GOOD CATCH from The American Club

High and Mighty

Anticipating US River High Water Effects

It's spring again!

Due to spring thaws and rain, we can expect high water levels on the Mississippi River, its tributaries, and most other rivers too. In addition, high water influences the speed of the current and in meandering rivers, the current can vary significantly from one bank to the other and from mile to mile depending on numerous hydrographic factors. Eddies can also form that were not there in lower water levels. All of that can seriously impact safe navigation and increase the risks of vessels experiencing parted moorings, breakaways, parted anchor chains, lost anchors, windlass damage, groundings, or collisions.

For the inland towing industry, the Waterway Action Plan identifies specific sections of the rivers where high river levels can be problematic, allowing waterway users to implement often pre-determined risk mitigation measures.

The Waterways Action Plans (WAP) provides general information, procedures, and target gauges. The USCG Sectors on the Mississippi and Ohio Rivers maintain WAP annexes. The annexes provide actions which are to be taken for specific crisis conditions including high water, low water, high current, and ice. The plan and its annexes are reviewed annually by members of the U.S. Coast Guard, the Army Corp of Engineers, and River Industry representatives. Examples of WAP can be found by clicking here.

A key objective of the Waterway Action Plan is to establish a common understanding of the real-time and forecasted river levels. Towing companies should ensure that agreed upon risk mitigation measures are fully and clearly communicated to their crews.

Here are several additional recommendations for inland towing during high water levels:

- Think about and anticipate the impact of the current on your tow at specific locations well before you get there. Then plan in advance what you can do to best ensure successful navigation through those areas. Use your experience, the experience of the pilot, and timely information from other towing vessels to anticipate bends or areas that might be an extra challenge to navigation.

- A proactive approach is better than simply planning to react to the current once it starts impacting your tow. Ask yourself “what if” instead of “let’s see” by:
    a. thinking about the most likely way things could go wrong based on the current and river level at a challenging location;
    b. identifying how you will identify in real time if things begin to go wrong;
    c. then identifying actions you can take to better ensure things do not go wrong such as changes in speed, changes in approach position and angle, the availability of assist vessels to help get you through a difficult area, changes to your tow configuration, etc.
    d. considering that while it may be impossible to know exactly how the high water levels will impact your tow, identifying where navigation will be challenging and identifying measures to mitigate that risk will increase the likelihood of a safe transit; and
    e. maintaining an enhanced level of situational awareness for all other vessels (towing and deep draft) in your vicinity and their movements that may impact your navigation.

For inland towing companies, the size of each tow and the horsepower/barge ratios should be constantly evaluated and assessed as river conditions change. Similarly, the condition of the engines on each towing vessel should be assessed so the actual horsepower available is considered instead of the advertised horsepower. Further, consider evaluating the expertise of the individual Captains and Pilots and consider adjusting if and as needed so their abilities are not overly challenged when and where the river levels are most difficult. Mariners “learn by doing” and need to experience challenges to perfect their skills, but they should not be put in situations that are riskier than their current skills and the towing vessel can handle.

Further Consideration for Deep Draft Vessels

For deep draft vessels, the concerns and risk mitigation measures are different, but the risks during periods of high river levels are no less critical whether the vessel is underway, moored alongside or on a mooring buoy.

When a pilot is on the bridge, it is critically important for the entire bridge team to fully understand the pilot's navigational plan and how it is to be executed. That plan should take into consideration the expected strength of the river current before getting underway. If there is any uncertainty, or if the plan does not adequately consider unique issues with the vessel in its loaded condition, or if the plan does not satisfactorily appreciate the time needed for engine speed changes or to get sufficient flow across the rudder, the plan must be discussed and adjusted to satisfactorily address all concerns.

It is inadvisable for the Master or bridge navigation team to blindly defer to the pilot. Not only does the Master retain responsibility for the vessel when the pilot is present, the Master is the most familiar with the vessel's handling characteristics.

Additional risk mitigation measures that should be considered when getting underway during high water levels can include:

a. the use of tugs with more horsepower to assist the vessel in maneuvering;

b. consideration of conducting transits only during daylight hours;

c. provisions for the Master to have additional crew expertise on the bridge to augment the bridge team;

d. response actions if an anchor becomes fouled or the anchor chain breaks; and

e. discussion of navigational reference points to monitor, vessel orientation, and vessel speed over ground that might provide an early indication that the evolution is not per the plan, and a discussion of available corrective actions.

For vessels moored during high water levels, risk mitigation measures may also include:

a. the use of additional mooring lines;

b. the use of hold-in tugs at exposed or known high-risk berths during periods of strong river currents;

c. having crew members on a higher level of readiness to respond to relevant high water risks;

d. placing the main engine and any thrusters on a very short standby status;

e. paying special attention to anchor brake settings and the brake lining condition;

f. considering the effect on mooring lines and the anchor of barges secured to the vessel;

g. evaluating the impact on mooring lines or the anchor chain should the vessel start to yaw while at anchor or on a mooring buoy;

h. actions to take should the anchor drag or the anchor chain break; and

i. consider procedures and communications so tugs and line handlers can be ordered on short notice and a full awareness of the time needed for them to get on scene.

When you identify a hazard before something goes wrong... **it's a Good Catch.**

When you stop an operation before something bad happens... **it's a Good Catch.**

When you anticipate the challenges from high river levels and identify measures that mitigate the specific risks... **that's a Good Catch, too!**

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