



Water Supply Update

Board of Directors

May 17, 2022

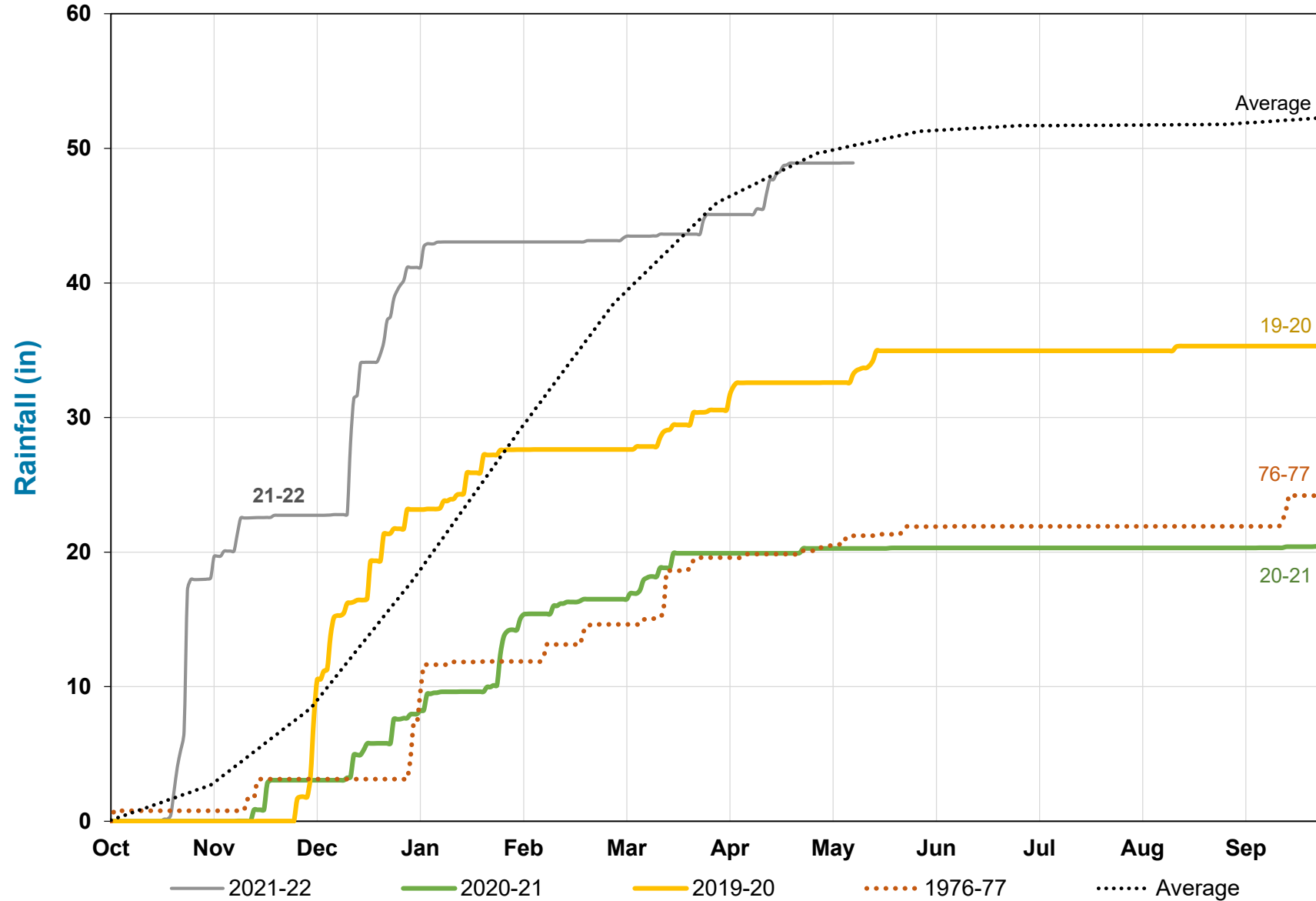


Water Supply Update: Overview

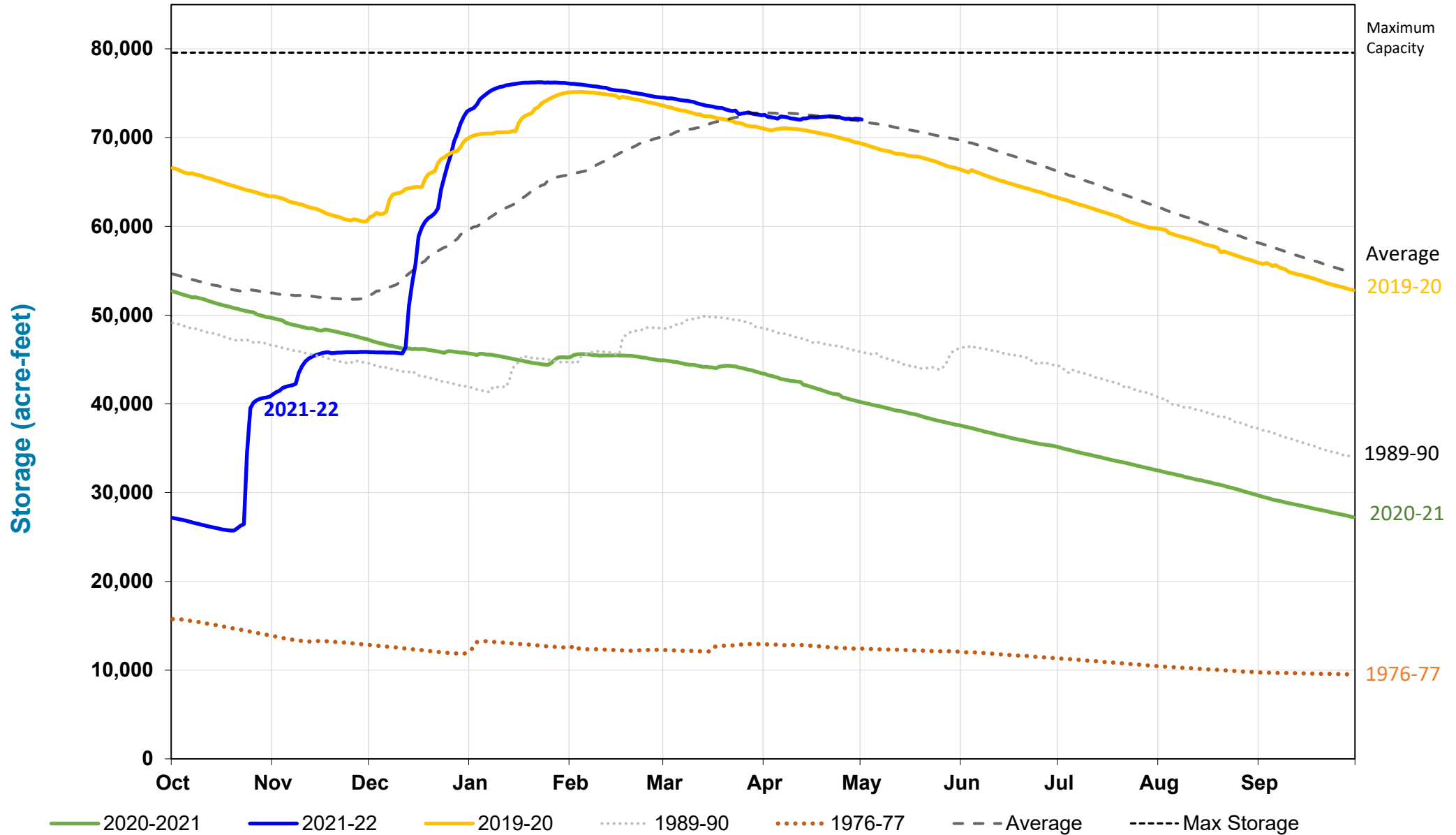
- Current Water Supply
- Water Supply Projection
- Water Supply Assessment Update
 - Board Working Sessions I & II
 - Rain Catchment
 - Gray Water
- Summary

Cumulative Precipitation

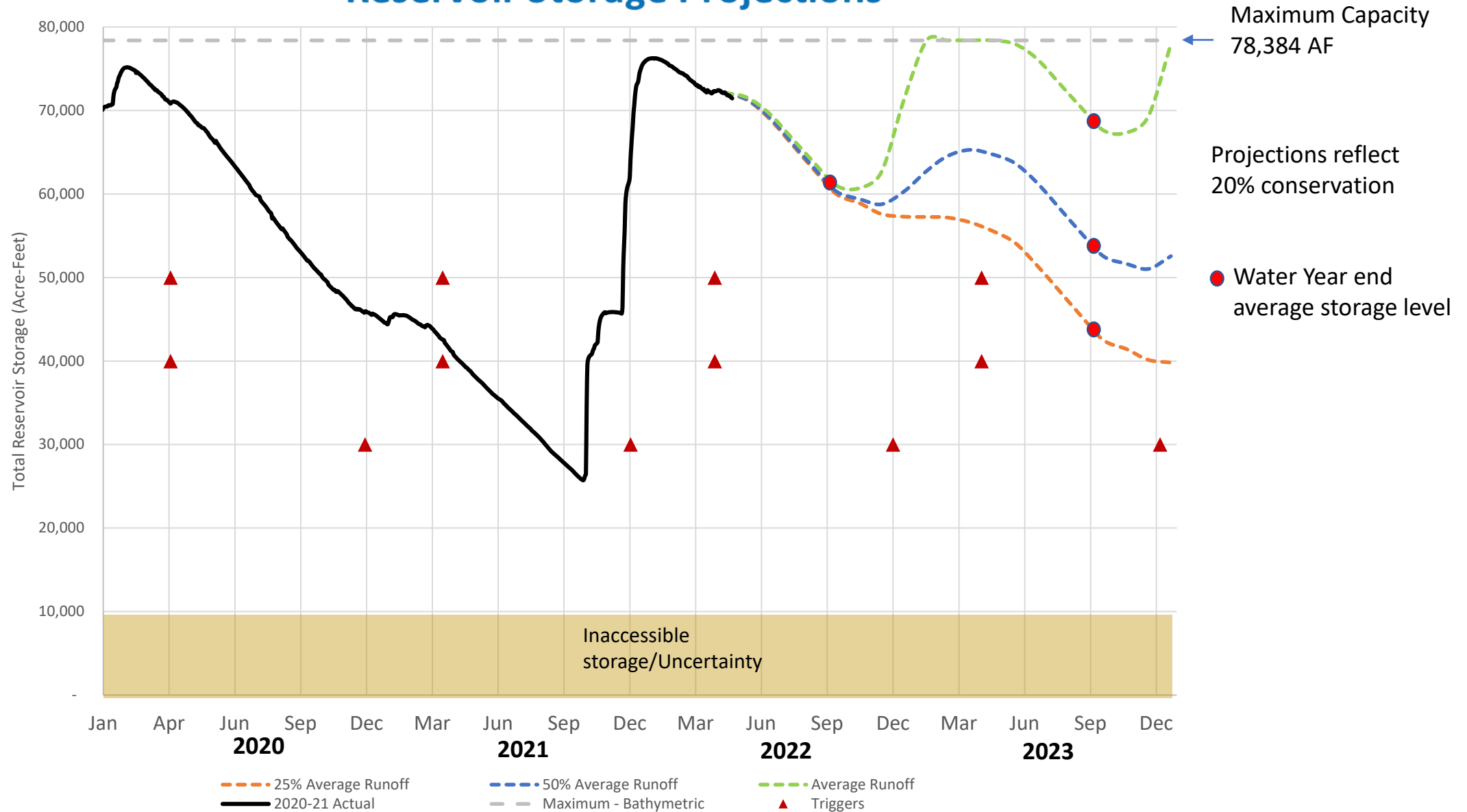
Lake Lagunitas Rain Gauge



Total Reservoir Storage



Reservoir Storage Projections



Water Supply Assessment: Project Update

- Board Working Sessions on project overview and demand management in April and May
- Baseline demand for study is 5-yr average 2016 – 2020 (24,733 AFY)
- Demand will be adjusted to allow for RHNA population increase by 2030
- Staff developing levels of conservation as actions or projects board can implement:
 - Low / med / high

Water Supply Assessment: Demand Management

- Staff presented range (Low to Medium) of potential annual savings:
 - Indoor savings ~26-AF to ~52-AF
 - Outdoor savings ~27-AF to ~74-AF
 - Total savings ~53-AF to ~126-AF
- In Ten years:
 - Reduction to annual demand of 530-AF to 1,260-AF
 - Achieves 2,915-AF to 6,930-AF cumulative savings, or cumulative average of 292-AFY to 693-AFY

Water Supply Assessment: Rainwater Harvesting

- A house with a 2,500 square foot roof has a potential volume of rainfall of ~1,558-gal for a 1-inch rainfall event if 100% efficient.
- Water to irrigate landscape:
 - 144 gallons per household per day x 180 days (i.e. summer) = 25,920 gallons
- 25,000 gallons requires:
 - 500 x 50-gal rain barrels
 - A cistern 20-ft x 20-ft x 10-ft
 - Above ground tank 20-ft diameter x 10-ft tall

Water Supply Assessment: Rainwater Harvesting

- Using Graywater and Stormwater to Enhance Local Water Supplies: An Assessment of Risks, Costs, and Benefits (2016):
 - Volume and timing of rainfall needs to be matched with irrigation need
 - Residential water savings modelled for Los Angeles & Lincoln Nebraska:
 - Los Angeles 1% to 4% overall water savings
 - Lincoln 5% to 21% overall water savings

Water Supply Assessment: Rainwater Harvesting – Marin Water Experience

- Program Summary:
 - Rebate \$0.50/gal up to \$1,000
 - 93 rebates approved since 1/1/20 program start date
 - Average system size: 770 gallons
 - Total volume = 71,610 gallons (0.22 AF)
- Most successful in areas like East Coast where rainfall events continue all year and storage re-fills frequently
- For longer dry season like West Coast larger cisterns have potential to help offset water demand, yet are costly

Water Supply Assessment: Graywater

- Graywater is used water from bathroom sinks, showers, tubs, and washing machines.
- Regulations:
 - Require sub-surface distribution of the water to landscape
 - Graywater cannot be stored more than 24 hours
- Range of systems available from very simple to complex systems with treatment

Water Supply Assessment: Graywater

- Quantifying the Benefits of Residential Greywater Reuse (2020):
 - Three Case studies in Freemantle – whole house direct diversion to landscape systems designed to maximize use of residential graywater
 - Potential to reduce water use in residential gardens by 33% to 59%
 - Payback period for the GW systems exceeded their expected lifetime span of 20 years
 - Low uptake of greywater - 3% of households have greywater systems in Western Australia despite permanent irrigation restrictions

Water Supply Assessment: Graywater - Marin Water Experience

- L2L Workshop Summary:
 - 11 workshops held in last 2-yrs
 - 628 attendees
 - 32 kits issued
- Barriers to expanded use:
 - Regulations
 - Cost/Plumbing changes
 - System Maintenance
 - Operation

	Workshop	# Attendees	# Kits
2020	Aug	20	-
	Sept	31	-
	Oct	10	-
	Nov	23	1
2021 (Water Shortage Emergency)	May 12	146	2
	June 9	250	13
	Sept 23	59	6
	Oct 27	26	7
2022	Mar	14	1
	Apr	14	2
	May	35	

Water Supply Assessment: Graywater

- Tremendous potential, yet complex and potentially costly - staff are working to further understand and breakdown barriers to uptake
- At some point high recovery of water that normally flows to wastewater plants results in less water available for water recycling and could result inadequate flows to carry solids to wastewater plants

Water Supply Assessment: Project Status

- Project team are working on:
 - For May 24 Working Session – Drought scenarios and baseline scenario
 - For June 14 Working Session – Water Management Alternatives:
 - Demand Management
 - Recycled water – Purple Pipe/IPR/DPR
 - Marin-Sonoma Winter Water – Existing conveyance/Dedicated Conveyance/Groundwater banking
 - Local Storage expansion – Soulajule
 - Desalination – locally owned / North bay Regional/Bay Area regional/Petaluma
 - Interties – SFPUC/East Bay options/North bay Intertie

Water Supply Assessment: Schedule Update

Public Workshops

- June 2 – Review of Board Working Sessions I & II
- July 7 – Review of Board Working Sessions II & IV

Board Working Sessions

- June 14 - Board Working Session III - Scenarios
- June 28 – Board Working Session IV – Water Management Alternatives
- July 12 – Board Working Session V – Evaluation of Alternatives
- July 28 – Board Working Session VI a – Roadmap Development
- August 4 – Board Working Session VI b – Roadmap

Summary

- Continue work on the Strategic Water Supply Assessment.
- Storage projection indicates near to slightly above average reservoir levels for end of water year 2022.
- Messaging to customers is to continue to use water wisely in the short term and that we are pursuing long term water supply resiliency.