

CALIFORNIA WATER QUALITY MONITORING COUNCIL

Monitoring Council Meeting Notes

Tuesday, February 28, 2017 – 10:00 AM to 4:00 PM

Second Floor, Klamath Training Room
Joe Serna Jr. Cal/EPA Headquarters Building
1001 I Street, Sacramento



Monitoring Council Members and (Alternates) in attendance:

Bob Brownwood	(Bruce Houdesheldt)	(Stephani Spaar)
Beth Christman	Karen Larsen	(Shelly Walther)
(Greg Gearheart)	Armand Ruby	Stephen Weisberg

Others in attendance or (on the phone):

(Amanda Aprahamian, Orange Council Public Works)
Shakoora Azimi-Gaylon, Delta Conservancy
Carolyn Balazs, Sacramento Regional County Sanitation District
(Gina Benigno, Department of Fish and Wildlife)
(Jarma Bennett, State Water Resources Control Board)
Kelly Briggs, Department of Water Resources
(Abby Carevic, Department of Water Resources)
Selina Cole, Central Valley Regional Water Control Board
(Valerie Connor, GEI Consulting)
(Anne Cooper Doherty, Department of Toxic Substances Control)
(Brad Cooper, Eastern Research Group)
Gary Darling, Department of Water Resources
(Sarah Dolislager)
Terry Fleming, US Environmental Protection Agency—Region 9
Karen Gehrts, Department of Water Resources
Tony Hale, San Francisco Estuary Institute
Lauren Hastings, Delta Science Program
Rainer Hoenicke, Delta Science Program
Kris Jones, Water Quality Monitoring Council, Department of Water Resources
(Martina Koller, Delta Science Program)
(Nazar Kosmo)
(Meg Layhee, Central Sierra Environmental Resource Center)
Jon Marshack, Water Quality Monitoring Council, State Water Resources Control Board
Rafael Maestu, State Water Resources Control Board
Christina McCready, Department of Water Resources
(Stephen McCord, McCord Environmental)
Steven Moore, State Water Resources Control Board
(Eric O'Donnell, Townsend Public Affairs)
(Amye Osti, 34 North)
(Dave Osti, 34 North)
(Rachel Pisor, Department of Water Resources)
(Harry Spanglet, Department of Water Resources)
(Hildie Spautz, Department of Fish and Wildlife)
Frances Spivy-Weber, State Water Resources Control Board
(Beckye Stanton, Delta Conservancy)
(Joseph Tapia, Department of Water Resources)
Vanessa Tobias, Department of Fish and Wildlife
(Randy Turner, San Francisco Estuary Institute)

ITEM:	1	
Title of Topic:	INTRODUCTIONS AND HOUSEKEEPING	
Purpose:	<ol style="list-style-type: none"> 1) Introductions (in the room and on the phone) 2) Review draft notes from December 13, 2016 Monitoring Council meeting 3) Review agenda for today's meeting 	
Desired Outcome:	<ol style="list-style-type: none"> a) Approve December 13, 2016 Monitoring Council meeting notes b) Preview what will be covered today and overall meeting expectations c) Adjust today's agenda, as needed 	
Attachment Link:	Notes from December 13, 2016 Monitoring Council meeting	
Contact Person:	Jon Marshack	jon.marshack@waterboards.ca.gov , (916) 341-5514
Decisions:	Notes from the December 13, 2016 Monitoring Council meeting were approved without amendment.	

ITEM:	2	
Title of Topic:	PUBLIC FORUM	
Purpose:	Any member of the public may address and ask questions of the Monitoring Council relating to any matter within the Council's jurisdiction under California Senate Bill 1070 (Statutes of 2006) provided the matter is not on the agenda.	
Desired Outcome:	Information and potential agenda topics for a future meeting. No decisions can be made regarding items that have not received prior public notice.	
Attachment Link:	<ul style="list-style-type: none"> • California Senate Bill 1070 (Statutes of 2006) • Delta ISB Draft Monitoring Prospectus • Sacramento River Watershed Data Portal 	
Contact Person:	Jon Marshack	jon.marshack@waterboards.ca.gov , (916) 341-5514
Notes:	<p>Rainer Hoenicke (Delta Science Program) informed the group of an effort carried out by the Delta Independent Science Board (Delta ISB), in conjunction with the Delta Science Program (DSP), to undertake a broad review of the monitoring enterprise in the Delta. The review is intended to develop recommendations for how current and future monitoring programs could better address the needs of management agencies. The review also attempts to provide guidance for how individual and larger-scale monitoring programs could be better coordinated, and how the data collected from these programs could support implementation of adaptive management and assessments of performance measures (see Prospectus).</p> <p>Steven McCord (McCord Environmental) also informed the group that the Sacramento River Watershed Portal is now live and can be accessed at</p>	

	data.sacriver.org . He added that Holly Jorgensen is currently reaching out to stakeholders to develop a workgroup associated with the portal efforts.
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ITEM:	3	
Title of Topic:	ANNOUNCEMENTS AND UPDATES	
Purpose:	These were expected to be brief informational items that could be expanded into more detailed discussions at future meetings: <ul style="list-style-type: none"> Brief announcements and updates related to the Monitoring Council's mission pursuant to Senate Bill 1070, Statutes of 2006 	
Desired Outcome:	Information and comment	
Contact Persons:	Jon Marshack Kris Jones	jon.marshack@waterboards.ca.gov , (916) 341-5514 kristopher.jones@water.ca.gov , (916) 376-9756
Notes:	Bruce Houdesheldt mentioned that the Central Valley Regional Water Quality Control Board would be having a public hearing on March 9 th concerning their Salt and Nitrate Management Plan for the Central Valley. Adoption of basin plan amendments to implement the plan is expected in 2018. Selina Cole (Central Valley Regional Water Control Board) indicated that the Delta Regional Monitoring Program had their first upload into CEDEN.	

ITEM:	4	
Title of Topic:	SELECTION OF NEW COUNCIL EXECUTIVE DIRECTOR	
Purpose:	Jon Marshack led a discussion regarding the selection of his replacement as Council Executive Director, in anticipation of his retirement in May 2017.	
Desired Outcome:	Identify the required characteristics and qualifications for this position.	
Background:	<p>Jon Marshack has served as the Council Executive Director since May 2014, before which he served as Coordinator for the Monitoring Council (2008-2014). Jon has scheduled his retirement shortly after the May 2017 Council meeting.</p> <p>CA SB 1070 calls for the Monitoring Council to be administered by the State Water Resources Control Board. The Monitoring Council's Executive Director resides within the State Water Board's Office of Information Management and Analysis and represents the Monitoring Council to executive management of other governmental agencies, departments, non-governmental organizations and stakeholders and to develop policy recommendations to the Monitoring Council.</p> <p>The Executive Director works with the Council's Assistant Director (who resides within the Natural Resources Agency, Department of Water Resources) to identify and organize issues, elicit and develop points of view and alternative solutions, organize theme-specific workgroups, assign tasks to workgroups and contractors, elevate potential disputes to the Council or its Co-Chairs, facilitate Monitoring Council meetings, manage the production of any Council products, and coordinate the development of website(s) and other materials for the</p>	

	<p>Monitoring Council.</p> <p>In addition to the above-listed tasks, the Monitoring Council has authorized the Executive Director, with the support of the Assistant Director, to:</p> <ul style="list-style-type: none"> a) Represent the Monitoring Council in meetings with managers and staff of state agencies identified in California Water Code Section 13181(a)(5)(B), as well as other state, federal and local governmental agencies, institutions of higher education, the regulated community, citizen monitoring groups, and other non-governmental organizations involved in the monitoring and/or assessment of the health of the state's waters; and b) Comment on proposed projects and programs related to implementation of the Monitoring Council's <i>A Comprehensive Monitoring Program Strategy for California</i>. <p>Given the aforementioned responsibilities and duties and given that the position will need to go through the normal State hiring process, what are the desired characteristics and qualifications for a replacement Executive Director? What screening criteria should be used?</p>	
<p>Contact Person:</p>	<p>Jon Marshack</p>	<p>jon.marshack@waterboards.ca.gov, (916) 341-5514</p>
<p>Notes:</p>	<p>Jon Marshack opened by mentioning that he will be retiring shortly after the Council meeting on May 23rd. Jon added that his supervisor (Greg Gearheart, State Water Board Deputy Director, Office of Information and Management and Analysis) plans to hire his replacement, allowing some time for succession training prior to Jon's departure. Jon indicated that the Council's founding legislation (SB 1070) calls for the State Water Board to administer the Monitoring Council, and that the new Council Director will be a state employee. As a result the Board will be going through the normal state hiring process. Jon then asked the Council members for recommendations regarding the desired characteristics for his replacement. Steve Weisberg suggested that the person be hard working. However, he added that a planning subcommittee was formed some time ago to chart a path for the Council moving forward, and suggested that the discussion for this item be delayed until later in the agenda—following Items 6-8, which relate to the Council's future direction. Steve indicated that these later items could help to inform the discussion for this item. Jon and others agreed to revisit this item later in the agenda.</p> <p>Jon informed the group that he had recently updated a draft duty statement for his position. He added that his advice would be that the preferred candidate would keep the Council's efforts moving in a positive direction and remain informed of important initiatives to the administration. He added that his replacement would ideally continue to guide and support the Council's theme-specific workgroups, but also be more involved in regional efforts.</p> <p>Bruce Houdesheldt asked about the role of his replacement—would that person be an initiator, implementer etc. Jon indicated that he sees the person serving both roles. He added that the Council has 1.5 staff (full-time Council Director and half-time Assistant Director) as well as workgroup members who do a tremendous amount of work. However, Jon indicated that he felt that his replacement will need to be able to support the Council's various efforts, while also having a clear vision of the Council's future direction. Jon added that his replacement should also be a good listener, be able to work independently and have initiative. He also indicated that the person should have experience and familiarity with the initiatives of various organizations, to help facilitate improved</p>	

	<p>coordination and collaborative opportunities.</p> <p>Steve Weisberg added that the new Council Director will need to be personable, outgoing, and be well informed on technical aspects of data management, calibration, and data comparability.</p>
ITEM:	5
Title of Topic:	IMPLEMENTATION OF ASSEMBLY BILL 1755, THE OPEN AND TRANSPARENT WATER DATA ACT
Purpose:	<p>Speakers from several of organizations and perspectives presented on efforts relevant to the implementation of Assembly Bill 1755, the Open and Transparent Water Data Act:</p> <ol style="list-style-type: none"> AB 1755 implementation and opportunities for coordination (Chris McCready) California Council on Science and Technology (CCST) Workshop (Chris McCready and Kris Jones) Data Management Workgroup Steering Committee update and recommendations (Tony Hale and Rainer Hoenicke) WRAMP toolsets and AB 1755 implementation (Shakoora Azimi-Gaylon)
Desired Outcome:	<p>Discussion between the speakers and Monitoring Council members to identify:</p> <ul style="list-style-type: none"> How the Monitoring Council and its workgroups can help support the implementation of AB 1755 DWR's process for developing the strategy and protocols required for AB 1755 (due January 1, 2018) Opportunities for outreach with stakeholders How best to stay engaged in AB 1755 implementation The role of the Data Management Steering Committee in supporting AB 1755 Implementation and the associated stakeholder engagement <p>Instructions to staff from the Monitoring Council.</p>
Background:	<ol style="list-style-type: none"> <i>AB 1755 implementation and opportunities for coordination</i> – In September 2016, the Open and Transparent Water Data Act (AB 1755) was signed into law, requiring DWR, in consultation with the Monitoring Council, the State Water Resources Control Board, and the California Department of Fish and Wildlife, to create, operate, and maintain a statewide integrated water data platform; develop protocols for data sharing, documentation, quality control, public access; facilitate use of decision support tools related to water data; and submit a report to the Legislature on these activities. DWR seeks to work with the Monitoring Council, its other partners, and interested stakeholders to meet statutory requirements of AB 1755. <i>California Council on Science and Technology (CCST) Workshop</i> – On February 9, 2017, the California Council on Science and Technology (CCST), Department of Water Resources (DWR), and UC Water held an all-day meeting with the goal of assessing 1) who needs; 2) what data; 3) in what form; 4) to make what decisions for California water and related

environmental management. The meeting also attempted to define key attributes of a comprehensive water data and information system that is capable of supporting a range of water-management decisions, as well as develop a process that identifies broader water-data needs of all potential users. At the December 13 Monitoring Council meeting, Chris McCready (DWR) indicated that the Department plans to use the CCST/UC Water meeting as an opportunity for collaboration with academia and the data community and to begin developing a strategy for their efforts relating to the Open and Transparent Water Data Act (AB 1755) (see [notes](#); Item 3d).

- c) **Data Management Workgroup Steering Committee update and recommendations** – The Council's Data Management Workgroup (DMWG) meets regularly to coordinate information technology-related efforts, offer guidance and information to other Council workgroups, and advance information sharing regarding water quality data and technology opportunities. During its February 2016 meeting, the Monitoring Council decided to provide a letter of support for developing a Steering Committee to provide direction and potential staff resources to the Data Management Workgroup. In addition, the Steering Committee's goals have been to identify ways in which the Council and the Data Management Workgroup could support initiatives, such as DWR's efforts relating to AB 1755 and implementing the recommendations of the Data Summit [White Paper](#).
- d) **WRAMP toolsets and AB 1755 implementation** – The Council's California Wetland Monitoring Workgroup's (CWMW) mission is to improve the monitoring and assessment of wetland and riparian resources by developing a comprehensive stream, wetland, and riparian area monitoring plan for California and through increasing coordination and cooperation among local, state, and federal agencies, tribes, and non-governmental organizations. The CWMW developed the Wetland and Riparian Area Monitoring Plan (WRAMP) as a comprehensive framework with tools to be able to monitor and assess aquatic resources in a watershed or landscape. The WRAMP framework can be used to support ecosystem and habitat planning, assessment, monitoring, reporting, and data storage. WRAMP features multiple data and mapping tools that have been developed over the last two decades to address the needs of multiple state and federal agencies for rigorous water quality and aquatic ecology data. The tools can be used individually or together, and they can be adjusted or tuned to meet the specific needs of the user (e.g., environmental planners, regulators, managers, scientists, and educators). The maps and tools can be used to create a complete picture of aquatic resources in the landscape or watershed context by integrating stream and wetland maps, restoration information, and monitoring results with land use, transportation, and other information important to the state's wetlands.

One of the most remarkable aspects of WRAMP is its emphasis on data access and sharing. The EcoAtlas data viewer is especially commonly used for aggregating and displaying data from many sources to support regulatory and management decisions. It can be used to generate, compile, store, visualize, share, and report many kinds of environmental data and information without requiring data sources to relinquish any ownership or oversight.

The Monitoring Council has [endorsed](#) WRAMP. The framework and tools are beginning to be implemented through a variety of regional, state, and federal programs, with advice and review provided by the Council's

	<p>Wetlands Monitoring Workgroup and Data Management Workgroup. The Wetland Workgroup finds that the WRAMP is consistent with the intent of AB 1755, the Open and Transparent Water Data Act, and that WRAMP can help implement the Act. The Wetlands Monitoring Workgroup is, therefore, requesting that the Council facilitate a discussion of WRAMP, especially EcoAtlas, between the Wetlands Workgroup, the Data Management Workgroup, and the leaders of the AB 1755 implementation. The discussion will include how EcoAtlas and other WRAMP tools can help integrate existing and future water quality and ecological data and information from multiple databases. Because EcoAtlas is already making substantial progress in those regards, the Wetland Workgroup is recommending that WRAMP be incorporated into the AB 1755 implementation, especially with regard to wetlands and riparian areas.</p>
<p>Attachment Links:</p>	<ul style="list-style-type: none"> a) Open and Transparent Water Data Act (AB 1755) – presentation by Christina McCready, Department of Water Resources b) Assembly Bill No. 1755, chaptered September 23, 2016 c) CCST Workshop goals and agenda Notes from December 13, 2016 Monitoring Council meeting d) Draft Notes from the December 16, 2016 DMWG Steering Committee Meeting Environmental Data Summit White Paper -- Enhancing the Vision for Managing California’s Environmental Information d) WRAMP webpage WRAMP Tool Kit Monitoring Council Endorsement of Statewide Wetland Monitoring Strategy
<p>Contact Person:</p>	<p>Kris Jones kristopher.jones@water.ca.gov, (916) 376-9756</p>
<p>Notes:</p>	<ul style="list-style-type: none"> a) AB 1755 implementation and opportunities for coordination – Chris McCready presented a brief introduction to AB 1755, including the goals of the legislation. Steve Weisberg asked about whether the legislation includes marine and estuarine monitoring efforts. Chris indicated that the legislation does not call out specific datasets and suggested that the Department of Water Resources (DWR) would be open to including those datasets in their efforts. Karen Larsen then asked about the request for proposals mentioned in the legislation and due to be released in April 2018—likely to develop the data platform—does DWR intend this to apply to only external contractors or could they involve interagency actions? Chris indicated that her group at DWR has been encouraged to utilize the data platform available through data.ca.gov, which is up and running. However, she indicated that DWR is exploring approaches to meet all statutory requirements of AB 1755 in collaboration with partners and stakeholders. Chris then showed slides with timelines for the implementation of AB 1755 (slides 10-11), and highlighted those tasks where they anticipated stakeholder involvement (slide 11; tasks with asterisks). Chris indicated the importance of collaboration in this process, and added that her hope is to provide ample opportunities for stakeholder engagement. b) California Council on Science and Technology (CCST) Workshop – Chris McCready introduced DWR’s approach for using “use cases,” which

will help inform the functional business requirements of a data platform as well as the data sharing protocols required for AB 1755. Chris indicated that during the upcoming months, DWR will be hosting a series of workshops to support efforts relevant to AB 1755. She added that the first CCST workshop took place on February 9th in Berkeley, and was co-hosted by DWR, CCST, and UC Water. The goal of these workshops is to assess 1) who needs; 2) what data; 3) in what form; 4) to make what decisions for California water and related environmental management. These meetings also seek to define key attributes of a comprehensive water data and information system—a system that is capable of supporting a range of water-management decisions. Chris added that ultimately these workshops are intended to help inform DWR’s efforts to develop the protocols and strategy required under AB 1755 (due January 1, 2018). While the use cases won’t encompass all of the management questions or datasets relevant to the AB 1755 effort, the expectation is that they will provide a well-rounded representation to guide these efforts. Jon Marshack suggested that the Council’s theme-specific portals and workgroups could be good sources of potential use cases. Shelly Walther identified the Clean Water Act Section 303(d) impaired waters listing process and the mandate to use CEDEN as a relevant use case. Chris welcomed participation to gather use cases and to help develop the strategic plan and protocols. A second workshop is planned for May 8.

- c) **Data Management Workgroup Steering Committee update and recommendations** – Tony Hale, Co-Chair for the Data Management Workgroup (DMWG) and facilitator for the Data Management Steering Committee, provided an update regarding the first two meetings of the Steering Committee. He described how the DMWG’s purpose has been to: 1) serve as a coordinating and information resource for other workgroups of the Monitoring Council; 2) advance data and information sharing among agencies; and 3) coordinate information technology-related efforts and opportunities. He then provided background which led to the formation of a Steering Committee for data management. Tony indicated that Environmental Data Summit convened in June 2014 to spearhead greater data sharing, which then led to the development the Data Summit white paper, [Enhancing the Vision for Managing California’s Environmental Information](#) (published in September 2015). Tony described how the Monitoring Council had endorsed the Vision Document (November 2014) and more recently endorsed the formation of a Steering Committee for the Data Management Workgroup to facilitate the implementation of the white paper’s recommendations. To increase awareness and develop common understating of key data management concepts, the Data Management Workgroup has developed a set of fact sheets on the following topics: [data management plans](#); [web services](#); [data federation](#); and [open data](#). The impetus for developing these fact sheets were recommendations outlined in the Delta Stewardship Council’s Environmental Data Summit white paper. Tony added that the fact sheets may also help with the interagency consultations required by AB 1755. At the last Steering Committee meeting, Committee members discussed and reviewed the fact sheets, as well as discussed the idea of being more “action oriented.” In line with this recommendation, the Committee members tasked Rainer Hoenicke (Delta Science Program) and Tony with identifying several options for use cases that could help inform the AB 1755 effort, based on Delta Plan performance measures. Tony indicated that these options were going to be shared at the next Steering Committee meeting (April 14). The concept was to pilot a new

	<p>process by identifying one or more use cases, selecting the data sets necessary to satisfy them, publishing those data sets on data.ca.gov, and finally developing decision-support dashboards based on those use cases and data sets. This would help to explore the data lifecycle. Gary Darling, Data Management Workgroup Co-Chair, expressed concerns regarding how the efforts of the Steering Committee would feed into DWR’s efforts relating to AB 1755, given the legislation’s quick timeline.</p> <p>d) WRAMP toolsets and AB 1755 implementation – Shakoora Azim-Gaylon (Delta Conservancy, State Co-Chair for the Council’s Wetland Monitoring Workgroup) briefly introduced the Workgroup’s mission and goals. Shakoora indicated that the Wetland Monitoring Workgroup (CWMW) developed the Wetland and Riparian Area Monitoring Plan (WRAMP) as a comprehensive framework with tools to be able to monitor and assess aquatic resources in a watershed or landscape context. The Monitoring Council has endorsed WRAMP. She added that the WRAMP framework is being used to support ecosystem and habitat planning, assessment, monitoring, reporting, and data storage. Shakoora indicated that the CWMW finds that the WRAMP is consistent with the intent of AB 1755 and that it could be used for its implementation. Jon Marshack mentioned that the WRAMP is a good example for how the various workgroups could help inform the AB 1755 effort, for example, the management questions that could be answered by certain datasets and tools. Kris Jones suggested that the CWMW could develop a use case for one of DWR’s upcoming CCST workshops. Jon Marshack added that the Council’s other theme specific workgroups could also provide useful information relating to use cases. Chris McCready agreed that the use cases could be a useful way for the Council to feed into DWR’s efforts relating to AB 1755.</p> <p>Greg Gearheart mentioned that open data is a huge driver for AB 1755 – bringing data to an open platform, making agencies publish and regularly refresh their data, thereby increasing accountability. He suggested that the Steering Committee needs to steer this effort. Jon suggested that My Water Quality portal pages could include links that access the data underlying various data visualizations presented, with those data residing in the open platform.</p>
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ITEM:	6
Title of Topic:	THE FUTURE OF CALIFORNIA’S ENVIRONMENTAL DATA
Purpose:	Greg Gearheart and Tony Hale: 1) provided an assessment of the current state of California’s environmental data; 2) recommended a path forward for improved management of and access to these data; and 3) suggested ways the Monitoring Council could support these efforts as they move forward.
Desired Outcome:	Information and comment
Background:	The State Water Resources Control Board has led a number of open data initiatives over the past year-plus. These efforts include a series of events aimed at highlighting the potential for open data and related frameworks to quickly solve the many “data flow” problems encountered in a large state entity with lots of data and database “issues.” The State Water Board has made use of data fairs, data challenges and a water quality/data science symposium to create

	more potential for data-driven decision making. Details regarding the State Board’s most recent water data challenge can be accessed at http://waterchallenge.data.ca.gov/ .	
Attachment Links:	<ul style="list-style-type: none"> • The Transition to Open Data: Where to go from here -- presentation by Tony Hale of the San Francisco Estuary Institute • Water data challenge website • Environmental Data Summit White Paper -- Enhancing the Vision for Managing California’s Environmental Information 	
Contact Person:	Greg Gearheart Tony Hale	greg.gearheart@waterboards.ca.gov , (916) 341-5892 tonyh@sfei.org , (510) 746-7381
Notes:	<p>Greg Gearheart (State Water Board Deputy Director, Office of Information and Management and Analysis) provided some background regarding his position and recent data initiatives in which he has been involved. Additionally, Greg covered the State of California’s participation and role in the emerging national framework aimed at using open water data to support sustainable outcomes. He suggested that this “federated” network of open data nodes is parallel to numerous efforts currently underway in California and will build upon these efforts.</p> <p>Greg indicated that one of the challenges that exists within state agencies, and more broadly, is enabling our network of databases to communicate to one another, freeing up data and making it more available to inform decision-making. Making databases talk to each other is a challenge. He suggested that making open data flat files more readily available may be a place to start. For example, he indicated that the State Board has a performance based management system. Flat files are essential to develop the report cards, enforcement actions, violations, etc. within his organization. He added that when these open data flat files are readily available, agency scientists and managers can better utilize their data. Greg provided three take home messages. First, he indicated that these methods are scalable; these data challenges are consistent, whether they are experienced at the department, state, regional or national level. Second, he indicated that data literacy is important, being able to talk the same language to increase understanding. Third, he suggested that organizations need to have a feedback loop, creating the capacity throughout the organization for data curation, visualization, and communication. In this way, data skills are added to regular staff without the need to create specialists.</p> <p>Greg added that our agencies need better access to analytical tools, suggesting that because the data are available on a platform, doesn’t make those data useable. He also suggested that there are layers of data management that build upon one another. Sound data management practices are essential to make data available through data platforms (e.g., CEDEN etc.). With the use of web services—utilizing a federated approach—data can then be brought together from various sources to use in tools, such as data dashboards, designed to help inform management decisions. We will need to work at each of these levels to truly make our data “open.” An Open Data Handbook is being developed to provide governance and stepwise guidance on data quality, approval, etc. The process is analogous to a library system. Open data means machine readable, with appropriate metadata and a data dictionary.</p> <p>Tony Hale then presented on the “<i>Transition to Open Data</i>.” He briefly discussed</p>	

	<p>AB 1755, The Open and Transparent Water Data Act, indicating that it's a catalyst for action. He encouraged the development of memoranda of agreement among agencies, outlining the terms of dependence on data derived from each other and confirming commitments to share data in a timely manner. However, much of his presentation focused on Digital Object Identifiers (DOI), which is a unique alphanumeric string assigned to a publication or dataset that can be used to determine the origin of the data and relevant metadata. Tony indicated that DOI's are important, given that without them, users would face:</p> <ul style="list-style-type: none"> • Data without attribution or provenance • Data without a chain of custody • Data without metadata • Data that might be inadvertently duplicated • Data that might be misused/misunderstood as the data producers are further divorced from data consumers. <p>DOIs are currently used by academia and some foundations and USGS.</p> <p>Following his presentation, Kris Jones asked what the Council's role could be to further these goals and initiatives. Greg suggested that the Council could help improve data literacy, and brought up the Data Management Workgroup's fact sheets (see Item 5c). Development of data governance, coordinating DOIs between agencies, developing controlled vocabularies and protocols would also be appropriate tasks for the Data Management Workgroup, led by the Steering Committee. He also felt that the Council, specifically the Data Management Steering Committee, has an opportunity to play a role and guide efforts regarding the implementation of AB 1755. Tony then indicated that DOI's are "low hanging fruit" where the Council could make progress. Jon Marshack suggested that the Council's Data Management Workgroup and Steering Committee could help with education and outreach—working with DWR to ensure that we are on the same page with their efforts relating to AB 1755. Jon suggested that the Council's workgroups could develop use cases, and indicated that he would reach out to the workgroups to have them think through and develop relevant examples to help inform efforts relating to AB 1755.</p>
<p>Action Items:</p>	<p>Jon Marshack and Kris Jones will work with the Council's theme specific workgroups to develop use cases that focus on management actions, which could help inform DWR's efforts related to AB 1755.</p>

<p>ITEM:</p>	<p>7</p>
<p>Title of Topic:</p>	<p>CONNECTION WITH DATA INITIATIVES OUTSIDE THE MONITORING COUNCIL OR ITS WORKGROUPS</p>
<p>Purpose:</p>	<p>Kris Jones led a discussion regarding the Monitoring Council's role supporting data access and visualization initiatives outside the efforts of the Monitoring Council's workgroups.</p>
<p>Desired Outcome:</p>	<p>Guidance for staff regarding the Council's role in supporting outside data management and visualization initiatives and regional monitoring efforts.</p>
<p>Background:</p>	<p>When the Monitoring Council was formed, its Strategy established a number of theme-specific workgroups, comprised of subject matter experts from a variety of governmental agencies and nongovernmental organizations. Each workgroup</p>

	<p>was tasked with developing an internet portal to bring relevant monitoring data and assessment information for their theme to decision makers and the public. Portal development was envisioned as a mechanism to (1) highlight where gaps or redundancies existed in current monitoring programs, (2) where differences in methods or assessment strategies prevented combining data from multiple studies to enable broader or more in-depth assessments, or (3) where data management systems prevented sharing data across organizations and delivering it to the portals.</p> <p>Following the Monitoring Council’s first Triennial Audit—a self-evaluation of the effectiveness of the workgroup’s progress implementing the Monitoring Council’s Strategy—the Monitoring Council reflected on its successes and failures. At the August 27, 2015 quarterly meeting, the Council formed a Planning Subcommittee to develop ideas for full Council consideration. The Planning Subcommittee recommended that the Council be more flexible in the efforts it supports. This recommendation was mirrored in meetings with the Undersecretary for Environmental Protection, Gordon Burns, who encouraged the Council to support high priority initiatives for the administration. Given this feedback, the Council has increasingly served as a resource for groups that do not fall within the theme-specific workgroup structure. Specifically, the Council and its workgroups have become a resource for data management initiatives, such as those that require data sharing across organizational boundaries. The Council’s staff and Data Management Workgroup have recently worked to educate and inform efforts such as the Interagency Ecological Program’s Data Utilization Workgroup (IEP DUWG) and the EcoRestore Interagency Adaptive Management Integration Team (IAMIT). Serving as subject matter experts—and supporting external data-driven initiatives—could serve as a means to elevate awareness of the Council’s efforts, while filling a much needed niche within the State of California.</p>	
<p>Attachment Links:</p>	<ul style="list-style-type: none"> • Connection with Data Initiatives Outside the Monitoring Council and its Workgroups – presentation by Kris Jones • EcoRestore Interagency Adaptive Management Integration Team (IAMIT) – presentation by Lauren Hastings • Interagency Ecological Program Data Utilization Workgroup (DUWG) – presentation by Vanessa Tobias • Data Driven Decisions – presentation by Val Connor • A Comprehensive Monitoring Program Strategy for California (December 2010) • Increasing Efficiency and Effectiveness Through Collaboration, First Triennial Audit report (December 2014) 	
<p>Contact Person:</p>	<p>Kris Jones</p>	<p>kristopher.jones@water.ca.gov, (916) 376-9756</p>
<p>Notes:</p>	<p>Council Assistant Director, Kris Jones, gave a presentation to provide some context for the guest speakers. Kris indicated that the Council’s initial Strategy called for 1) improved coordination of monitoring efforts through the Council’s theme-specific workgroups; and 2) increased access to monitoring data through the Council’s theme-specific portals. The called for forming workgroups for each major beneficial use and waterbody type and that each workgroup would have a statewide focus. Following the Council’s Triennial Audit, the Council reflected on its successes and failures, and formed a planning subcommittee to propose</p>	

options for Council consideration. The subcommittee's feedback was that the Council and its workgroups should be more opportunistic moving forward, suggesting that they be more flexible in the efforts they support. This recommendation was mirrored in meetings with the Undersecretary for Environmental Protection, Gordon Burns, who encouraged the Council to support high priority initiatives for the administration—and to demonstrate the Council's usefulness. Kris added that the Council has since attempted to serve as a resource for groups that do not fall within the theme-specific workgroup structure and to support high level initiatives. He indicated that the Council is filling a much needed niche as the only statewide organization that seeks to coordinate the sharing and management of water data among agencies. The Council also provides a venue to discuss data challenges, and provides opportunities to come up with coordinated solutions to those challenges.

Kris mentioned that Council's staff and Data Management Workgroup have recently worked to educate and inform efforts outside of the Council's workgroups. He suggested that serving as subject matter experts—and supporting external data-driven initiatives—could serve as a means to elevate awareness of the Council's efforts, while filling a much needed niche within the State of California. Kris invited several speakers, representing various external efforts, to demonstrate this point.

Lauren Hastings then [presented](#) on the efforts of the EcoRestore Interagency Adaptive Management Integration Team (IAMIT). Lauren provided a brief introduction to the IAMIT, indicating that the group is guiding the creation of an adaptive management program for EcoRestore. She indicated that Council representatives (Kris Jones and Greg Gearheart) have provided invaluable guidance and support regarding the challenges of bringing data together from various restoration efforts—across multiple organizations—for adaptive management purposes. Monitoring Council efforts can act as a foundation to bridge between scientists and data professionals.

Vanessa Tobias then [presented](#) on the efforts of the IEP Data Utilization Workgroup (DUWG). Vanessa indicated the IEP is a consortium of 9 state and federal agencies that has conducted collaborative ecological science in the Bay-Delta since the 1970's. She indicated that the IEP faces many challenges relating to their data management, such as having numerous data types and dealing with datasets housed in various agencies. She indicated that Kris Jones (Council Assistant Director) and the Data Management Workgroup (represented by Tony Hale and Steve Steinberg) have provided much needed guidance, and acknowledged that our respective agencies have limited support for dealing with these data challenges, particularly from an interagency context. She added that moving forward, she sees the Council's Data Management Workgroup providing guidance regarding how to work towards "open data," and how the IEP's practices can be consistent with other parallel efforts (e.g., AB 1755).

Val Conner then [presented](#) on the efforts of Bay-Delta Live (BDL). Val mentioned common challenge of connecting monitoring data with decision makers, and then introduced the efforts of Bay-Delta Live. The mission of BDL is to organize Delta's scientific data and information and make it widely accessible and useful. She then shared numerous examples of the tools available through BDL, which were designed to make data more easily accessible and to help inform management decisions. She indicated that similar efforts were being carried out by other groups, such as the Council's Estuary Monitoring Workgroup, the Sacramento River Watershed, and San Joaquin Real Time Management Collaborators. Because these efforts are all based on the

	<p>Open NRM software, each organization benefits from the data and tools added by the other organizations. Val then added that the My Water Quality portals need to be optimized for data-driven decisions, providing data and information directly relevant to agency decision makers and policy makers, rather than the general public. The portals should move away from the question-and-answer paradigm based mainly on presenting status and trends information towards data dashboards customized to inform specific decisions, such as fish and flows, species survival and delta operations. Val listed a number of ways that the Monitoring Council could make their efforts more useful:</p> <ul style="list-style-type: none"> • Assist in making data available with metadata • Improve data comparability/interoperability • Improve monitoring, assessment and reporting to generate data used for action • Develop a roadmap of where to find what you need in the portals • Let stakeholders be more involved in the process • Add a venue to share between portals and workgroups • Leadership is needed to attract staff time and resources • Add a water resources base map of the Delta. <p>Following the presentations, Steve Weisberg expressed agreement with the recommendations that were discussed. He felt that these examples served as a good starting point for the broader discussion of the Council's future direction. Discussions he felt were important, given Jon Marshack's soon approaching retirement and departure as Council Director. Steve suggested that it might be helpful to take a look back at challenges and impediments experienced by the Council and its workgroups. He added that development of the portals were intended to help the workgroups to identify problems with bringing data together from disparate sources; what are the largest problems that have been identified, e.g., data management? A good task for the upcoming year would be to document the biggest problems to answering questions. Steve suggested that it might be beneficial for the Council's new Director to have background in applying for funding, for example.</p> <p>Due to limited time, Karen Larsen suggested that the Council skip agenda Item 8, and potentially revisit that item at the May 23rd meeting. Steve suggested that at the May meeting, Jon lead a discussion of the Council's accomplishments since its inception, rather than just for one year (Item 8). Armand Ruby agreed, suggesting that a retrospective would be helpful, considering the Council's membership challenges. Karen added that the Co-chairs will be having interviews in the following week to fill the Public Member vacancy on the Council, and indicated that discussions in Item 9 would be particularly useful.</p>
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ITEM:	8
Title of Topic:	SUMMARY OF 2016 COUNCIL ACCOMPLISHMENTS AND 2017 INITIATIVES
Purpose:	Discussion of progress made in 2016 by the Monitoring Council and its eight workgroups to improve California's program to monitor and assess the quality of our waters and the health of associated ecosystem and to provide the resulting data and information to decision makers and the public via the Internet.
Desired Outcome:	Direction on the focus and content of the annual report to the Secretaries of the California Environmental Protection Agency and the California Natural

	Resources Agency.	
Background:	<p>As required by SB 1070 (Kehoe, 2016), the Monitoring Council developed a comprehensive monitoring program strategy for California to guide the improvements mandated by the legislation. As an advisory body, the Monitoring Council submitted this strategy for review, comment, and subsequent implementation in two reports to the two Agency Secretaries:</p> <ul style="list-style-type: none"> • Monitoring Council Recommendations to Agencies, December 2008 • A Comprehensive Monitoring Program Strategy for California, December 2010 <p>As a part of the <i>Strategy</i>, the Monitoring Council committed to provide the Agency Secretaries with annual progress reports on strategy implementation. Progress reports have been submitted for 2009, 2010, 2011, and 2012. In December 2014, the Monitoring Council published its first Triennial Audit of implementing its Comprehensive Monitoring Program Strategy, as required by SB 1070 [Water Code §13181(h)] and the Memorandum of Understanding between Cal/EPA and the Natural Resources Agency. Since the workgroups are the main instruments to implement the strategy, each workgroup has been asked to prepare a summary of 2016 accomplishments and proposed initiatives for 2017.</p>	
Attachment Links:	<ul style="list-style-type: none"> • 2016 Workgroup Accomplishments and 2017 Aspirations – presentation by Jon Marshack • 2016 Monitoring Council Workgroup Annual Reports <ul style="list-style-type: none"> ○ Inland Beaches Workgroup (Safe to Swim) ○ Bioaccumulation Oversight Group (Safe to Eat Fish and Shellfish) ○ Safe Drinking Water Workgroup – not currently active ○ Wetland Monitoring Workgroup ○ Healthy Watersheds Partnership ○ Estuary Monitoring Workgroup ○ Ocean Health Workgroup – not yet convened ○ California Cyanobacterial and Harmful Algal Bloom Network ○ Data Management Workgroup and Steering Committee ○ Water Quality Monitoring Collaboration Network 	
Contact Person:	Jon Marshack	jon.marshack@waterboards.ca.gov , (916) 341-5514
Action Item:	<p>Council members agreed that rather than providing details regarding the Council’s accomplishments in 2016 and plans for initiatives in 2017, they asked Jon Marshack to provide a retrospective view of the Council’s work, and discussion regarding our potential path forward. This was requested, given that the May 23 meeting would be Jon Marshack’s last meeting as Council Director.</p>	
ITEM:	9	
Title of Topic:	MONITORING COUNCIL MEMBERSHIP—IS THERE A NEED TO REVISIT MEMBERSHIP, GIVEN RECENT DATA INITIATIVES?	

Purpose:	Jon Marshack provided an update on recent membership changes and lead a discussion regarding the Council's potential next steps for filling these vacancies
Desired Outcome:	Discussion and comment
Background:	<p>The Monitoring Council currently seeks to fill vacancies for the following representatives:</p> <ul style="list-style-type: none"> • Natural Resources Agency (Council Co-Chair)—The Co-Chair seat became vacant in November 2014 with the resignation of DWR's Deputy Director for Delta and Statewide Water Management, Paul Helliker. The Co-Chair Alternate, Stephani Spaar, has solely represented Natural Resources for the past two years. • Agriculture—Parry Klassen indicated via email that he would be resigning from the Monitoring Council and endorsed his Alternate, Bruce Houdesheldt of the Northern California Water Association, to take his place. Parry offered to stay on as an Alternate in this position. No formal endorsement of Bruce's position has been received from the agricultural community. • Public—Sara Aminzadeh resigned from the Monitoring Council in late January 2016. Her alternate, Travis Pritchard, has continued to act as Sara's Alternate. Travis Pritchard has recently left the San Diego Coastkeeper organization. The Public vacancy position was noticed and a number of applications have been received. • Water Supply—At the December 13 Council Meeting, Sarge Green indicated that he will be stepping down from his Council seat representing Water Supply and that the Association for California Water Agencies will recommend Rebecca Franklin as his replacement. • Regulated Community (Publicly Owned Treatment Works)—Phil Markle also announced at the December 13 Council Meeting that he would be stepping down from his Council seat representing Publicly Owned Treatment Works. A recommendation for his replacement is expected from the California Association of Sanitation Agencies in the near future. <p>At the August 27, 2015 quarterly meeting, the Council formed a Planning Subcommittee to develop ideas for full Council consideration—the current and future Monitoring Council membership and structure were among those topics discussed. During the February 1, 2016 Planning Subcommittee meeting, attendees recommended that to more-fully engage additional state governmental organizations in the Monitoring Council's activities and to bring additional staff and resources to bear, members should be added to the Council structure to represent high-level managers of key departments including, but not limited to:</p> <ul style="list-style-type: none"> • Department of Fish and Wildlife • Delta Stewardship Council, especially its Delta Science Program • Department of Pesticide Regulation • Department of Forestry and Fire Protection (Cal Fire) <p>Subcommittee members suggested that letters of recommendation from the Agency Secretaries could be used to help recruit new members. Two options for adding members were discussed – creating a separate Steering Committee or merely adding members to the existing Monitoring Council. Membership by federal partner organizations was also suggested (see meetings notes from February 23, 2016; Item 6)</p>

Attachment Links:	<ul style="list-style-type: none"> • Is There a Need to Revisit Monitoring Council Membership? – presentation by Jon Marshack • Notes from February 23, 2016 Monitoring Council meeting (see Item 6) 	
Contact Person:	Jon Marshack	jon.marshack@waterboards.ca.gov , (916) 341-5514
Notes:	<p>Jon introduced the item, asking whether there is a need to revisit Council membership, given recent data initiatives, such as those related to AB 1755, the Open and Transparent Water Data Act and the need to address issues important to organizations not currently represented on the Council. Armand Ruby then indicated that he would be resigning by the end of the year and that he will provide recommendations regarding his replacement. Karen Larsen suggested that it would be helpful for the Council members to provide feedback regarding how they and/or their stakeholders have benefited from the Council's efforts. She added that this discussion could be part of the retrospective discussion at the May 23rd Council meeting (see Item 8). Steve Weisberg suggested that the Council invite former members to take part in this discussion, such as Parry Klassen (former Council member representing Agriculture) and Sarge Green (former Council member representing water supply interests). Steve also suggested that when considering membership on the Council, it would be worth considering representatives that have strong ties to the legislature—indicating that this could help address and support the need for resources. He suggested that we also consider including other agencies that need to work together, but are not well represented on the Council or in the Council's workgroup efforts. Steve also suggested having a member who has technical expertise regarding data management and data sharing.</p> <p>Bob Brownwood questioned whether the Council needed to continue, noting that there appears not to be a lot of interest in its activities. Karen Larsen indicated that the Council's efforts have been quite beneficial for the Water Boards—making their data useable and available and increasing transparency to the legislature and others. She also mentioned that the Wetland Workgroup had used their association with the Council to increase collaboration and funding. However, several Council members indicated that they have struggled to identify tangible workgroup products that they could highlight for their stakeholders. Jon Marshack suggested that the Council's workgroups could work to develop materials (e.g., factsheets) to help with outreach with relevant stakeholders, which highlight how they would benefit from getting involved. Jon also suggested that the Council members become more engaged between meetings—particularly in their outreach to their own constituencies and related stakeholders.</p> <p>Steve Weisberg suggested that it might be worth inviting the authors of the Council's founding legislation (SB 1070) to the May 23rd meeting. He suggested inviting Linda Sheehan (author of enabling legislation, SB 1070) and Christine Kehoe (former State Senator who sponsored SB 1070) and past Council Members Parry Klassen (Agriculture) and Sarge Green (Water Supply) to provide their perspectives on our accomplishments and future direction. He also suggested including the directors of relevant organizations, such as those represented by Armand Ruby (Storm Water) and Bruce Houdesheldt (Agriculture). Karen suggested that the Council convene a subcommittee to reflect on the discussions from today's meeting, the suggested list of invitees, and plan out the agenda for the May 23rd meeting. Those members who agreed to participate in the subcommittee included: Karen Larsen, Stephani Spaar,</p>	

	Steve Weisberg, Bruce Houdesheldt, and Armand Ruby.	
Action Items:	Jon Marshack will arrange a conference call with the subcommittee tasked to develop and plan the agenda for the May 23 rd Council meeting.	
ITEM:	10	
Title of Topic:	NEXT MEETING AGENDA	
Purpose:	<p>Plan agenda for May 23, 2017 Monitoring Council meeting in Sacramento. Potential items include:</p> <ul style="list-style-type: none"> a) Estuary portal enhancements – living resources and D-1641 water quality report (Estuary Monitoring Workgroup) b) STORMs Monitoring Coordination Framework (Noelle Patterson, SWRCB) c) Data quality and data management standardization efforts of SWAMP (Melissa Morris, SWRCB) d) Human Right to Water “safe and clean” web content and connection to My Water Quality (Wendy Killou of the Division of Drinking Water) e) Interagency Ecological Program governance model – fostering ad hoc teams for specific tasks (Greg Erickson and Sakura Evans of CDFW) f) Ecohydrology, flow ecology, and biologically-relevant instream flow thresholds (Robert Holmes of CDFW, Eric Stein and Raphael Mazor of SCCWRP, Julie Zimmerman of The Nature Conservancy) g) State stewardship for the National Hydrography Dataset by the Department of Water Resources (Greg Smith, DWR) h) Possibility of holding a Monitoring Council annual conference i) Monitoring Council strategic planning 	
Desired Outcome:	Develop agenda ideas for the May 23, 2017 meeting in Costa Mesa	
Contact Person:	Jon Marshack	jon.marshack@waterboards.ca.gov , (916) 341-5514
Notes:	Council members formed a subcommittee (see item 9), that will meet by phone to develop and plan the agenda for the May 23 rd meeting. The Council will hold its next meeting in Sacramento (rather than Costa Mesa), given that several invited guests are based in Northern California. The main focus will be a Council retrospective and plans for the Council’s future. One or more of the above topics could be added if there is sufficient time.	

March 29, 2017
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 Approved May 23, 2017