Ship Report Transcript
Monday, June 17, 2024
By Joanne Rideout

It's time for the Ship Report the show about all things maritime. I'm Joanne Rideout. It's Monday, June 17th, 2024.

Well, today, with a nice weather week in store, I thought it might be fun to talk a little bit about a few things we see on the Columbia River near Astoria that people might be likely to notice more as the weather gets nice and folks are outside. I've mentioned some of these things before on various shows, but not for a while, and some of them are just so interesting that it's good to revisit them from time to time. And it's fun to stop for a moment and think about how our natural world is happening all around us in profound ways, whether we notice it or not.

These things that I'm going to talk about have to do with the effects of strong tides, heavy current and wind on our local area waters around Astoria. Similar effects can be seen in other parts of the river too, but the waters off Astoria are so easily observed from shore that it makes it easier for someone to go take a look at what I'm talking about. The effects of tide and current and wind are many, and mariners on the river are adjusting what they do to these factors all the time. But for our purposes, as land dwellers and observers, there are things I'd like to talk about today that we see often at this time of year. But really they can happen any time of the year.

One of them is the phenomenon of whitecaps appearing in the river, sometimes on a beautiful day when it's a bit windy, but you sort of associate that kind of thing with stormy weather. Well, that's not always the case here in the summer months, usually in the afternoon, but it depends on the weather. We get a situation where we have a strong outgoing ebb at the same time that we have a strong westerly wind on the lower river here. That means that the strong ebb current, which is causing the river to barrel downstream toward the ocean, is racing along at a good clip and then encounters a strong west wind, which is going against the direction of its movement.

Here we see the physics of wind and water in action, because the effect is that there's friction between the wind and the surface of the water, so much so that it whips up turbulence in the form of waves when they get big enough. This causes whitecaps, which are small waves with broken white crests on top. They usually appear randomly all over the surface of the water.

Mariners call this condition chop and it makes for a bumpy ride. So if you look out over the river some afternoon soon and see whitecaps in the river, sometimes on a sunny day. See if you can find a flag or something that will show you the direction of the wind. Then look up the tide in a tide map. You'll probably see that you've got a falling tide and a wind coming from some version of westerly. And that is something to watch out for for people in small boats on a windy day.

The next thing I want to talk about is eddies. These are generally places outside the channel where the water is moving in a different direction than the main channel. This is really interesting to look at because it seems so counter intuitive. You can see one at certain times of the tidal cycle east of the Columbia River Maritime Museum, not far offshore between the shore and the main channel.

To explain this, I'm going to use a clip from a show I did in 2023 about a day when I drove down to the Maritime Museum and watched the river and noticed that the current was going in one direction in the

main channel as the tide was changing and in another direction in the shallower area near the shore, outside the deeper channel. The line between the main channel and the shallow area was marked by a small curling wave along that edge.

Here's that clip:

A ways out from the shore into the river. The water had formed a kind of small surf line parallel to the shore, where there was a long, narrow breaking wave curling over and spilling back into the river like a tiny version of a wave in the ocean surf. That wave line just persisted right there in a line parallel to shore. So I took out a pair of binoculars that I always carry with me in my car and looked closely at the water around that surf line. And I noticed that the water nearest to shore was flowing upstream and the water beyond it was flowing downstream. So two areas of water right next to one another in the river, going in opposite directions and pretty vigorously, I might add.

So I looked at my tide table, and darned if it wasn't just about low tide in Astoria, the ships at Anchor were doing their catty, pompous thing they do. When the tide changes and the water changes direction, which is they point in all directions until the tidal flow gets stronger and they straighten out. It's a real sign that the river is in what's called slack water. As the tide changes. So the tidal influence on the river at that moment was causing the shallow areas near shore to turn and flow upriver with the rising tide. While the main channel of the river, the ship channel, continued to barrel toward the sea.

It generally takes about an hour and a half here for the river to completely turn around. But what I was seeing when I saw that small, long breaking wave was the turbulence at the edge of the ship channel, which was the interface where one area of water was going upstream while the other was going downstream. As I sat and watched, gradually that small curling wave dissipated as the current in the main channel slowed and began to slowly turn upstream. As it turns out, this is something that can be used to advantage by folks who know what's what.

One time when I was sailing off the downtown waterfront as part of a yacht club crew on a racing sailboat, we ended up trying to sail against the current in the main channel and instead ended up going backwards because the current was stronger than the wind. One of the crew on board this boat was pretty savvy about the river. He worked on one of the launch service boats that serve the anchored ships, and he told us to move a little closer to shore to catch that inshore current. And we did and used it to carry us where we wanted to go.

So this was an example of using a seemingly odd but regular occurrence to our advantage. But in a small boat, if you didn't understand what you were seeing when you encountered that turbulence or didn't expect that this would happen, you might get yourself in trouble, especially if you were, say, anchored near the edge of the main channel to fish as the tide was rising.

So I'd like to explain this a little more. I found a great article online that I'd like to recommend to you if you want to read more about this. And I'd like to read a paragraph from it that explains what I was seeing. The article is on a website called Safe-Skipper.com and the title of this piece is, “How to Use Tides and Currents to Your Advantage,”

And here is a paragraph from that article that just really explains very succinctly what I was seeing:

“A tidal stream is rarely a uniform mass of water moving at a constant speed in a uniform direction. Instead, it is weaker in the shallow water and near the shore and at its fastest in deep water. The core

principles are that the tide runs fastest in deep water, while relief from an adverse stream can be gained in shallow water."

And let me stop here and just reinforce that point. The water runs slower in shallow water than it does in the deep channel. You'll see the racing sailors in the Tuesday night sailboat races off of Astoria taking advantage of this when they're trying to go against a heavy current in the channel. They'll go outside the channel where the current is less intense.

"In addition, streams in shallow water and bays will frequently change direction before the main stream and affect the edges turn first, which can start very early as a back eddy before the main stream follows in the new direction. Anything between 30 minutes and as much as 3 hours later."

So that's what I was seeing - a back eddy on the Columbia right next to the main channel. A really cool thing to see that I just happened to notice an important piece of information about how our tidal river works.

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