

Context:

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One-way tides—by Nick Doe

Anyone who has kayaked or spent time in a small boat is used to the idea that the tidal current is slack at the moment the tide is high and again when it is low, these being the instants when the direction of the current reverses. However, often to the surprise of newcomers and visitors, this general rule does not work in the narrow passages of the Gulf Islands. Slack currents in Dodd Narrows, False Narrows, and Gabriola Passage for example, occur between one and two hours *before* the tide on the shore is high or low.¹⁸ If you're not a strong paddler, relying on the newspapers' tidetables for timing your passages is not a good idea.

When it comes to tidal currents around Gabriola, a simple way to remember which way is which is to think of them as being driven primarily by the tidal flow up and down the channels between the Gulf Islands and Vancouver Island—these are the Trincomali, Stuart, and Pylades Channels. This flow is up to one or two hours ahead of the flow out in the Strait.

¹⁸ Slack current in Gabriola Passage can be as little as 20 minutes, and as much as 2¾ hours before high or low tide; however, on average, the current is slack 1½–2 hours before a large tide, and 1–1½ hours in advance of a smaller tide.

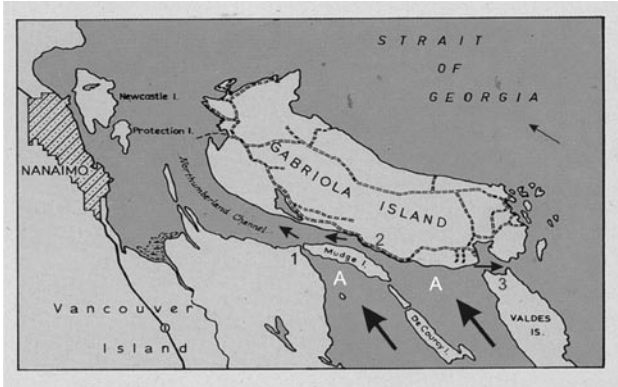
When the tide floods up these channels it pushes water north through Dodd and False Narrows, and pushes water out into the Strait of Georgia through Gabriola Passage. Conversely, when it ebbs, current is pulled from the Strait, south through Dodd and False Narrows, and from the Strait through Gabriola Passage.

The tricky part comes in the hour or two when the current between the Gulf Islands and Vancouver Island becomes slack. For this short time, the tidal currents in the passages become dominated by the tide in the Strait of Georgia, and for this tide, the usual ebb and flood directions through the passages are reversed.

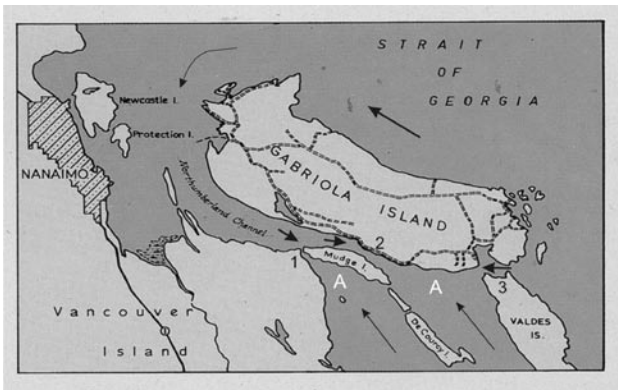
Shortly *before high tide*, water is being pushed west through Gabriola Passage, and south through Dodd and False Narrows, even though these are normally the ebb directions. Similarly, *shortly before low tide*, water is moving east through Gabriola Passage, and north through Dodd and False Narrows, and the Northumberland Channel, even though these are normally the flood directions. Slack tide in the passages therefore always comes early compared with the highs and lows in water level. The accompanying four maps may make this clearer.

The relative complexity of the geography of the Gulf Islands produces some curious tidal effects. One interesting one is that there are places where the tidal current never reverses. It always flows in the same direction regardless of whether the tide is flooding or ebbing.

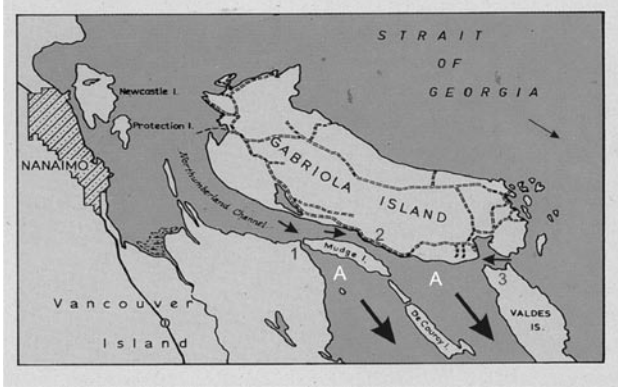
There are several places where this happens, one being around Thetis and Kuper Islands. When the tide is flooding, water flows north up the Stuart and Trincomali Channels. The rising tide spills out into the Strait through Gabriola Passage and Porlier Pass.



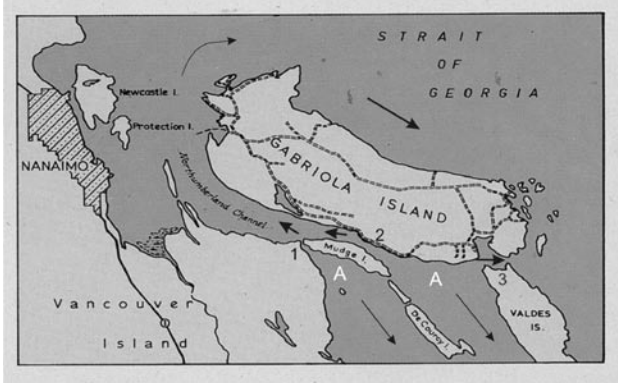
The “normal” rising-tide situation. Current is flowing strongly up the Stuart and Pylades Channels into region A, resulting in flood currents out of region A through Dodd Narrows (1), False Narrows (2), and Gabriola Passage (3).



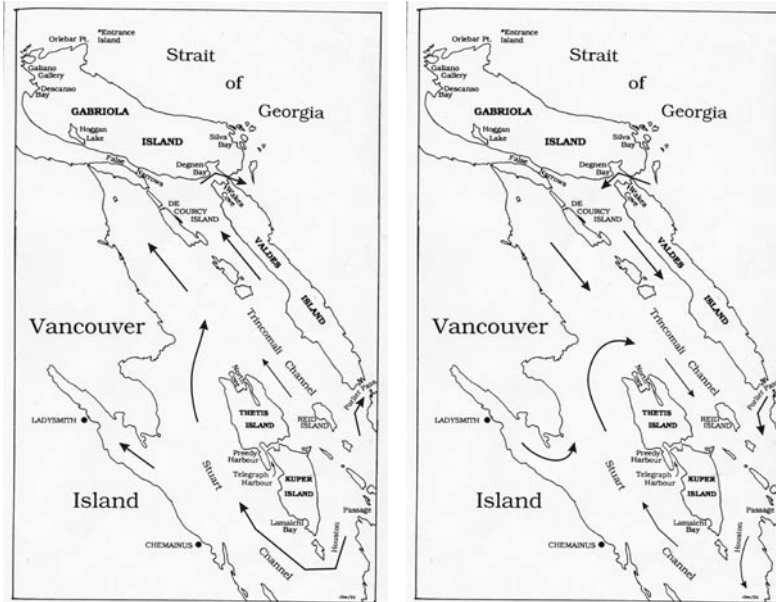
Just before high tide: Flood current up the Stuart and Pylades Channels is at a near standstill, but flood current is still flowing up the Strait, so water is still flowing into region A, and the water level continues to rise, even though the currents through Dodd Narrows (1), False Narrows (2), and Gabriola Passage (3) are now in the ebb direction.



The “normal” falling-tide situation. Current is flowing strongly down the Stuart and Pylades Channels out of region A, resulting in ebb currents through Dodd Narrows (1), False Narrows (2), and Gabriola Passage (3).



Just before low tide: Ebb current down the Stuart and Pylades Channels is at a near standstill, but ebb current is still flowing down the Strait, so water is draining out of region A, and the water level continues to fall, even though the currents through Dodd Narrows (1), False Narrows (2), and Gabriola Passage (3) are now in the flood direction.



Left: Flood tide pushes north and out into the Strait of Georgia. The flood tide in the Stuart Channel between Thetis & Ladysmith is however weak (less than one knot).

Right: Ebb tide flows south. This sometimes creates a back-eddy around Thetis & Kuper, and when it does, the current between Thetis & Ladysmith doesn't reverse.

Canadian Hydrographic Service, *Current Atlas*, 1987

However, when the tide is ebbing, instead of reversing, the current in the Stuart Channel sometimes becomes an enormous back eddy with the main flow down the Trincomali Channel. The current thus continues flowing around the west and north side of Thetis in a clockwise direction. Don't plan on using this for building a power station, or spending a pleasant afternoon drifting around the islands without paddling however, the current is variable and feeble, is based on a possibly inaccurate computer model, doesn't happen with every tide, and is easily masked by a light breeze.

A place closer to home where uni-directional tides occur is the Northumberland Channel. My copy of the *British Columbia Pilot*, vol.1, is dated 1965, but these things don't change much. It says:

The tidal streams are unusual as the set is continually east. This appears to be due to the progress of the tidal wave being more rapid in the Strait of Georgia [?] than the channels south of Dodd Narrows...

This was written by Commander Parry of HMS *Egeria* in 1904, who noted "...the maximum velocity of this constant easterly stream is from 1 to 2 knots at Springs." However, I think a better explanation for this current is as follows. When the tide floods through Dodds, it forms a fast-flowing torrent across the Northumberland Channel directed at Gabriola (*photo below*). This creates a back-eddy with east flow [A] along the shore near Harmac. When the tide ebbs through

Dodds, this eddy disappears, but the water carries on flowing east [A] toward the entrance to Dodds. The lesson? Stick to the Gabriola side if you want to get home. ◇

