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Proposed Effluent Limits

for

City of Winnipeg

Sewage Treatment Plants

Manitoba Conservation

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Application

- Technology based effluent limits would be applicable to all of the City's sewage treatment plants.
- Water quality based effluent limits would be specific to each sewage treatment plant.



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Caution

- The proposed limits represent a starting position and will have to be refined.
- A second review of river flow data, effluent discharge data and existing treatment plant capacities should be undertaken before effluent limits are finalized.



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Biochemical Oxygen Demand

- Biochemical Oxygen Demand (BOD₅) is a parameter based on a bioassay test that measures the oxygen demand usually associated with the biochemical oxidation of organic matter within 5 days at a temperature of 20°C
- Proposed Limit - BOD₅ should not exceed 30 mg/l

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Carbonaceous Biochemical Oxygen Demand

- CBOD₅ is a similar bioassay parameter to BOD₅ but only measures the oxygen demand from carbonaceous organic material (i.e. no nitrogenous demand).
- Alternative Limit to BOD₅ - CBOD₅ should not exceed 25 mg/l provided that an ammonia limit is also applied.

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Total Suspended Solids

- Total suspended solids (TSS) is a parameter used to measure the effectiveness of physical treatment (i.e. clarification)
- Proposed Limit - TSS should not exceed 30 mg/l



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Fecal Coliform

- Fecal coliform bacteria are indicator organisms used as a measure of the presence of pathogenic bacteria.
- Proposed Limit - fecal coliform content should not exceed 200 per 100 milliliters of sample.

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Fecal Coliform

- Application - The limit should apply during the period of May 1 to September 30 and should be determined by the monthly mean of 1 grab sample collected at equal time intervals on each of a minimum of 3 consecutive days per week.



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Total Coliform

- Total coliform bacteria are larger group of indicator organisms used as a measure of the presence of pathogenic bacteria.
- Proposed Limit - total coliform content should not exceed 1500 per 100 milliliters of sample.
- Application - similar to fecal coliform

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Ammonia

- Ammonia in the un-ionized form is toxic to aquatic life. Ammonia is assimilated in the natural aquatic environment as the ammonia is converted to more stable forms of nitrogen in the presence of oxygen.



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Ammonia

- The City of Winnipeg has indicated that it wants the ammonia limits to be based on a site specific impact assessment.
- Manitoba Conservation has agreed with this approach. The site specific impact study is not complete. In the interim the department has developed ammonia limits using existing water quality criteria.

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Ammonia

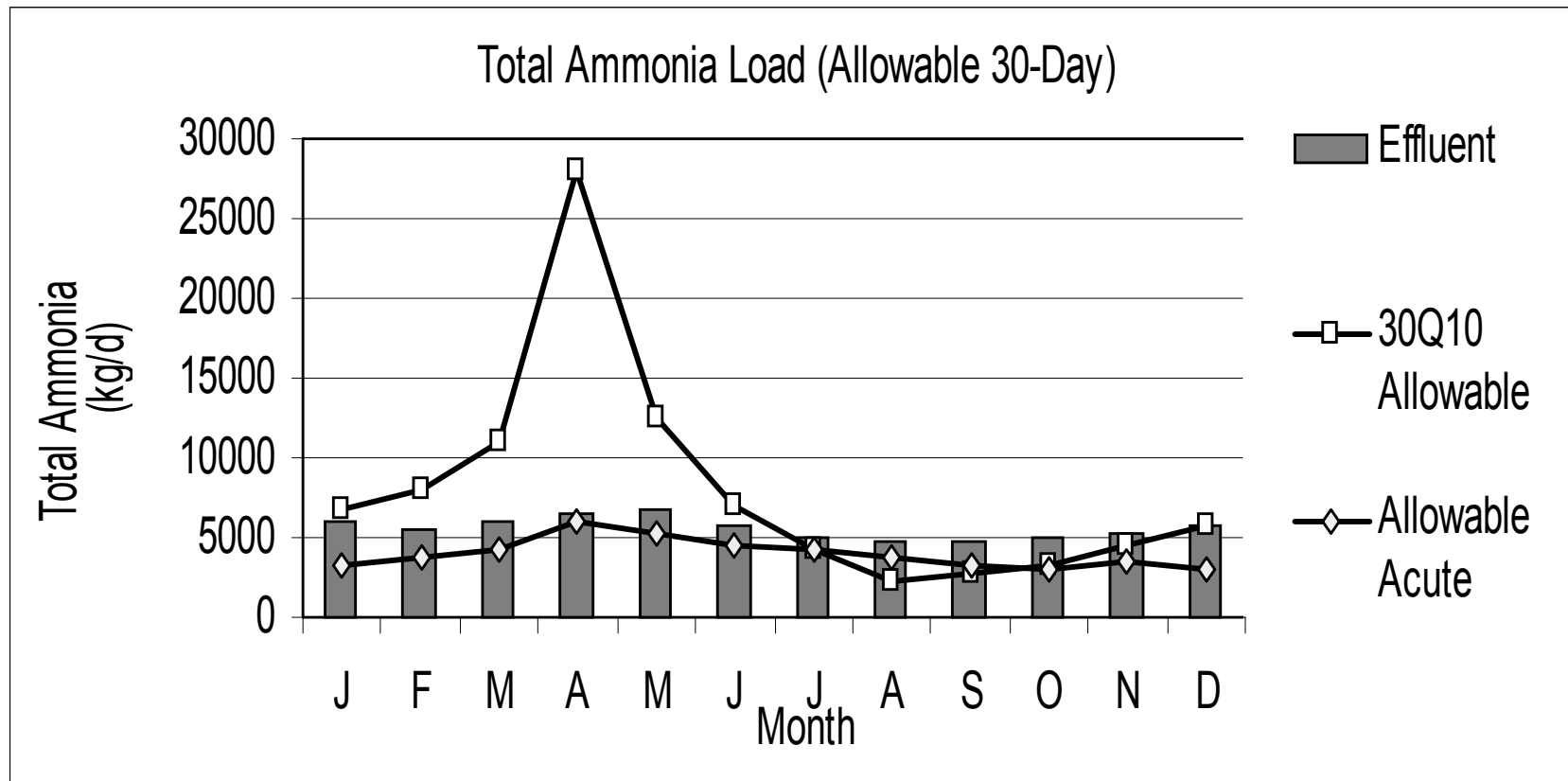
- Proposed Limits are based on:
 - Manitoba Water Quality Standards, Objectives and Guidelines
 - 75% Allocation of Assimilative Capacity
 - Flow record period 1913 to 2002
 - Available effluent discharge data



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Ammonia

North-End Water Pollution Control Centre



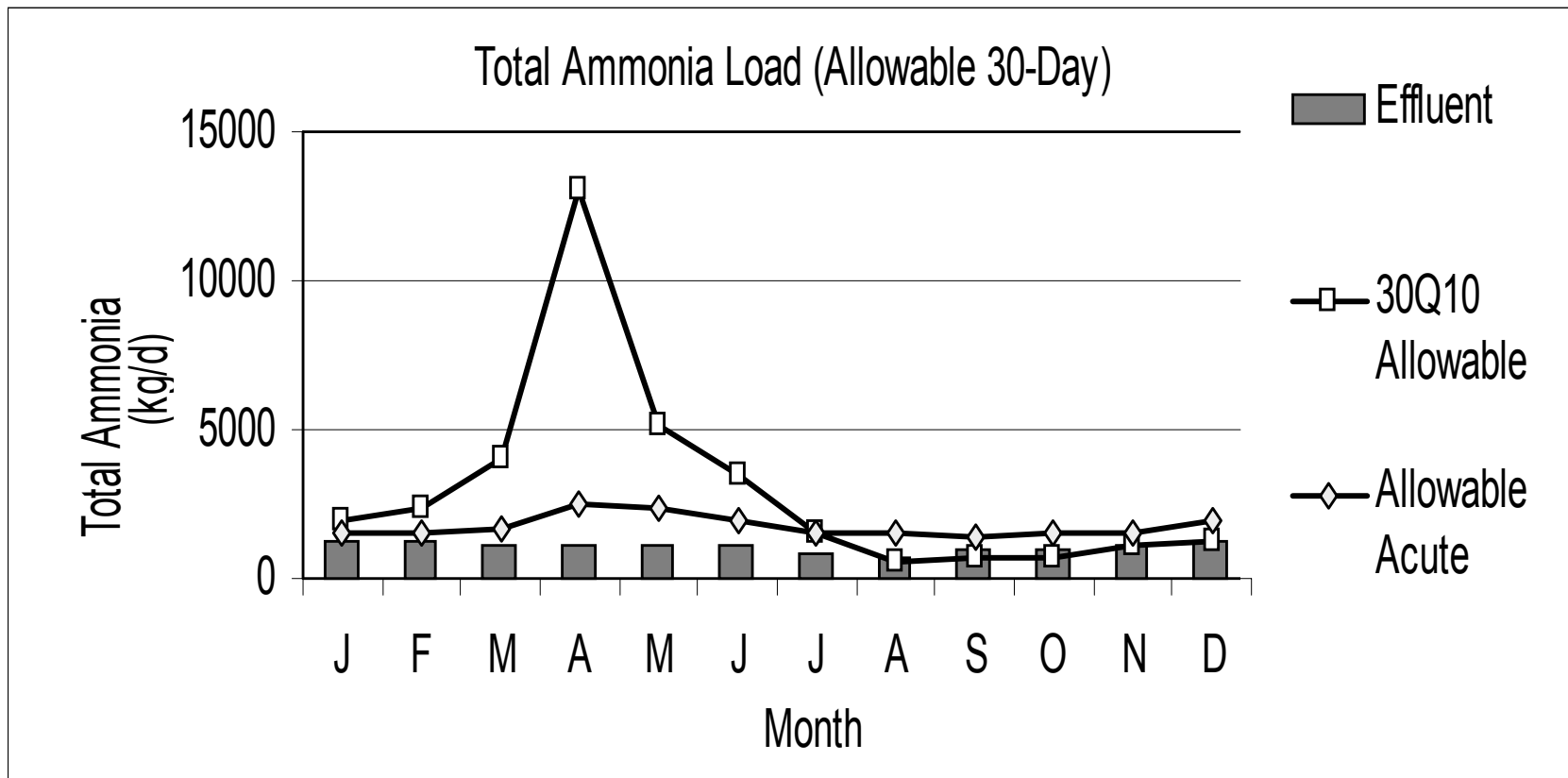
Manitoba Conservation

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Ammonia

South-End Water Pollution Control Centre



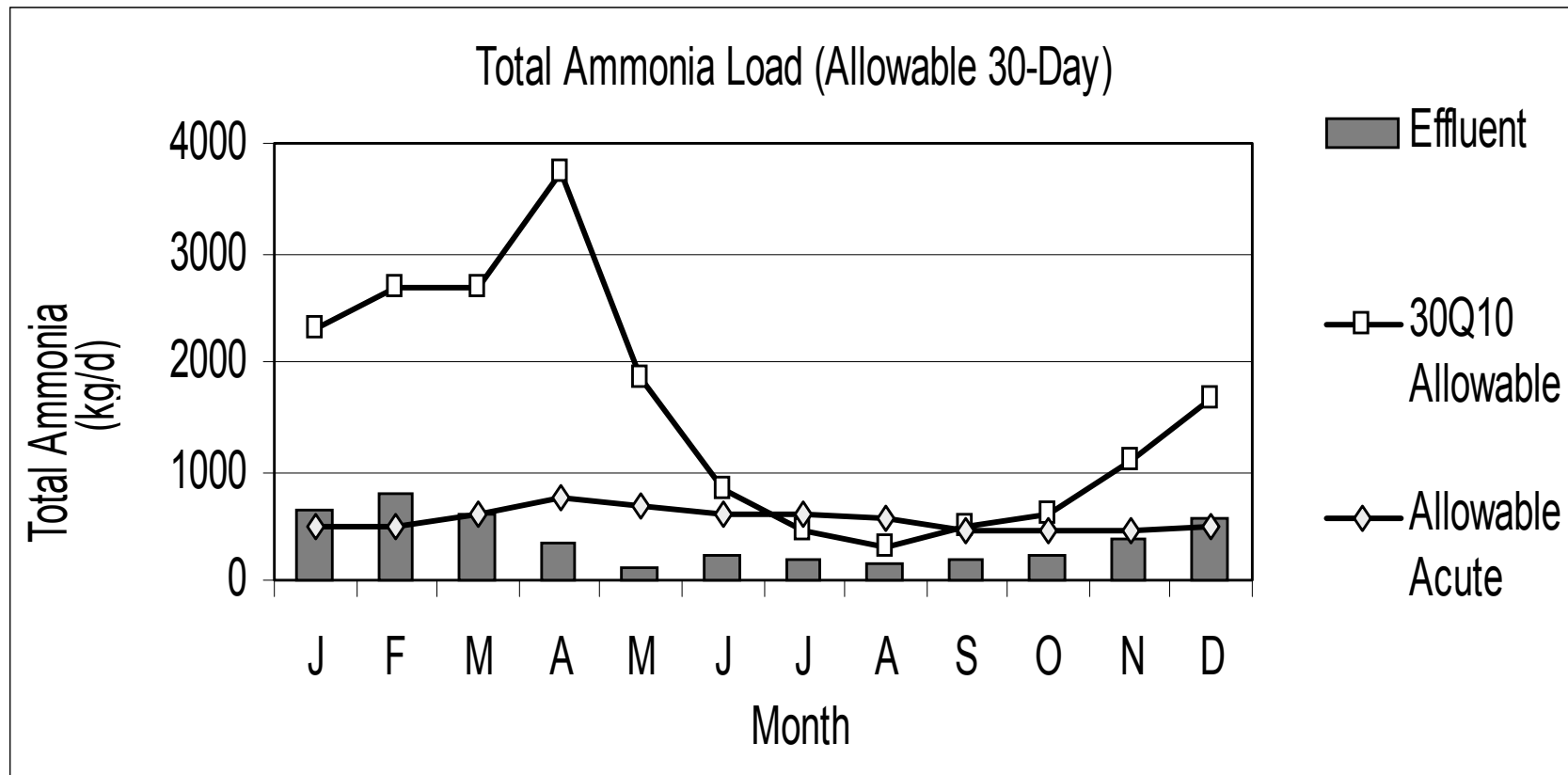
Manitoba Conservation

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Ammonia

West-End Water Pollution Control Centre



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Nutrients

- Manitoba Conservation is developing and implementing a comprehensive Nutrient Management Strategy including the development of water quality objectives for nitrogen and phosphorus for Lake Winnipeg.
- Water quality objectives for nutrients should be established by 2004.

Manitoba Conservation



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Nutrients

- Specific limits for nitrogen and phosphorus will then be brought forward for the City of Winnipeg's discharges.
- The limits will be developed in a fair and equitable manner with the many contributors of nutrients to the basin.

