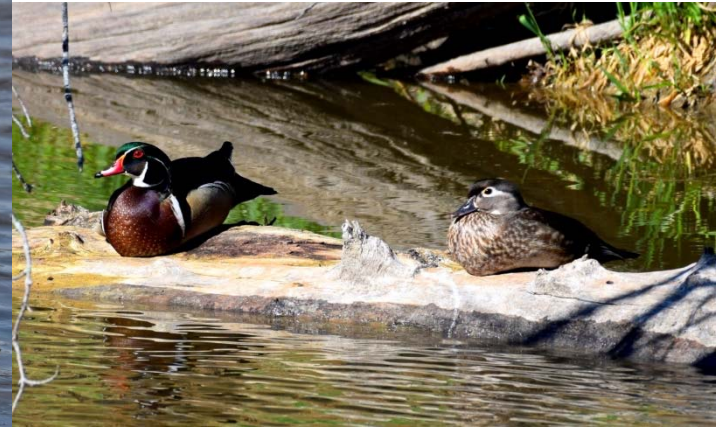




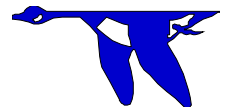
U.S. Fish & Wildlife Service

Upper Souris National Wildlife Refuge & Lake Darling

History, Purpose, Management, and
River Issues.



Frank Durbian, Project Leader
Souris River Basin NWR Complex





Souris River Basin NWR Complex

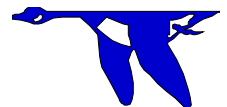
- Upper Souris NWR.
- J. Clark Salyer NWR.
- J Clark Salyer Wetland Management District – 5 Counties – Bottineau, McHenry, Rolette, Pierce and Renville.
 - 127 Waterfowl Production Areas.
 - Wetland and Grassland Conservation Easement Program.





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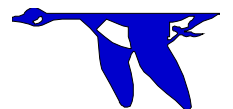
Location





History/Purpose of Upper Souris NWR

- Dust Bowl Era – Dirty 30's.
- Refuge Established by Executive Order in 1935.
- "...as a refuge and breeding ground for migratory birds and other wildlife..."
- Management guided by Comprehensive Conservation Plan (2007).





U.S. Fish & Wildlife Service

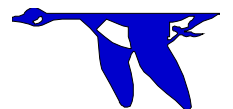
Refuge Size, Habitat Type, Management and Management Issues





Upper Souris National Wildlife Refuge

- **32,092 acres:** 9,575 acres - Lake Darling, 58 acres of river, 2,127 acres of riverine marsh, 472 acres of other wetlands and remainder in upland prairie/forest.
- Lake Darling created to provide a two year water supply for wetlands on J. Clark Salyer NWR and pools below dam.
- Dikes and sub-impoundments created starting in 1930s. Ten managed wetland pools.





Wetland Management Strategy

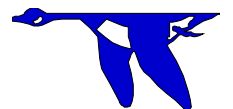
- Spring rise then lower pool levels through summer for habitat management (variable pending water, current condition and needs).





Lake Darling Specifics

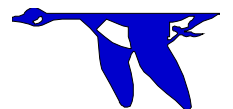
- Original dam created 1939, modified and raised via 1989 International Agreement and Compatibility Determination for the Souris Basin River Flood Control Project.
- Current Purpose: 2 year water supply for wetlands on J. Clark Salyer and Upper Souris NWRs and 100 year flood protection for Minot (spring run-off).
- Water management subject to physical and legal constraints.





Lake Darling Specifics Cont.

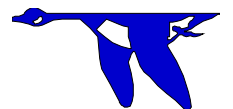
- Legal – 1909 Boundary Waters Treaty Act, 1959 Interim Operating Agreement and 1989 International Agreement (flood control project) as modified in 2001 – Annex A.
- U.S. is entitled to 50% of first 40,500 acre feet occurring prior to May 1 and then 50:50 or 60:40 split depending on elevation of Lake Darling June 1.





Lake Darling Specifics Cont.

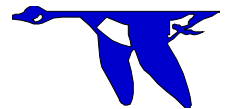
- North Dakota must supply Manitoba with 20 cfs from June 1 through October 31, pending drought conditions.
- Operation of Dam is under control of USFWS for runoff events of less than a ten year exceedance probability and operated under the direction of the USACE if greater than 1:10.





Lake Darling Specifics Cont.

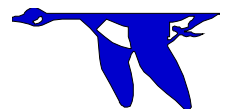
- Management must also accommodate senior water rights holders.
- Operating Levels:
 - By February 1 of each year = 1596.0 ft.
 - By ~ June 1 = 1597.0 ft.
 - Fall – slow release to hit Feb 1 target and keep live stream in river during winter months.





Lake Darling Management Issues

- Flood control added as a purpose to Lake Darling ~1989.
- Other upstream purposes, and upstream dam releases alter natural hydro-period – delayed water releases.
- Eaton Irrigation water supply issues – delayed water releases.
- Channel capacity through Minot complicates ability to pass water at higher flows.
- Climate change – increased late spring early summer rain events.





The FWS Perspective

1. Protect Refuges and Refuge resources.
2. Work with our partners and stakeholders to facilitate improvements to basin wide river management that enhance, or at a minimum do not negatively impact, Refuge resources and purpose.
3. The FWS is open to exploring new ideas and processes that will facilitate 1 and 2.





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Questions?

