can Affect Fish & Fish Habitat?

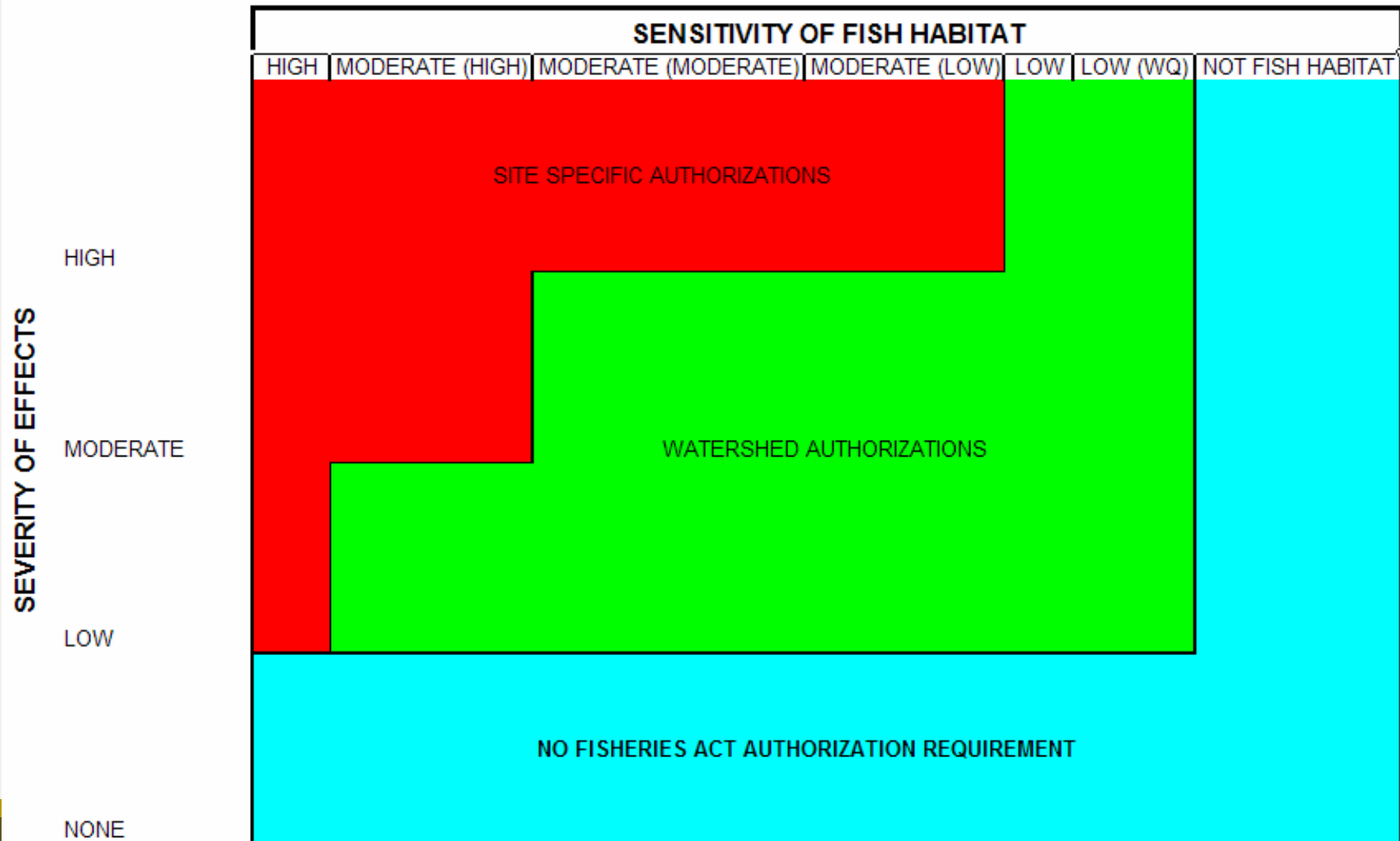


- **Water acquisition** - for sluicing
- **Sediment discharges** - from sluicing
- **Stream diversions** - to get at pay dirt underneath streams
- **Other Instream Activities** - Construction of dams, dikes, settling ponds, etc.

DFO National Habitat Management Risk Management Matrix

Scale of Negative Effect	Sensitivity of fish and fish habitat				
	Rare	Highly sensitive	Moderately sensitive	Low sensitivity	Not fish habitat
High	Significant negative effects	Site specific review and authorization	Streamlined authorization process, regulations, class authorizations	Operational Statements, letters of advice, best management practices, guidelines, certification, partnership	No impact - no <i>Fisheries Act</i> requirements
Medium					
Low					
None	No impact - no <i>Fisheries Act</i> requirements				

Yukon Placer Risk Management Matrix

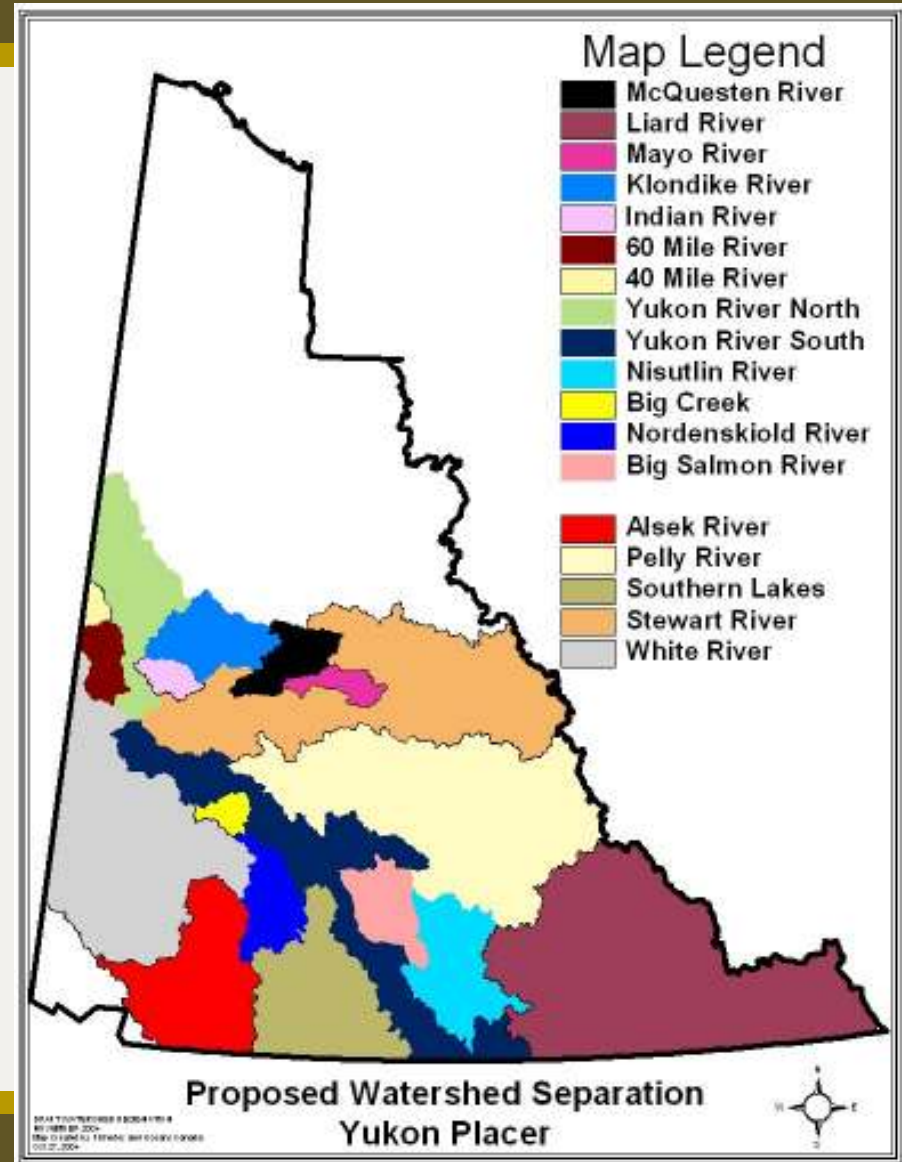


Watershed Authorizations

The YPA will be replaced with a proposed 19 separate Watershed Authorizations

Watershed Authorizations will contain:

- Habitat classification maps
- Risk matrices
- Discharge standards



Watershed Sensitivity

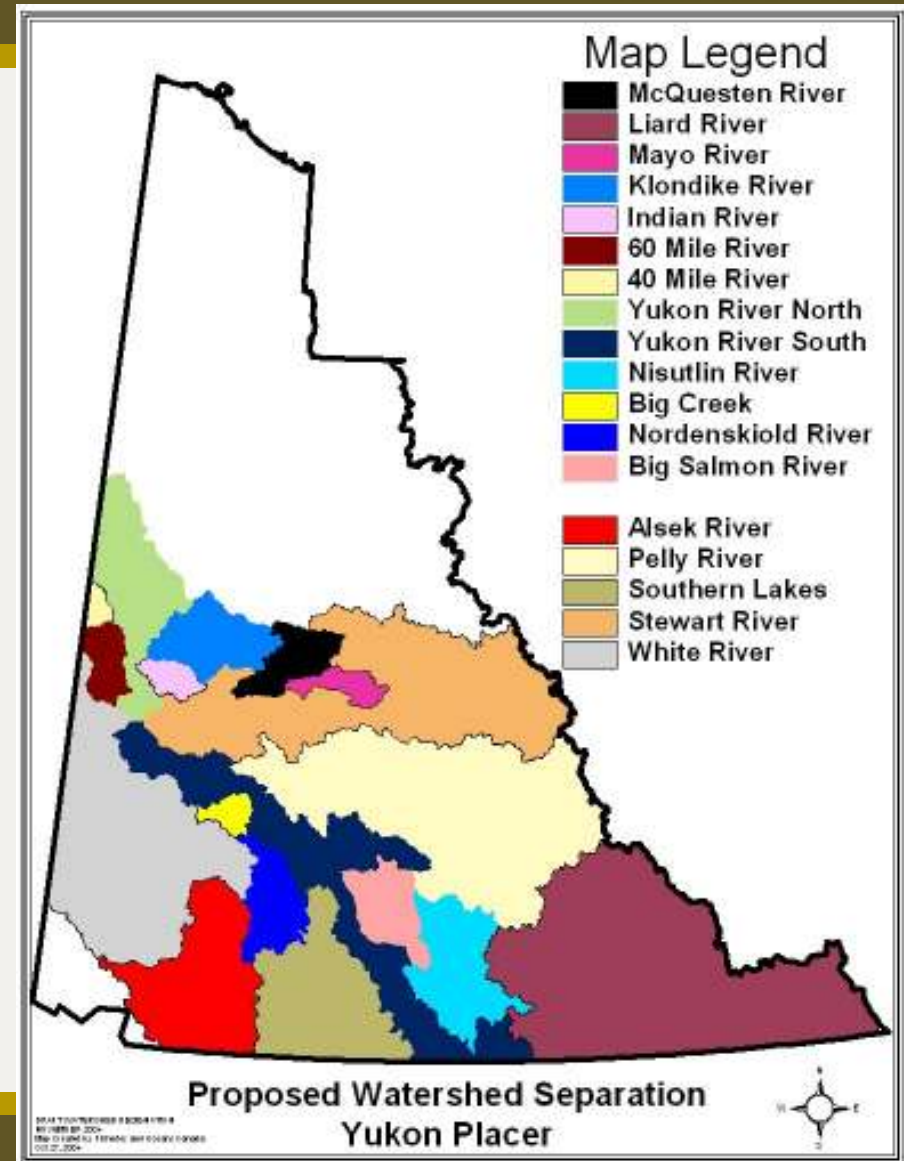
Each watershed will be classified based on overall scoring of physical and biological watershed sensitivity criteria.

Category A watersheds

➤ MORE sensitive

Category B watersheds

➤ LESS sensitive



Watershed Sensitivity Indicators

(Watershed Level)

Physical Parameters

- Degree of Development (Placer Mining Activity)**
- Water Quality (Natural Total Suspended Solids Concentration)**

Biological Parameters

- Adult Salmon Distribution**

Fish Habitat Suitability Indicators

All stream reaches within a watershed are classified through fish habitat suitability analysis (biological and physical indicators)

Biological Parameters

- Proximity from Chinook Salmon Production Areas
- Chinook Salmon Spawning Areas

Physical Parameters

- Water Course Gradient
- Background Water Quality

Fish Habitat Suitability Areas

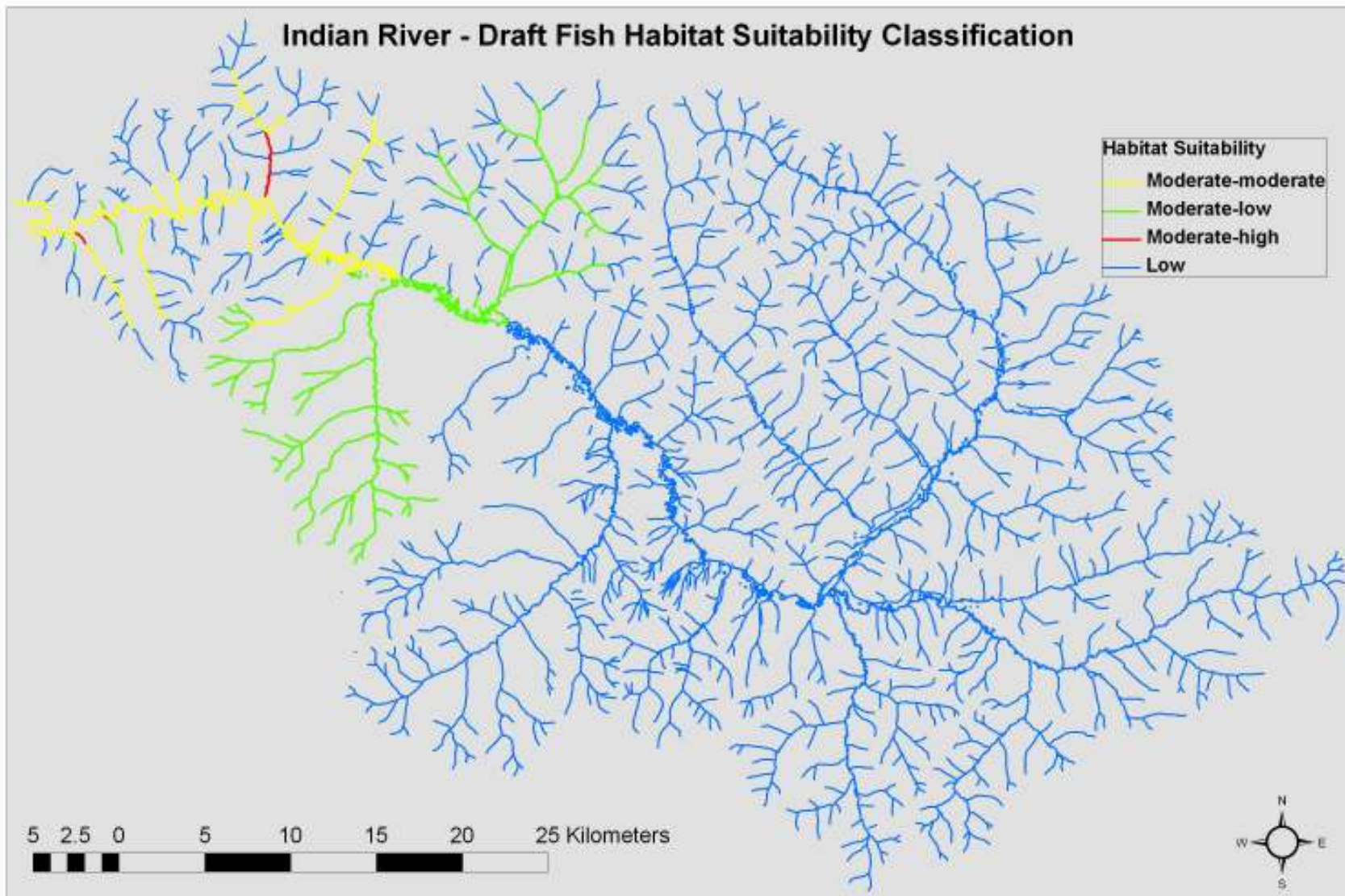
High (spawning, Area of Special Interest)

Moderate (high, moderate, low)

Low (low, water quality)



Example Fish Habitat Suitability Classification Map



Action Level Approach

The Action Level approach recognizes:

- The reliable and effective interaction between inspector and operator
- The prevalence of settling facilities designed to discharge sediment in concentrations significantly lower than required by the current regulatory regime



Richard Hartmier Photo

Compliance and Enforcement of Effluent Discharge Standards

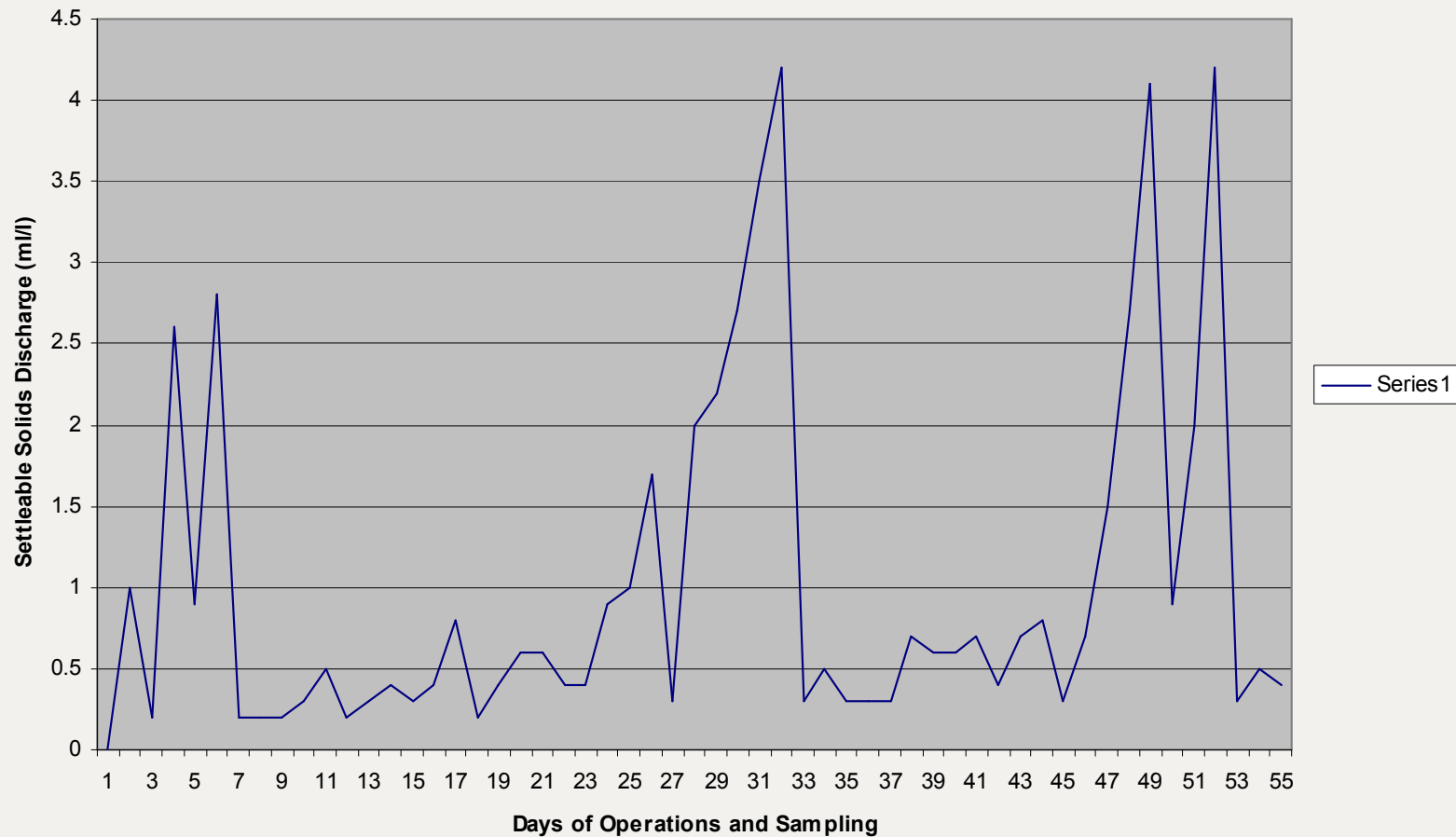
Design Target: the best settling facility that can be established at a placer mining operation, given the prevailing site characteristics

Action Level: the end-of-pipe sediment concentrations that must not be exceeded --on average-- for the life of the mining operation

Compliance Level: a maximum end-of-pipe concentration that must never be exceeded

Example of Settling Pond Performance

SETTLING POND PERFORMANCE

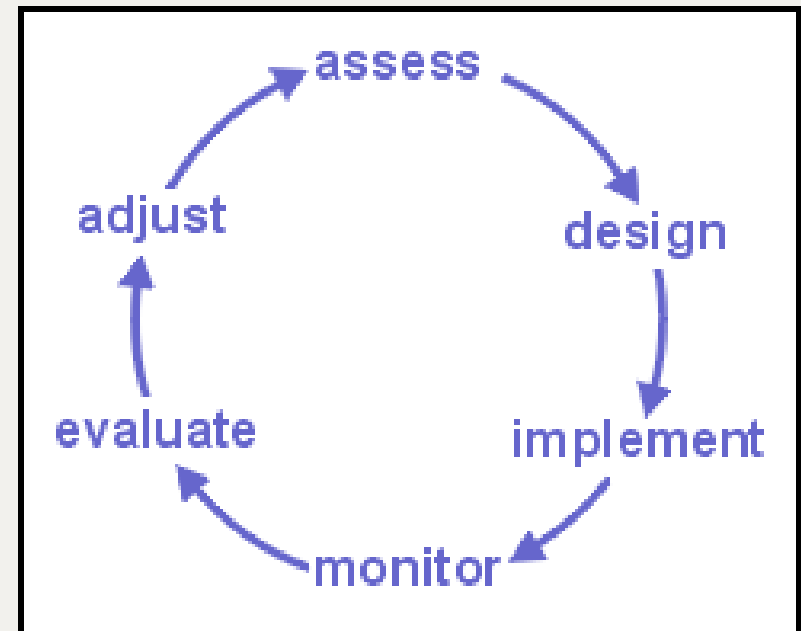


Adaptive Management

A systematic process for continually improving management policies and practices by learning from the outcomes of monitoring programs.

Yukon Placer Monitoring Programs:

- Water quality monitoring
- Aquatic health monitoring
- Socio-economic monitoring



Water Quality Monitoring

- Analysis of total suspended sediment and total settleable solids
- Samples collected “instream” and at “end of pipe”
- Flow Measurements
- Water & Air Temperature
- Rainfall



Aquatic Health Monitoring

Reference Condition Approach

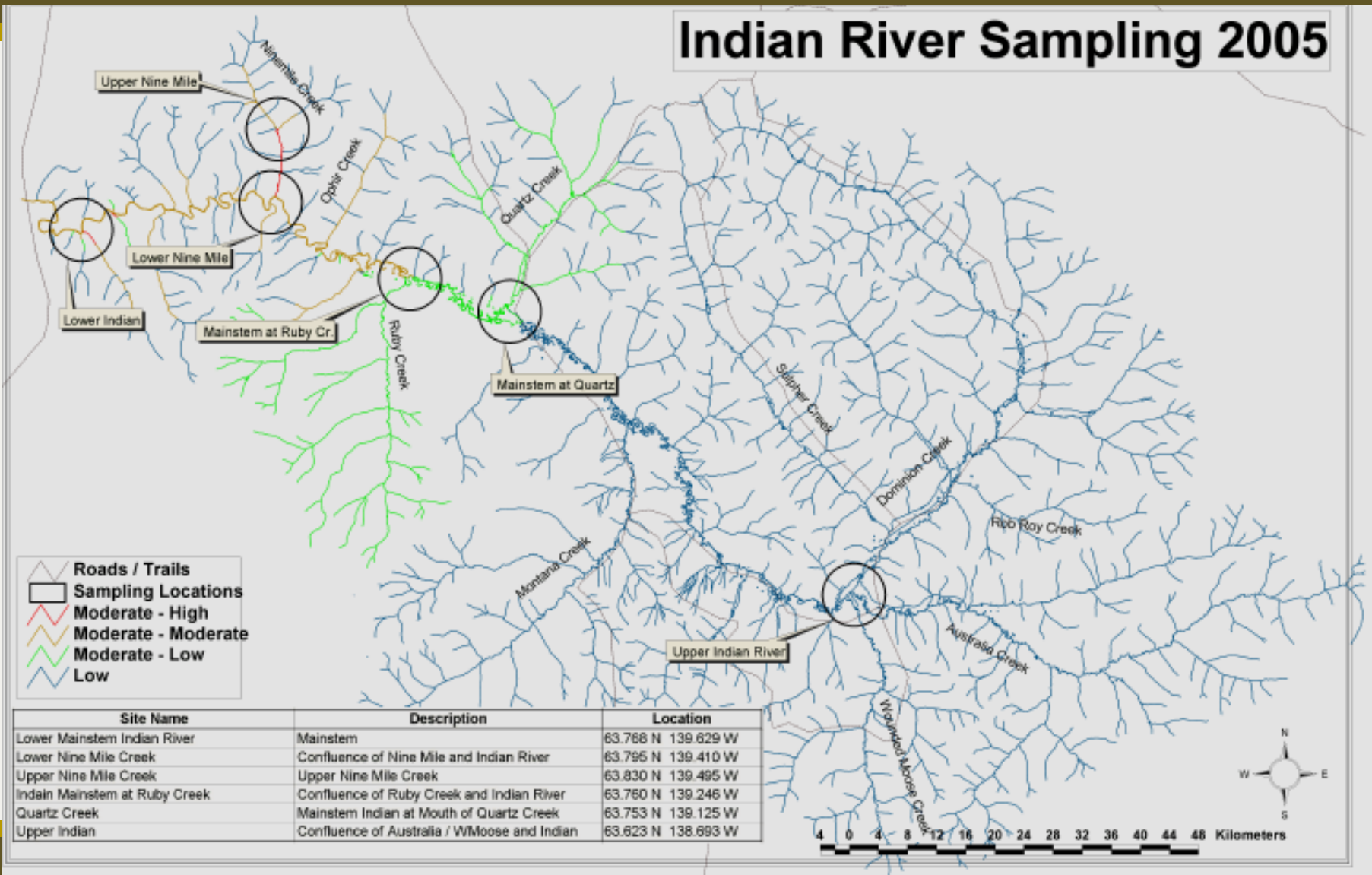
Sampling and Analysis of:

- Aquatic insects
- Fish species composition
- Physical habitat characteristics
- Physical water quality parameters
(sampling in mined and un-mined streams)



Aquatic Health Monitoring

Indian River Sampling 2005



2006/2007 Monitoring Activities

2006

- INDIAN RIVER
- KLONDIKE RIVER
- McQUESTEN RIVER
- 60 MILE RIVER

THESE ARE THE
PRIMARY TARGET
WATERSHEDS FOR
2006

2007

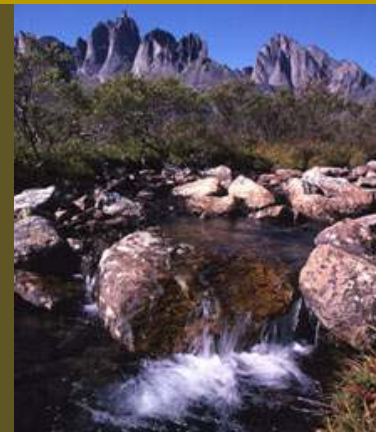
- MAYO RIVER
- YUKON RIVER NORTH
- YUKON RIVER SOUTH
- WHITE RIVER

THESE ARE THE
SECONDARY TARGET
WATERSHEDS FOR
2006; PRIMARY FOR
2007

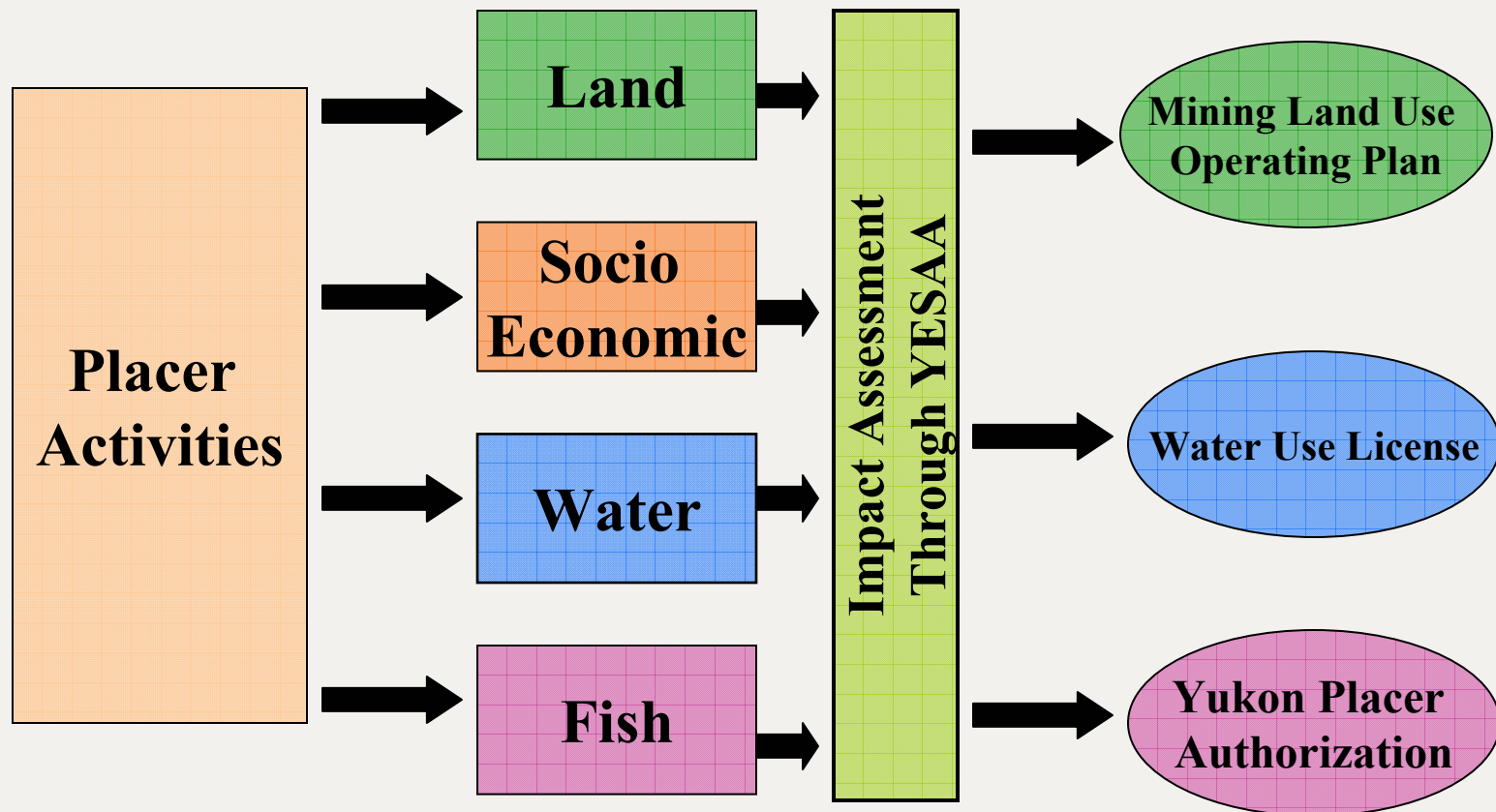


An Overview of The Process

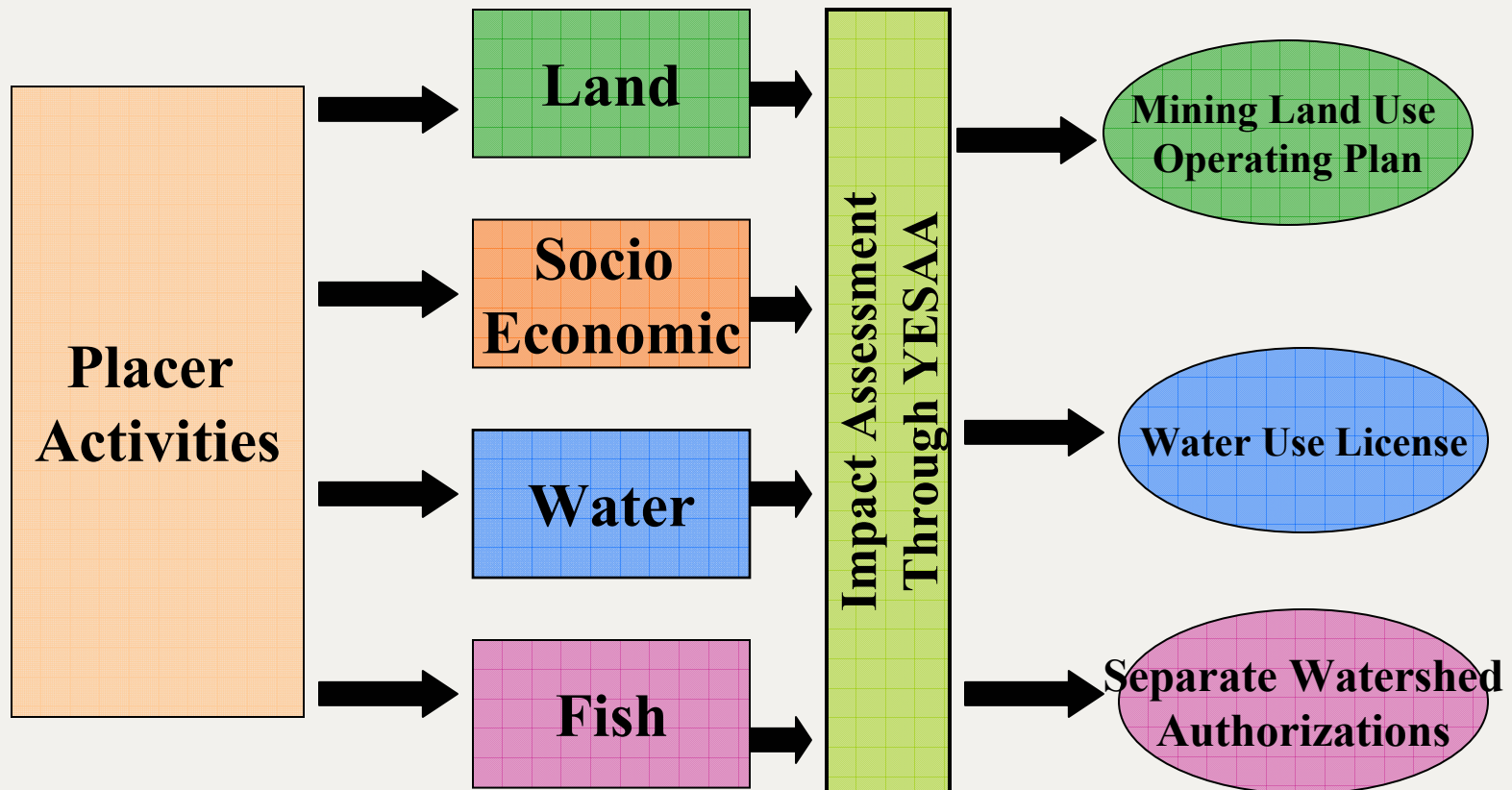
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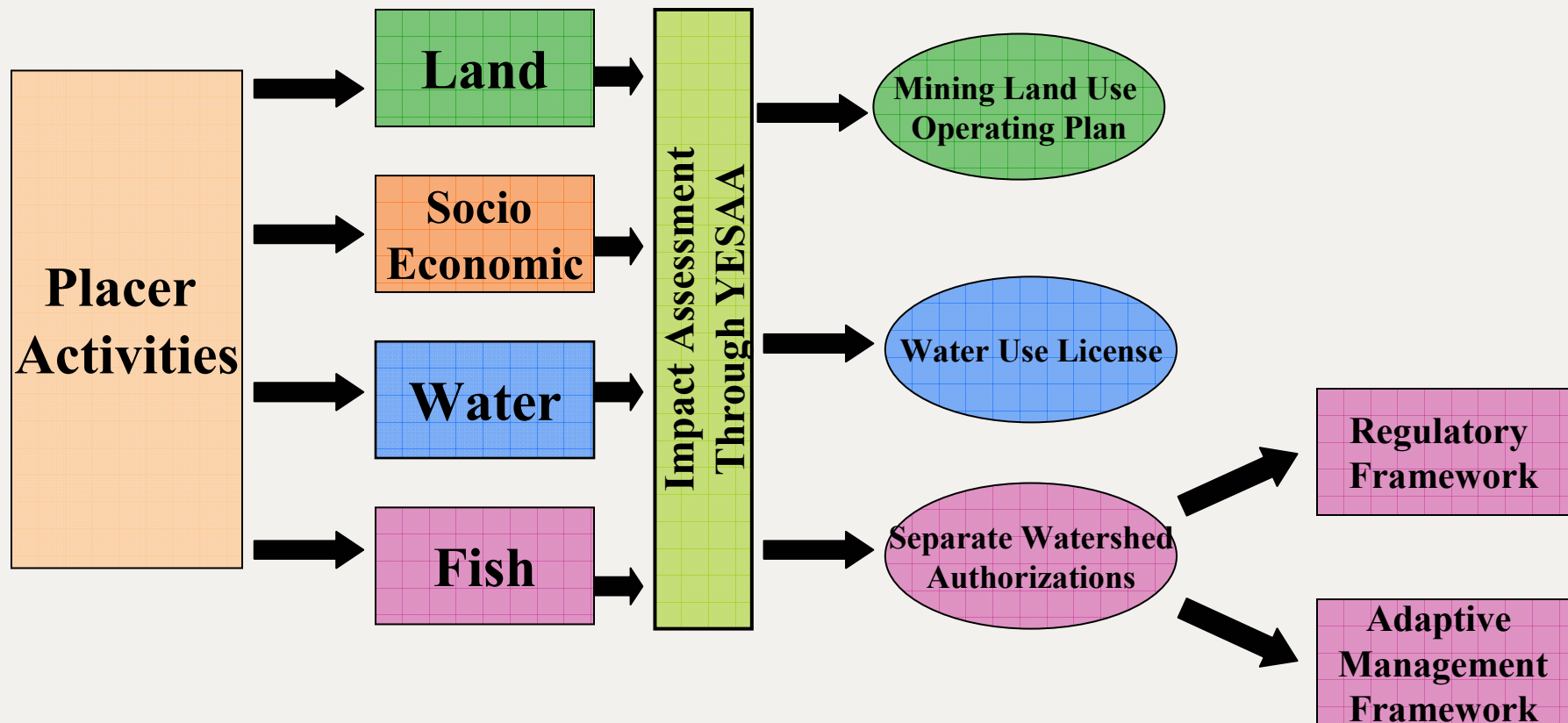
EXISTING PROCESS



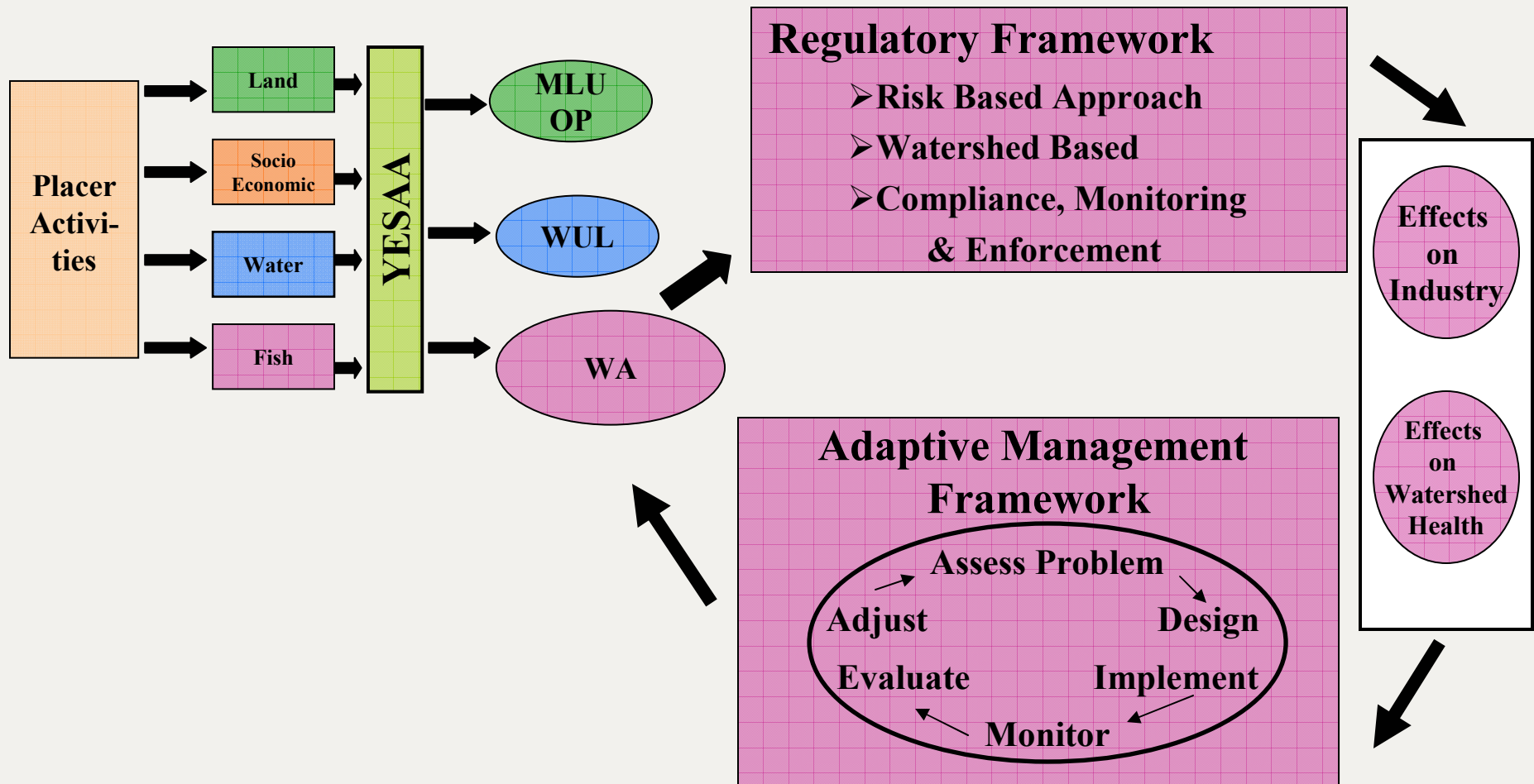
PROPOSED REGIME



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PROPOSED REGIME



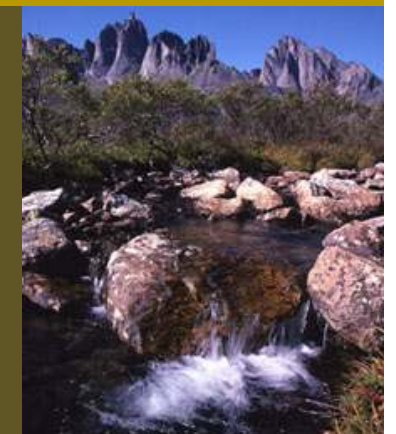
Environmental Assessment

- Placer mining land use and water use activities will always trigger an evaluation by a Designated Office, under the Yukon Environmental and Socio-economic Assessment Act (YESAA).
- The Secretariat is exploring the advantages of having the entire proposed regime reviewed under YESAA as a plan.



Yukon Placer Secretariat

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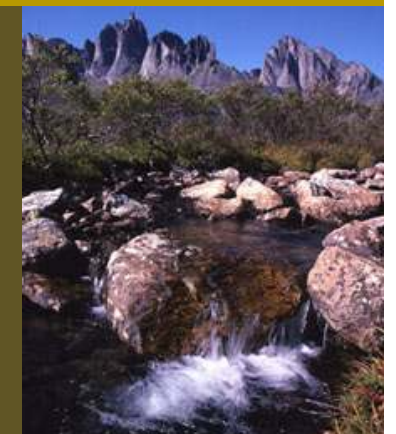
Intergovernmental Coordinating Agency
responsible for:

- Finalizing watershed authorizations and monitoring protocols
- Planning and conducting consultation
- Soliciting Traditional Knowledge
- Planning regime implementation



Consultation

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Consultation Plans

Objectives

- Provide information about differences between current YPA & proposed Regime
- Provide opportunities for comment on Regime before implementation
- Ensure placer industry is informed & can comment on Regime's effects on their operations



Consultation Plans

Who will be consulted?

- **First Nations**
- **Mandated Boards**
- **Stakeholders**
- **Public and Communities**



Consultation Plans

Three-Step Process

Phase 1 – Information

- Present key concepts & information

Phase 2 – Consultation

- Gather input on proposed Regime

Phase 3 – Final Review

- Review how feedback has been incorporated
- Final opportunity for input

Consultation Plans

Time Line

Each of the 3 phases will be separated by a period of approximately 3 months.

Phase 1 began for some communities and First Nations in May 2006.

Remaining communities and First Nations will enter Phase 1 in the Fall of 2006.

The consultation process should be complete by late spring 2007.

Traditional Knowledge (TK)

- **Will be used together with scientific & local information in authorizations**
 - Secretariat proposes to gather TK with assistance & direction from First Nations
 - Introductory meetings held Feb through April 2006 with all Yukon First Nations to discuss consultation & gathering of TK

Traditional Knowledge

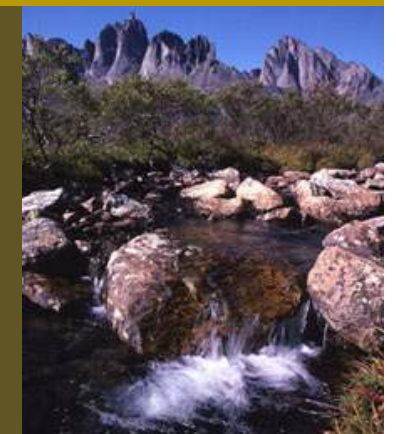
Secretariat proposal to Gather TK

- Adapt to suit each First Nation needs
- First Nation to identify TK-holders
- Schedule meetings on TK in each community
- At meetings:
 - Secretariat provides briefing on Regime & draft authorization
 - Secretariat requests TK input for authorization



Implementation of New Regime

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New Regime - Implementation

- 2006 – Development of regime components – watershed authorizations, monitoring protocols,
- 2006/2007 – Three phase consultation process - incorporation of Traditional Knowledge
- 2007 – Implementation of new Regime (phased approach)

Benefits of proposed Regime

- Tailored to unique Yukon environment
- Improved aquatic health
- Protection for fish & fish habitat
- Greater certainty for industry
- Incorporates Traditional Knowledge
- Transparent & integrated approach
- Clear standards & rules
- Adaptive Management
- Integrated resource management including YG, DFO & First Nations



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