Agriculture and Agri-Food Canada | Agriculture et Agroalimentaire Canada

Drought Preparedness Partnership (DPP)

Pilot Exercise

Regina, Saskatchewan

October 28, 2008

Canada

What is the DPP?

DPP = DEWS + DPA

Drought Preparedness Partnership = Drought Early Warning System + Drought Preparedness Assessment

Research + Policy + Operation

Response + Planning + Adaptation

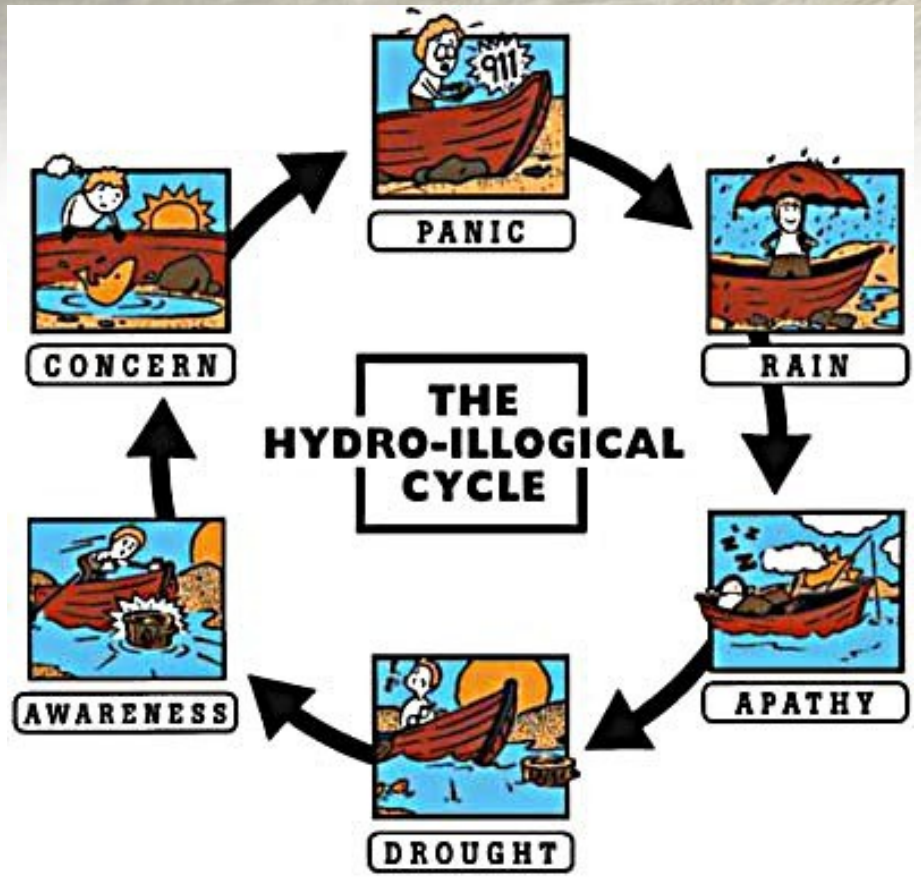
Why Are We Working on Drought Preparedness?

- **To Increase our Resiliency to Drought and Decrease our Vulnerability to Drought**

- Based on the climate change and variability work done,
  - e.g. needs assessments and discussions with individuals within the Federal, Provincial, and academic communities

- there appears to be a willingness to explore additional ways to proactively prepare for droughts.

Why is Drought Preparedness Important?



- The Hydro-Illogical Cycle (Don Wilhite).
  - little proactive preparation for drought…
  - tremendous amount of inefficient effort applied during a drought.
- Why?
  - Resources are allocated to the most clear and present danger.
  - When it rains the sense of vulnerability to drought diminishes.

The Idea…

- Hold a “war game” or simulation to assess an institution’s drought preparedness.

- How?
  - Walk through an exercise to discuss responses to a recent drought.
  - Provide the physical and social information for the time period.

- Then Assess:
  - If they could respond more, or less, effectively now.
  - How response would change with better and/or more timely information.
  - If the same drought occurs in the future, would current responses and preparedness be sufficient?
  - Would proactive adaptation and mitigation efforts be required?

The Results…

- A process to assess current drought preparedness.
- Assess potential future drought preparedness.
- Improve our understanding about drought planning and response to **reduce drought vulnerability and increase resiliency to drought**.

Tabletop Exercise Goal

- To understand participants' past, current, and future capacities to respond to drought.

Specific Objectives

- Assess drought response capabilities in key response categories:
  - Monitoring
  - Reporting
  - Mitigation
  - Adaptation
  - Response
- Identify strengths and areas needing improvement with regard to drought preparedness and response.
- Determine the direction for further drought research and applications.

Score Card

- Based on what we discussed, how would you rate your drought preparedness?
  - -1 = Worse than before
  - 0 = Same as before
  - 1 = Better than before

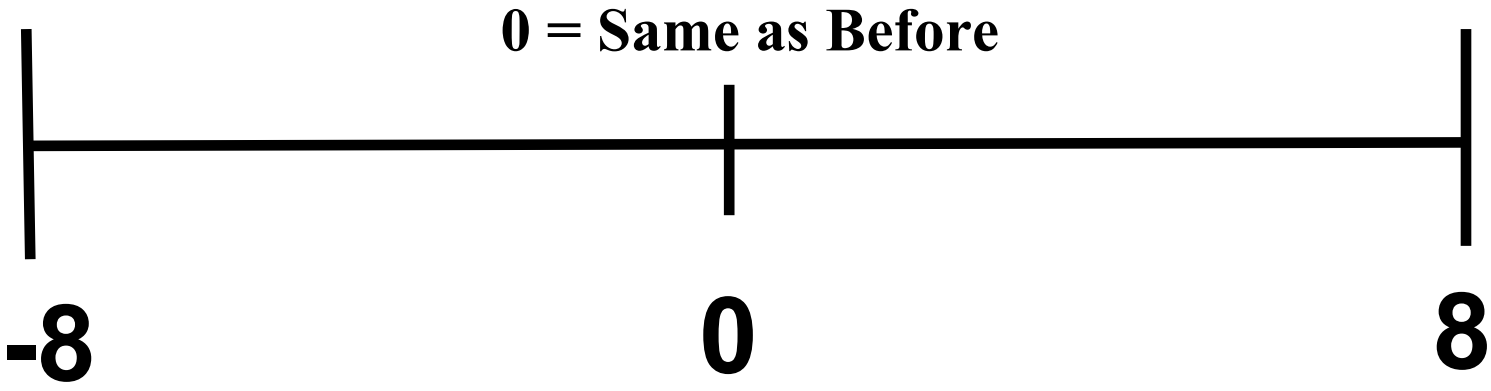
  - **Policies and Plans**
    - Drivers _____
    - Barriers _____
  - **Resources**
    - Staffing _____
    - Budget _____
  - **Information**
    - Availability _____
    - Quality _____
    - Timeliness _____
  - **Adaptation**
    - Proactive activities _____
  - **Other issues?**
    - _____

  - **TOTAL SCORE: _____ (Maximum possible score is 8, at this time)**

- Note: Receiving the maximum possible score does not mean that your institution is “drought-proof” or that it should no longer work on drought planning and preparedness. A maximum score means that your institution is improving its drought planning and preparedness when compared to past situations.

?-Point Scale [Potential Score of Drought Preparedness]

- 8 = Worse than Before



8 = Better than Before

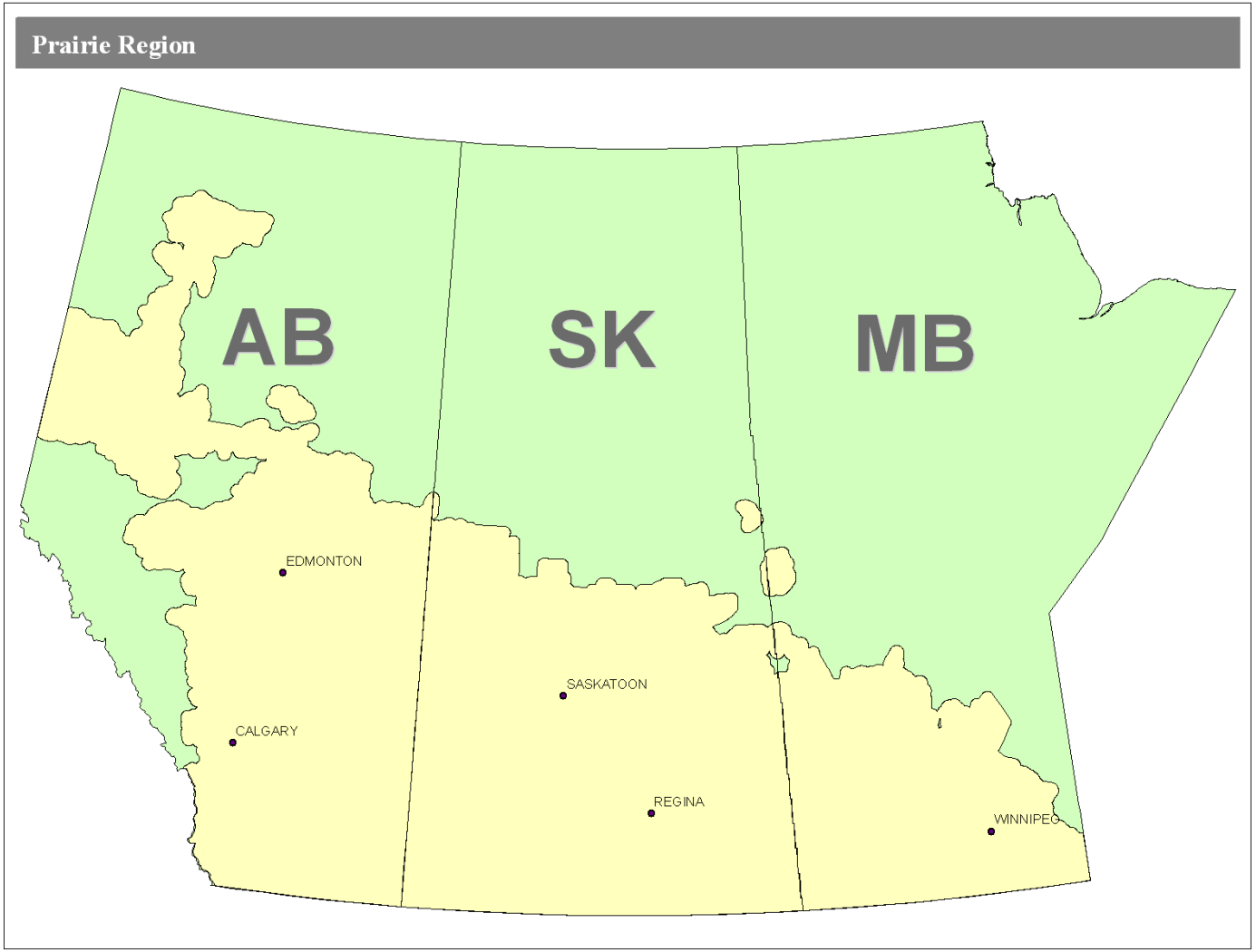
Why is there a Score?

- It is a baseline measurement of drought preparedness.
  - Comparing scores may indicate an province's relative drought preparedness of equivalent intensity now and in the future.

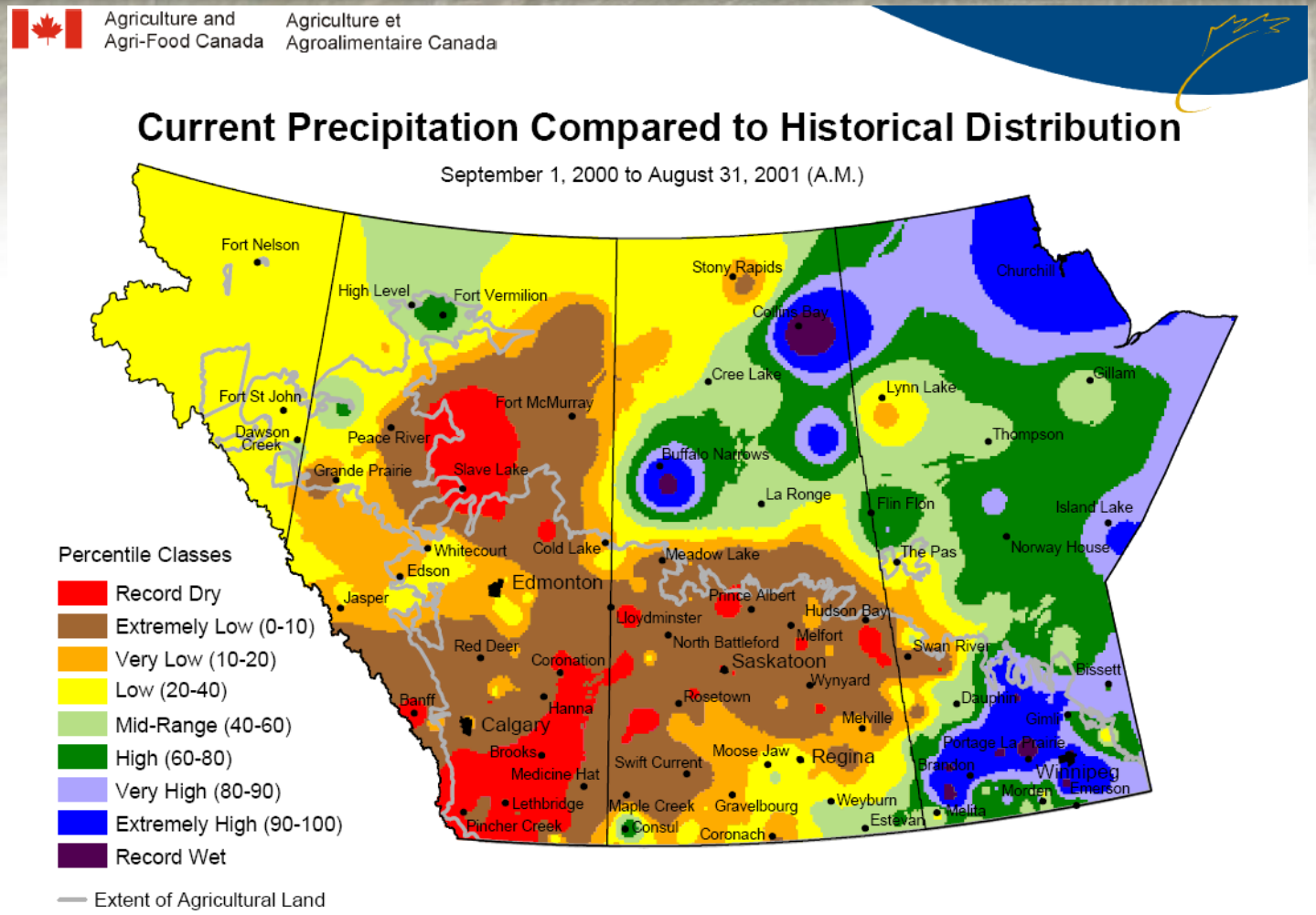
- Helps determine where to allocate resources.
  - Potential proactive investments that could have the highest value in the short term,
  - Likely longer term investments,
  - Possible areas needing provincial adjustments, and
  - Areas that require further research or technical transfer.

Unfolding Situation-Decisions and Responses

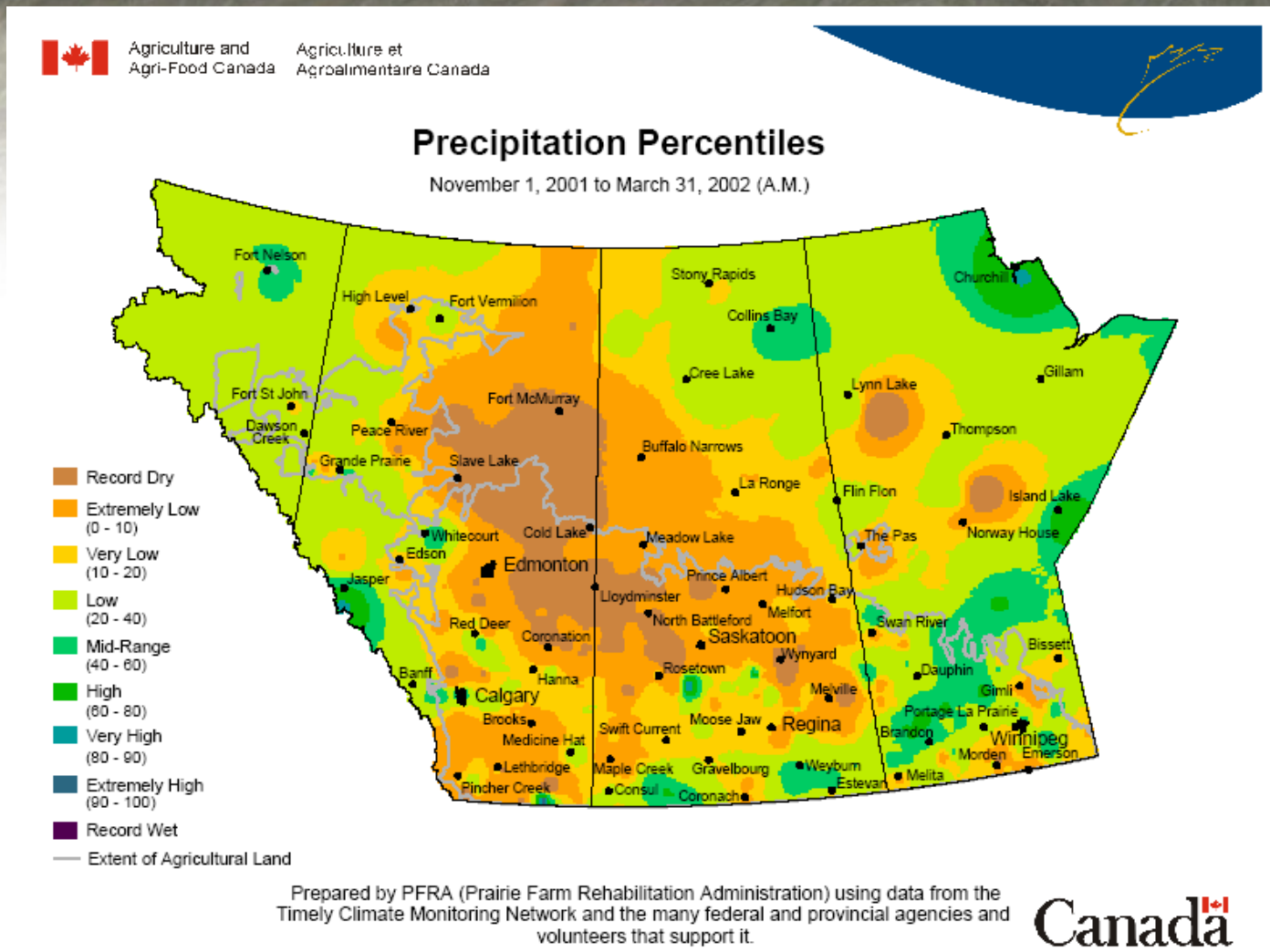
Location


Prairie Region
AB
SK
MB
EDMONTON
CALGARY
SASKATOON
REGINA
WINNIPEG

Agricultural Year 2000-2001



Winter Precipitation 2001-02



Prepared by PFRA (Prairie Farm Rehabilitation Administration) using data from the Timely Climate Monitoring Network and the many federal and provincial agencies and volunteers that support it.

Canada

Report from Western Producer October 11, 2001

- Southern Alberta has been hit by the worst drought in a century. It has forced cows out of pastures early and sent lighter-than-normal calves to market.
- Feed and water don't exist in the area. There will be no swath grazing over the winter because dryland cereal crops were so sparse there was nothing worth harvesting.
- There is no stockpiled forage.
- John Popp of Manitoba Agriculture said many of the cows were moved into southwestern Manitoba.
- Alberta farmers have until Oct. 31 to apply for two farm income assistance programs.

What actions are you taking at this point?

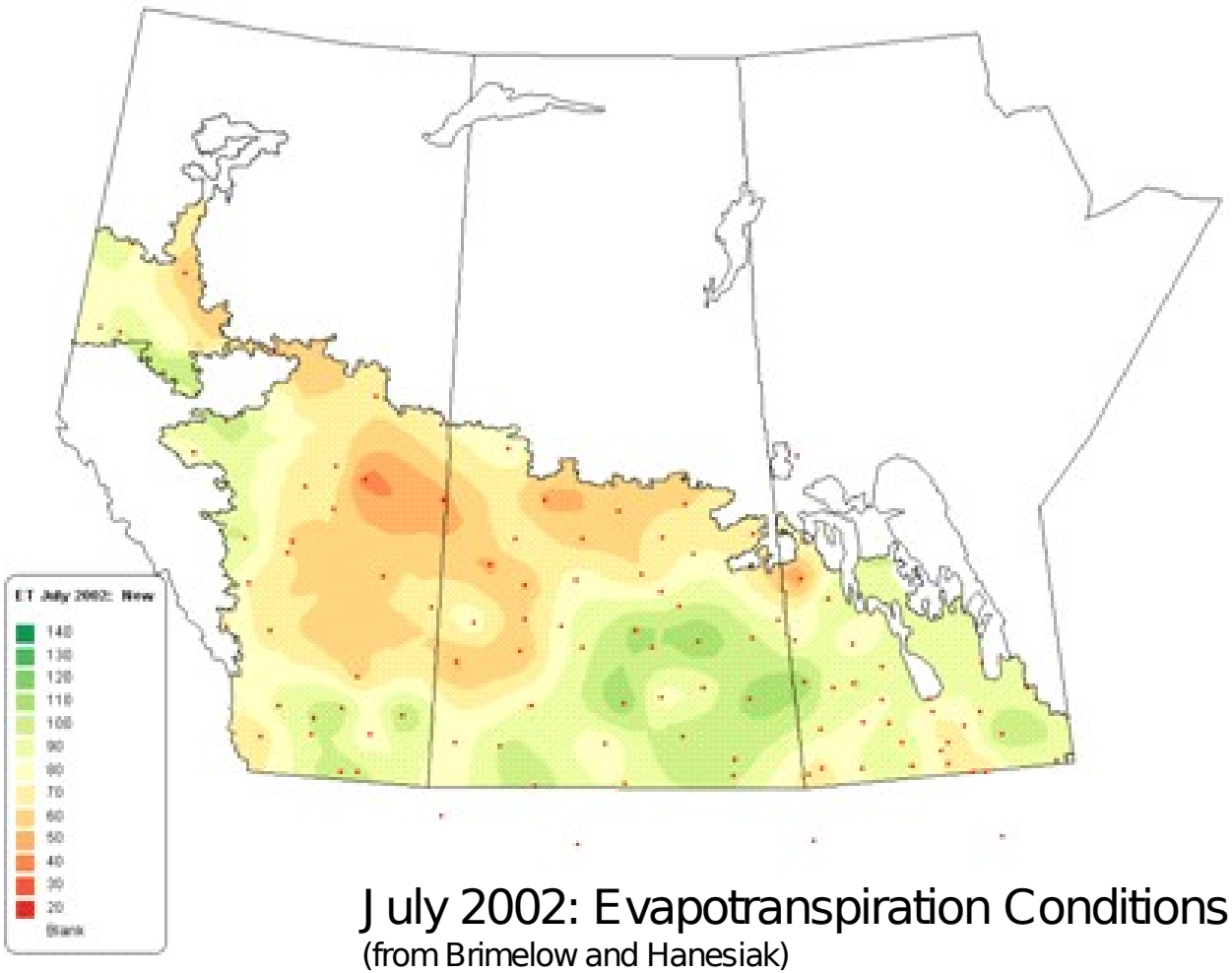
1. Policies and Plans
    1. Drivers
    2. Barriers
2. Resources
    1. Staffing
    2. Budget
3. Information
    1. Availability
    2. Quality
    3. Timeliness
4. Adaptation
    1. Proactive activities

What if you have more information?

1. What could you do with more or different information ?

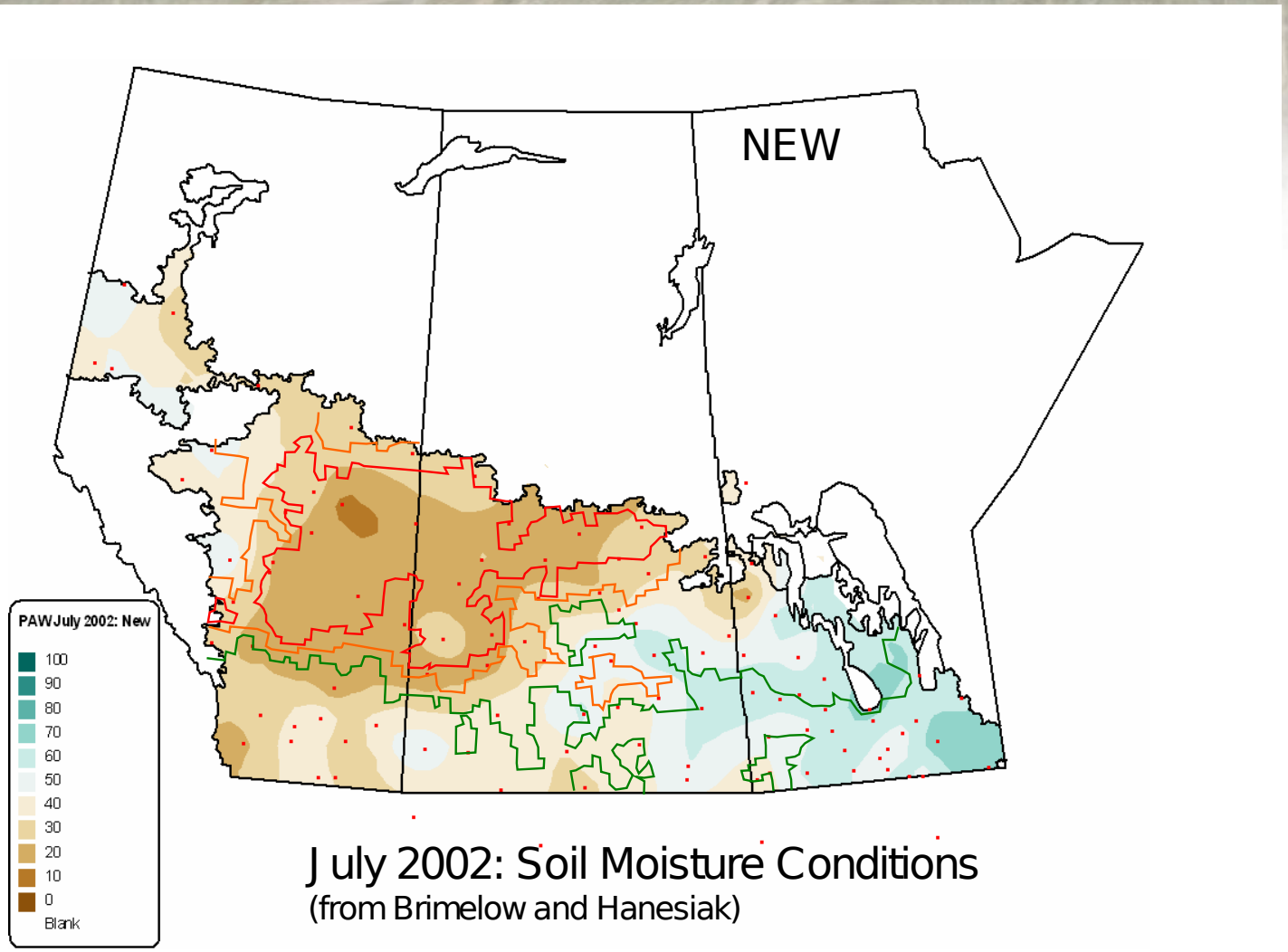
2. How would your decisions potentially change?

Actual Evapotranspiration Conditions



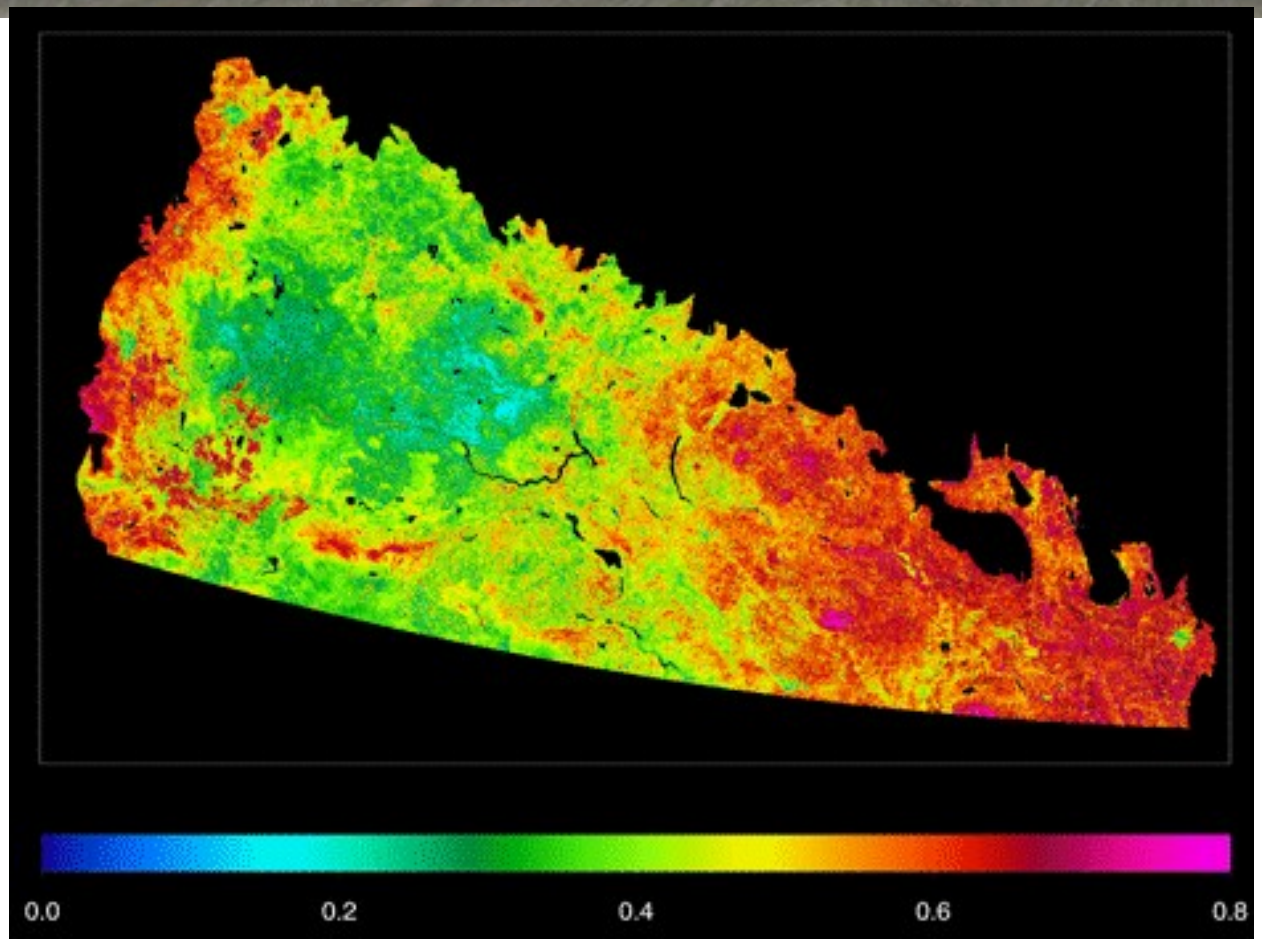
July 2002: Evapotranspiration Conditions
(from Brimelow and Hanesiak)

Plant Available Water



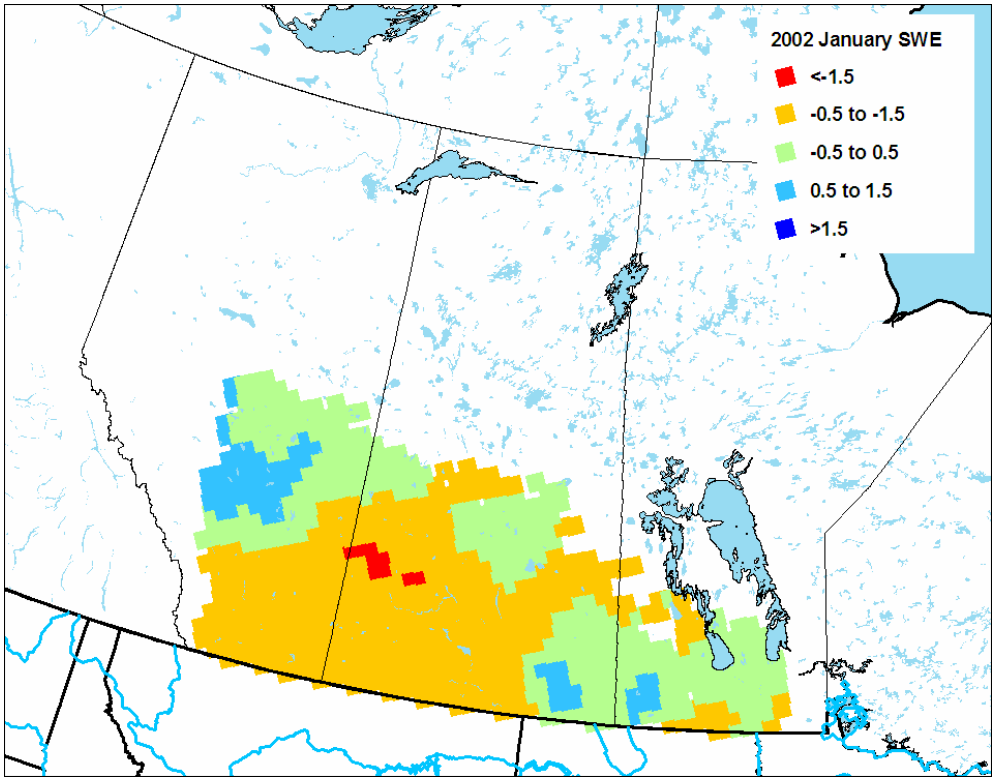
July 2002: Soil Moisture Conditions
(from Brimelow and Hanesiak)

NDVI



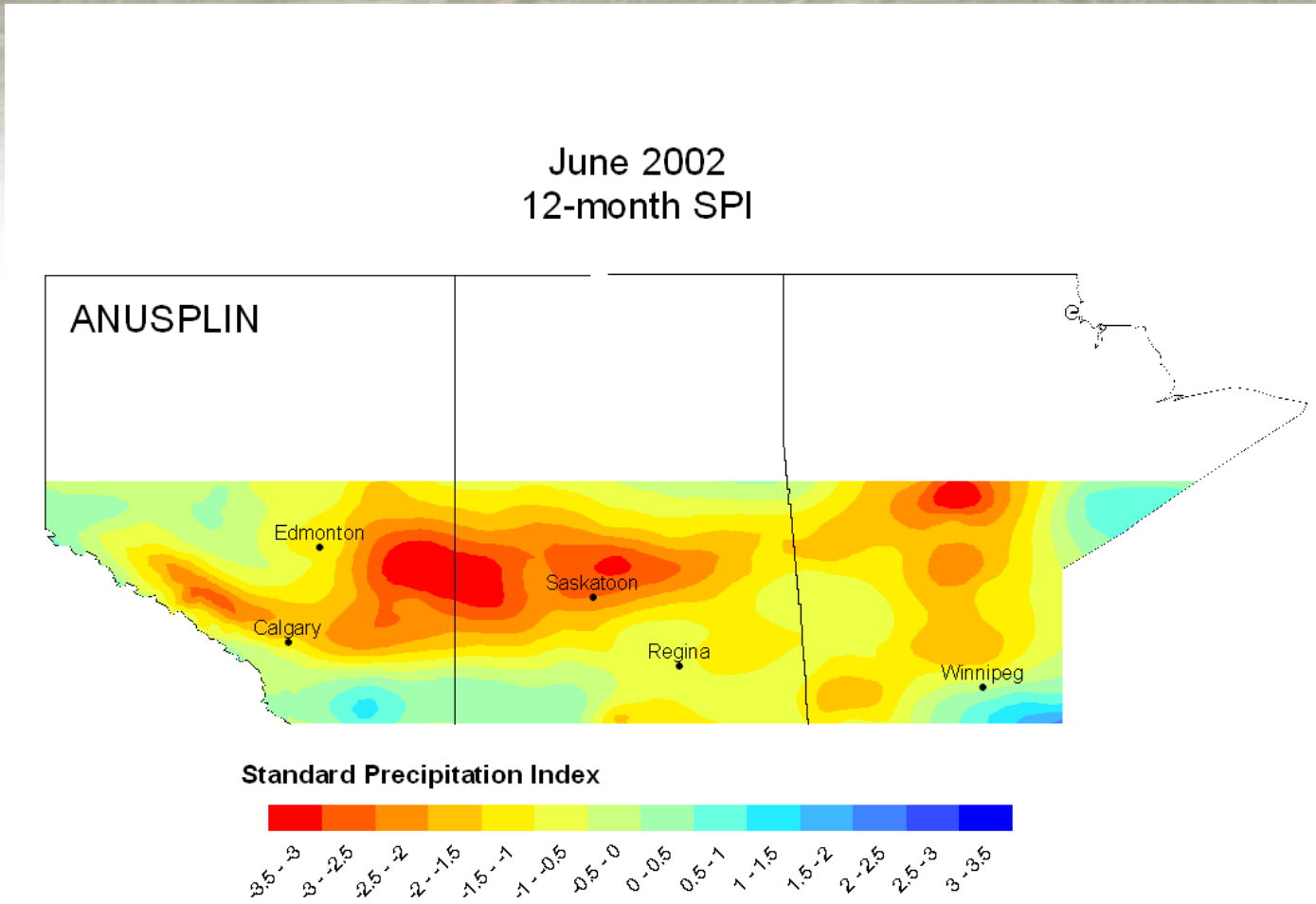
NDVI (Vegetation) Map for 2002 (Date?)
(from Wang, CCRS)

Distribution of Snow Water Equivalent

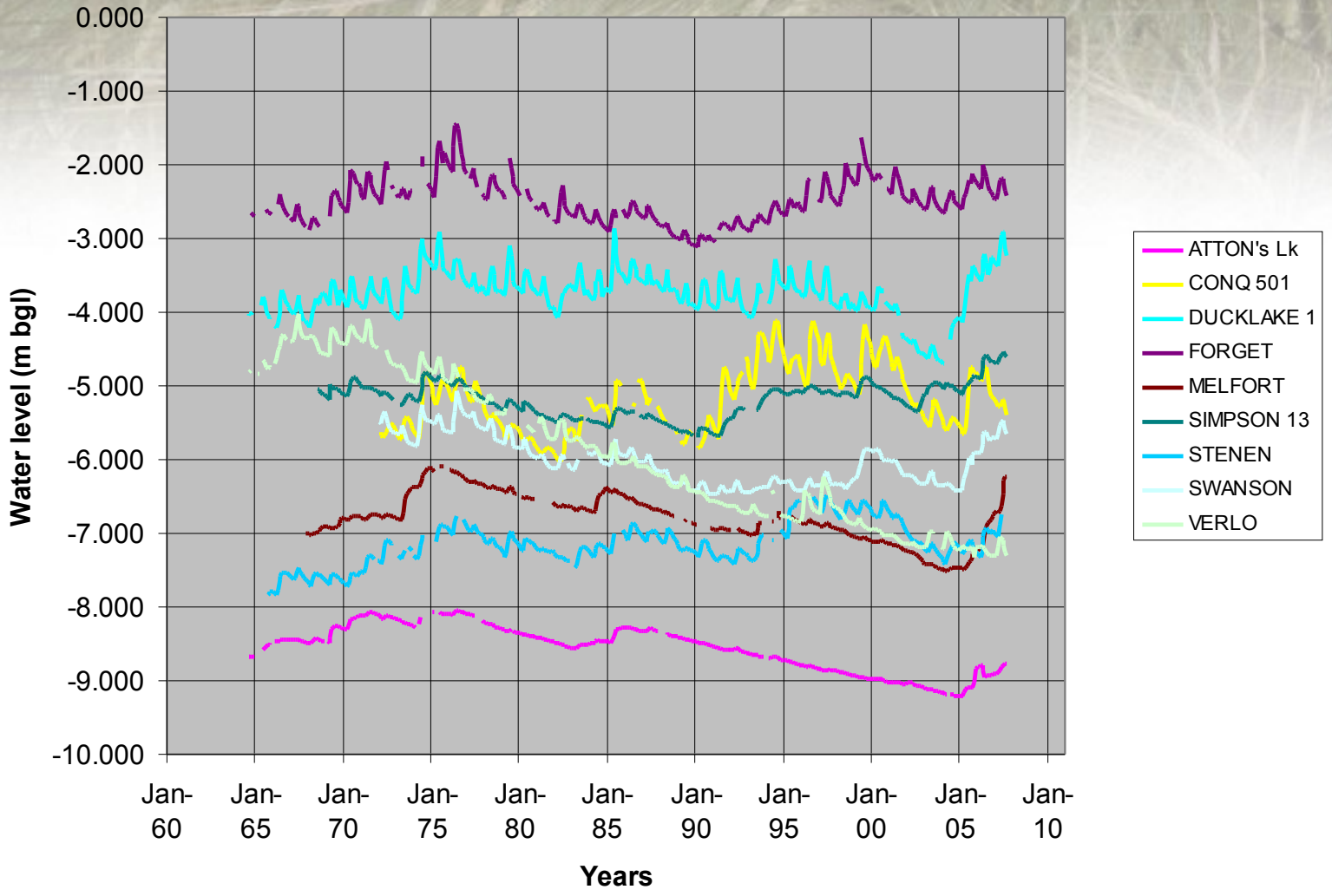


January 2002: Distribution of Snow Water Equivalent
(from Derksen)

Standard Precipitation Index

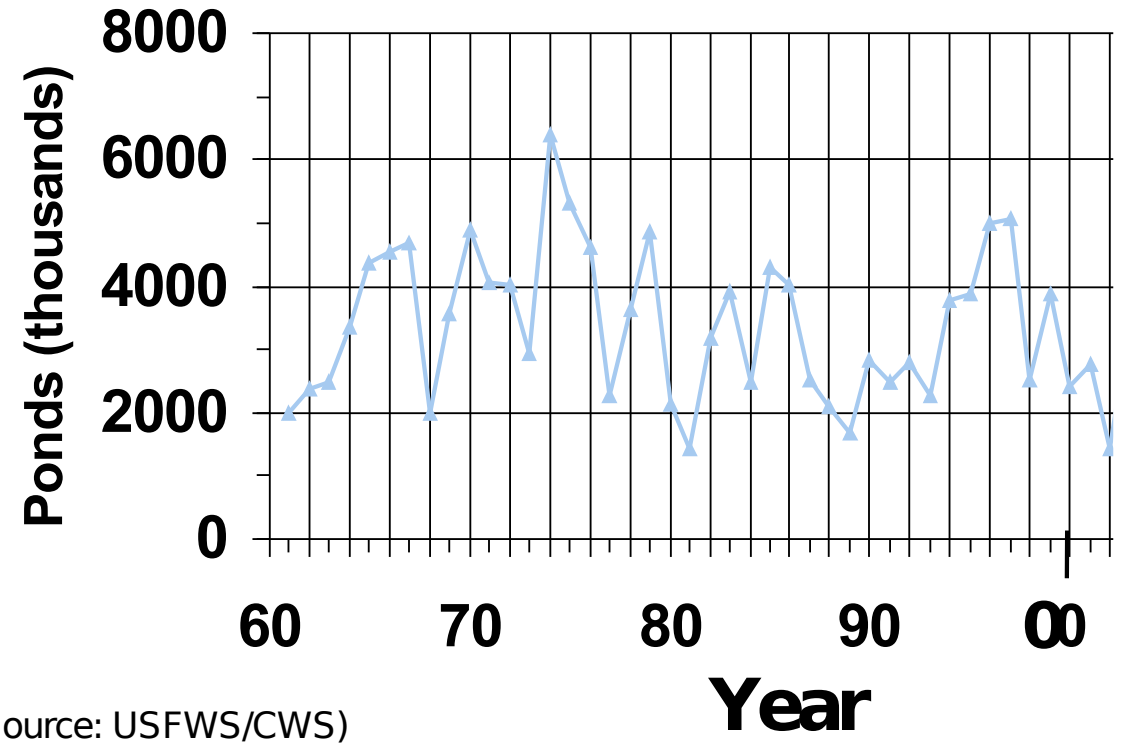


Shallow observation wells in SK – water level records 1964-2007: water table depths below ground level (m)



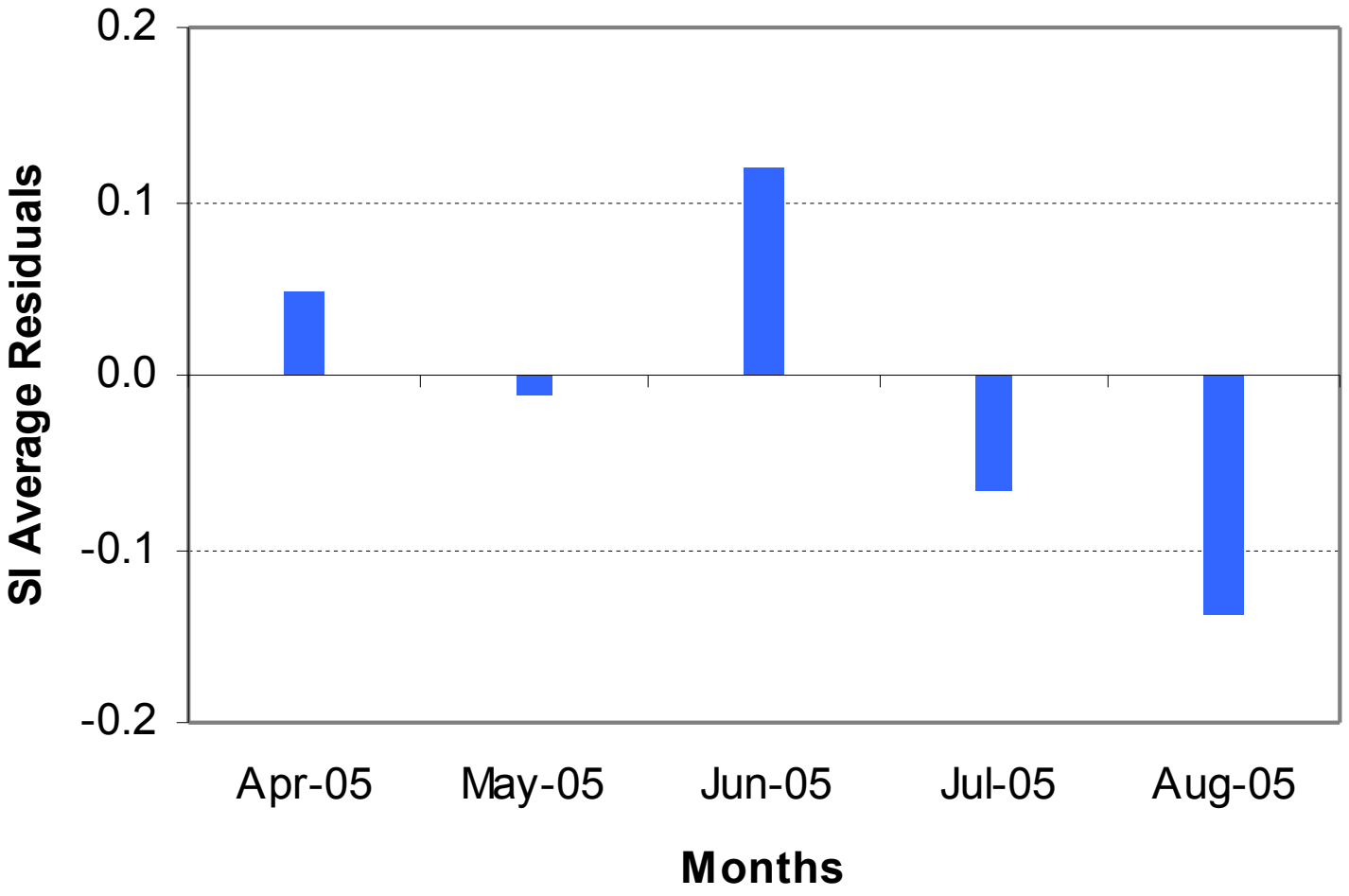
Number of wetland ponds in the Canadian prairie region

Number of wetland ponds in the Canadian prairie region - spring pond counts 1961-2008 (thousands)



(Source: USFWS/CWS)

Stress Index Chart



Highlights from the First Pilot Exercise

- A diverse group of PFRA&E participants were engaged in the pilot:
  - AB Regional Services - Lands
  - Ag-Water – Water Planning and Sourcing
  - Ag-Water – AAFC Operated Projects
  - National Agroclimate Information Service (NAIS)
  - Land Use Decision Support (LUDS)
  - MB Regional Services – Water
  - Range and Biodiversity
  - Research Branch
  - SK Regional Services - Lands
  - SK Regional Services – Water
  - Strategic Alignment

Highlights from the First Pilot Exercise

- There was also engagement from groups outside of PFRA&E.
  - Drought Research Initiative (DRI)
  - National Service Office – Agriculture, Environment Canada (NSO-Ag)
  - Prairie Adaptation and Research Collaborative (PARC)
  - Saskatchewan Watershed Authority (SWA)

- There is interest in the process and illustrates the value in having a systems approach.
  - This process integrates the needs and knowledge from different groups into drought planning.
  - The exercise enabled greater communication of available information and projects within PFRA&E, thereby promoting information awareness and knowledge transfer.

- Individuals had the opportunity to provide feedback about the gaps and vulnerabilities in PFRA&E's institutional drought planning and response.

Questions?