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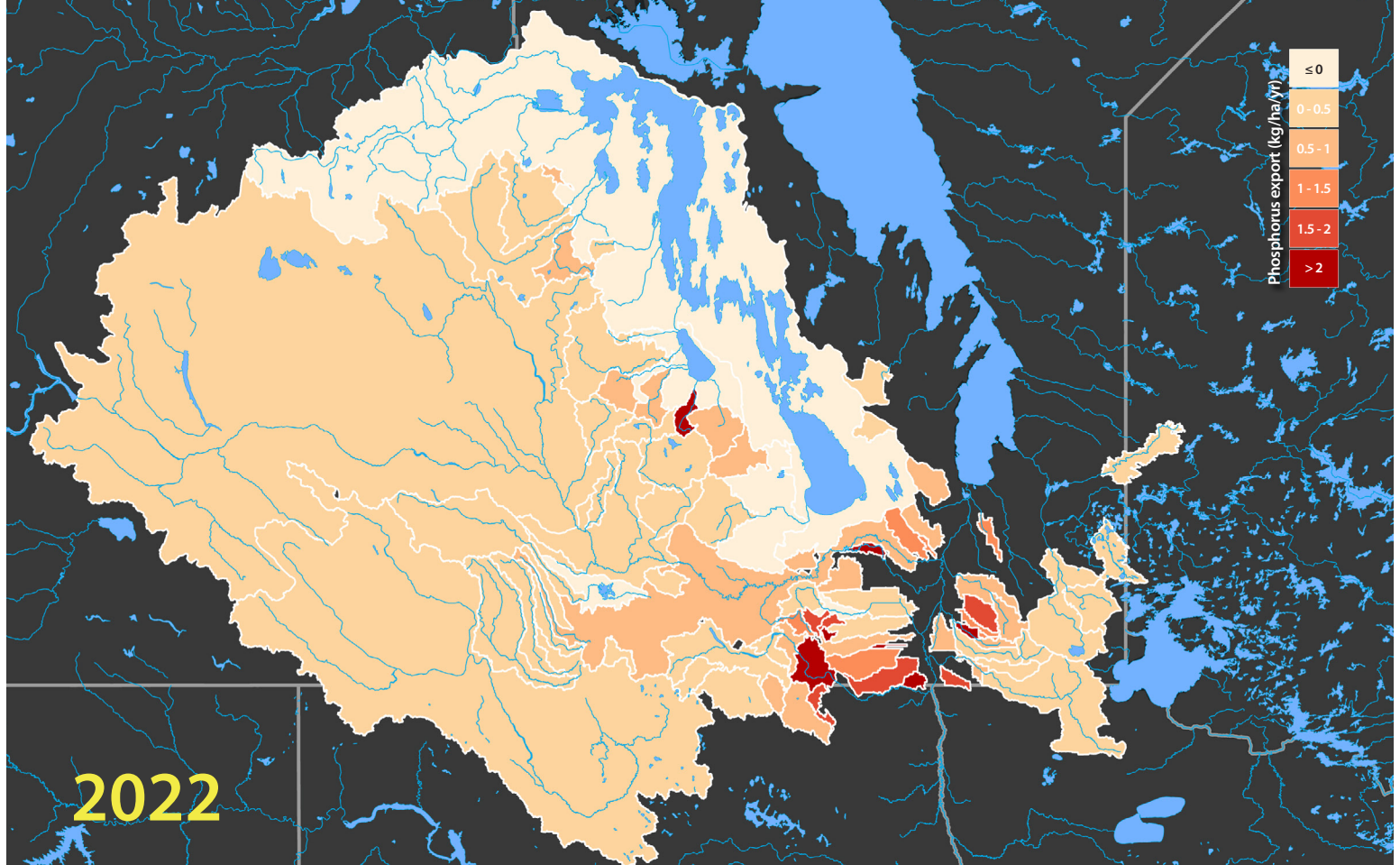
## LAKE WINNIPEG COMMUNITY-BASED MONITORING NETWORK

# 2020 – 2022 results

### Finding phosphorus

Decades of research have demonstrated that excess phosphorus drives the growth of harmful algal blooms in Lake Winnipeg – yet eliminating this excess phosphorus in the watershed is a challenging task. To be successful requires better knowledge about where to focus our efforts.

The Lake Winnipeg Community-Based Monitoring Network (LWCBMN) strengthens freshwater protection by identifying phosphorus hotspots within the Lake Winnipeg watershed. When land managers, researchers, government scientists and policy-makers have accessible, reliable information about phosphorus hotspots, their work can be targeted in these areas, resulting in greater impact.



Phosphorus export from drainage areas sampled in 2022, LWCBMN's seventh field season.

## Persistent hotspots focus our efforts

In 2022, LWCBMN identified phosphorus hotspots in Manitoba's Red River Valley, with high exports re-occurring in the Seine River watershed in southeastern Manitoba.

High water flows – from snow melt, floods and heavy rainfall – are responsible for most of the phosphorus flushed from the land into our waterways. Additionally, phosphorus concentrations are typically higher during floods since floodwater sits on the surrounding land for extended periods of time. This allows phosphorus within the soil to dissolve into the standing water. In 2022, southern Manitoba was extremely wet, receiving the third highest amount of snow since 1872, while record precipitation in April and May fell on mostly frozen soils, leading to flooding across the region.

In contrast, dry conditions in both 2021 and 2020 resulted in low water flow and low phosphorus exports across all regions. Some LWCBMN sites completely dried up during the 2021 season; as a result, less phosphorus flowed into Lake Winnipeg.

In 2020, the spring melt coincided with the arrival of the COVID-19 pandemic to Manitoba, which highlighted the value of LWCBMN's nimble and responsive network of volunteers and partners. While many monitoring programs

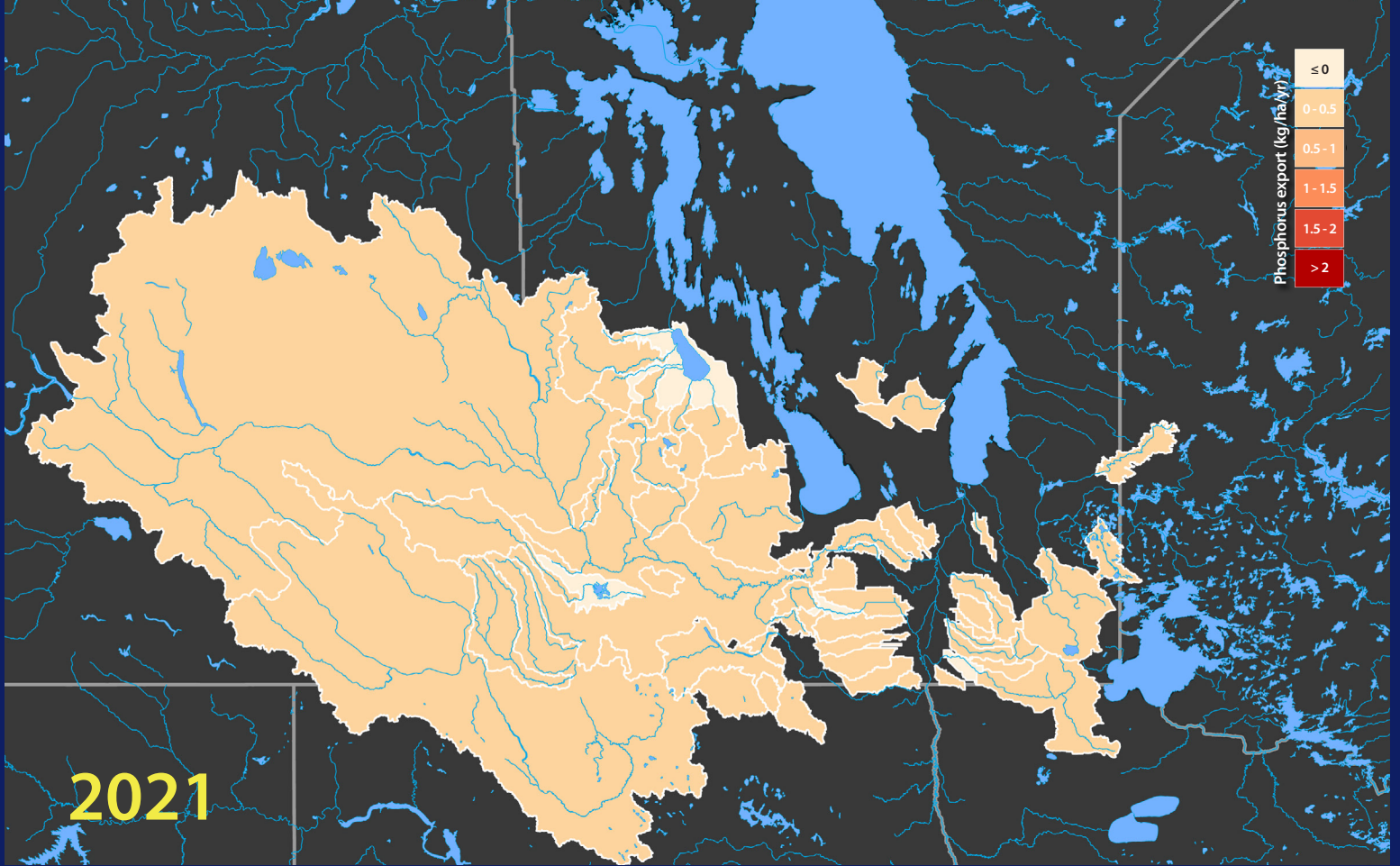
across Canada temporarily shut down, LWCBMN sampling activities were able to continue safely with adapted protocols. This enabled LWCBMN to maintain data continuity, a vital aspect to any long-term monitoring program.

With multiple years of LWCBMN data in hand, we are focusing our attention on persistent Seine River hotspots. These hotspots have appeared repeatedly since LWCBMN has been collecting data – in all but the extreme drought years of 2018 and 2021. By adding more sampling sites within this watershed, we can break down hotspots into smaller drainage areas to generate the higher-resolution data needed to pinpoint phosphorus sources.

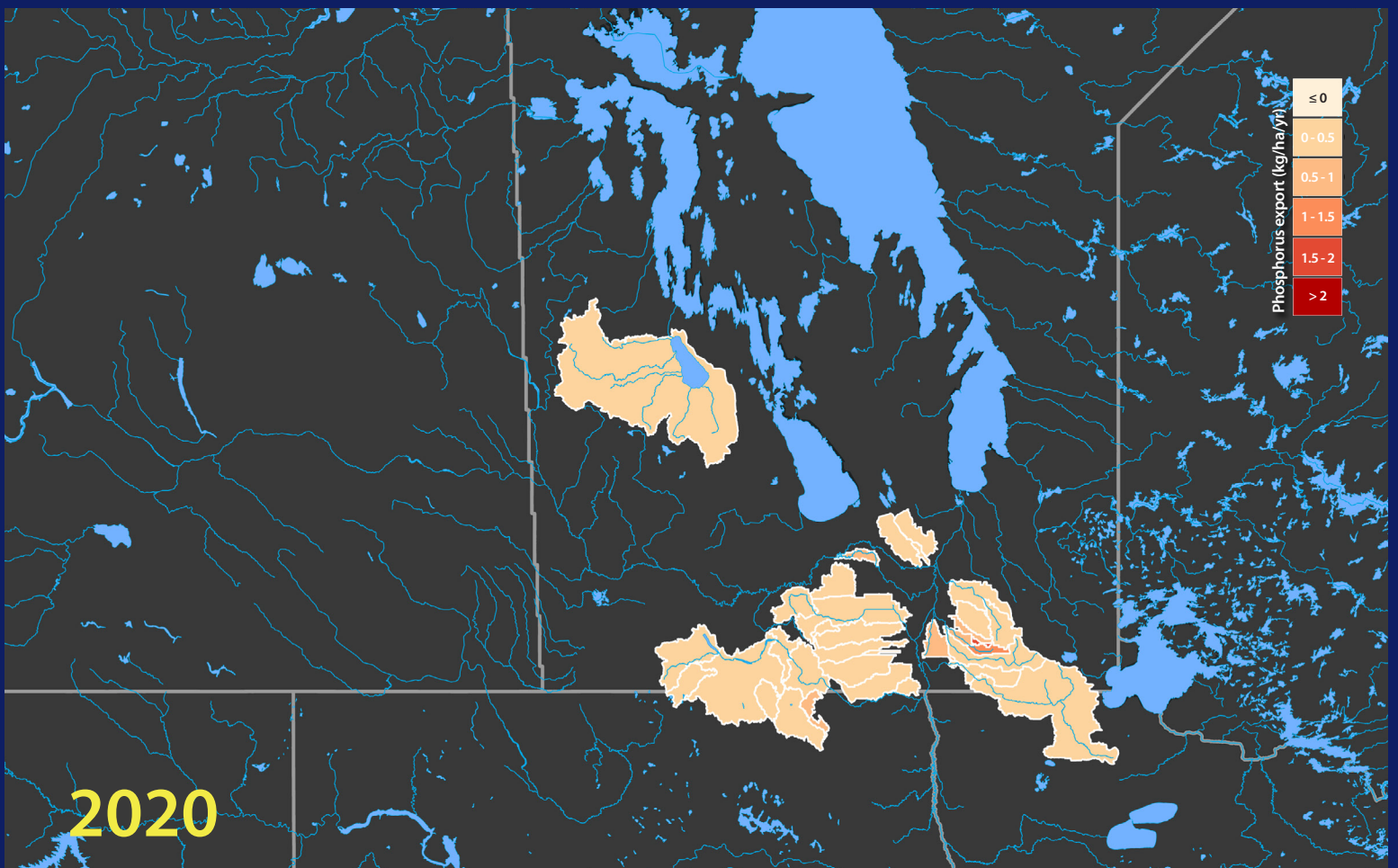
Further research is required to understand whether phosphorus exports are being driven by point sources or non-point sources, and whether other factors are also at play. As we generate data, we will continue to work with our science advisors and on-the-ground watershed district partners who can help us contextualize and interpret results.



Data from LWCBMN's 2017-2022 field seasons are available online at [LakeWinnipegDataStream.ca](https://LakeWinnipegDataStream.ca), an open access hub for sharing water data.



Phosphorus export from drainage areas sampled in 2021.



Phosphorus export from drainage areas sampled in 2020.

The **Lake Winnipeg Community-Based Monitoring Network** (LWCBMN) is a collaborative, long-term phosphorus monitoring program designed to identify localized phosphorus hotspots where action is required to improve Lake Winnipeg water quality. Coordinated by the Lake Winnipeg Foundation (LWF), LWCBMN is delivered in partnership with Manitoba's watershed districts, LWF's science advisors, volunteer citizen scientists and Dr. Nora Casson's laboratory at the University of Winnipeg.

### Thank you to the following LWCBMN funders

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