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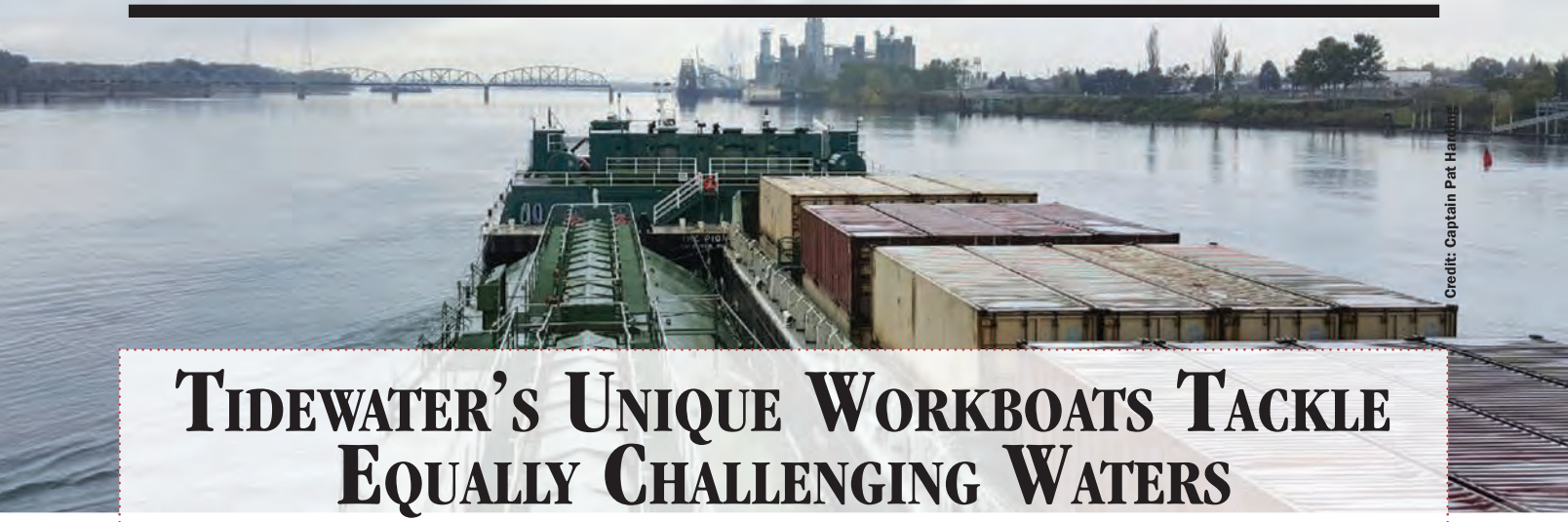

Credit: Captain Pat Harrison

Tidewater's Unique Workboats Tackle Equally Challenging Waters

The Columbia and Snake River system of waterways demands special equipment, dedicated mariners and local service. Fortunately, all three metrics are present – for today and tomorrow.

By Kathy A. Smith

When one thinks of the vast inland marine supply chain in the United States, the Columbia and Snake River (CSR) system may not first come to mind. But the once un-navigable 465-mile waterway was substantially changed during the 20th century when a series of eight hydro-electric dams with eight navigation locks were built by the Army Corps of Engineers, allowing for the movement of goods between the Pacific Coast Port of Astoria Oregon and the inland Port of Lewiston, Idaho.

Today, over 46 million tons of international trade occurs along the deep draft channel of the Columbia Snake River. The inland navigation channel moves over 12 million tons of this commercial cargo, such as grain, wood products and refined petroleum products. These cargoes are ferried between the many ports, elevators, and terminals that dot the system's landscape. The largest inland barge transportation provider along this important gateway, serving over 85 percent of the commodities they serve, is Tidewater Transportation & Terminals.

Tidewater Transportation & Terminals

The long-serving Vancouver, Washington-headquartered marine enterprise owns and operates a fleet of 16 towboats (several have been repowered with new diesel engines) and 150 barges as well as four strategically-located terminals that provide, among other services, liquids and solids terminaling and transloading. Three of the company's newest vessels have been purpose-built for this unique waterway based on decades of intimate knowledge with the changing tides of this challenging inland river system.

The eight dams along the CSR create eight reservoirs. The largest is 76 miles in length, which gives rise to a plethora of weather challenges. Wind speeds of 40 miles an hour and above are pretty common. "You can get up to 70 or 80 through the gorge," says Captain Brian Fletcher, Port Captain. "In that 76-mile pool, it's not unheard of to have 10-foot rollers out there. The wind is our adversary, and we manage it very well."

Fletcher represents several multi-generational families

Tidewater tug Challenger heading upriver with tow

Credit: Tidewater Transportation & Terminals

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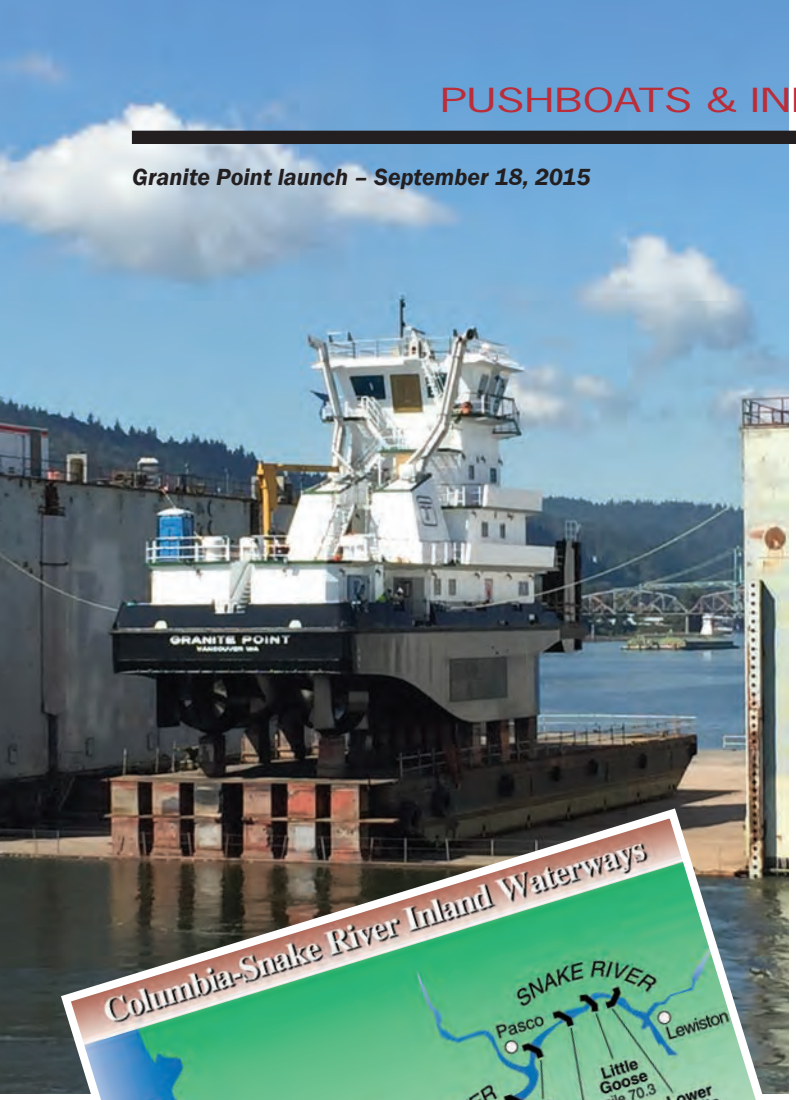
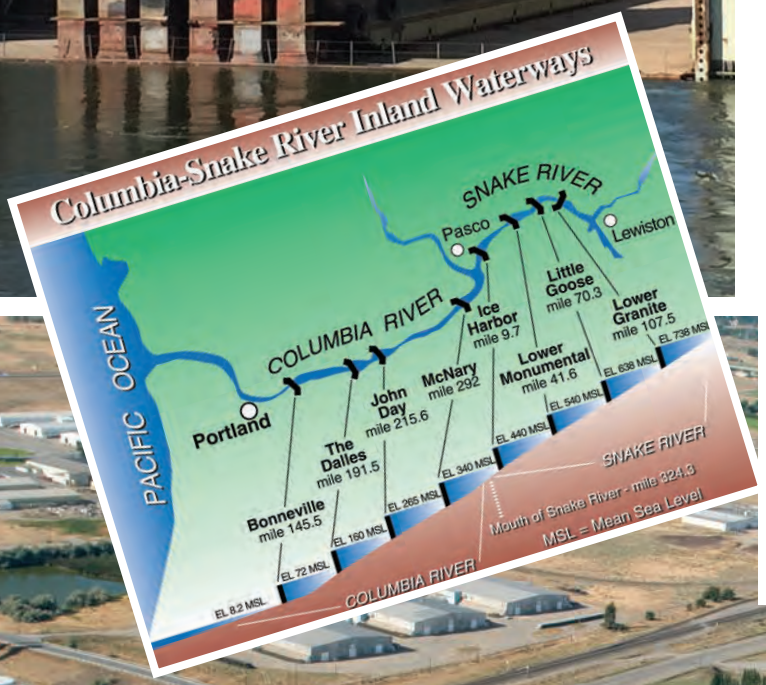
Granite Point launch – September 18, 2015





Tidewater's Boardman, OR Terminal

who've worked for Tidewater. His father and uncles all worked for the company at different times, going back as far as the 1950s. Many others started working out as deckhands and rose through the ranks to captain, including three generations of the Allen family. "They choose to be on the river because it's in their blood," says CEO & President Bob Curcio. "We're culturally a Pacific Northwest company. We care a lot about the employees, and it's resulted in generations working for the company and guys really enjoying what they do."

On the Water

With crew in mind, their endurance on board the company's vessels has played a big role in the design of three of the latest next-generation towboats, the first new workhorses on the CSR system in over 20 years. *Granite Point*, Tidewater's newest asset, designed by Maine-based CT Marine, started service in January. Built by Portland's Vigor Industrial, she follows *Crown Point*, which began operating on the CSR in the summer of 2015. The vessel is configured in a similar fashion to another sister vessel, *Ryan Point*, expected to be delivered in the spring of this year. Powered by Caterpillar 3516C Tier 3 engines, *Granite Point* is a double-hulled vessel that is 102 by 38 feet, with a depth at full load of 11 feet. She is equipped with a hexagonal wheelhouse with floor-to-ceiling windows on all six sides. The hexagonal design continues to the main deck, which consists of a galley, a media room, and a health and fitness facility.

"We did a noise and vibration control engineering study before we built the vessels," explains Marc Schwartz, Maintenance & Engineering Manager. "A lot of effort has been put into vibration and noise control, and I think we've been very successful with that for this local operating environment."

"Marc got together with Brian and with captains and assistant port captains and people who have operated on the river for a long time, and they built a tug that was cus-

Three images courtesy: Tidewater Transportation & Terminals

tomized to all our needs," says Curcio. "The counter to that is that this tug is not designed for use on the Mississippi. It wouldn't be effective there. It can't be used on blue water, so it has no purpose on the ocean. There is nothing that has been built similar to this on any river system in the world." In fact, Tidewater has trained captains from ocean-going and other river-going vessels with limited success because of this unique waterway and the particular way these CSR vessels behave.

The engines on *Granite Point* and her sister towboats have been placed on vibration isolating mounts, which reduces the resonant frequencies that are sent in through the hull. The exhaust systems are also completely isolated from the hull structure. In addition, there is a floating floor system, where each deck is isolated from vibration and from noise by a system of underlayment underneath the floor finish. Tidewater has found that even under the most extreme operating conditions on the vessel, the sound inside of the accommodations is no more than 60 decibels.

Looking Ahead: SubM and More

The new vessels have also been designed to be in compliance with Subchapter M, and additionally, they can turn on a dime. "When you're going with the flow of a river, it's really difficult to do tight space manuevering because you really don't want to go any faster than the river goes, but you still have to be able to turn the vessel," says Schwartz. "And you can't turn the vessel unless you have water pushing against the rudder. So we're really fortunate that we got a rudder system and a steering system that really handles the tow in all conditions. That's a big piece of the design."

Tidewater has also ensured they're using as much equipment with variable frequency drive as possible so equipment will be more reliable and last longer. The three new vessels are also equipped with Samson synthetic lines to help with crew endurance. The life expectancy of the new assets is at least 40 years, continuing a company tradition of building equipment that lasts, which is clearly evident by the fact that Tidewater still owns a tug that was built in 1939 (although it is no longer operating, it could still do so). Part of long-lasting vessel life has to do with not only the design and rigorous maintenance, but the fact that there is minimal corrosion as the

"Marc got together with Brian and with captains and assistant port captains and people who have operated on the river for a long time, and they built a tug that was customized to all our needs. The counter to that is that this tug is not designed for use on the Mississippi. It wouldn't be effective there. It can't be used on blue water, so it has no purpose on the ocean. There is nothing that has been built similar to this on any river system in the world."

– Bob Curcio, Tidewater CEO & President

CSR water is extremely cold and – like the Great Lakes, for example – doesn't have any brine in it.

The company has continually updated its fleet by re-powering the engines but also by introducing as much new and industry-regulated technology as possible. In addition, all active petroleum barges have been refitted with double hulls. "By buying three new tugboats and retiring three, we'll be able to average a fleet that is less than 21 years old, which is a big change, "says Curcio. "It's a major investment for a company and speaks to the fact that we're going to be around for a while."

CSR: Unique Operational Conditions & Challenges

Still, dealing with the locks is a daily challenge. Vessels traversing the CSR are raised close to 750 feet above sea level. In fact, the deepest is the Columbia River John Day lock, which lifts 105 feet. The regulated size of the locks is 650 feet long by 86 feet wide, and Tidewater tows average 645' by 84', in a one-to-four towboat configuration. "The waterway is also fairly shallow, only 14 feet. Our equipment is made for shallow environments and shallow operation, and that's fairly unique," explains Curcio. "There are times that the river is running very low, so we could get

groundings if we don't operate exactly in the channel area."

One of the drawbacks for operating on the CSR is when locks must be closed for maintenance by the Army Corp of Engineers. Regular maintenance generally happens for two weeks in March every year –Tidewater takes advantage of the time to carry out in-house crew training – but since the infrastructure of the locks is aging, several longer maintenance intervals have taken place to provide for replacement and maintenance to critical infrastructure components, ensuring the reliability of the river system for many years to come.

During both extended and regularly scheduled annual closures, minimal crews are needed. The rest sit idle until regular activities start up again. "It's a big disruption for us," says Curcio. "You hope people can bridge the gap they get in their pay with their passion for the business and come back and work for us again." Given the history of lock closure outages, by all accounts, most do return, as loyalty to the company keeps them coming back.

A traditional line of business for Tidewater has been container-on-barge service through the Port of Portland but ongoing disputes at the container terminal between Terminal six manager, ICTSI, and local ILWU labor resulted in the principle carriers Hapag-Lloyd and Hanjin to stop calling in April 2015. Inland farmers who relied on the Lewiston to Portland river system to move containerized commodities abroad have had to find other, more costly routes via Puget Sound.

In an effort to assist the farmers and help reduce the heavy truck congestion at the Seattle and Tacoma port container yards, Tidewater worked with the Port of Lewiston, Port of Portland, and Northwest Container Services to provide an alternative for customers until container service returns to Portland. This auxiliary route, which launched in November 2015, begins at the Port of Lewiston where containers are loaded onto Tidewater barges and towed to the company's Boardman, Oregon terminal. At Boardman, the containers are then trans-loaded to Northwest Container Services' rail service to Portland, then ultimately up to the Seattle and Tacoma terminals. "This is about a one percent share of our business but we're happy that we're contributing to getting some of the trucks off the road, reducing congestion and providing farmers with a less expensive option," says Curcio.

Since Tidewater was founded in 1932, it's pretty safe to say it will continue to endure. The company is poised for significant growth as the Columbia-Snake River regions are expected to see a huge uptick in new business during the next decade and beyond.