

Victoria is situated on the ocean  
Many other cities are also on the ocean.

## WHAT IS UNIQUE ABOUT VICTORIA?

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Note: ppt = parts per thousand of salt in water or g/kg.  
Divide by 100 and you get %  
M<sup>3</sup> = a cubic meter = 1000 litres.

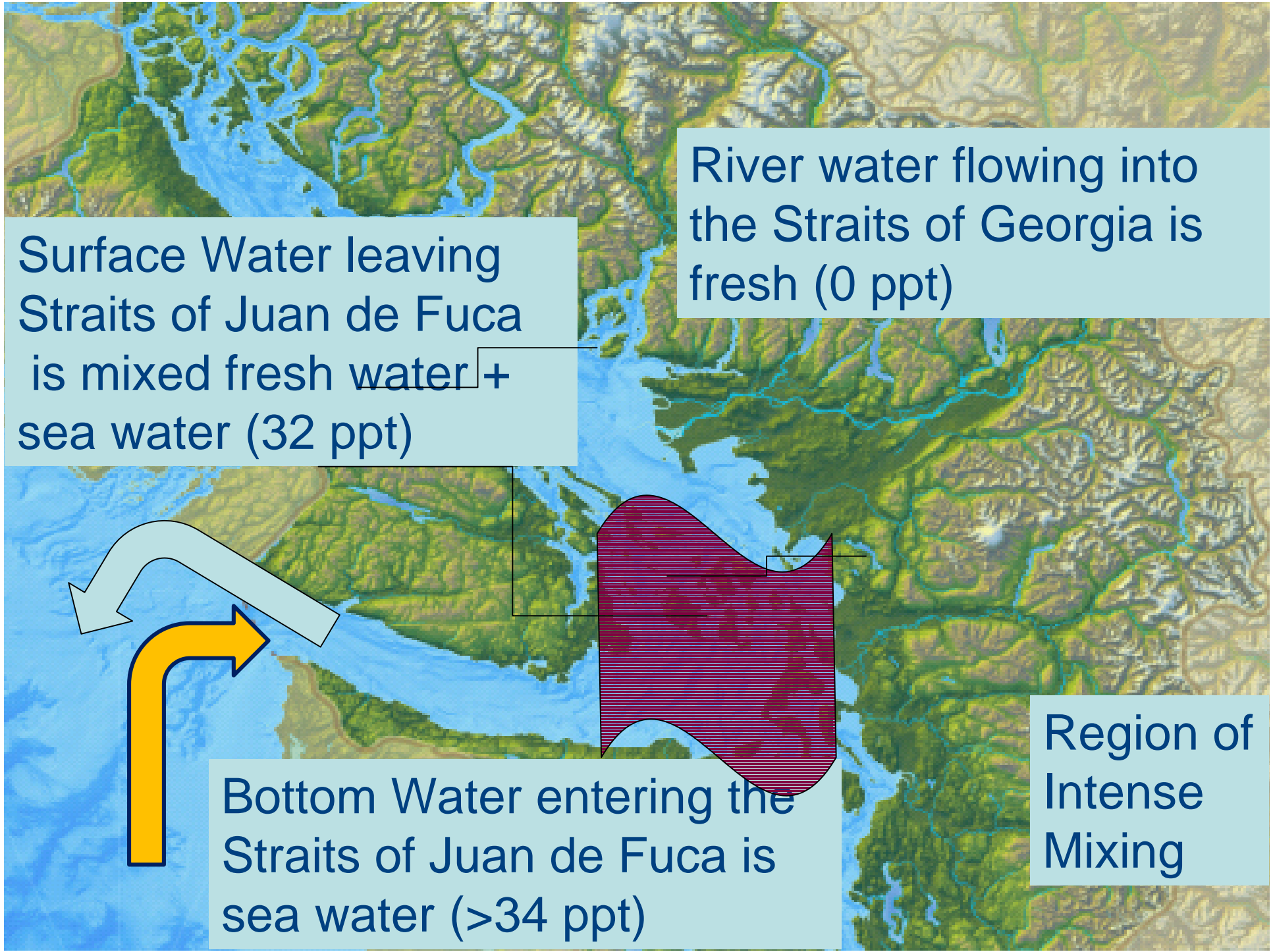
**Unique  
Geography –  
Mouth of a  
Large Estuary**

**Why is this  
important?**



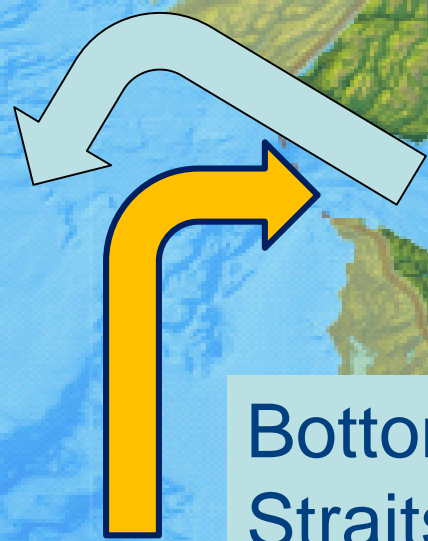
**Because  
circulation  
is  
controlled  
by river  
flow**





River water flowing into the Straits of Georgia is fresh (0 ppt)

Surface Water leaving Straits of Juan de Fuca is mixed fresh water + sea water (32 ppt)



Bottom Water entering the Straits of Juan de Fuca is sea water (>34 ppt)



Region of Intense Mixing

Let's add some annual average numbers to these flows in m<sup>3</sup> per second & salinity.

Other Canadian 900 & 0 ppt

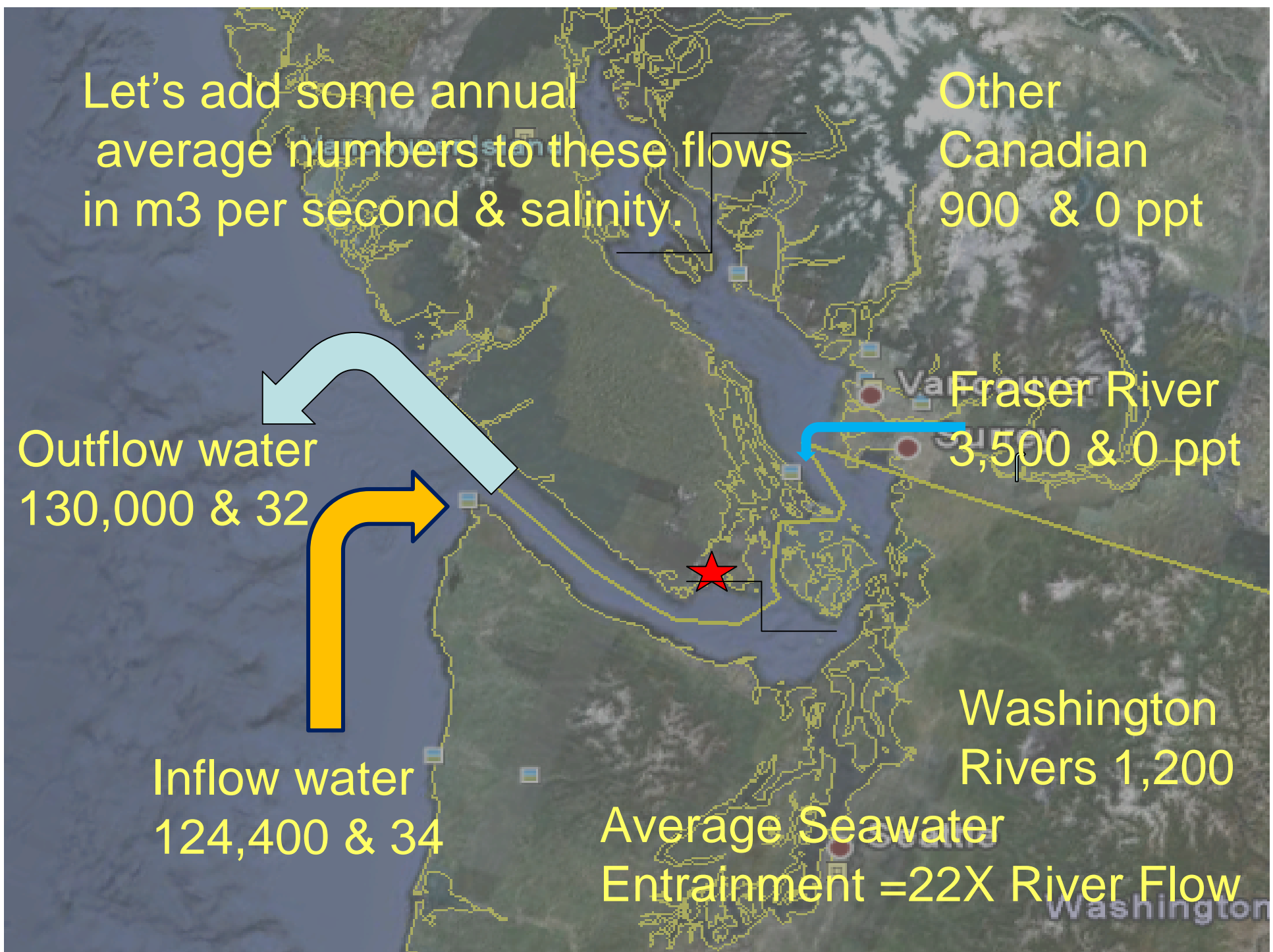
Fraser River 3,500 & 0 ppt

Washington Rivers 1,200

Outflow water 130,000 & 32

Inflow water 124,400 & 34

Average Seawater Entrainment = 22X River Flow



Having Trouble with these numbers?



Juan de Fuca Tanker = 45,000 m<sup>3</sup>  
Total flow = 6 tankers per second!

Sea water equivalent to  
10,400 tankers per hour out!



9,952 tankers per hour in!



Total combined Victoria discharge  
99.7% FW = 1/10 tanker per hour



Annual Variation in water  
flows very large

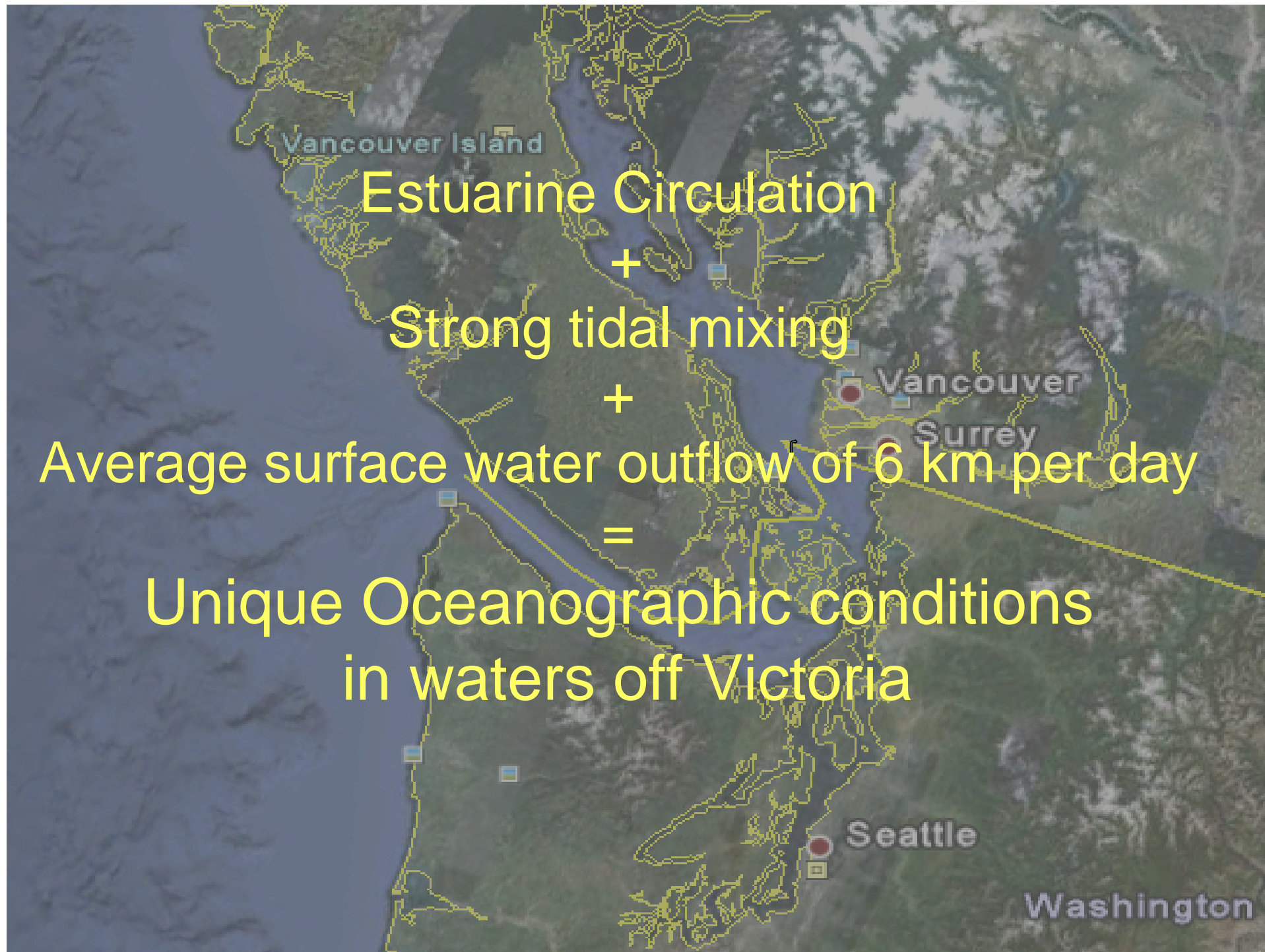
Stored runoff rivers with  
maximum flow in summer

Summer outflow as high as 22,000



Winter outflow as low as 5,000  
Tankers per Hour







## Conclusion

### WHAT IS UNIQUE ABOUT VICTORIA?

Because of Estuarine Circulation and strong tidal activity, Juan de Fuca Strait is one of the most well mixed bodies of seawater in the world and it is on Victoria's doorstep! .