

Drought Plan Development During a Drought:

Lessons Quickly Learned



Quick Background

2012 – Drought in Iowa: interagency coordination in response to conditions

2018 – 2019 Very wet years in Iowa

2020: DRY

2021: DRY

2022: DRY

2023: DRY



Recent Years

2 years

2018-2019: 86.71" wettest 24 month period ever

2020: 29.28" 34th driest (bottom third)

2021: 30.84" 50th driest (middle)

2022: 27.33" 20th driest (bottom third)

2023: 26.82" 19th driest

2021–2023: 84.98" 11th driest 36-month period ever

3 years

Meanwhile . . .

Fall 2021 meeting at the State Emergency Operations Center

Discussed water supply
Ongoing drought concerns
Multi-agency



During that meeting . . . “should Iowa have a drought plan?”

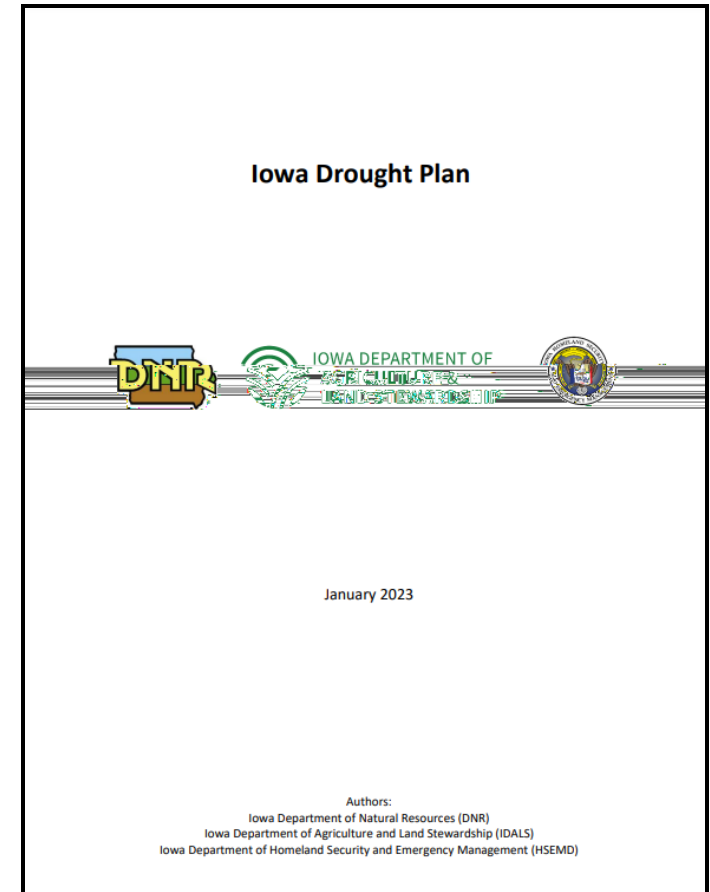
Iowa Homeland Security and Emergency Management (HSEMD)

Iowa Department of Agriculture and Land Stewardship (IDALS) – State Climatologist

Iowa Department of Natural Resources (DNR)

As a result – Iowa Drought Plan was written

- Started in October 2021
- Completed and endorsed in January 2023

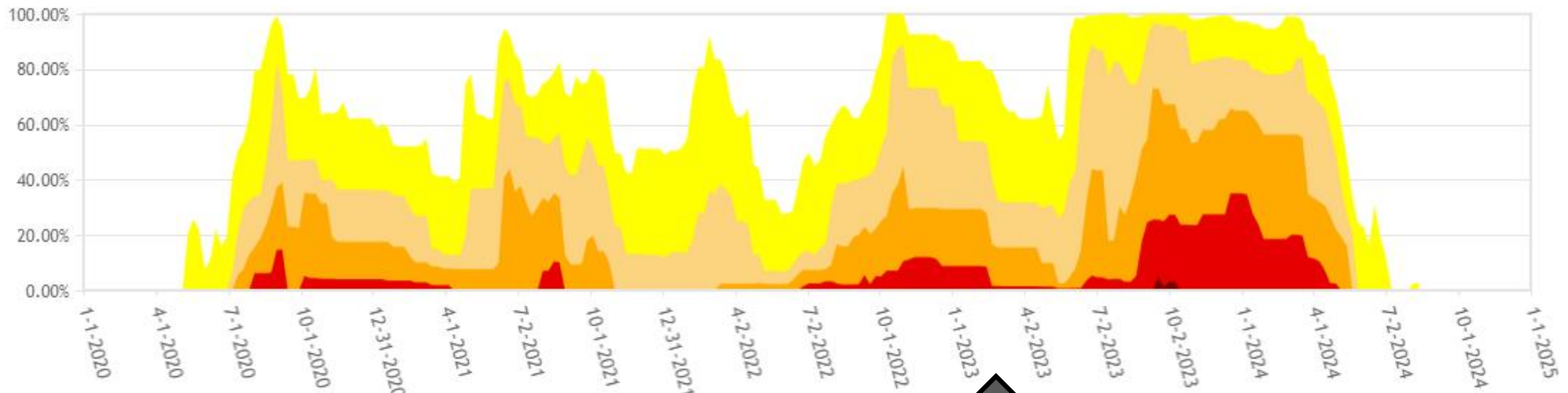


The idea was this . . .

**Let's start using the plan in 2023
– which surely cannot be another
drought year . . .**

Instead:

Iowa Percent Area in U.S. Drought Monitor Categories



From the U.S. Drought Monitor website, <https://droughtmonitor.unl.edu/DmData/TimeSeries.aspx>, 8-15-2024



Implementation of the State of Iowa's first ever drought plan during what proved to be a very difficult drought period.



For example: West Lake – sole water supply for the City of Osceola – reached 290 day supply in fall 2023

So . . . what did we learn?

Lesson #1:

Better late than never.



Lesson #2:

We have a good plan, but areas needing improvement showed up quickly.

Lesson #3:

Having a data-driven plan and data-driven drought criteria is important in communication during a drought.

| OVERALL RATING | SSI-30 | SSI-365 | | | |
|----------------|---------|---------|---|---|----------------------------------|
| 1 ↑ | +0.62 ↓ | -0.60 ↓ | 77% No Designation 25% D0 for 4 weeks | Mar: <u>2.34</u> 143% 90 Day: <u>3.75</u> 102% | 3 months: +0.7 6 months: +1.0 |
| 2 ↑ | -1.18 ↓ | -1.11 ↓ | Full D0 for 4 weeks 60% D1 for 4 weeks 20% D2 for 4 weeks <5% D3 for 4 weeks | Mar: <u>3.01</u> 154% 90 Day: <u>4.48</u> 116% | 3 months: +0.6 6 months: +0.5 |
| 3 ↑ | -2.14 ↓ | -0.84 ↓ | 97% D0 for 4 weeks 82% D1 for 4 weeks 75% D2 for 4 weeks 40% D3 for 4 weeks | Mar: <u>2.28</u> 105% 90 Day: <u>4.62</u> 100% | 3 months: +0.4 6 months: +0.2 |
| 4 ↑ | -1.34 ↓ | -1.52 ↓ | Full D0 4 weeks 88% D1 for 4 weeks <5% D2 for 4 weeks | Mar: 2.47 127% 90 Day: <u>4.17</u> 105% | 3 months: +0.1 6 months: -0.3 |
| 5 ↑ | -1.91 ↓ | -1.64 ↓ | 95% D0 4 weeks 84% D1 4 weeks 50% D2 4 weeks 6% D3 for 4 weeks | Mar: <u>2.43</u> 111% 90 Day: 5.17 109% | 3 months: +0.6 6 months: +0.2 |

| | Streamflow - SSI | USDM | Precipitation | SPI |
|-----------|--|---|--|--|
| Normal | USGS rated as normal flow, or SSI above noted levels. | No designation, or D0 for three weeks or less | Greater than 75% of normal for three to six months | SPI: > -0.9 |
| Watch | SSI-30 or SSI-365 for region between <-1<-1.5 | D0 (Four weeks) D1 (one week) | ≤ 70% of normal (three months) | -1.0 to -1.4 (three months) |
| Warning | SSI-30: <-1.5<-2 SSI-365: <-1.5 | D2 (Four weeks) | >51% to 60% of normal (six months) | -1.5 to -1.9 (three months) |
| Emergency | SSI for individual river <-2 SSI-365 <-2: Expect drought duration of year or more | D3-D4 (one week) D2 (eight weeks) | ≤ 50% of normal (six months) ≤ 25-50% of (three months) | ≤-1.6 (six months) ≤-2.0 (three months) |

Lesson #4:

**Drought may be slow to develop,
but people sometimes want
answers really really quickly.**

Lesson #5:

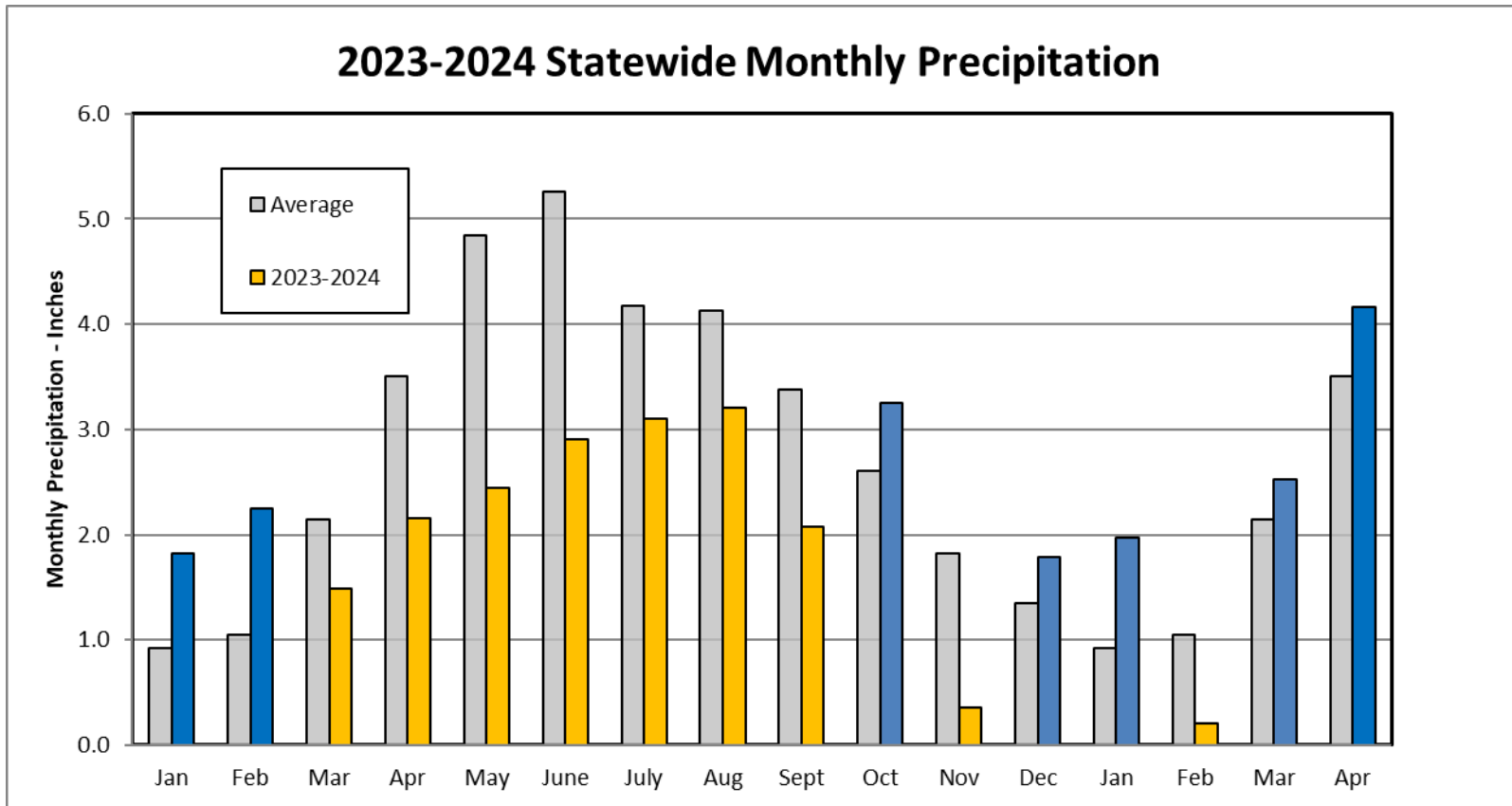
The Iowa Drought Plan was very useful in determining when the state exited drought.



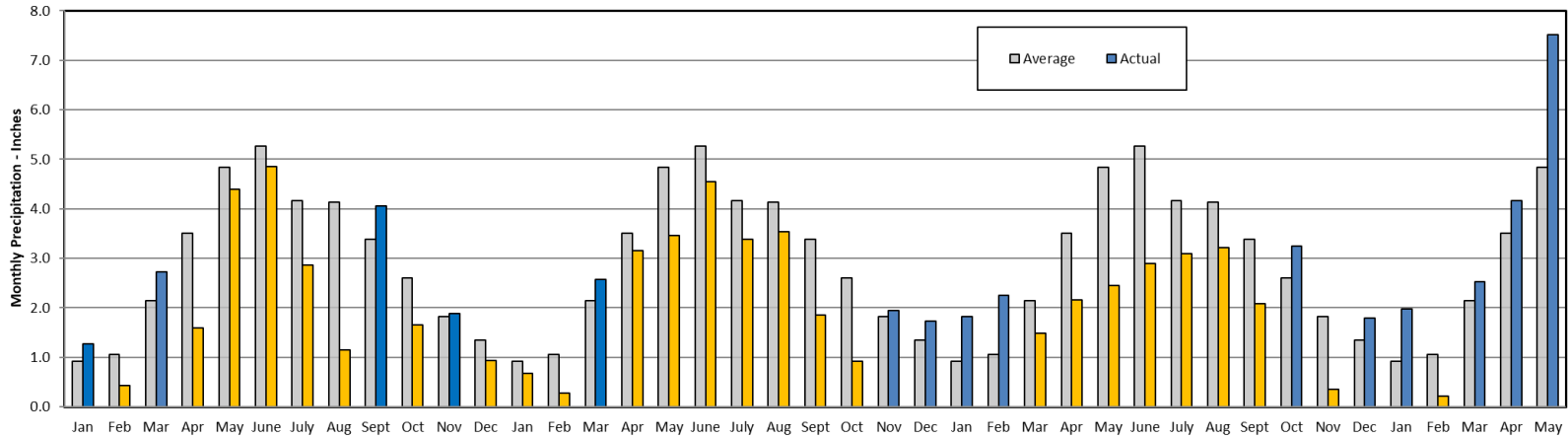
Lesson #6:

Effective and consistent communication of drought conditions was aided by our drought plan – especially across state agencies.

Simple graphics to illustrate complex concepts:



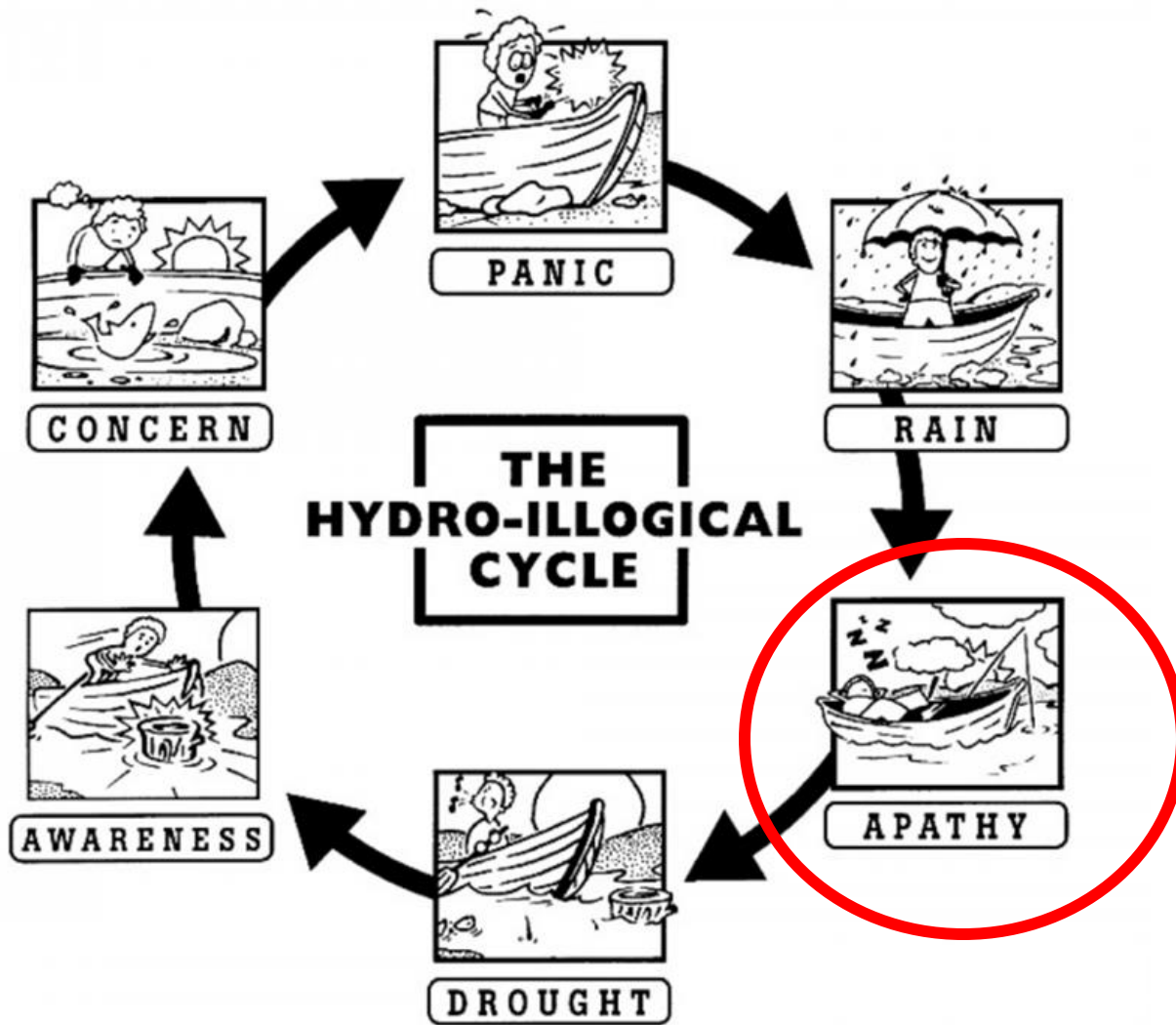
2021-2024 Statewide Monthly Precipitation



Lesson #7:

Apathy is very quick!





During the drought – what did you wish you had done?



Another drought will be here sometime – maybe sooner, maybe later . . .

Start working on your resiliency plans for that inevitable time . . .

Conclusion:

We are better off for having a drought plan.

We learned a great deal in its first time use.

We will get better as time goes by.

Partners are essential – state, federal, others.

Questions Comments Ideas



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**IOWA DEPARTMENT OF
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