

Addressing Complex Problems Together: A Network Story

January 2023

Authors:

Orit Kalman, CSUS

Mike Antos, Stantec

Marisa Perez-Reyes, Stantec

Jenny Marr, DWR



Contents

The Flood-MAR Network Origin Story	3
Paper Structure	5
Defining Networks	7
Forming a Network — Addressing Complexity Together	11
Defining A Shared Purpose	13
Growing Network Membership — Engaging Relevant Perspectives	15
Developing a Shared Agenda	17
Supporting Network Coordination — Walking the Path	19
Network Opportunities — Conclusions and Lessons Learned	23
References	25

The Flood-MAR Network Origin Story

In June of 2018, the California Department of Water Resources (DWR) released a white paper exploring the use of flood flows as a source for recharging aquifers. This white paper, *Opportunity for Flood-Managed Aquifer Recharge (Flood-MAR)*, arose in response to the confluence of two drivers: (1) the flood protection and water supply challenges exacerbated by the conversion of winter snow to winter rain in the Sierra Nevada as a result of climate change, and (2) the 2014 adoption of the Sustainable Groundwater Management Act (SGMA), which requires decisions to be made about how to achieve sustainable aquifer supplies, specifically in the Central Valley of California.

Following the release of the white paper, DWR convened a Research Advisory Committee (RAC) made up of 40 professionals across multiple disciplines, each with at least one area of expertise that could inform the more widespread adoption of Flood-MAR in California. The RAC was tasked with exploring the highest priority next steps that are needed to advance Flood-MAR projects across 13 different themes, including changes in water governance, management, infrastructure, water rights, and water and land use practices. RAC members engaged with each other, convened with peers in subcommittees, and developed a comprehensive list of recommendations and priorities, culminating in the development of the [Flood-MAR Research and Data Development Plan \(R&DD Plan\)](#).

The RAC's preparation of the R&DD Plan was the dawning of the Flood-MAR Network, though no one knew it at the time. In considering the identified priorities to address data and research gaps, discussions repeatedly came back to "order of operations" and "intersections" among the RAC recommendations across the 13 different themes. Some of the recommendations were similar across specialties, while others depended on something else happening first.

Through this exploratory process, the RAC members had come to recognize and value the coordination and partnerships they had cultivated, seeing them as critical to achieving most of the research and data sharing activities that they proposed for strengthening Flood-MAR implementation. This dialog about a network revolved around the value found in the informal engagement, collective thinking beyond disciplinary silos, and sharing different perspectives. The idea of the Flood-MAR Network was quickly adopted as one of the RAC's recommendations, appearing in the R&DD Plan that documented the RAC's work.

A Flood-MAR Forum, held in October 2019, invited the broader community of water managers to consider and act upon the recommendations in the R&DD Plan. Among the variety of topics discussed at the forum, attendees engaged with how, and in what form, a Flood-MAR Network could be established in support of further Flood-MAR development. A clear consensus existed among the attendees that creating partnerships and opportunities for collaboration through participation in a Flood-MAR Network should be an immediate next step. (See the [2019 Flood-MAR Public Forum Proceedings](#) for more information.)

Since the R&DD Plan's release and the Flood-MAR Forum, the Flood-MAR Network has gelled around the reality that, beyond the need to create new institutional structures and practices, beyond the need to build new infrastructure, the transformation toward a California where Flood-MAR is used in its most effective and efficient form will require a shared purpose among people who each have something to give and something to get as they work alongside each other.

Paper Structure

The Flood-MAR Network development story is worth telling because its establishment can stand as an example for other existing nascent or informal networks or for those who think a new network could be beneficial to their work.

The **Defining Networks** section describes networks and the key principles that distinguish a network from other organizational structures. Following sections include descriptions of various network elements, discussion questions to guide considerations, and examples of how each approach is manifested in the development of the Flood-MAR Network. The following points outline the sections that this white paper focuses on:

- **Forming a Network** – This section discusses how networks are best used when or where there are many organizations and people all working on related, but not identical, missions and discovering that some of what needs to be done or understood is shared across many entities rather than residing solely within one entity. The interwoven elements of Flood-MAR make it an excellent example of network formation.
- **Defining Shared Purpose** – This section discusses how to inventory both the needs and the contributions of each member of the network to ensure that it is convened in accordance with the members' commitment to a clear purpose. The effort made by the Flood-MAR Network to establish what each participant intended to give and what they hoped to get in return is described.
- **Growing Network Membership** – This section highlights the importance of identifying and reaching out to people and organizations with the perspectives, experience, and knowledge needed for effective network outcomes. This section outlines how the Flood-MAR Network benefits from being intersectional with several other networks.
- **Developing a Shared Agenda** – This section describes the process of developing a shared agenda that aligns with members' commitments and expectations. For the Flood-MAR Network, this process is one that evolves as interests change and external factors and network members revisit the points of focus.
- **Supporting Network Coordination** – This section serves as a reminder that the longevity and success of a network is dependent on intentional coordination, facilitation, and administrative support. The Flood-MAR Network benefits from ongoing network coordination supported by DWR and has evolved to include a coordinating committee.

Defining Networks

The term “network” is widely used in different contexts, describing a range of things from the internet (a network) to an activity during breaks at a conference (networking). There is an extensive body of knowledge and research on networks. As participants work to explore and experiment with the network development process, it is helpful to identify resources and research that can provide guidance and understanding of the different types of networks. The Flood-MAR Network benefitted from “theory into practice” strategies, relying on several key sources and a range of participants generally familiar with networks. Vandeventer and Mandell (2011) provide a concise framing of networks in their book, *Networks that Work*, a key resource for the Flood-MAR Network establishment. Per Vandeventer and Mandell, networks can be:

A working definition (p. 9):

- *What: many different organizations working in concert.*
- *Who: organizations, institutions, governmental agencies, corporations, foundations, etc.*
- *Why: to pursue a common, defined purpose.*
- *How: as equal partners.*

Members in some networks, such as in membership associations that gather individual groups operating in the same field, may simply have the purpose of improving information sharing among practitioners and spreading best practices. Other networks build power and impact through their collective size and strength, coordinating service delivery or joining forces to advance legislative and public policy changes. Networks can bring greater scale and focus, more productive kinds of working relationships, and more lasting effectiveness when addressing public problems (adapted from Vandeventer and Mandell pages 9-10).

An additional resource, *Impact Networks: Create Connection, Spark Collaboration, and Catalyze Systemic Change*, by David Ehrlichman (Ehrlichman 2021), provides a slightly different approach to developing networks by using webs of relationships connecting individuals and organizations to advance learning and action for a common purpose. He concludes his work with:

“Developing our collective ability to navigate complexity and creating meaningful change is the defining challenge of our time. Most people agree that we must work together to address our

greatest challenges...When developed with care, these networks can be catalysts for life-affirming, systemic change.” (p. 207)

For our purpose, a network is defined as an intentional gathering of people and organizations, focused on addressing one or several complex and shared challenges or opportunities, undertaking shared efforts to strengthen each of its members while advancing shared interests.

Types of Networks

Across all networks, success depends on members’ clear understanding of the scope and purpose of the network and the expected level of engagement and commitment. Over time, networks can evolve as members choose to pursue different kinds of activity. The decision to participate in a network can carry risk, whether it be simply the commitment of resources and time without a certainty of outcomes or the more complex risk of committing to a process that may lead to change. Networks can broadly fit into three categories, described below, each with differing focuses and levels of risk and therefore with different types of engagement:

- **Learning or Cooperating Network:** Learning networks are focused on facilitating connection and learning. Membership in these networks is fluid and fosters ease of participation, implying little risk for participants beyond just the commitment of time. The focus of this type of network is to promote information sharing and discussion, explore shared challenges and solutions, model and share best practices, and build relationships and trust. To date, the Flood-MAR Network has evolved into a cooperating network.
- **Action or Coordinating Network:** Action networks are convened in pursuit of coordinating actions, advocating policy, pushing established organizational boundaries, creating structures of interdependence, and engaging in activities that require greater mutual reliance. An action network requires a greater commitment of time and a willingness to change, and therefore carries more risk than a learning network. An example of a coordinating network is the California Partnership – Community Partners.
- **Collaborating Network:** Collaborating networks are used for reforming or changing systems, discovering new ways of operating, and defining new roles. This type of network typically requires all perspectives on an issue to be represented by someone who can speak on behalf of their organization and bind it to network decisions. In collaborating networks, participants have accepted the risk of greater commitments of time and the potential

commitment to making fundamental change. An example of a collaborating network is the Water Forum.

Gathering people together in networks provides flexibility, and networks can be dynamic and responsive to change over time. The types of engagements among participants, and the shared willingness to commit resources and accept risk, must be developed by those participating. The process of adjusting the nature and structure of the network, evolving from one category to another, must emerge from the shared interests of participants.

The term “governance” is intentionally left out of these broad network categories because governance implies more structured and accountable processes for decision-making than is customary for networks. There remains the possibility, however, that a collaborating network may identify a need for governance mechanisms to effectively engage and act on its interests.

For a network to be effective, the following principles of engagement and expectations for participants should explicitly guide network activities:

- Network participation is voluntary.
- Members in a network share authority over the network. If lead agencies are identified for organizational purposes, they must respect that shared authority.
- Networks can endure beyond any one project or program, regardless of funding sources, if members see value in the network’s continued function.
- Network longevity depends on members believing they can accomplish more together than separately.
- Connectivity and trust are central to any network. Regardless of the network’s purpose, networks build and nurture relationships and interdependencies.

Forming a Network – Addressing Complexity Together

Networks are fundamentally different than organizations. Organizations have a focused mission, a supply of resources, and people who strive toward that mission. The organization is the most familiar way of gathering people together to work toward shared outcomes. Networks, alternatively, are made up of organizations and individuals who have come together around a shared purpose, where each participating organization and individual recognize that by giving to the network they will get something of greater value in return. In this way, each participant is enhancing the pursuit of their own mission while engaging and leveraging their participation in the network.

Questions to ask:

- What do we hope to accomplish, and do we need a network to do that?
- Who do we need to have with us?
- What is needed to convene ourselves into a network?

Another Network Example: The Roundtable of Regions

California benefits by drawing from a nearly twenty-year effort to adopt integrated water management practices via the Integrated Regional Water Management Program (IRWM Program), an incentive-based program that supports more collaborative, multi-benefit water planning and project implementation. The IRWM Program covers over 85 percent of the land area of the state and about 99 percent of the population and was created to pursue a transformation toward more collaborative, regional, and integrated management of water.

Providing technical and financial assistance, the IRWM Program of 48 Regional Water Management Groups (“Regions”) was adopted across the state and produced integrated plans, programs, and projects. Among these important contributions, the IRWM Program also yielded a network of practitioners called the “Roundtable of Regions” (Roundtable).

The group of people who would come to form the Roundtable originally gathered informally, drawn together by the learning process needed to be successful within the IRWM Program. In existence since 2004, the Roundtable only formalized its structure as a network in 2018 with the shared procurement of a network coordinator. The Roundtable’s evolution as a network was driven by the idea that, despite significant variation within the participating regions, there was a shared purpose –

learning from one another about how to implement the IRWM Program most efficiently and effectively.

Working as a network (cooperating and coordinating), the Roundtable of Regions has become one of the most prominent places for students, interested parties, and public and private sector professionals to find common purpose with peers and to learn about the successes and challenges of transforming toward integrated water management. Two lessons of the Roundtable of Regions were shared during the formative meetings of those interested in establishing the Flood-MAR Network:

Roundtable of Regions Lesson 1: Water management lends itself to network organizing

System-wide, holistic thinking is required to address the complexity of integrated water management as it relates to climate change, human right to water, social injustice and inequity, ecosystem decline, and the devastating impacts of flood and drought events. Working across sectors and institutional capacities demands that water resources managers and interest groups collaborate to tackle shared challenges and realize shared opportunities and purpose at-scale. Such an effort lends itself to network organizing as a source for leveraging the nexus of various perspectives and expertise.

Roundtable of Regions Lesson 2: There is power in harnessing social infrastructure

The Roundtable itself is an outcome of the IRWM Program, alongside its other more formal elements, because the network of practitioners is iteratively both the source of the transformation toward integrated water resources management, and a product of that transformation. There are now many integrated water management professionals in California with experience working across difference, overcoming mistrust, keeping the peace, and helping others take turns and find common cause. This network of interconnections and relationships forms social infrastructure, which is an often overlooked but key asset in resource management and in achieving resilience. In this way, the Roundtable as a network provides positive effects outside the IRWM Program.

Defining A Shared Purpose

The first task for convening a network is defining the purpose and scope of the network. With those broad items defined, the network can identify clear goals and objectives to drive its activities ([Developing a Shared Agenda](#)), and individuals can decide how they want to participate and commit to the network ([Growing Network Membership](#)).

To develop purpose, it is important to define the opportunities that a collaborative effort presents for supporting the work of individual network members. In pursuit of their shared outcomes, individuals and organizations who participate in a network are committing to give to the network and get in return. It is important to clearly identify the value each member is prepared to give, so that each member can evaluate the benefit they will receive from others. The network can strengthen an individual's "day job" by recognizing that what the network does as a collective is different than what each individual member does in their respective fields.

To develop a shared purpose, network members can begin by envisioning how a joint problem statement can turn into a statement of opportunity. A joint problem statement may include goals such as: improving overall understanding of complex issues, making progress, building resilience, promoting sustainability, and identifying resources for ongoing efforts.

The diverse interests, perspectives, experiences, and resources present within a network can inform the development of its shared purpose. The following questions can help in developing a network purpose statement to highlight the makeup of the network, how individuals' contributions will be leveraged, and the network's vision.

Questions to ask when developing a network purpose statement:

- Why am I interested in being part of a network? (GET)
- What "superpowers" do I bring with me that can be leveraged by a network? (GIVE)
- How does our individual work inform the definition of a collective purpose? (JOINT PROBLEM)
- What is our shared story? (CONNECTIONS)
- What can we accomplish as a network? (VISION OF OPPORTUNITY)

The Flood-MAR Network Story – Shared Purpose

Interested parties were invited to join the first workshop in December 2020 to explore the idea of forming a Flood-MAR Network. Participants worked in small groups throughout the day to address the questions shared above.

Participants were asked to reflect on and share their individual motivation for taking part and the outcomes they sought from network membership. These individual reflections were then combined into the shared statement below, reflecting the common vision of the group as a whole:

“Our role as a diverse group brings together a range of perspectives including research, NGOs, government agencies, engineers, economists, hydrologists, water resource managers, citizens, and volunteers. **We want to leverage our experiences and expertise** to learn from each other, share information, connect ideas, collaborate, and develop shared partnerships **so we can improve our work individually and collectively as we develop long term tools, projects, and a body of knowledge** for multi-benefit integrated solutions that include flood management, groundwater sustainability, economic benefits, and water resiliency ranging from the community level to the state level.”

Considering the expertise and resources that each brought to the Flood-MAR Network, members further discussed what could be accomplished as a network and identified five key areas that align with the work of a learning/coordinating network:

1. Identify and fill knowledge gaps.
2. Share Flood-MAR body of knowledge.
3. Communicate with Flood-MAR interested parties on work to add to and build up collective knowledge and to inform future work in an efficient and effective way.
4. Educate and engage on how to get things done.
5. Support Flood-MAR implementation efforts.

Growing Network Membership – Engaging Relevant Perspectives

Envisioning what can be accomplished collectively to meet the network’s purpose and goals requires the accounting of available resources such as time and funding, and the skills, expertise, knowledge, and experiences that each member may contribute to the network. It is also important to consider how the diverse perspectives, expertise, and experience of network participants can broaden the lens through which the network views its work. To promote participation, the network may consider engaging in outreach to ensure that appropriately diverse and traditionally underrepresented perspectives and expertise are invited and supported. Membership, and network activity, is ultimately defined by those who see value in the network’s purpose and activities and find ways to contribute.

Question to ask to engage relevant perspectives:

- Are all aspects of our shared purpose represented in our membership?
- How can we invite others to share needed perspectives and expertise?

The Flood-MAR Network Story – Engaging the Flood-MAR Community

Members of the Flood-MAR Network acknowledged the importance of ongoing dialog and ground truthing among those implementing Flood-MAR and those conducting research, gathering data, and developing guidance and tools. The Flood-MAR Network identified a diverse list of potential members, including Tribes, Groundwater Sustainability Agencies (GSAs), IRWM groups, landowners, water and flood managers, non-governmental organizations (NGOs), implementing agencies, and community interest groups. To ensure their needs and priorities are at the forefront of the network agenda, this prospective list includes trusted representatives and members of disadvantaged communities. The needs of end users, such as project planners, implementers, and beneficiaries, drive the work of the Flood-MAR Network to both advance the RAC priorities and promote implementation of Flood-MAR projects.

Engagement to set and advance the Network Agenda – Network Quarterly

Workshops: Since first convening in 2021, Flood-MAR Network members have been meeting quarterly to advance network activities and provide opportunities for shared learning and collaboration. Members actively participated in identifying the first set of initiatives, which were focused on building communication capacity.

Flood-MAR Network members rallied around two ideas that would expand the reach and membership of the network. The first was developing and deploying a Flood-MAR Network website using crowd-sourced content from around the network. The second idea focused on placing Flood-MAR panels and presenters at several monthly webinars and appropriate water resources management conferences to elevate the visibility of both Flood-MAR and the Network and draw additional members and interest.

Engagement to adapt to needs – Outreach to GSAs: Members of the Flood-MAR Network invited GSA representatives to a meeting to introduce the network, to learn about their Flood-MAR plans and needs, and to identify key opportunities and constraints for GSA implementation of Flood-MAR projects. Key takeaways from this conversation were shared with the Flood-MAR Network members to inform future activities.

Engagement to promote and solicit participation in Flood-MAR discussions – LunchMAR meetings: LunchMAR is a monthly informal lunchtime gathering where interested participants can sign up to share information about their work and contribute to understanding Flood-MAR implementation related issues.

Developing a Shared Agenda

Network members need to create and then sustain clarity and agreement on what the network should or should not work to accomplish. Network activities may work to bridge gaps of understanding or leverage areas of commonality among programs and individuals' related work spheres. Individuals should ask if a network is the most effective and efficient way to accomplish an identified initiative and how collaborating through the network can lead to accomplishments that otherwise would not be achieved in their respective organizations and work. Given the identified desired outcomes and available resources, members can focus on what can be accomplished by the network to address its collective purpose.

Members can begin to develop a shared agenda by identifying broad objectives and brainstorming specific projects and initiatives that can help meet those objectives. It is important to review the list of possible initiatives through the lens of the network separately from how individual members might work on the identified efforts. Ultimately, the work of the network will be developed based on individuals' interest and ability to follow up on projects. Members may elect to participate at varying degrees to advance network initiatives. All of these different levels of engagement are important and necessary to accomplish identified activities and to make sure that the work of the network links to other, non-network-related efforts with external interested parties. Engagement can take on different levels of involvement, resources, and risk, and each level supports other levels. Network members may find that they can engage in multiple ways or change their engagement depending on the stage of an initiative. Levels of engagement may include:

- **ANCHORS:** Individuals who are willing to invest significant time and resources to coordinate and propel the activities and initiatives of the network and see them through.
- **COLLABORATORS:** Individuals who come together to roll up their sleeves and share in the work to advance activities and initiatives.
- **AMBASSADORS:** Individuals who can share information about related work done within and outside of the network to advance understanding with external interested parties and identify collaboration opportunities.
- **BENEFICIARIES:** Individuals who can use network activity outcomes to inform and advance their work outside of the network.
- **INFORMED:** Individuals who are connected to the network and seek awareness of network progress and output.

Questions to ask to identify and develop a shared agenda:

- What should we accomplish as a network that will provide an added value?
- How does each member aspire to contribute and participate in network activities?
- What are the next immediate steps to advance key network initiatives?

The Flood-MAR Network Story – Shared Agenda

During the Flood-MAR Network's second convening, members were invited to identify possible initiatives that align with the network's statement of purpose and the five key areas. Members met in small groups to brainstorm ideas such as tracking progress on RAC priorities, creating a shared hub for information, and developing a decision support tool for project implementation. Shared ideas were combined into nine key initiatives, and members were invited to consider their desired level of engagement and, using this information, determine what efforts the Flood-MAR Network would advance. Selection of final initiatives for consideration was based on overall interest from participants, momentum to move forward, and self-identified anchors or multiple collaborators. Some members were reluctant to identify themselves as initiative anchors and acknowledged that some level of administrative support was needed to take on such leadership roles. Of the nine key initiatives, four had strong support with anchors and collaborators and reflected the desires of the network members to foster information sharing within the network and with other interested parties:

1. Keep the RAC effort current and monitor its progress.
2. Create and maintain a Flood-MAR network gathering space.
3. Use current forums to share information and case studies with local and agricultural communities.
4. Develop a communications plan.

Supporting Network Coordination – Walking the Path

Following the definition of a network's purpose, membership, and desired outcomes, members may consider support structures that are needed to ensure the relevancy and longevity of the network.

Network coordination may require the support and direction of a network administrator and/or a steering, technical, or leadership team to inform network activities. The role of a steering or advisory team is to set the network agenda. The role of a neutral, respected, and trusted network administrator is to support the implementation of that agenda.

Expectations for membership may be memorialized in a network Memorandum of Understanding (MOU) or charter. Members should continually revisit the network's purpose, ensuring that network activities remain relevant and appropriate in meeting the desired objectives. Principles of engagement to foster shared success, as well as expectations for meeting frequency and format, can be developed to ensure continuity.

Identifying resources and opportunities for integration with other programs can be critical in ensuring that the network gains credibility and traction, maintains relevance, and operates efficiently.

Communication mechanisms and messaging can be designed based on the role a network plays in sharing its work internally among members and with a wider, external audience.

Questions to ask to identify and develop a shared agenda:

- What should we accomplish as a network that will add value?
- How will each member contribute and participate in network activities?
- What steps can be taken right now to advance key network initiatives?

The Flood-MAR Network Story – Ongoing Coordination

Since the Flood-MAR Network first convened in December 2020, members have met at quarterly workshops to brainstorm and refine the initiatives that were needed to firmly establish the network. In addition to the quarterly workshops, a small planning team comprised of DWR staff and consultants met regularly with network members to advance the ideas that were expressed during these workshops. Each initiative team

met to complete their identified tasks and regularly reported and solicited further input from the larger membership. This structure allowed members to support initiatives as resources and time allowed, in a manner consistent with the different engagement types (Figure 1).

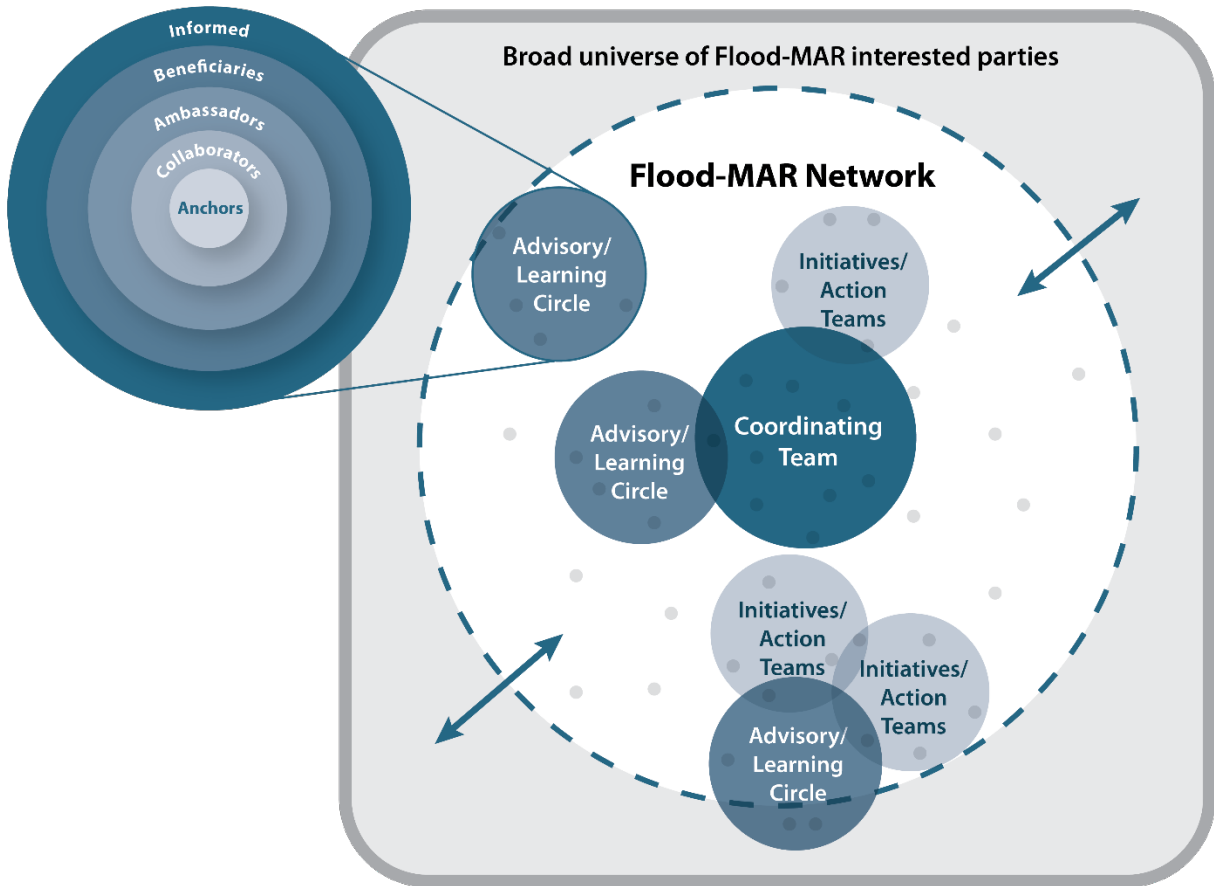
Planning Team: The primary purpose of a planning team is to support the various engagement activities of the Flood-MAR Network. The Flood-MAR Planning Team is comprised of DWR staff and consultants who provide continuity and administrative and facilitation support.

Coordinating Team: The primary purpose of a coordinating team is to guide the work and activities of the network to ensure that they align with the network's purpose and key objectives. The Flood-MAR Network Coordinating Team is comprised of approximately ten members who volunteered to support the Flood-MAR Network by adaptively responding to emerging needs within the network and in the broader community. The Coordinating Team is not a decision-making body; it considers information needs and priority topics to bring forward for consideration by the full network.

Learning Groups: The primary purpose of a learning group is to encourage the flow of information among network members as well as with outside groups and interested parties by way of conversations, knowledge sharing, and collecting information on any specific topic related to the network's purpose. Although learning groups are focused on information exchange, discussions can evolve from learning into identification of desired coordinated actions. The Forecast-Informed Reservoir Operation (FIRO) Group was formed by network members to engage experts in recharge and flood management to fill knowledge gaps and explore integration opportunities. During the group's monthly meetings, participants take turns in sharing short presentations and leading discussions. Each participant identifies interests and challenges related to the topics of discussion and then makes connections to their own work.

Initiative or Action Teams: The primary purpose of the initiative team (or action team) is to advance a specific action that relates to the network's purpose. The Flood-MAR website development initiative exemplifies the importance of having a key anchor that grounds and motivates the team, providing solid, clear expectations on what they agree to accomplish. To develop the website, a team member was able to identify a volunteer web designer.

Figure 1 The Flood-MAR Network Structure



Note: Adapted from Ehrlichman, 2021.

Network Opportunities – Conclusions and Lessons Learned

Water management in California is dynamic and at times contentious. Successful water and watershed management is critical for the health and wellness of all. The interdependencies inherent in the way that people and water interact suggest a role for networks. It is impossible to combine every aspect of water resources management into a single structure for the purposes of organization; however, the opposite side of the coin also holds true, in that the various aspects of water management cannot remain fragmented, unaware of and uncoordinated with the other aspects. The intentional development of networks uncovers shared purpose, builds rapport and trust, improves understanding of complex issues, and supports more efficient or effective water management at different scales and contexts. The development of networks can be a key next step in California. Flood-MAR stands as only one of many strategies that can be used where coordination and integration across a wide variety of administrative and infrastructural systems is needed in pursuit of better outcomes. There is significant opportunity to improve the integration of surface and groundwater management to create sustainable practices and provide benefits to meet local, regional, and statewide needs.

The Flood-MAR Network can integrate with other resource management programs in which the solutions to overcome Flood-MAR challenges may be found (like Integrated Regional Water Management or flood risk management) or where Flood-MAR solutions are desperately needed (like Groundwater Sustainability Agencies or flood risk management).

The understanding that networks can provide a force multiplier has grown significantly in just the past decade. A February 2020 report from the American Association of State Highway and Transportation Officials states: “Collaborations are a form of collective action...that enable agencies to work across organizational boundaries to solve problems that cannot be effectively addressed unilaterally” (National Cooperative Highway Research Program 2020).

Managing for resilient water and watersheds in California encompasses complex issues that can benefit from network activities. Reflecting on the Flood-MAR Network example shared in this white paper, as well as other networks, it is clear that establishing deeper and more flexible relationships among diverse interested parties will continue to be fundamental to progress. Managing and coordinating at the same scale as the challenge being confronted, with all of the people and institutions who hold relevant management authority, is a well-established success metric for sustainable environmental management.

The recognition that we face “problem[s] that cannot be effectively addressed unilaterally” is more and more common as we confront the changing climate and begin to correct the unsustainable zero-sum problem-solving techniques and single sector optimization of the 20th century. Forums in which those who work separate aspects of the same system, problem, or solution are clearly needed. Such forums can provide an environment in which experts can engage, educate, and share information and camaraderie. This need, and these processes, are representative of the goals and ongoing success of the Flood-MAR Network.

References

- Ehrlichman David. 2021. *Impact Networks: Creating connection, sparking collaboration, and catalyzing systemic change*. Berrett-Koehler Publishers.
- National Cooperative Highway Research Program (NCHRP). Project 08-36, Task 142, *Guidebook for Multi-Agency Collaboration for Sustainability and Resilience*. Prepared for but not an official publication of the NHRCP. Last accessed 9/21/2022 at: <https://onlinepubs.trb.org/Onlinepubs/nchrp/docs/NCHRP08-36Task142.pdf>.
- Vandeventer Paul & Mandell Myrna. 2011. *Networks that work: A practitioner's guide to managing networked action*. Community Partners.

