

History and Water Management of the Souris River Basin National Wildlife Refuge Complex

Frank Durbian, Project Leader, Souris River Basin NWR Complex

- Refuge Complex includes J. Clark Salyer NWR (58,700 acres), J. Clark Salyer WMD (5 counties) and Upper Souris NWR (32,092 acres).
- J. Clark Salyer NWR established by FDR September 4, 1935 EO 7170 and Upper Souris NWR established by FDR August 27, 1935 EO 7161.
- Establishing legislation – Purpose - ...as a refuge and breeding ground for migratory birds and other wildlife...
- Management direction of the Refuges is based on the Comprehensive Conservation Plan (CCP) completed in 2007.
- Key legislation and policy governing refuge management and recreation can be found in Appendix B of the CCP.
- Major dams/water control structures
 - Upper Souris NWR – Lake Darling Dam – impounds ~10,000 acres.
 - J. Clark Salyer NWR – 5 low head dams at river miles 320 (near Upham, ND), 326, 332, 341 and 357 (near Weshope, ND). Total impounds ~23,500 acres.
- Upper Souris NWR - Lake Darling
 - Original dam created 1939 modified and raised via 1989 International Agreement and 1989 Compatibility Determination for the Souris Basin River Flood Control Project.
 - Current Purpose – provide a 2 year water supply, as needed, for wetlands at J. Clark Salyer NWR and Upper Souris NWR and 100 year flood protection for Minot, ND.
 - Water Management – Subject to certain physical and legal constraints.
 - Water Input - 1909 Boundary Waters Treaty Act, 1959 Interim Operating Agreement, and 1989 International Agreement (flood control project) as modified in 2001 – U.S. is entitled to 50% of first 40,500 acre feet occurring prior to May 1 and then 50:50 or 60:40 split depending on elevation of Lake Darling June 1.
 - North Dakota must also supply Manitoba with 20 cfs from June 1 through October 31 unless certain drought conditions are met.
 - Operation of dam is under control of FWS for runoff events of less than a ten year exceedance probability and operated at the direction of the USACE if greater than 1:10.
 - Management must also accommodate senior water rights holders and agreement with Eaton Irrigation.

- FWS and Eaton Irrigation have both applied for prescriptive water rights and are in the process of being finalized.
- Pool level must be at 1596.0 ft by February 1 of each year.
- Typical summer elevation of 1597.0 ft.
- Non-flood year releases attempt to mimic natural processes including historical spring rises.
- J. Clark Salyer NWR – Impoundments
 - Five original structures were created in late 1930's to create impoundments for waterfowl production.
 - Height of dams was increased in 1950's and again in 1991-1992 to improve wetland management and as a mitigation measure for the Souris River Basin Flood Control Project. Each dike equipped with heated radial gates to provide more flexibility in discharging water.
 - Pools are managed for wetland vegetation and typically watered up during spring run-off and allowed to naturally dewater through the summer and fall, mimicking natural processes.
- The construction of dams has resulted in numerous effects on natural resources both positive and negative as flows have been greatly altered.
 - Positive – creation of wetland habitat for waterfowl, migratory birds and other wildlife.
 - Negative – Flow timing in the spring is often later than historic river flows, management of Lake Darling is restricted by agreement to supply Eaton Irrigation 10,000 acre ft and minimum flow requirements to Manitoba, and capacity of channel in Minot restricts releases from Lake Darling and lake levels often fluctuate above desired levels.
- FWS and the International Souris River Board (ISRB)
 - FWS Region 6 Chief of Water Resources – member.
 - FWS Region 6 Chief of Water Resources – member of ISRB Task Force initiating the Plan of Study which describes studies that are needed to review the operation of the reservoirs covered by the 1989 agreement and considers additional structural and non-structural measures that could be taken to reduce flooding impacts and improve water supply in the basin.
 - Souris River Basin NWR Complex Project Leader attends ISRB meetings and provides reports in regard to annual water management activities and plans on Refuges.

CANADA



