Conclusions

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General Findings

- "The 28th Member State: Similarities between California Groundwater Management and the European Water Framework Directive (WFD)"
    - Overall, more similarities than differences, particularly with management goals and overall regulatory pressures
    - Whereas the WFD explicitly integrates surface water and groundwater quality and quantity, California's waters are distributed between different statutory authorities and agencies (e.g., water quantity through SGMA, water quality through the Water Boards' existing authorities under the Porter Cologne Water Quality Control Act)
    - Convergent evolution of groundwater quality and quantity public policy
- Governance – can be varied, but should be based on sound science
    - Govern as informed by science, don't let governance inform the science
    - But also, government is responsible for leading, funding, and shepherding critical science (and related infrastructure)
- Increase at the local level the social capital involving stakeholders and water value
- Conflict is inherent – how you deal with that conflict is critical to success
    - What happens when avoidance delays that conflict?
    - Choice of who – who do you conflict with first?

Topic Findings and Areas for Future Study and Collaboration

1. <u>Governance:</u>
    a. Hydro-Governance and Water Problems
        i. Hydro-governance may lead to good solutions (if effective)
        ii. Problems can generate good hydro-governance
            1. What does "good" mean – and maybe a better way to say that "problems can generate good governance" is instead to say "problems can generate good policy integration"?
            2. Power dynamics and inequality are key considerations, and will influence the needed approach and outcome.
    b. There are different models of hydro-governance, each with benefits/drawbacks, and with increasing social capital costs:
        i. Authoritarian
        ii. Democratic
        iii. Participatory
    c. Does the model of governance that's used relate to the makeup of the basin (geology, stakeholders)?

d. Concept of Polycentricity – there are multiple layers of governance, both for EU and CA – can we do a comparison of the different regulatory entities, and policies, and how they stack up in each? Is there more or less regulation in EU vs CA?
e. EU vs SGMA Comparisons
    i. EU WDF starts from the fundamental approach of IWRM – SGMA will result in similar outcomes for groundwater
        1. Both strongly encourage policy integration
    ii. Fitness Checks – Assessment of effectiveness/benefits; SGMA has similar mechanisms to WDF built in
    iii. Include Sectorial Policies – recommendation (stakeholder input from different economic sectors)
f. Questions on what "good" means in terms of governance and outcomes
g. How do you bridge gaps between science and policy – do we need new institutions? Here's where we should compare the EU institutions to CA/US – idea of polycentricity)
h. Future Study and Collaboration:
    i. Case studies comparing GSA governance styles, successes, and failures relative to EU responsible agencies and local implementation
    ii. Which conflict do you address first?
        1. And, you can't get governance you want until you admit conflict is inherent
    iii. What about non-government related water decisions – things like mutual water companies, private water markets, private water distributors?
    iv. What is governance… vs what is policy – and is there such thing as "adaptive governance"?

2. <u>Quantity:</u>
    a. Local measurement actions are varied, with varying levels of success in achieving good status; variances are based on local member state laws and regulations, water rights, and use.
    b. Maintenance of ecological functions is a key element of EU – how does CA or SGMA work?
    c. There are significant differences in property rights between EU member states and California – deep dive on those differences will be helpful and interesting
    d. Make the invisible visible
    e. Sectorial economies – how do different stakeholders, and their related economies, affect the approach to managing quantity
    f. Bioremediation
    g. Clear delineation of boundaries, and how those delineations affect management goals
    h. How has EU reprioritized sectorial economics to prevent permanent loss?

i. Questions on quantity monitoring – refer to similar questions under quantity
j. How will climate change affect – track climate change effects (both groundwater levels, and as well as resulting policy implications)
k. Future Study and Collaboration: Deeper dive into the EU member state control measures, incentives

3. Quality:
    a. The WFD and California's water quality management mechanisms share similar goals, but implementation (e.g., permitting methods) seem very different
    b. Monitoring systems (and philosophies) are different, even though both entities (EU and CA) share similar goals and objectives
    c. Intercalibration – EU has directives(?) and requirements on intercalibration related to data management (same standards, etc.) – what are SGMAs, and how do they compare?
    d. Future Study and Collaboration:
        i. Deep dive into monitoring and reporting programs:
            1. How are they funded?
            2. Program design
            3. How do the member states, regions, or responsible parties develop the policies and laws needed to produce a robust water quality/quantity management program
        ii. Source Water Protection
        iii. Case study on permitting: compare an EU wastewater treatment facility vs CA: number of permits, taxes, fees for each
        iv. CECs
        v. Analytical Comparison (results, and methods) – transparency (1755), data systems and interfaces

4. Conflict Resolution:
    a. Trust is key, is difficult to build, very easy to break, when broken almost impossible to rebuild
    b. When dealing with a conflict, deal with communication, perceptions, and emotions
        i. Listen and be listened to
        ii. Don't deduce actions from your perception and vice versa
        iii. Reason and be open to reason
    c. There are a number of conflict resolution tools – preserve relationships and can be mutually acceptable, quick, cost effective, and win-win
    d. Future Study and Collaboration:
        i. Application of dispute resolution tools, how to apply them to local GSA/GSPs (or other conflicts in CA)

5. Other:
    a. Future study and collaboration:
        i. Economic analysis and cost recovery principles
        ii. Recycled water and conjunctive Use
        iii. Exploration of member state water rights (e.g. ESP and CA)
        iv. Drought indicators (color coding)
        v. Anti-degradation: EU vs. CA
        vi. Equality and equity – overarching, but look at specifically
        vii. Public participation – also overarching, but make sure to integrate into any potential deep dive in the future
        viii. Natural infrastructure
        ix. Rollout/transition – public perception, transition management, and behavioral sciences (how do you bring the public along to an environmental goal, or vice versa?).
        x. Understand Failures, as well as successes
        xi. Data systems, data transparency?