

Act 173: Surface Water Diversion and Transfer Study Group

March 15, 2021

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Surface Water Diversions and Transfers: Background

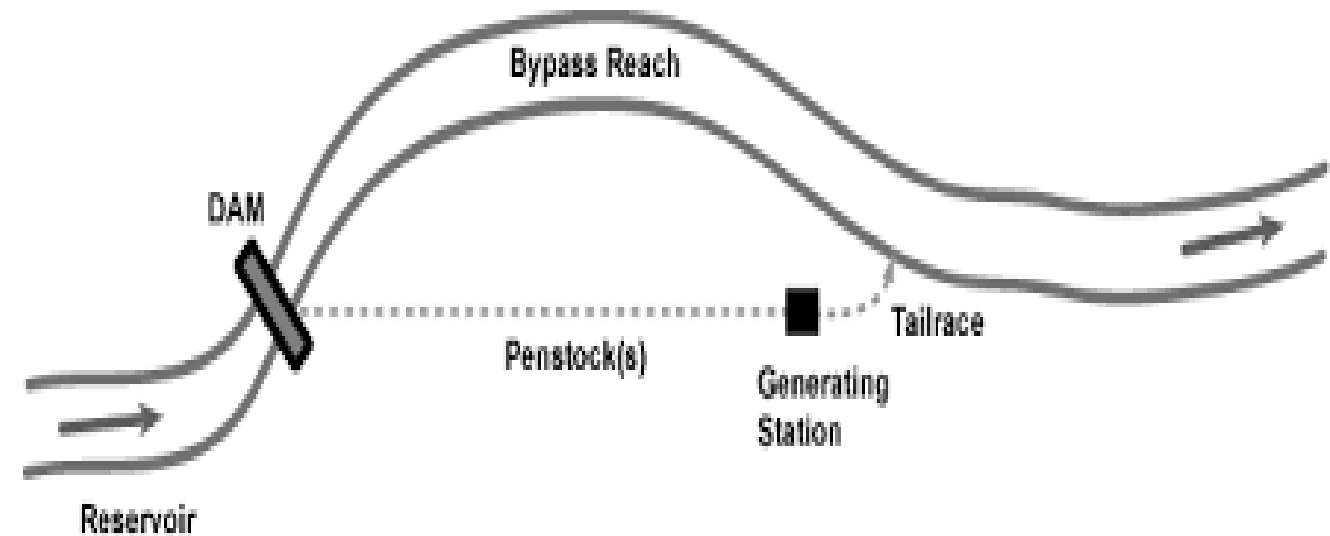
- What are surface water diversion and transfers?
- Vermont use of Surface Water
- Environmental effects of Surface Water Diversions and Transfers

Surface Water Diversion

- **Consumptive Use**
 - water withdrawn/diverted for a particular use that is not immediately return.



- **Non-Consumptive Use**
 - Water withdrawn/diverted but is returned to the stream or lake system.



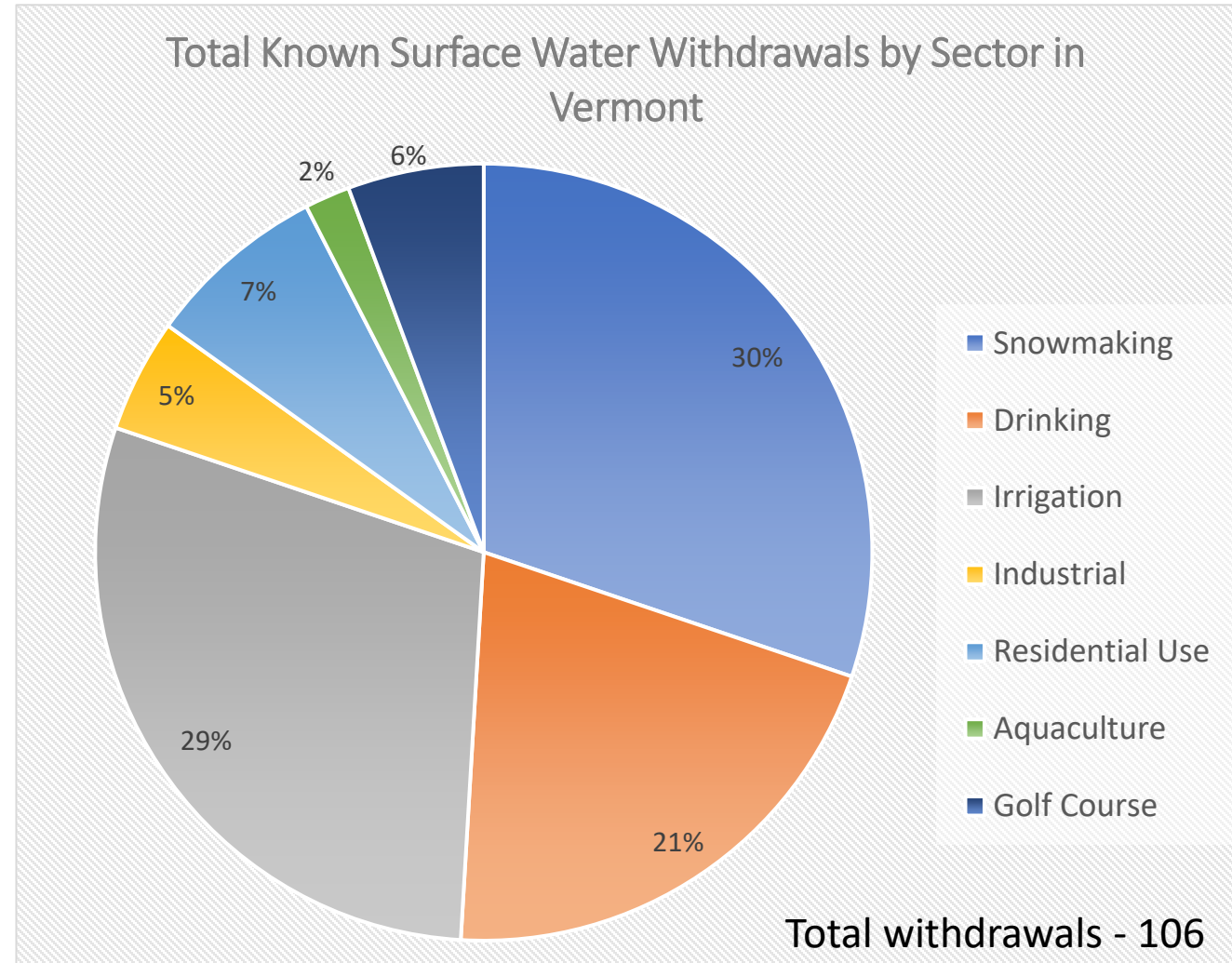


Inter-basin Transfer

- Is the transfer to water from one watershed basin to another.
- Typically occurs from a basin with adequate water to one in need of water do to demand.
- One IBT in Vermont that is part of the Killington/Pico snowmaking system.

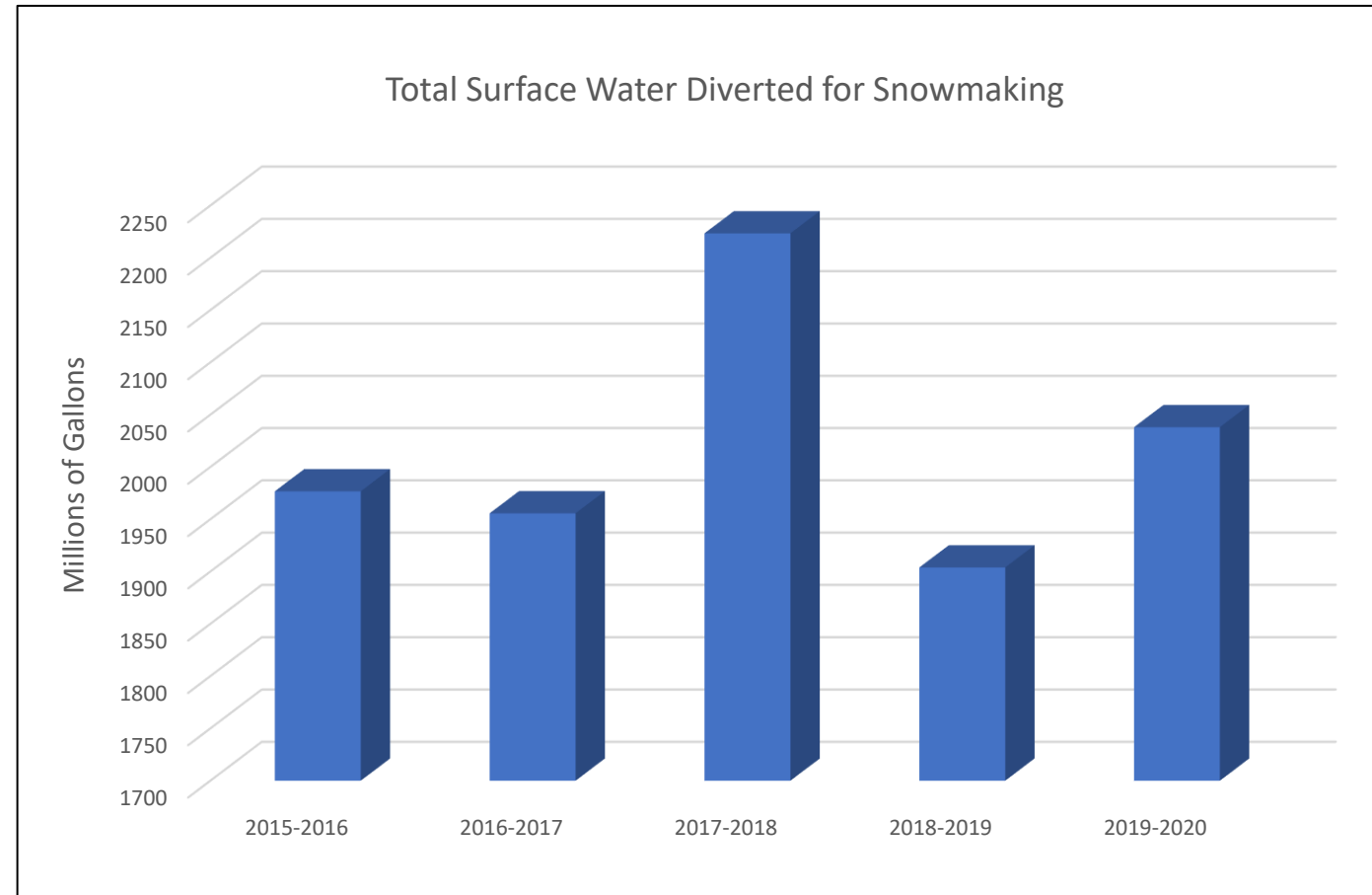
Vermont Surface Water Withdrawal by Sector

- Majority of known water withdrawals / diversions for consumptive use are for snowmaking (30%), irrigation (29%), and drinking water (21%).
- Non-consumptive surface water diversion are 104; Primarily hydroelectric projects.



Surface Water Use

- Water use for snowmaking is currently the only consumptive sector that requires regular reporting.
- Reporting requirements vary for other sectors based on permit conditions, but most users are not required to report.



Environmental Effects of Water Diversions: Direct and Indirect Effects

- Direct Effects on a Stream
 - Reduction in streamflow (velocity, depth, wetted width)
 - Effects the amount and quality of aquatic habitat
- Indirect Effects on a Stream
 - Water Quality
 - Temperature
 - Dissolved Oxygen



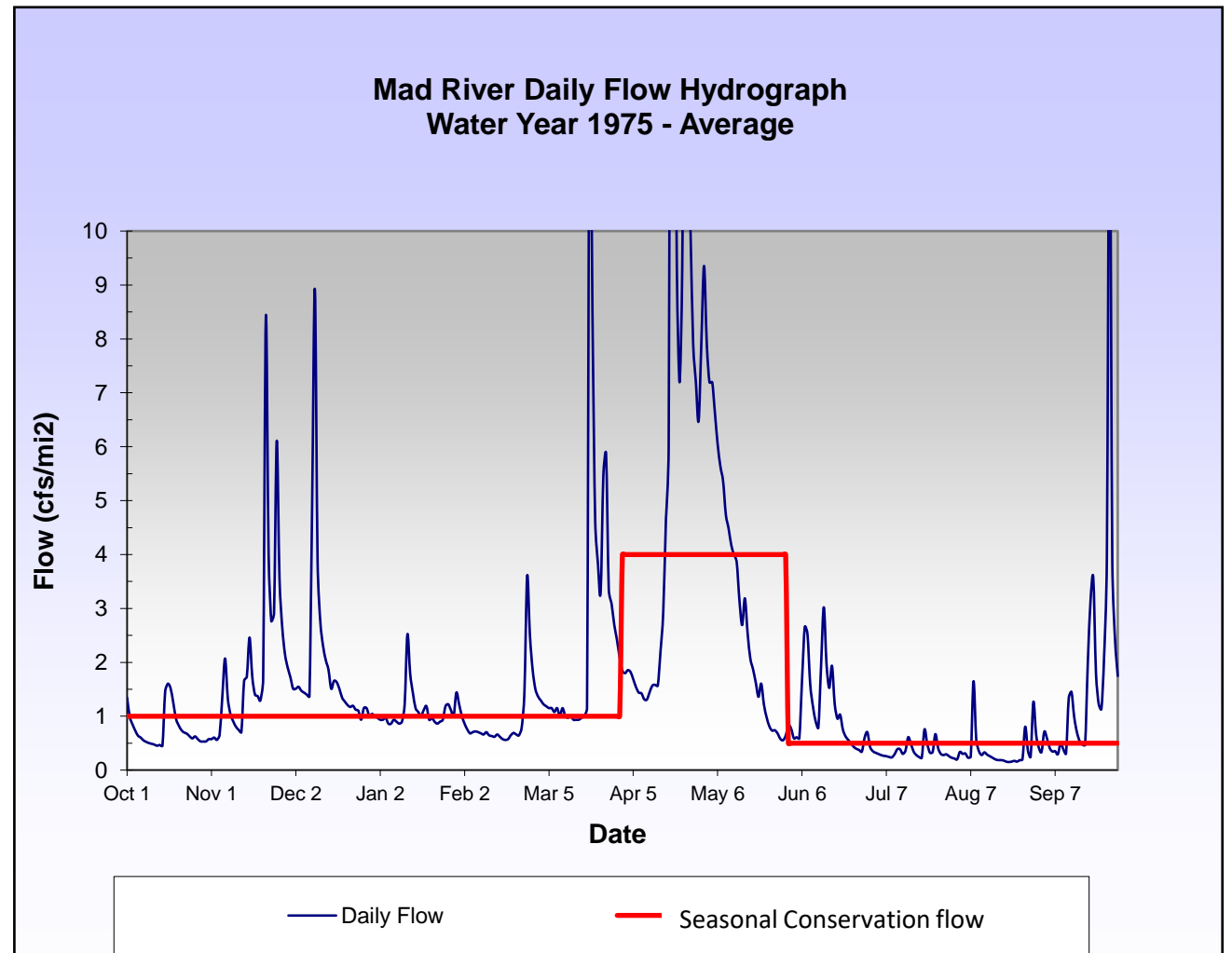
Environmental Effects of Inter-basin Transfer

- Effects on the donor Stream / Basin
 - Reduction in streamflow (velocity, depth, wetted width)
 - Water Quality
 - Aquatic Habitat

- Potential effects on the recipient Stream / Basin
 - Introduction to aquatic invasive species
 - Change in water quality
 - Change in hydrologic regime
 - Alteration of physical habitat

Mitigation of Environmental Effects

- Conservation Flows:
Quantity of water required to be within the stream before water can be withdrawn.
- Withdrawal cannot occur when flow is below the conservation flow value.



Questions

Vermont Legal Framework for Surface Water Diversion:

Overview of existing law and regulations

Common Law: Riparian Rights

- Originates from English Common Law; common in Eastern United States.
- Gives all owners of land contiguous to stream, lakes, and ponds equal rights to reasonable use but recognizes the ownership of the water is by the public.
- Reasonable use refers to the use of the water should not hinder other riparian owners or public use of the water.

Chapter 41: Regulation of Streamflow

- Purpose is to provide Department of Environmental Conservation authority to administer the water conservation policy of the state.

It is in the public interest that the waters of the State shall be protected, regulated, and where necessary controlled under the authority of the State. The proper administration of the water resources now and for the future require careful consideration of the interruption of the natural flow of water in our watercourses resulting from the construction of new, and the operation of existing dams, diversion, and other control structures. This subchapter is intended to identify this need, to provide a means for the investigation of the cause and effect of intermittent or diverted flow, and for the consideration of corrective actions required to assure as nearly continuous flow of waters in the natural watercourses as may be possible consistent with reasonable use of riparian rights.

Chapter 41: Regulation of Streamflow

- 10 VSA § 1003. Flow Conference
 - Provides authority for Department to call a flow conference for an owner of a dam or diversion to address flow alteration that threatens public interest
 - Department may require actions to address flow alteration or amend permits to include minimum conservation flow.
- 10 VSA § 1004. Hydroelectric Projects
 - Provides authority for Agency of Natural Resources represent State interest before FERC in matters involving water quality and flow regulation
 - Provides authority of the Agency to be the certifying authority issuing Section 401 water quality certifications.

Chapter 41: Regulation of Streamflow

- Water Withdrawal for Snowmaking
 - §1031 and §1032 provide the policy and authority for rulemaking
- Water withdrawals for Snowmaking Rule
 - Rule was adopted February 15, 1996
 - Establishes a hydrologic conservation flow standard for snowmaking water withdrawals
 - Establishes Agency procedures for reviewing water withdrawal for snowmaking.

Vermont Water Quality Standards

- Water quality standards are provisions of state and federal law approved by EPA that describe the desired condition of a water body and the means by which that condition will be protected or achieved in different classes of water.
- Federal Clean Water Act require triannual review of the state's water quality standards
- Vermont water quality standards review between 1997-99 convened a stakeholder process to develop hydrology criteria for Vermont waters.

Hydrology Criteria

- Developed to effectively implement the water conservation and hydrology policy to address flow alterations and protect aquatic habitat.
- WQS include criteria for three areas
 - Streamflow Protection
 - Water Level Fluctuation
 - High Flow Regime
- Largely implemented through issuance of Section 401 water quality certification when a federal license or permit is required.

Other Applicable Regulations

- Stream Alteration Rules
 - Conservation flow can be condition for projects that trigger 10 cubic yard threshold.
- Encroachment of Public Waters
 - Lake Encroachment Permit required for withdrawal intakes over 2 inches in diameter.
- Act 250 Land Use Permits
 - Agency can propose conditions to be included in permit by district commission.

Inter-basin Transfers

- No existing law or regulations specific to inter-basin transfers
- Existing Laws and Regulation that address environmental concerns
 - Vermont Water Quality Standards
 - Water Quality Criteria
 - Hydrology Criteria
 - Management objective and Criteria for Aquatic Habitat
 - Aquatic Invasive Species Control

Summary

- Vermont has several existing regulations and rules to protect natural flow regime and streamflow.
- Most of the existing regulations applicable to streamflow and water withdrawals and diversion were developed to regulate large projects.