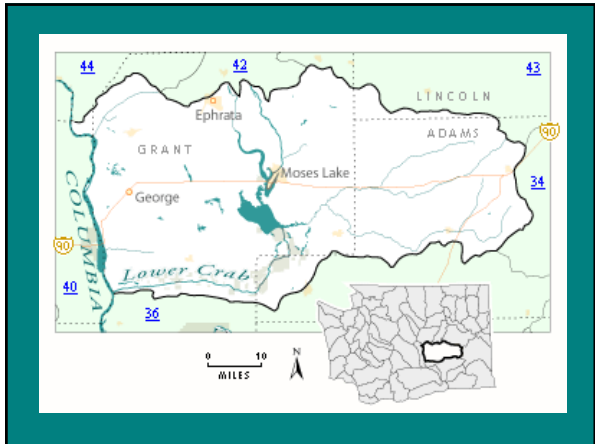




Moses Lake Nutrient Management Decision Support Modeling

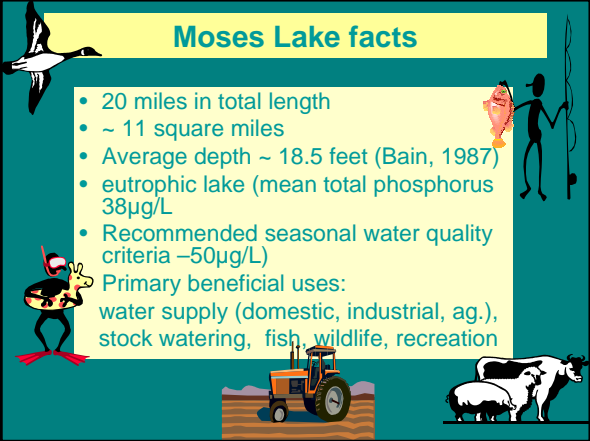
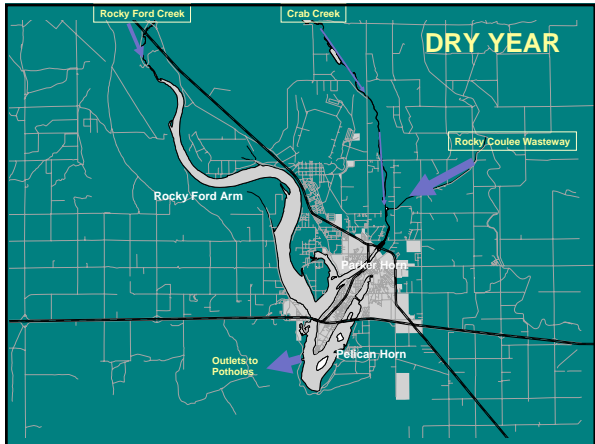
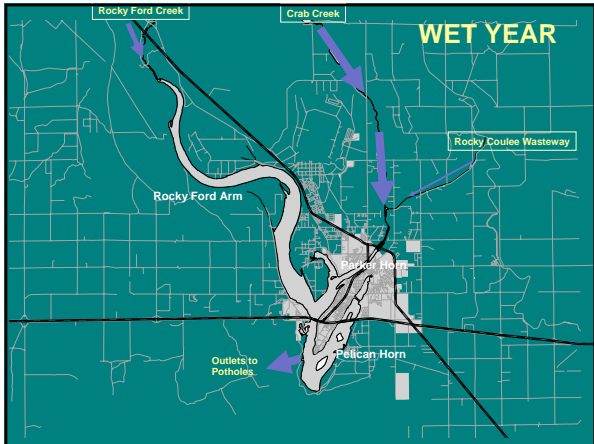
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Moses Lake facts

- 20 miles in total length
- ~ 11 square miles
- Average depth ~ 18.5 feet (Bain, 1987)
- eutrophic lake (mean total phosphorus 38µg/L)
- Recommended seasonal water quality criteria ~50µg/L

Primary beneficial uses:
 water supply (domestic, industrial, ag.),
 stock watering, fish, wildlife, recreation

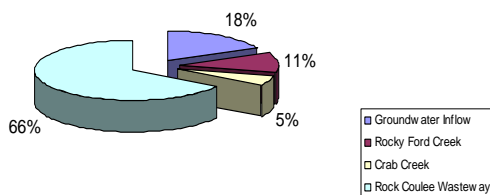
Model

- Hydrodynamic, unsteady-state
- Calibrated to 2001 water quality data
- Used to estimate capacity of lake to assimilate TP loads from point and nonpoint sources

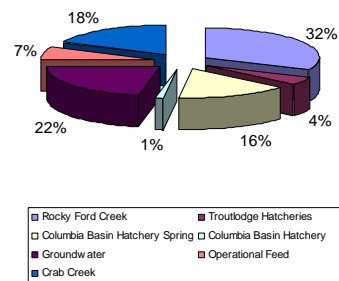
Summary of error statistics for the calibration of TP. Spatial, temporal, and overall error expressed as RMSE (mg/L)

| | ML5 | ML4 | ML3 | ML1 | ML2 | ML6 | Total |
|------------|-------|-------|-------|-------|-------|-------|-------|
| March | 0.003 | 0.001 | 0.007 | 0.005 | 0.005 | 0.011 | 0.007 |
| April | 0.005 | 0.006 | 0.005 | 0.008 | 0.006 | 0.006 | 0.006 |
| May | 0.007 | 0.005 | 0.042 | 0.005 | 0.015 | 0.005 | 0.023 |
| June | 0.004 | 0.010 | 0.007 | 0.007 | 0.009 | 0.008 | 0.008 |
| July | 0.014 | 0.004 | 0.012 | 0.016 | 0.014 | 0.006 | 0.012 |
| Aug | 0.005 | 0.013 | 0.029 | 0.016 | 0.015 | 0.007 | 0.019 |
| Sept | 0.012 | 0.014 | 0.011 | 0.015 | 0.013 | 0.005 | 0.012 |
| Mar - Sept | 0.007 | 0.009 | 0.021 | 0.012 | 0.012 | 0.007 | 0.014 |

Moses Lake Inflows (Oct. 2000-Sept. 2001)



May to September TP load Contribution for the Critical Design Year (Using 2001 Production Levels for Hatcheries)



Recommendations

- Dilution Strategies for Moses Lake
- Nonpoint Control of Winter/Spring Runoff from Crab Creek
- Reduction of Phosphorus from Diffuse Nonpoint Sources Supplying Baseflow to Moses Lake from May through September
- Reduction of Phosphorus from Point Sources



Questions

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