

DROUGHT PLANNING UNDER UNCERTAINTY

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Water Resources Program

Washington AWRA Conference

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OVERVIEW

1. Declarations of a drought emergency
2. Challenges with drought planning
3. Decision making under uncertainty – evaluating risk
4. Mitigating risk

DECLARATION OF A DROUGHT EMERGENCY

RCW 43.83B.400: "Drought condition" means:

- The water supply for a geographical area or for a significant portion of a geographical area is below 75% of normal; and
- The water shortage is likely to create undue hardships for various water uses and users.

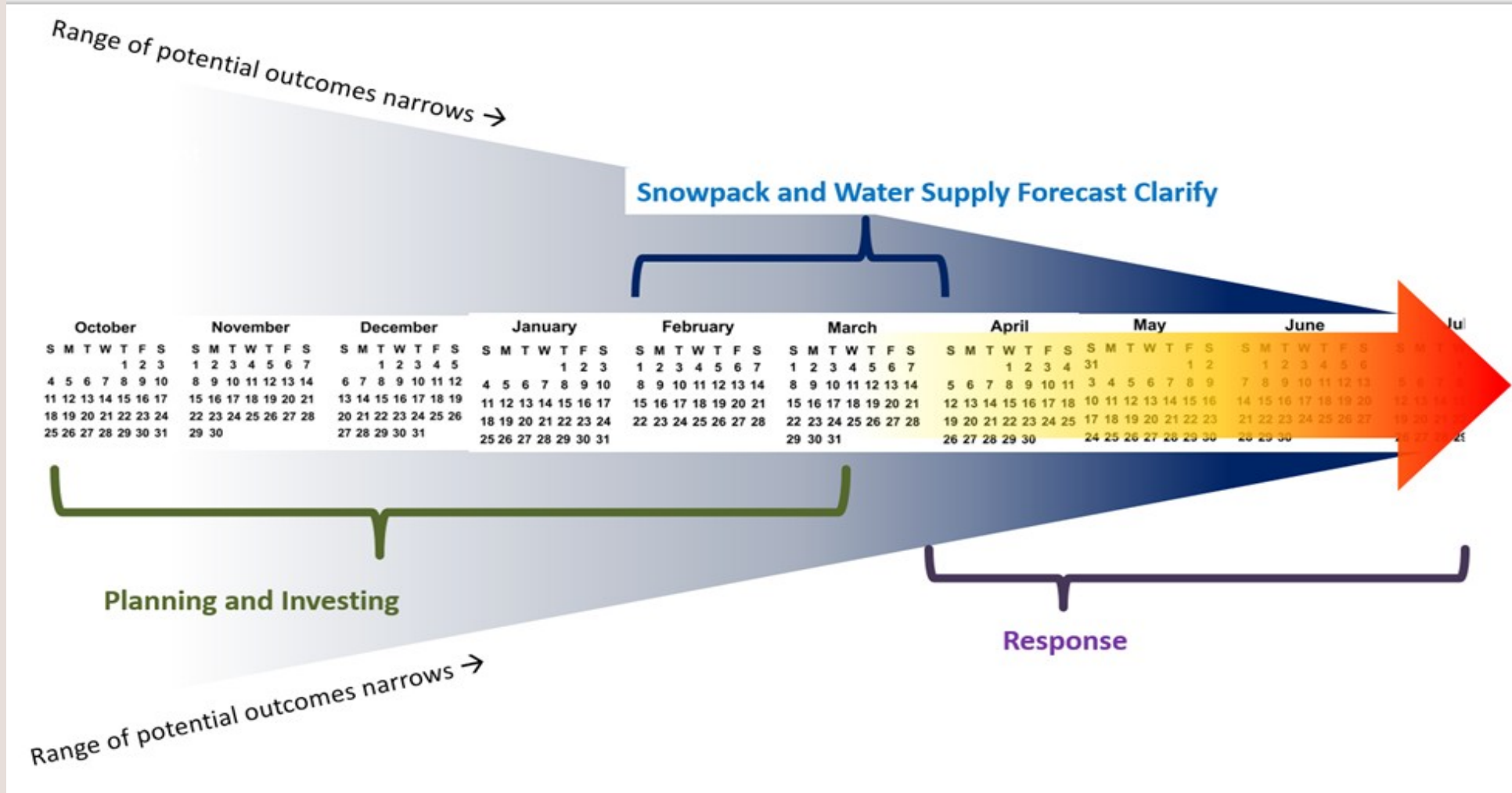
RCW 43.83B.405(1): "Whenever it appears to the department of ecology that a drought condition either exists or is forecast to occur within the state or portions thereof, the department of ecology is authorized to issue orders..."

EMERGENCY POWERS

1. Issue emergency withdrawal permits (temporary permits and temporary changes)
(RCW 43.83B.410)
2. Issue grants for emergency projects, contingent upon funding
(RCW 43.83B.415)



CHALLENGE WITH A TIMELY DROUGHT RESPONSE



RESPONSE TOOLS

- Change decision making – change crop type, fallow fields, retime water application
- Lease water rights
- Apply for grant funding



TRADEOFFS

Declare a drought emergency early

- Less certainty on supply forecasts
- Allows for more effective response

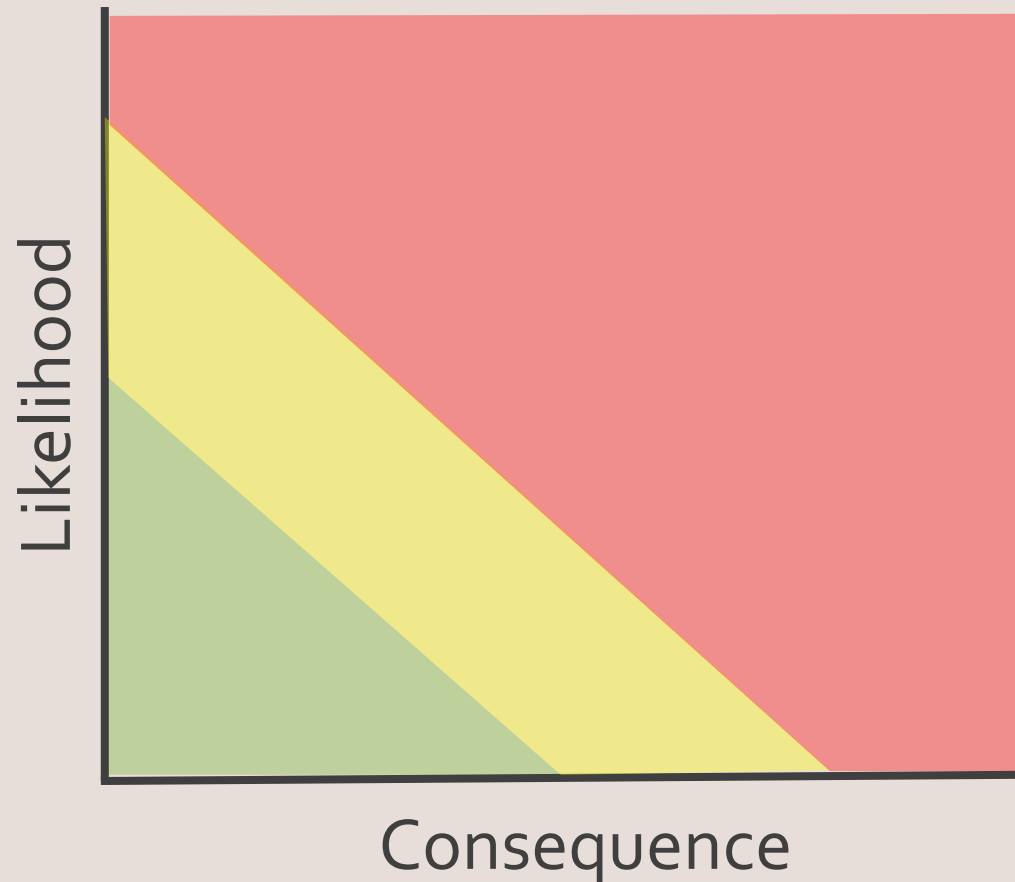
Wait on a declaration

- More certainty on supply forecasts
- Response may be less effective

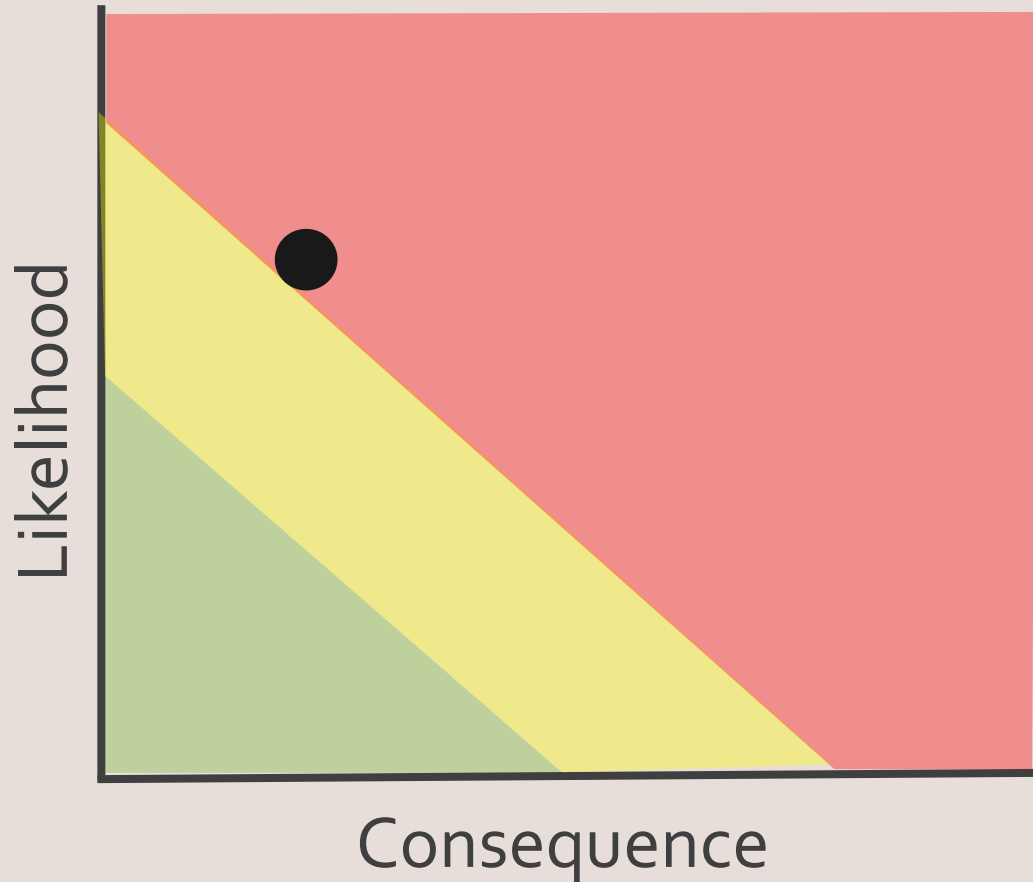
POSSIBLE SCENARIOS

	Early declaration	Late declaration	No declaration
Drought occurs	Good	Okay	Risky
No drought occurs	Bad	Bad	Good

DECISION MAKING UNDER UNCERTAINTY – EVALUATING RISK



RISKS OF AN EARLY DECLARATION



	Early declaration	Late declaration	No declaration
Drought occurs	Good	Okay	Risky
No drought occurs	Bad	Bad	Good

POTENTIAL CONSEQUENCE - CREDIBILITY

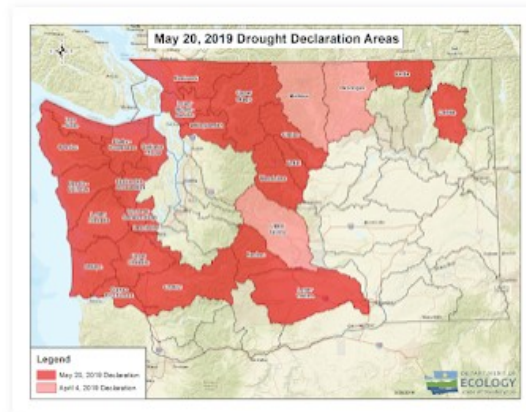
Cliff Mass Weather and Climate Blog

This blog discusses current weather, weather prediction, climate issues, and other topics

Thursday, May 23, 2019

Does Washington State Really Have a Drought Emergency?

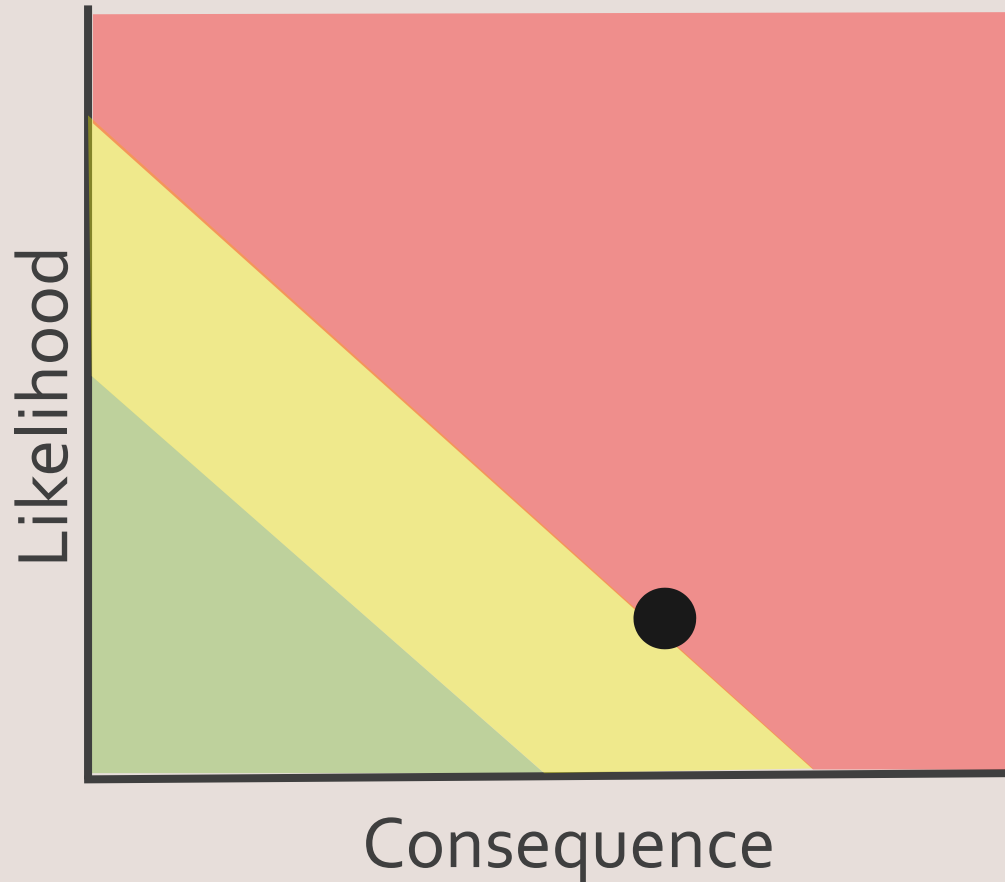
On May 20th, Governor Inslee [announced a drought](#) declaration for a large portion of the State.



The bottom line: the situation is far less dire or unusual than advertised. There will be plenty of water for nearly all users, and that the forecast is for wetter than normal summer.

If one cries Wolf too many times, one day folks may not listen.

RISKS OF A LATE DECLARATION



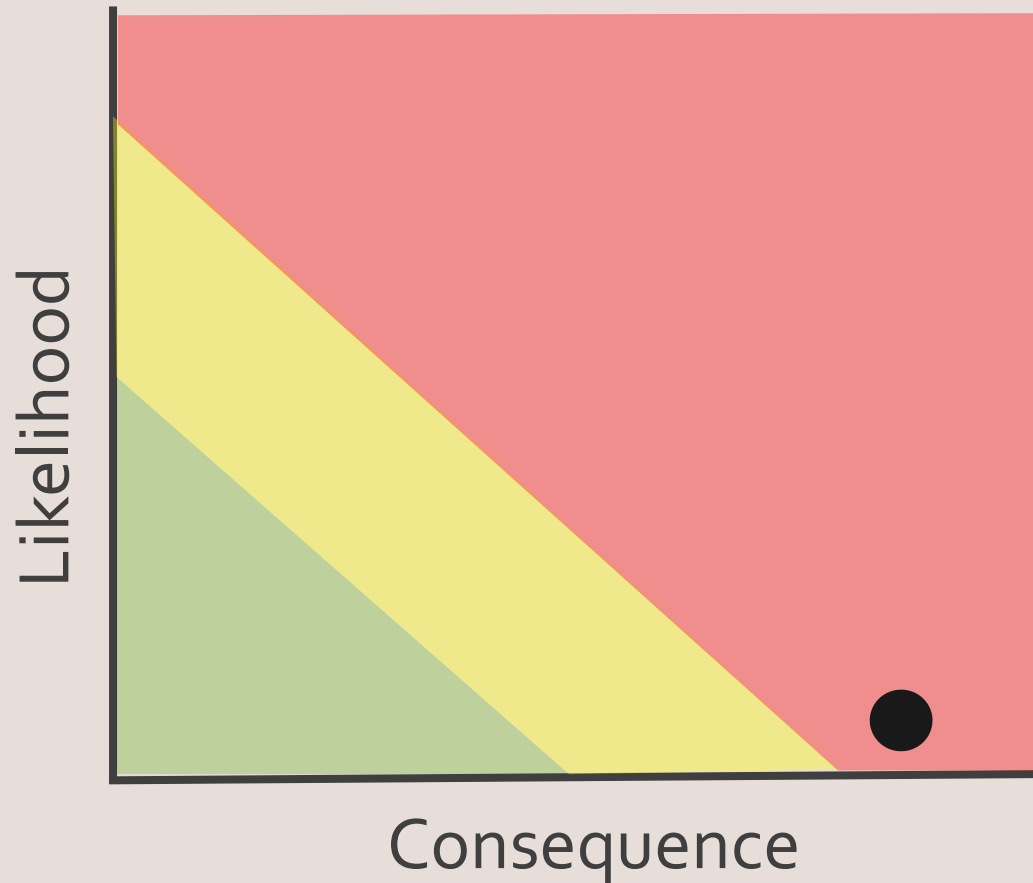
	Early declaration	Late declaration	No declaration
Drought occurs	Good	Okay	Risky
No drought occurs	Bad	Bad	Good

POTENTIAL CONSEQUENCE – LESS EFFECTIVE RESPONSE

Potential consequences of a “late” declaration:

- Irrigators are locked into planting decisions
- Less time to complete emergency projects
- Fewer water rights are available for lease; less time to negotiate agreements

RISKS OF NO DECLARATION

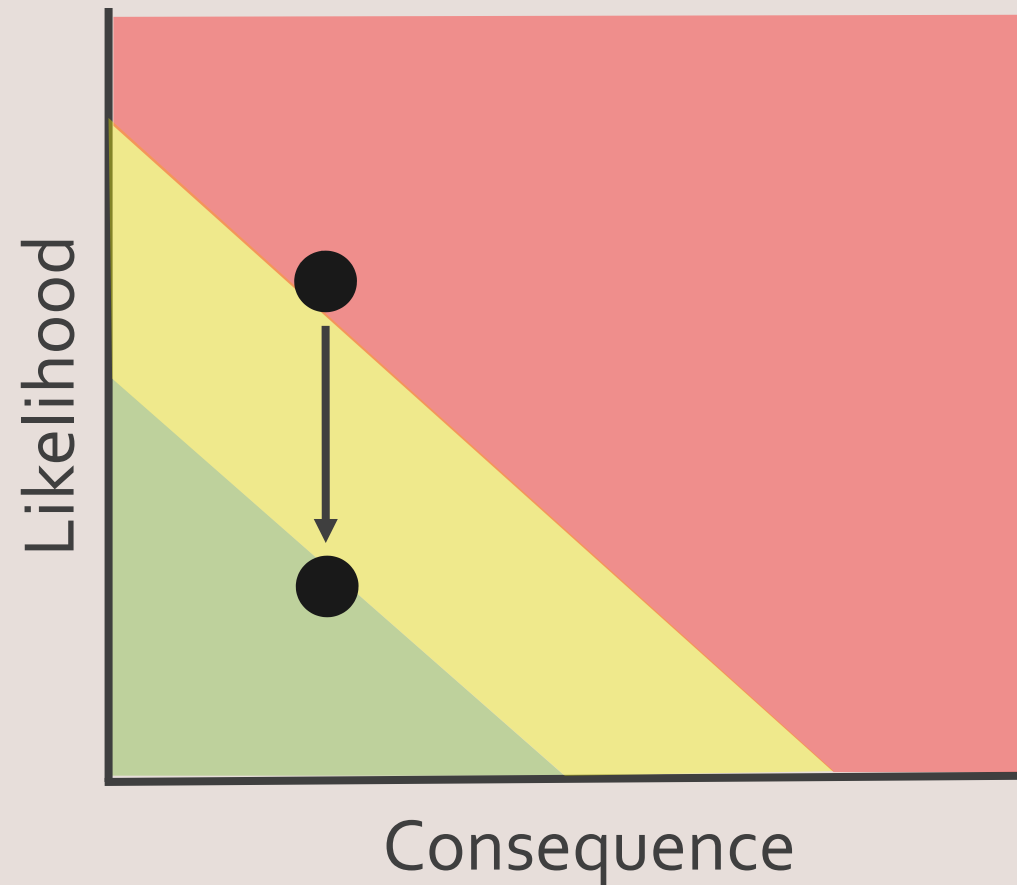


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WHAT CAN WE DO?

Mitigating Risk

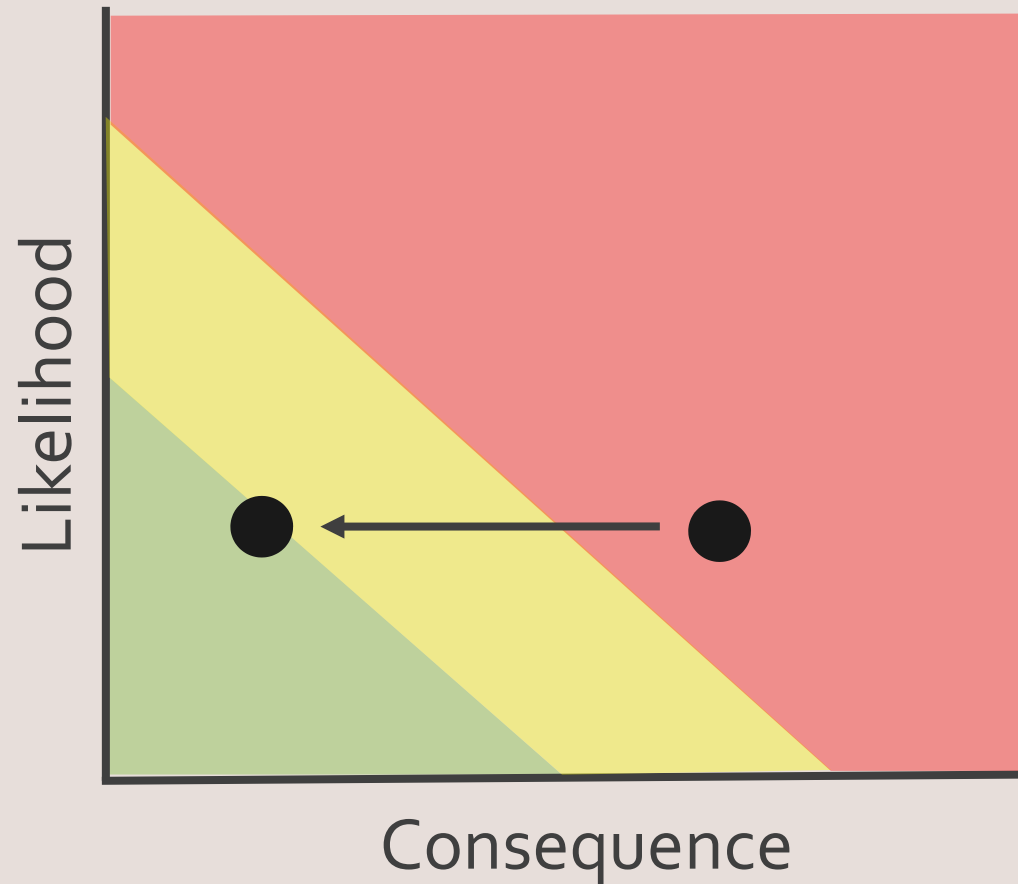
MITIGATING RISK – LOWER THE LIKELIHOOD



MITIGATING RISK – IMPROVE FORECASTING SKILLS

- Our skill in forecasting varies by prediction length, season, and measure (precipitation vs. temperature)
- Ecology drought plan: “It can be anticipated that new resources and tools will be forthcoming... Nevertheless, it bears emphasizing that there are **real limits** in the predictability of the weather on time scales greater than a few weeks and hence our ultimate ability to forecast changes in drought conditions. This critical point underscores the need for the state to place equal, if not greater, emphasis on preparedness.”

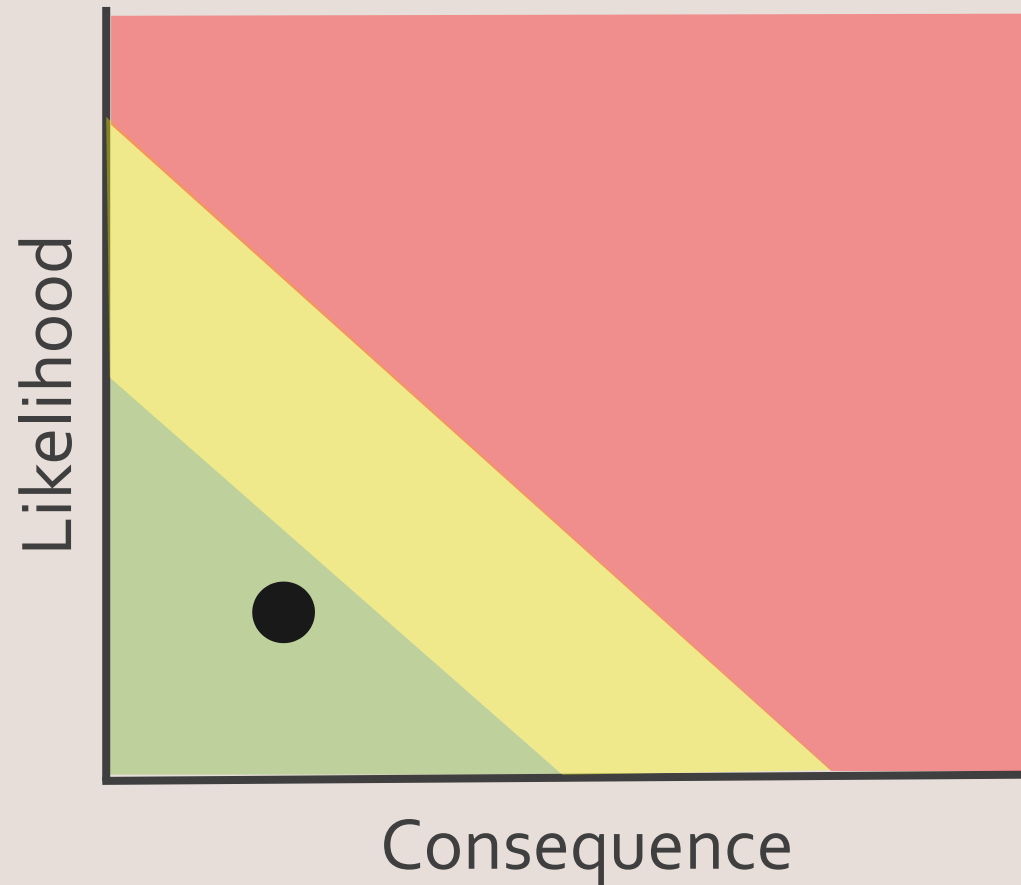
MITIGATING RISK – LOWER THE CONSEQUENCE



MITIGATING RISK – BUILD PREPAREDNESS AMONG WATER USERS

- Build preparedness and resiliency among water users
 - Fund resiliency projects ahead of drought emergencies
 - Support local drought contingency plans
 - Establish long-term water option leases
- Communicate impending drought conditions through an “advisory”
- Concepts are incorporated in HB 1622

MITIGATING RISK - OUTCOME





THANK YOU

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