

# Experience the Fraser River Estuary - 360° Video Lesson Plan

Teacher resource for video series.

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By Raincoast Conservation Foundation

For use and distribution in classrooms

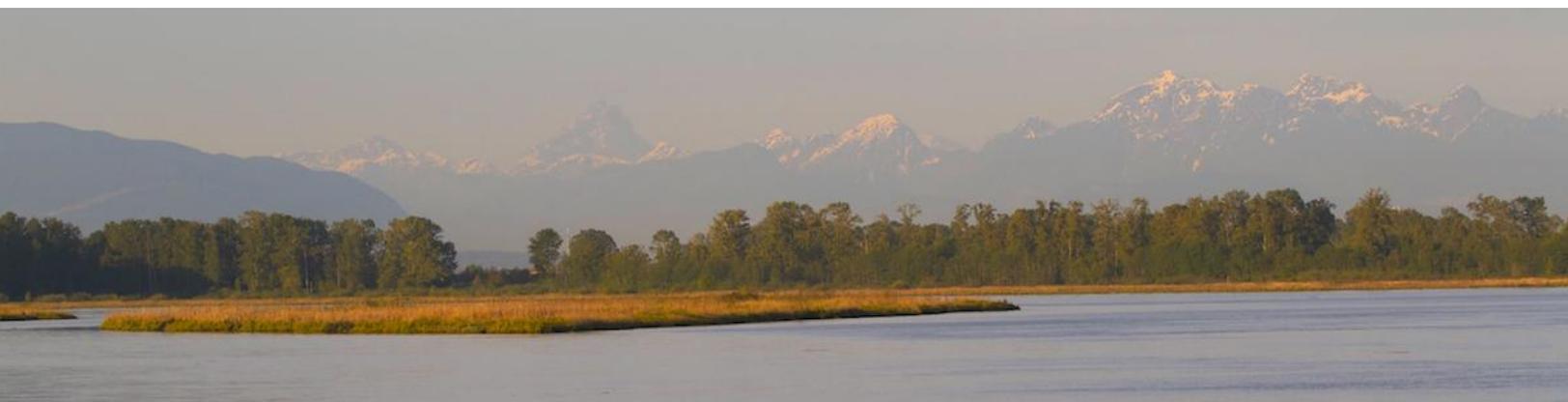


## Where can I find *Experience the Fraser River Estuary*?

*Experience the Fraser River Estuary* can be accessed through our [Youtube channel](#). It is a five-episode series set on a playlist for continuous viewing.

**This resource is best viewed on a phone or tablet, rather than a traditional laptop computer.** It will be easiest to use if students access the videos individually on their personal devices, and complete this assignment after watching. To move around in 360°, simply move the phone in the direction in which you would like to see. There are prompts throughout the video to get students acquainted with this technology.

**You can navigate in 360° using your mouse on a laptop screen, but the image is much higher quality on a phone or tablet.**



## What age is this lesson appropriate for?

This lesson is designed **for students in Grades 9-12**. It was designed to fit within the curricular competencies for Environmental Science.

The questions below are designed to address each subtopic of the required competencies with relation to the Fraser River Estuary.

The video incorporates the following **Big Ideas**:

- Ecosystems are maintained by natural processes.
- Human practices affect the sustainability of ecosystems.
- Humans can play a role in stewardship and restoration of ecosystems.

You are welcome to adapt the lesson to your class' age and interest level. Discussing the 360° video as an educational tool would also be an excellent way to gauge interest in the subject matter. Supplemental learning materials on film making and conservation in the Fraser River Estuary are provided at the end of this document.

# Featured Scientists

## Misty MacDuffee

Misty MacDuffee is a conservation biologist with a focus on fisheries ecology in salmon ecosystems. For the past 15 years, she has undertaken various types of field, laboratory, technical and conservation assessments in the salmon-bearing watersheds of the BC coast. She has a particular interest in the role of salmon as critical food sources for wildlife and incorporating their needs into salmon management decisions. The application of her work is to implement ecosystem considerations in fisheries management. This often requires engagement with management, dialogue and stakeholder forums that affect fisheries and wildlife policy.



## Dave Scott

Dave Scott is a salmon biologist with a focus on understanding juvenile salmon life histories to facilitate better restoration planning. Dave is currently a PhD student in the Pacific Salmon Ecology and Conservation Laboratory at the University of British Columbia. Dave's PhD research focuses on understanding [juvenile Chinook estuary reliance](#) through field research capturing out migrating juvenile salmon in the Fraser River estuary along with laboratory studies conducted at UBC. Dave also leads Raincoast's Fraser Estuary Connectivity Project which has created three large breaches in the Steveston Jetty, reconnecting the river to its delta after over 100 years.



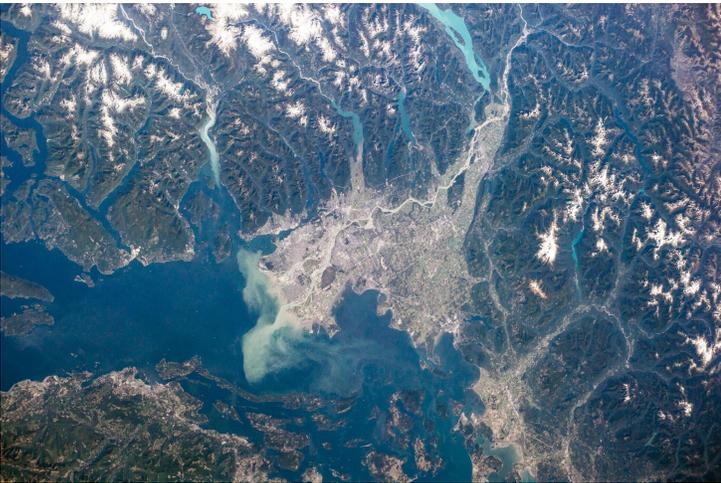


## Processing and analyzing data and information

1. How did dredging and the building of jetties along the Southern Fraser affect wild salmon?

2. Why do we consider wild salmon a “*Foundation Species*” in British Columbia? How does this differ from the familiar term *keystone species*?

3. Take a look at these [NASA images](#) of the mouth of the Lower Fraser River from Space:



What do you observe about the water color where the Fraser river meets the sea? What do you think is causing this abrupt color change?



**4. What does the video mention is the next step in improving connectivity in the years to come?**

**5. What else might Raincoast be able to do to improve habitat connectivity in the Lower Fraser?**

### **Communicating**

**1. What are some challenges that scientists must face when trying to gather information about wild salmon in the estuary?**

**2. Informing the public about conservation success is a big part of a conservation scientist's work. What challenges might scientists face when trying to engage the public about the importance of habitat in the Lower Fraser?**



**3. A stakeholder in conservation is defined as the individuals, groups or organizations that are impacted by the outcome of a project. Examples of stakeholders for this habitat connectivity project in the Lower Fraser Estuary include:**

- Commercial fisheries
- First Nations
- Ecotourism companies
- Shipping companies
- Recreational boaters and fishermen
- Parks and recreation area managers
- Infrastructure developers
- Conservationists and Nature lovers

**Choose 2 stakeholders from the list above, and consider how these stakeholders might impact their work or lifestyle. How do you think that this jetty removal project impacted them?**



Link to [ANSWER KEY](#)

### **Additional Resources:**

#### **National Geographic Resource Library- Estuary Basics**

This resource give you an overview of estuaries worldwide and provides some video and interactive materials for students.

<https://www.nationalgeographic.org/encyclopedia/estuary/>

#### **Canadian Geographic's Watershed CPR Lessons- Fraser River**

This resource contains a series of short lessons on a wide range of topics surround the Fraser River watershed. This would be an excellent resource to begin your unit with. It contains resources that are unlocked as you learn.

<https://watershedcpr.canadiangeographic.ca/#layercon3>

## **SQ'ÉWLETS** | ASTÓ:LŌ-COAST SALISH COMMUNITY IN THE FRASER RIVER VALLEY

This resource provides teachers with lesson plans that are aligned with the First Peoples' Principles of Learning as established by the First Nation Education Steering Committee ([FNESC](#)) in British Columbia (BC).

[http://digitalsqewlets.ca/classroom-resources\\_ressources-pedagogiques/index-eng.php](http://digitalsqewlets.ca/classroom-resources_ressources-pedagogiques/index-eng.php)

#### **NOAA Resource: Estuaries: Nature's Water Filters**

This is a digital animation of an estuary from a 3D perspective to demonstrate how fresh water sources are filtered on their way out to the ocean.

<https://coast.noaa.gov/elearning/estuaries/filter/>

#### **Connected Estuary- Raincoast's Educational Lecture Series**

For more detailed discussions on issues related to the Fraser estuary with leading experts from diverse fields of interest, check out our Connected Estuary series.

<https://www.raincoast.org/estuary-webinar/>

