

Developing a Definition of Health for the Great Salt Lake



Great Salt Lake Advisory Council
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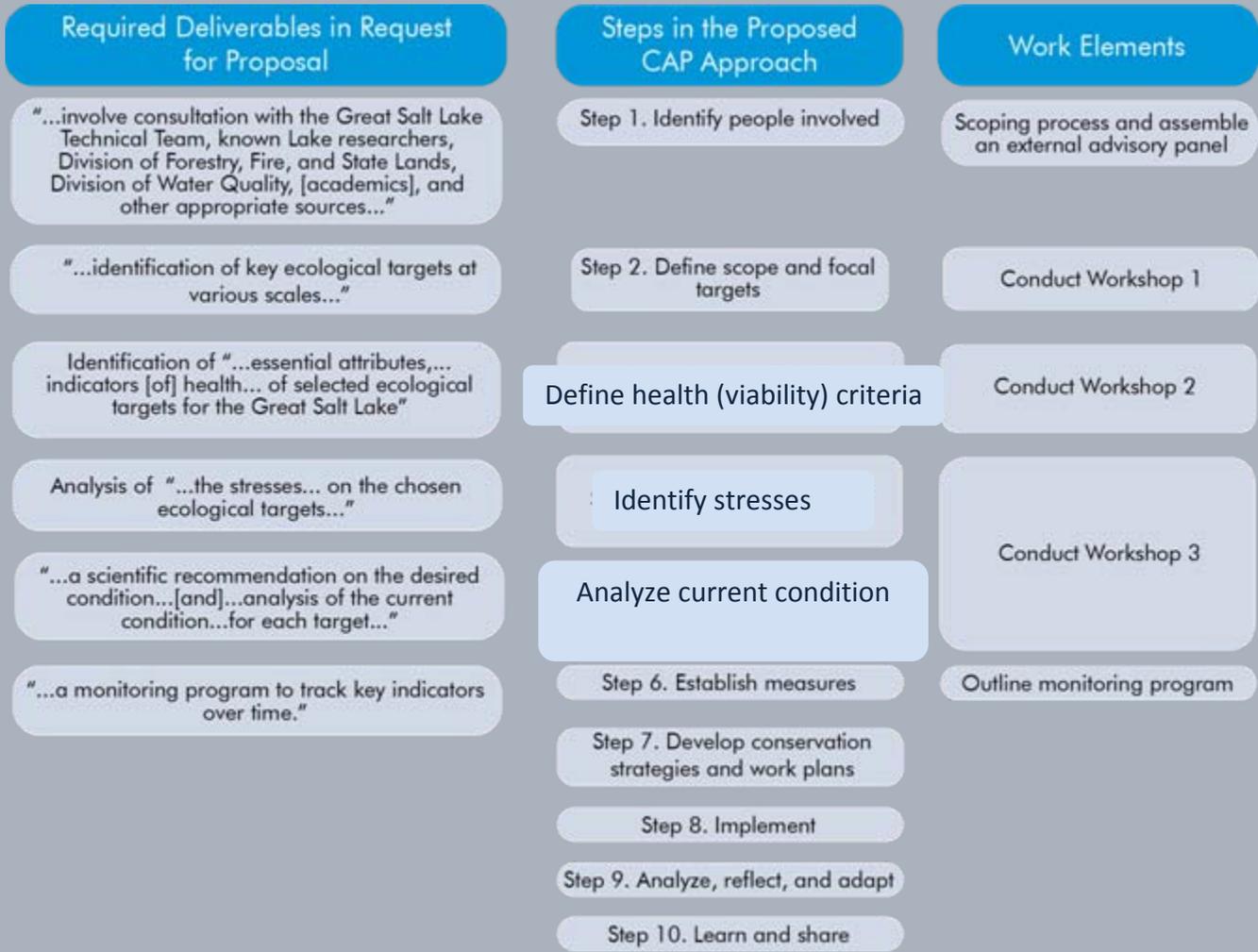
Presentation Overview

Conservation Action Planning Approach
Scientific Panel
Proposed Calendar

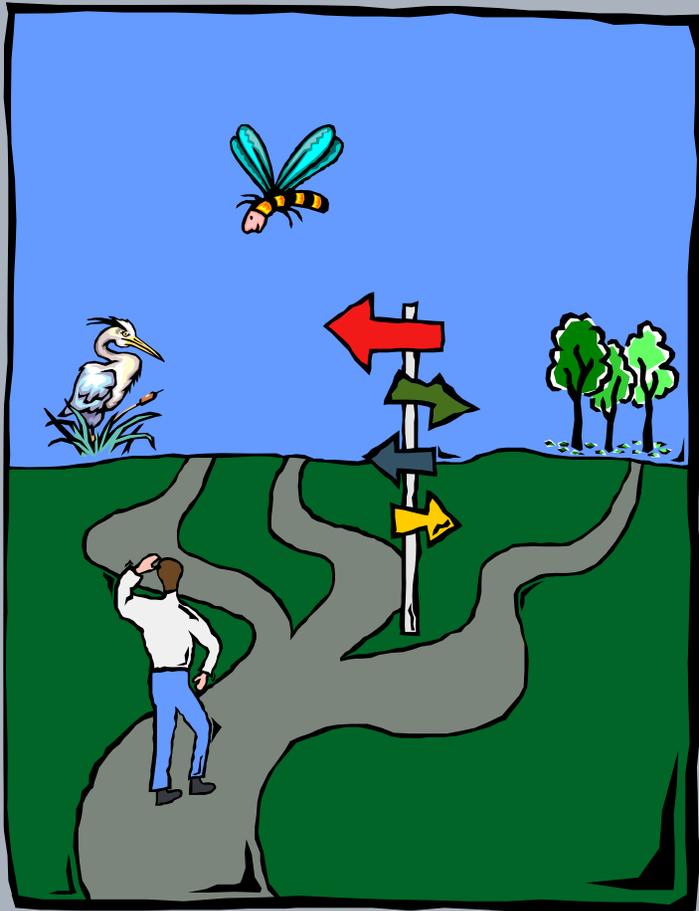
Conservation Action Planning Framework

- Approach for planning, implementing, and measuring success for large-scale conservation projects
- Developed by *The Nature Conservancy*
- Relies on facilitated workshops involving scientists
- Incorporates all of the components in the RFP
 - Ecological targets
 - Key ecological attributes
 - Measurable indicators
 - Current stresses
 - Current health
- Results in a tool that can be used to manage and assess the lake into the future

CAP as a tool define Health for the Great Salt Lake



Ecological Targets: You won't have the right measures unless you have the right targets!

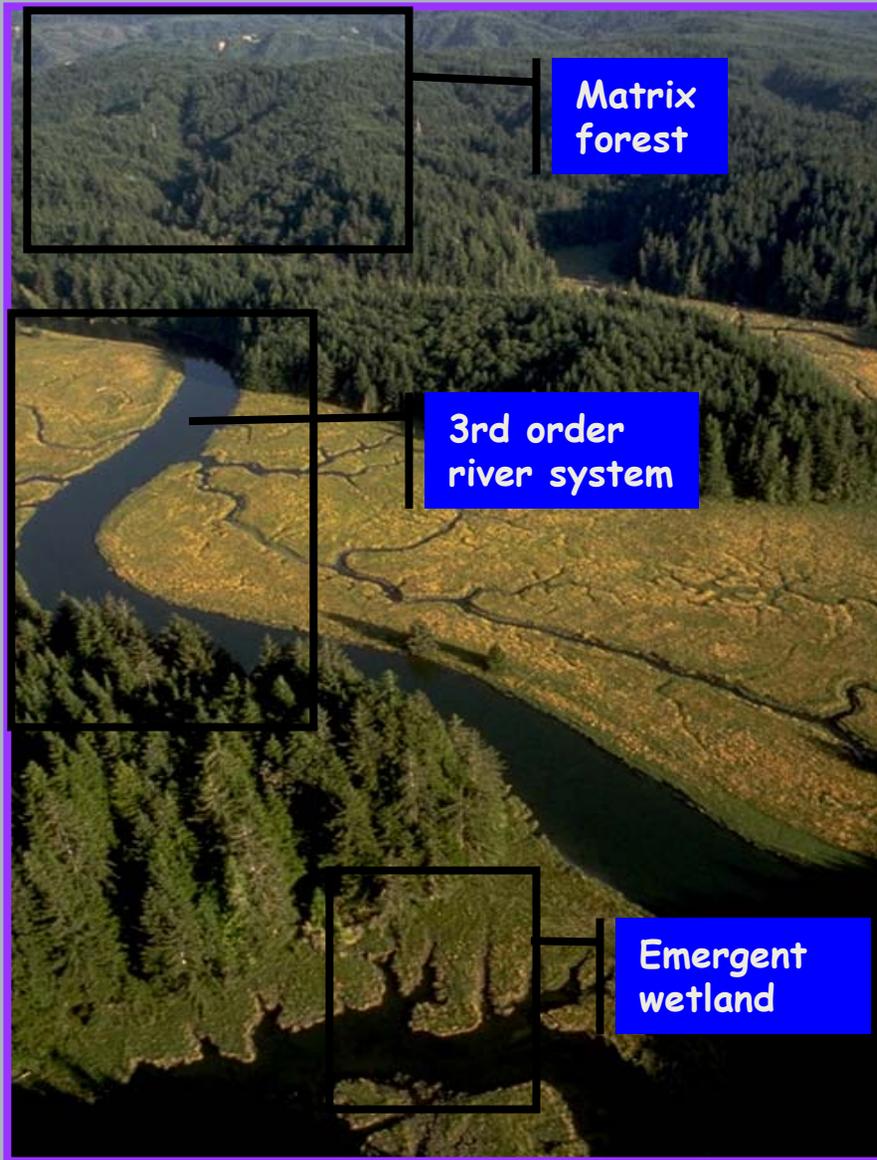


Ecological Systems

- ❖ Assemblages of communities that occur together on the landscape; linked by environmental processes
- ❖ Terrestrial, riparian & aquatic

Ecological Communities & Species

- ❖ Endangered or special concern
- ❖ Keystone species
- ❖ Regionally, nationally or globally significant bird aggregations

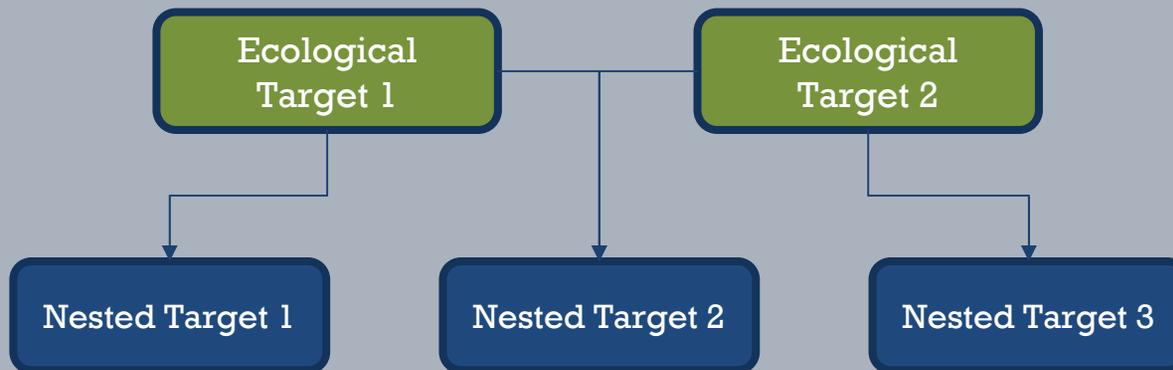


Selecting Targets:

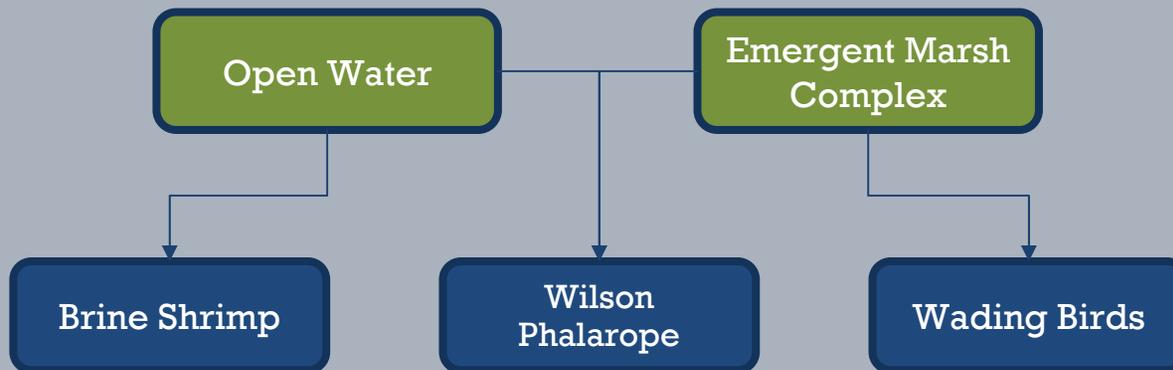
- ❖ Typically up to 8 Focal Targets
- ❖ Start with Ecological Systems (which often include "nested" targets)
- ❖ Then Screen for Species that have Special Conservation Requirements



CAP Focal Targets and Nested Targets



Great Salt Lake Example

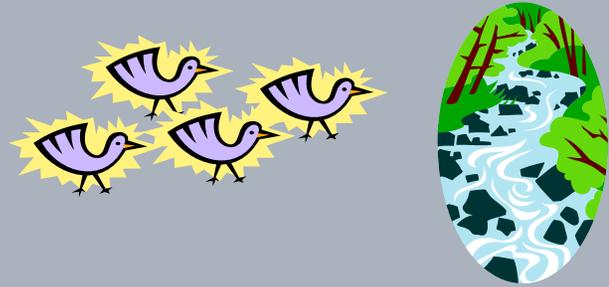


Health of Focal Targets...

Based on Key Ecological Attributes

❖ Size

- Species abundance...or
- Minimum dynamic area



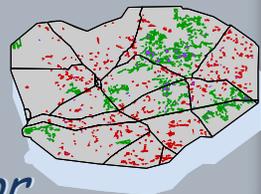
❖ Condition

- Composition (*e.g. native vs. nonnative*)
- Structure (*e.g. age*)
- Biotic Interactions (*e.g. reproduction*)

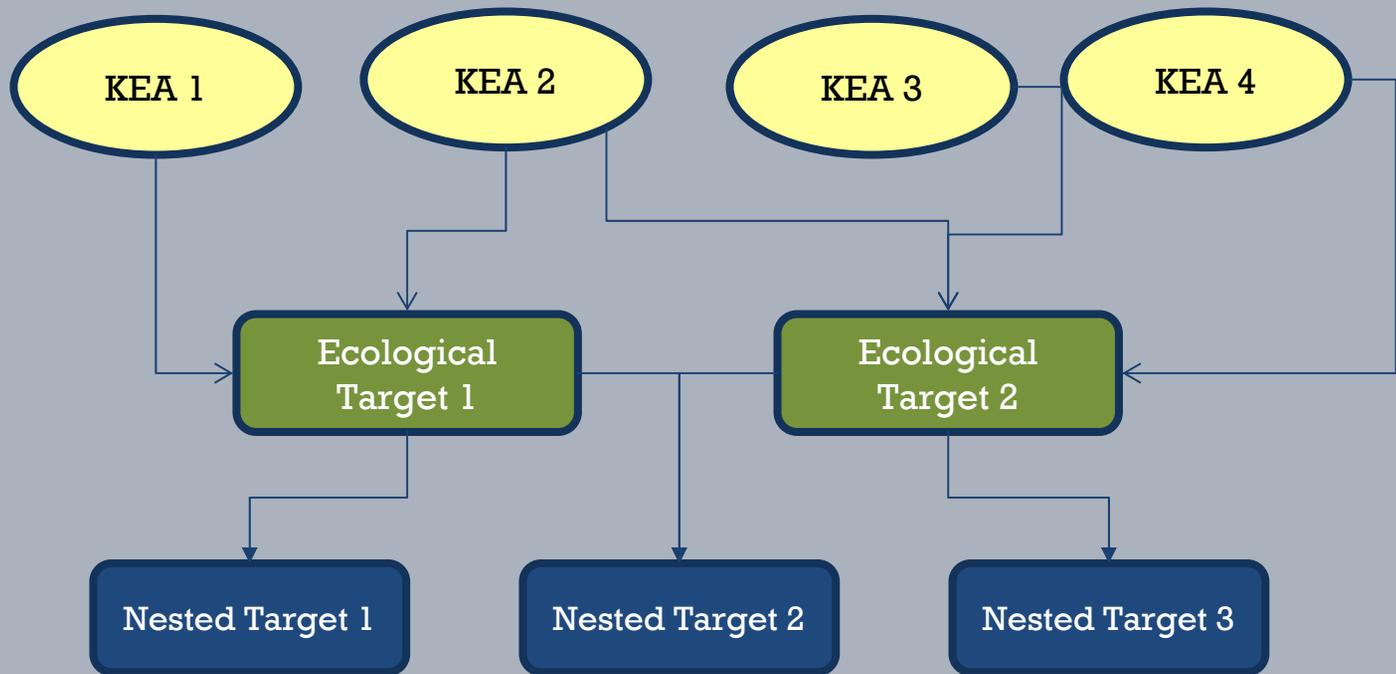


❖ Landscape Context

- Environmental processes (*e.g. hydrologic or fire regime*)
- Connectivity (*e.g., access to habitats; ability to disperse or migrate*)



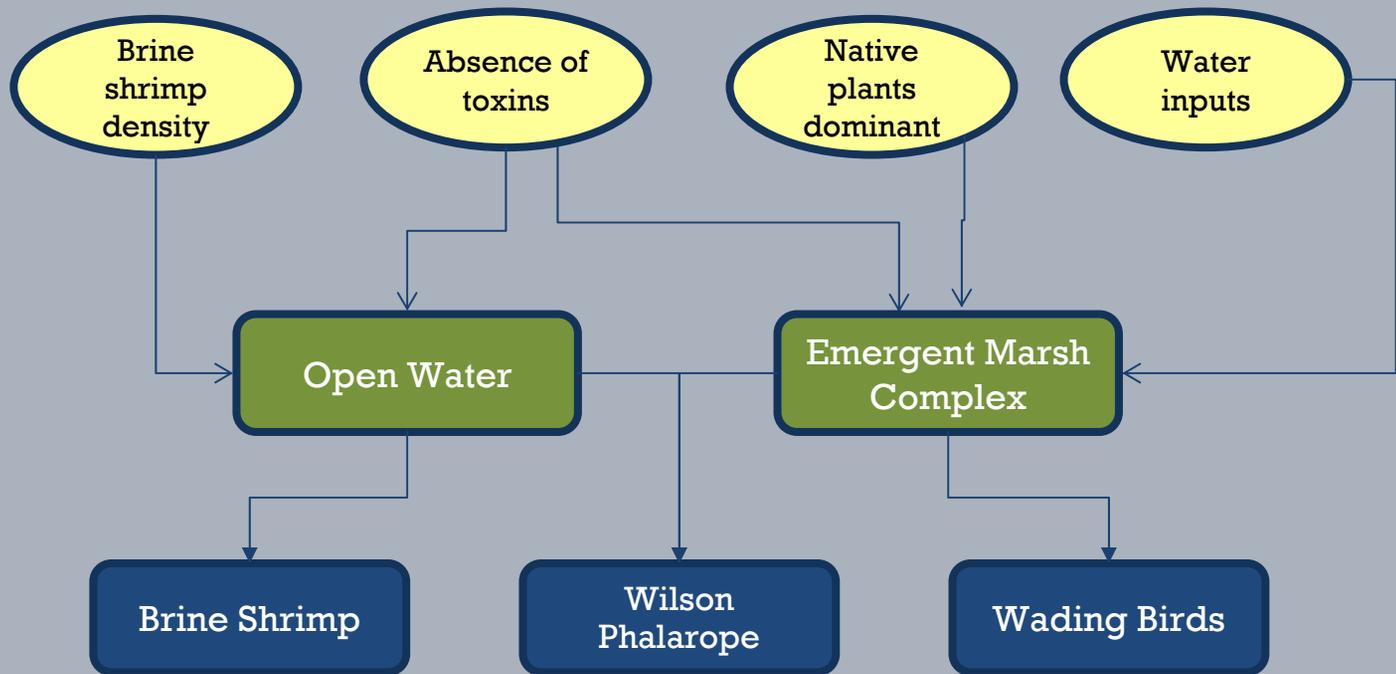
Key Ecological Attributes



Selecting Key Ecological Attributes

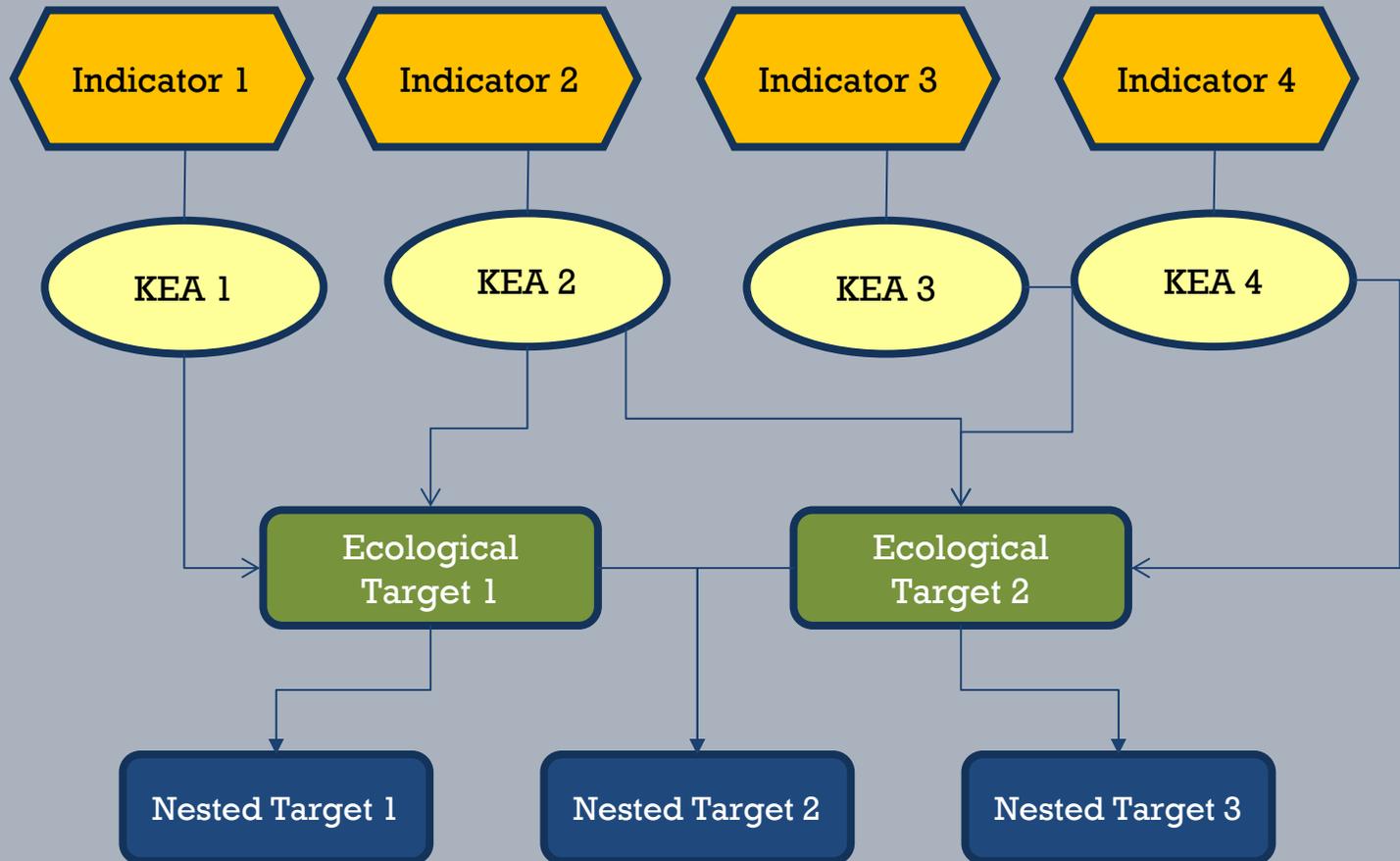
- ◎ Pick factors that are critical for long-term viability
 - What factors, if degraded, would seriously jeopardize the target's ability to persist for 100+ years?
- ◎ Look for a parsimonious number of really key ecological attributes (e.g. 3 to 5)
 - ... versus many desirable or descriptive characteristics
- ◎ Consider attributes that may be seriously degraded by future human-caused threats

Great Salt Lake Example



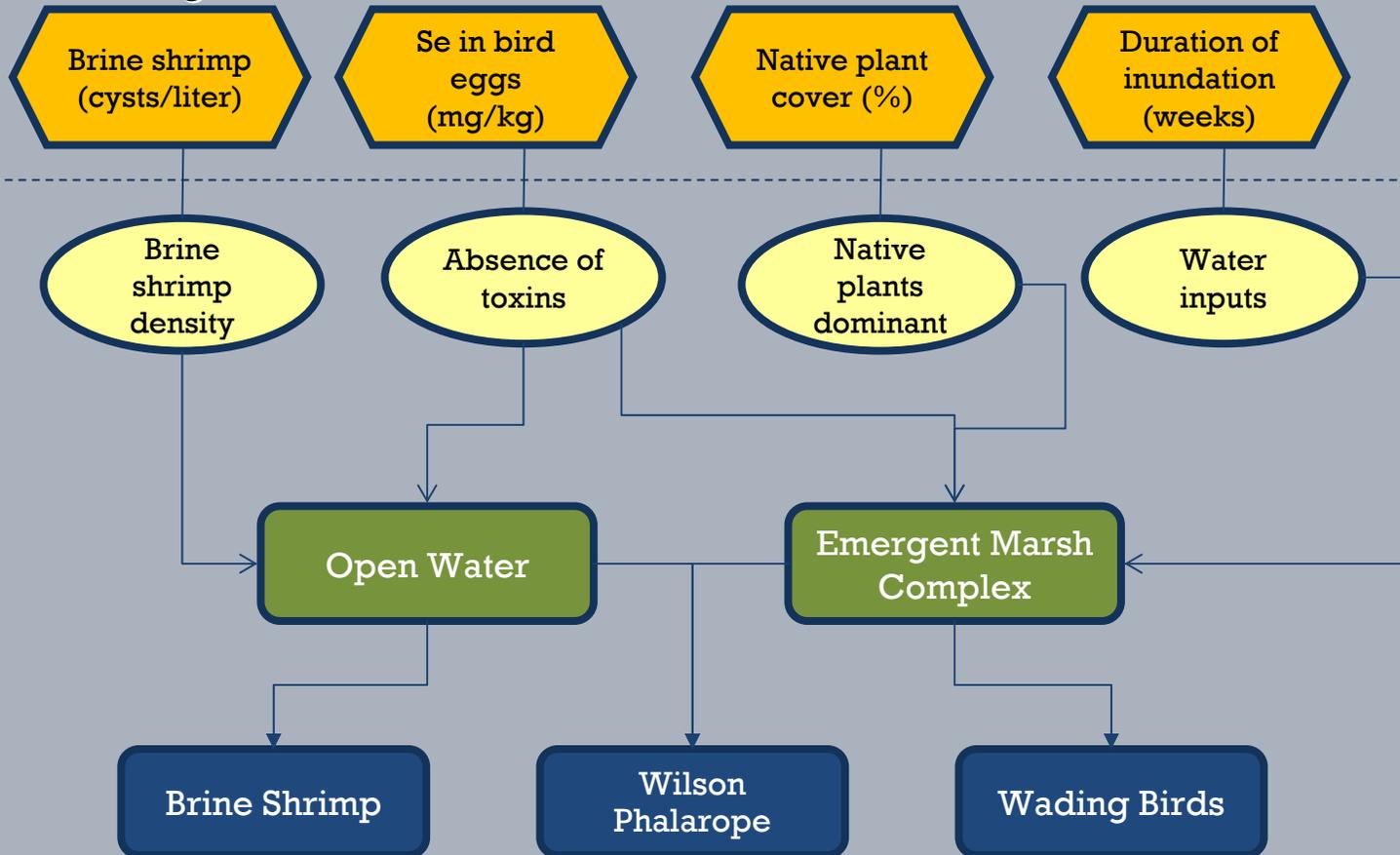
Indicators

Attributes are what's important;
indicators are what you will measure



CAP Targets, Attributes, and Indicators

Monitoring Plan



Four-grade Scale for Indicators

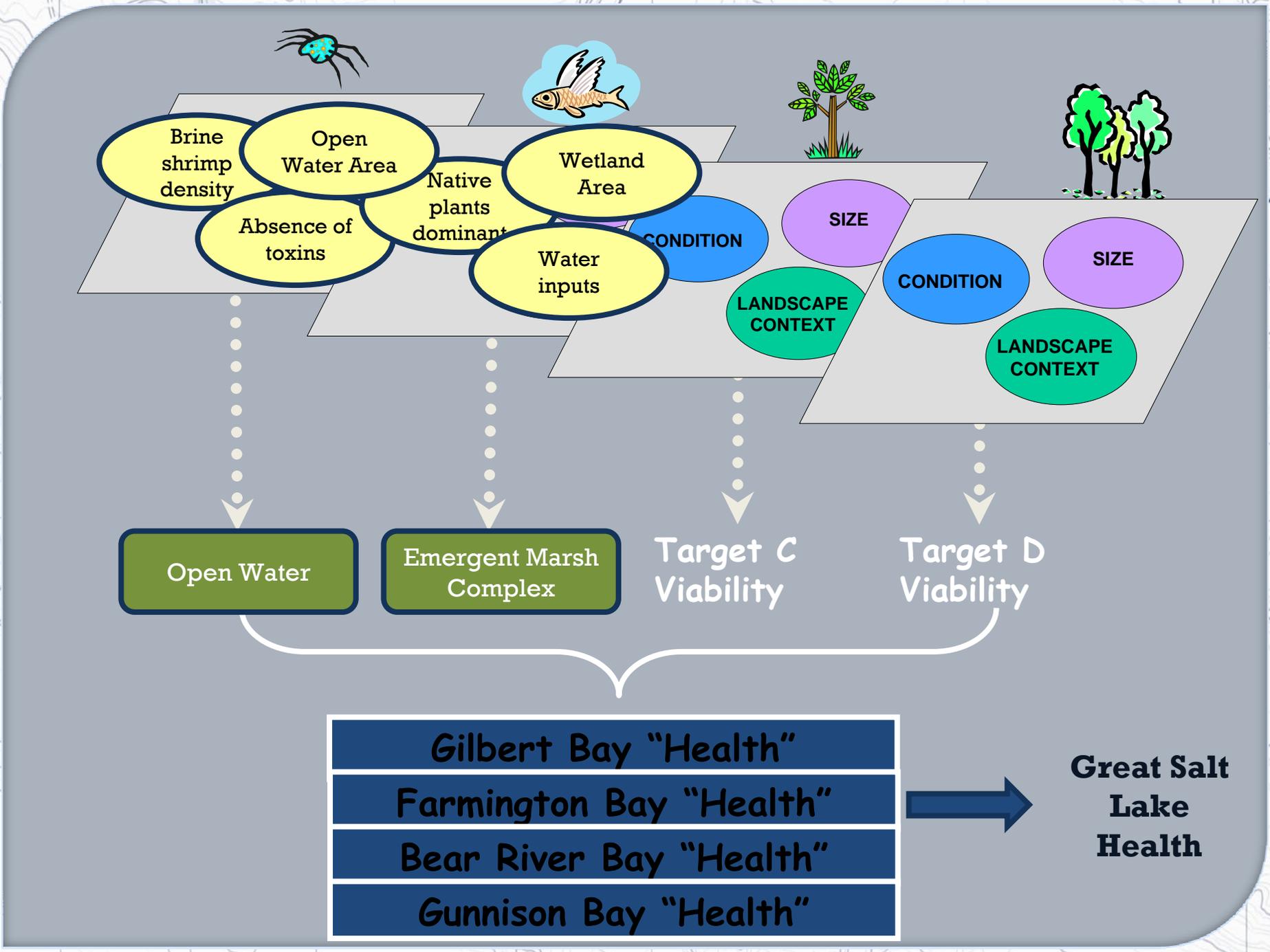
Definition of health

- ⦿ **Very good:** functioning at an ecologically desirable status and requires little if any human intervention
- ⦿ **Good:** functioning within its range of acceptable variation; it may require some human intervention
- ⦿ **Fair:** functioning outside of its range of acceptable variation and requires human intervention to restore a “Good” condition
- ⦿ **Poor:** allowing the key attribute to persist in this condition would make restoration of the target practically impossible

GSL Example Indicator Ratings

Conservation Targets	Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good
Open water habitat	Condition	Absence of toxins	Concentration of selenium in bird eggs	12.5 mg/ kg selenium	between 12.5 and 6.4 mg/ kg	between 6.4 and 5 mg/kg	less than 5 mg per kg
		Brine shrimp density	Cysts per liter	Below level where harvest is shut		More than 100 cysts/liter (check)	

Conservation Targets	Category	Key Attribute	Indicator	Poor	Fair	Good	Very Good
Emergent Marsh Complex (unimpounded)	Landscape Context	River & groundwater inputs - (timing, duration, frequency, extent)	Duration/seasonality of inundation of emergent vegetation	Wet for less than 8 weeks/year during March-October on average over 10 years	8 -19 weeks	Wet for 20 to 30 weeks/year during March-October on average over 10 years	
	Condition	Native plant species composition / dominance	Percent cover of native plant species	Less than 50% native plant cover	50% to 89% native plant cover	90% to 99% native plant cover	100% native plant cover



Assessment of Current Health

Target Health [Viability]	Size	Condition	Landscape Context	Health Rating
	Grade	Grade	Grade	
Surface Water	Good	Good	Fair	Good
Riparian Forests and Shrublands	Very Good	Good	Good	Good
Montane Meadows	Good	Fair	Good	Good
Springs and Seeps	Very Good	Good	Good	Good
Sagebrush/Pinyon Woodlands	Good	Fair	Fair	Fair
Greater Sage Grouse	Fair	Poor	Fair	Fair
Subalpine and Alpine Systems	Very Good	Very Good	Good	Very Good
Lakeshore Wetlands	Good	Fair	Good	Good
Site Health Rank				Good

Proposed Calendar

August 11							September 11							October 11						
Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su
1	2	3	4	5	6	7				1	2	3	4						1	2
8	9	10	11	12	13	14	5	6	7	8	9	10	11	3	4	5	6	7	8	9
15	16	17	18	19	20	21	12	13	14	15	16	17	18	10	11	12	13	14	15	16
22	23	24	25	26	27	28	19	20	21	22	23	24	25	17	18	19	20	21	22	23
29	30	31					26	27	28	29	30			24	25	26	27	28	29	30
														31						

November 11							December 11							January 12						
Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su
	1	2	3	4	5	6				1	2	3	4							1
7	8	9	10	11	12	13	5	6	7	8	9	10	11	2	3	4	5	6	7	8
14	15	16	17	18	19	20	12	13	14	15	16	17	18	9	10	11	12	13	14	15
21	22	23	24	25	26	27	19	20	21	22	23	24	25	16	17	18	19	20	21	22
28	29	30					26	27	28	29	30	31		23	24	25	26	27	28	29
														30	31					

 Proposed Workshop Date

 Alternate Workshop Date

 Report delivered to GSL Council