



Golden Mussel Management Program

Protecting Infrastructure. Preserving Reliability. Controlling Long Term Cost.

Clean Out Strategy Framework

- Target concentration: 1.0 mg copper/L as Matrix CA (1ppm)
- Exposure duration: approximately 28 days
- Continuous injection to maintain system-wide effective levels through all turnouts
- Designed to achieve significant >90% adult mortality, full juvenile control

Invasive Golden Mussels



SEPRO[®]
WATER

Matrix[®] CA

COPPER GROUP **NOT CLASSIFIED** HERBICIDE

For use in: lakes; potable water reservoirs; ponds; fish hatcheries and raceways; crop and non-crop irrigation conveyance systems (ditches, canals and laterals)

Active Ingredient:

Copper Ethanolamine Complex, Mixed
(Mono CAS# 14215-52-2 and Tri CAS# 82027-59-6)*.....27.9%

Other Ingredients..... 72.1%

TOTAL.....100.0%

*Metallic copper equivalent, 9%. Contains 0.909 lbs. of elemental copper per gallon.

KEEP OUT OF REACH OF CHILDREN CAUTION

Refer to the QR code inside of the booklet for the Spanish translation. Consulte el código QR dentro del folleto para ver la traducción al español.

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

See label for Precautionary and First Aid Statements and Directions for Use.

EPA Reg. No. 67690-93

EPA Est. No. 067690-NC-001

SEPRO Corporation
11550 North Meridian Street, Suite 600,
Carmel, IN 46032, U.S.A.

Net contents: **275 gallons**

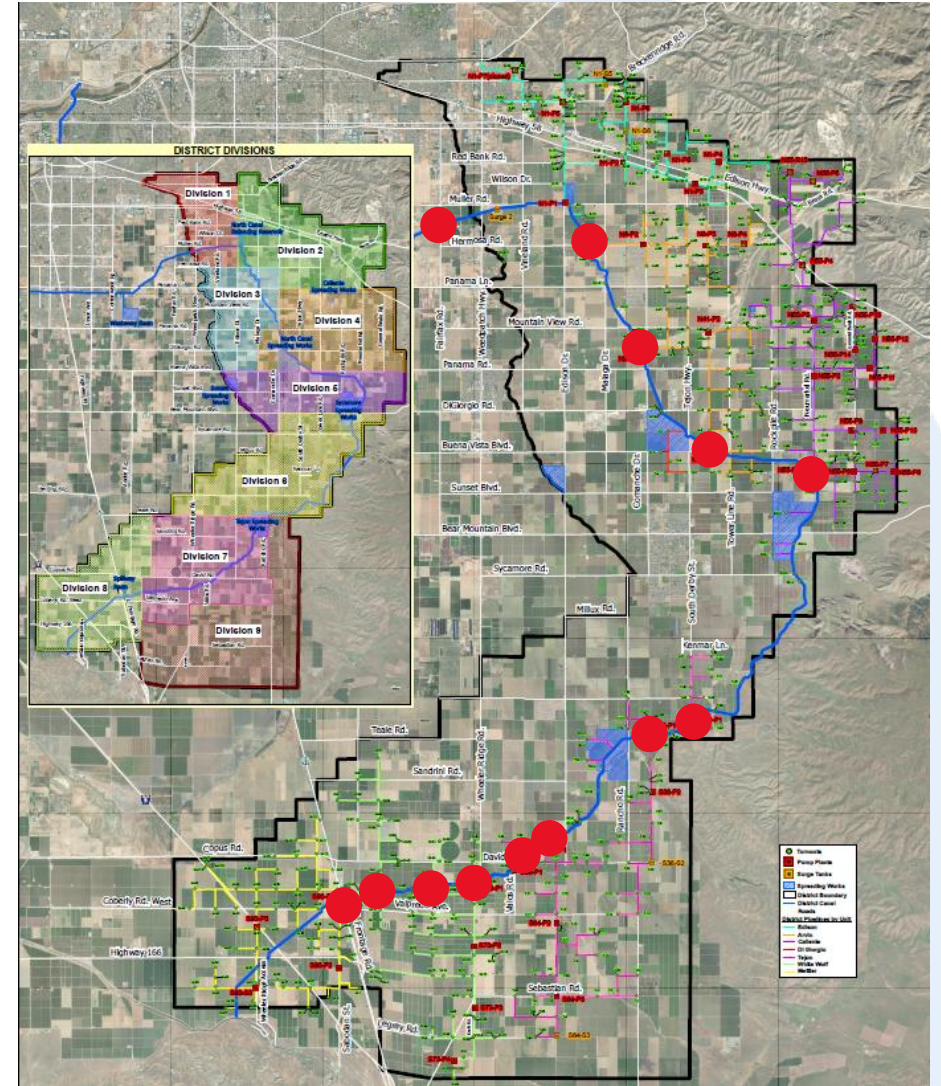
Matrix is a registered trademark of SEPRO Corporation.

1063.275.CA
2024-12-09

166105
FPL20260211-ESP

Set up

- 12 injection stations, monitored and adjusted routinely
- Stand tank and reservoir treatments
 - 2 rounds of stand tank treatments (>40)
 - Reservoir treatments every 2-3 days
- Monitoring locations/ effort
 - **1599** samples collected and logged as of 4/10
- 5 SePRO staff; 17 CLI staff



Forrest Frick Injection Station



Invasive Golden Mussels





Lateral injection setup





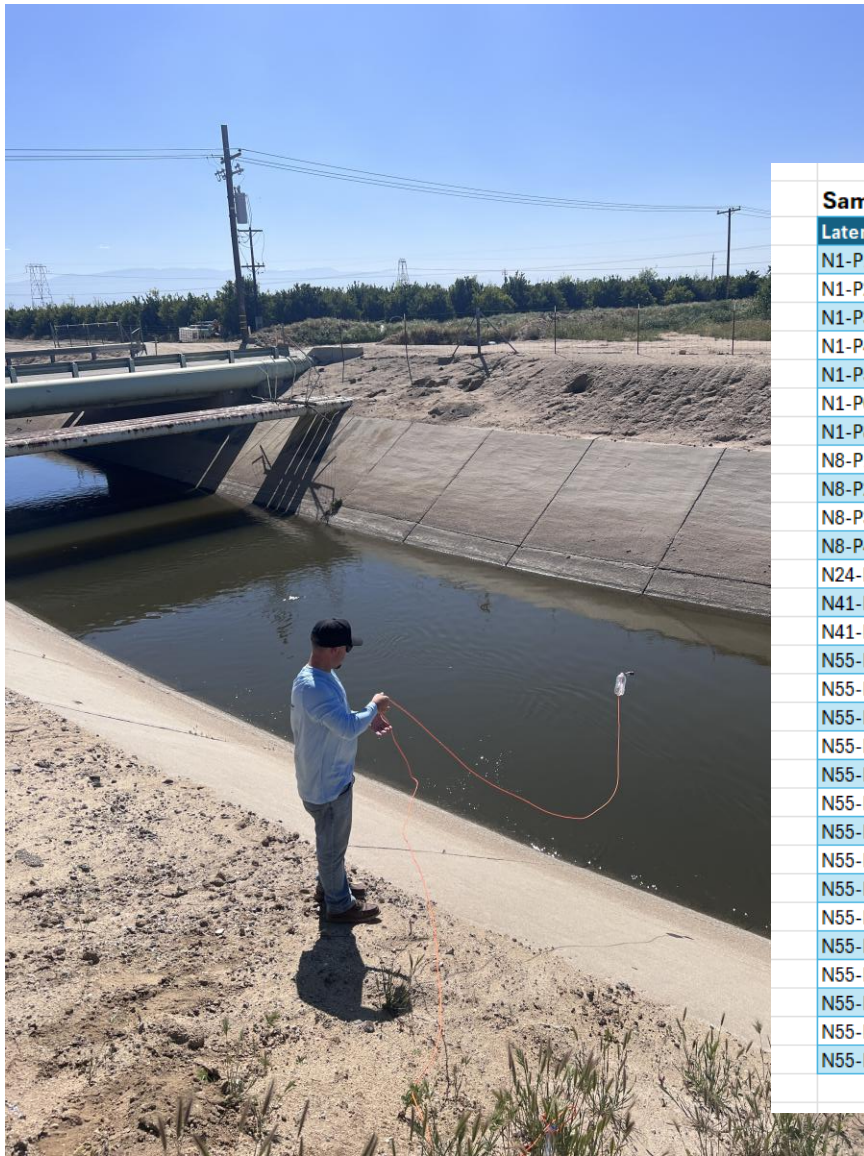
Stand tank dosing



Extensive Sampling

- Main canal at all northern sites, 4 points along southern system
- First turnouts on each lateral system
- Stand tanks
- Subset of terminal turnouts on each lateral





Samples to track concentrations, choose one and rotate day to day

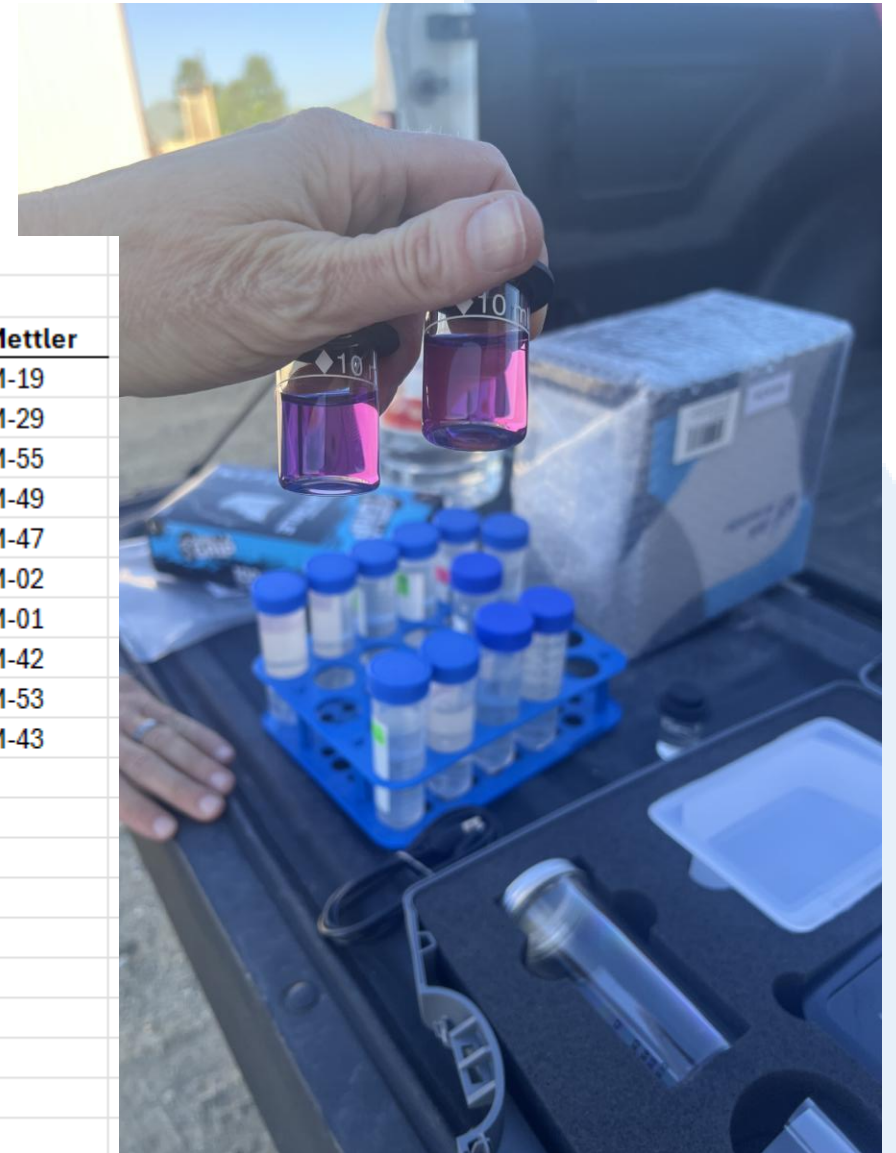
Lateral sys	Turnout 1	Turnout 2	Turnout 3	Turnout 4	Turnout 5
N1-P1	E-91	E-72			
N1-P2	E-29	E-17	E-38	E-24	E-15
N1-P3	E-14	E-08			
N1-P4	E-06	E-02			
N1-P5	N1S5 surge tank	E-61			
N1-P6	E-81	E-99 (gate code 2626)	E-87		
N1-P8	E-10	E-15			
N8-P1	A-90				
N8-P2	A-68	A-45			
N8-P3	A-44	A-64	A-52		
N8-P4	A-62	A-69			
N24-P1	A-42	A-82			
N41-P1	A-02	A-11	A-20	A-25	
N41-P2	A-31	A-30			
N55-P1	C-103	C-94	C-86A	C-21	C-27
N55-P2	C-35	C-39	C-83		
N55-P3	C-109	C-99	C-63		
N55-P4	C-66	C-72			
N55-P5	C-77				
N55-P6	C-100	C-95			
N55-P7	C-05				
N55-P8	C-08	C-04			
N55-P9	C-14	C-13			
N55-P10	C-16B or A	C-12			
N55-P11	C-22				
N55-P12	stand tank				
N55-P13	C-59				
N55-P14	C-42				
N55-P15	C-81				



District Coordination

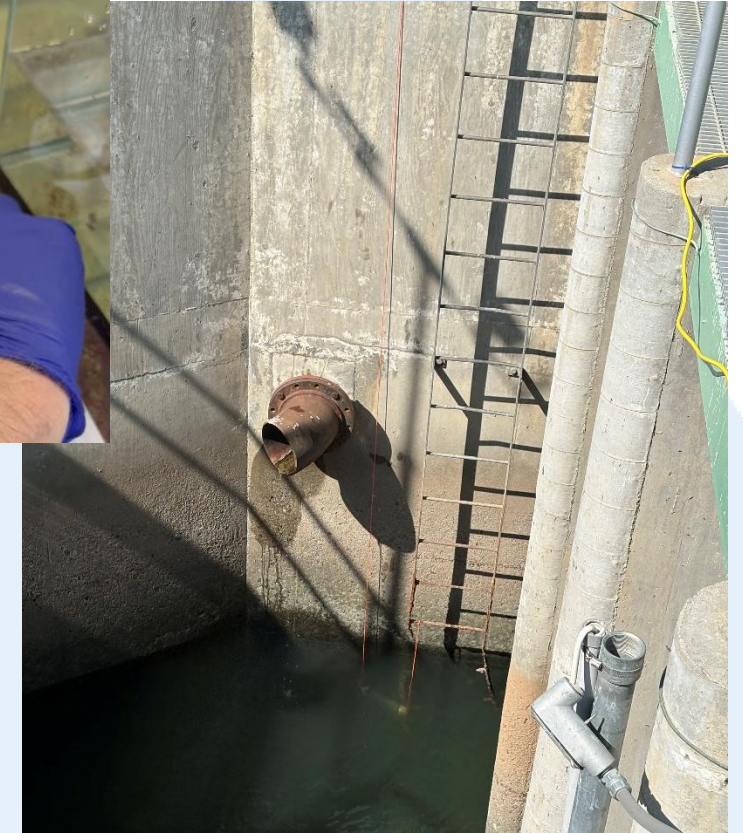
No orders/need to pull water 3.19.2026

Edison	Arvin	Caliente	Tejon	White Wolf	Mettler
furthest downstream of N1-P5	A-77	C-03	T-32 - Order 3/23 - 3/27	W-35 (76 orders but didn't take)	M-19
E-41? - Removed Blind Flanged	A-04	C-44	T-19 - No order / can run	W-32 - Not in Service	M-29
E-25? - Removed Blind Flanged	A-25	C-31	T-36 - No order / can run	W-23 - Not in Service	M-55
E-22 - Removed Blind Flanged	A-30	C-54	T-29 - No order / can run	W-10 - Not in Service	M-49
E-05 - Not in Service		C-74	T-22 - No order / run ?	W-64 - Order 3/23/26 - 3/24/26	M-47
E-03 - Not in Service		C-02	T-25 - No order / can run	W-57 - Not in Service	M-02
E-08 - No order but can run		C-59	T-21 - Order 3/23/26	W-45/46 - No order / can run	M-01
E-09 - Not in Service			T-17 - Order 3/23/26		M-42
E-24 - No order but can run			T-10 - No order / can run	W-76 - Order 3/23/26 - 3/27/26	M-53
			T-01 - No order / can run	W-35 - Blind Flanged	M-43
			T-06 - No order / run ?	M-19 - No order / can run	
A-77 - Not in Service			T-54 (53 has orders)	M-29 - Order 3/23/26 - 3/24/26	
A-4 - Order 3/23/26 - 3/27/26			T-54 - No order / can run	M-23 - Order 3/23/26 - 3/24/26	
A-25 - No order but can run				M-55 - No order / can run	
A-30 - Last run 3/20/26 - 3/21/26				M-49 - No order / can run	
C-3 - No order since 7/25				M-47 - Order 3/23/26 - 3/27/26	
C-44 - Order 3/23/26 - 3/29/26				M-2 - Not in Service	
C-31 - Order 3/23/26 - 3/25/26				M-1 - No order / can run	
C-54 - Order 3/23/26				M-42 - No order / run ?	
C-74 - Not in Service				M-53 - Order 3/24/26 - 3/28/26	
C-2 - Order 3/23/26 - 3/27/26				M-43 - Not in Service	
C-59 - Order 3/23/26 - 3/27/26					



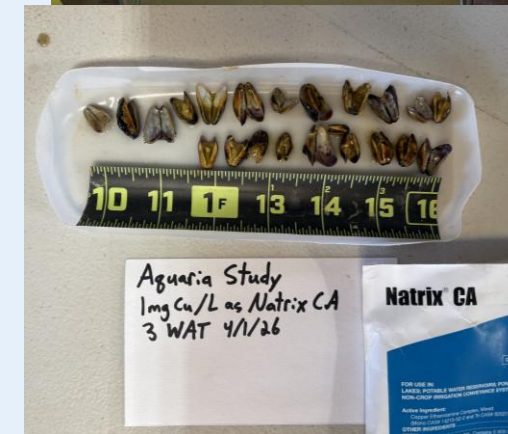
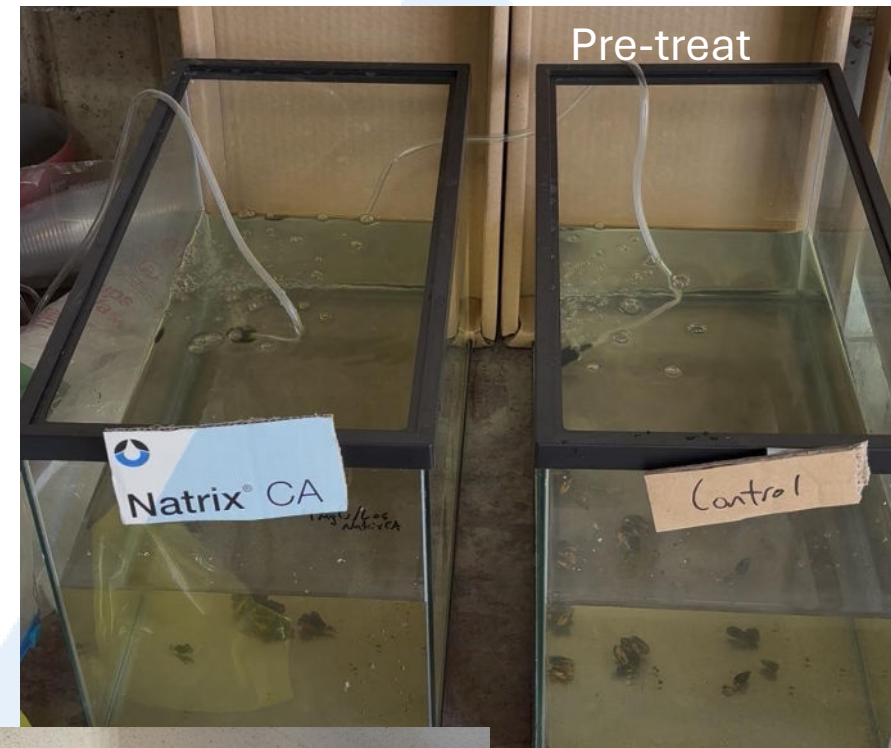
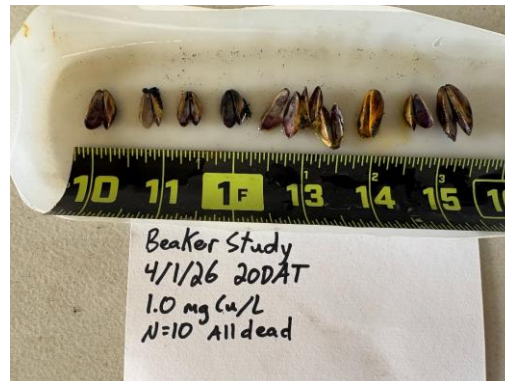
Cage Results

- Caged mussels (removed ~3WAT)
 - 100% control of all caged mussels
 - 49/49 dead
 - Complete survival of untreated reference cage mussels (10 each cage) upstream at Forrest Frick



Beaker/Aquaria results

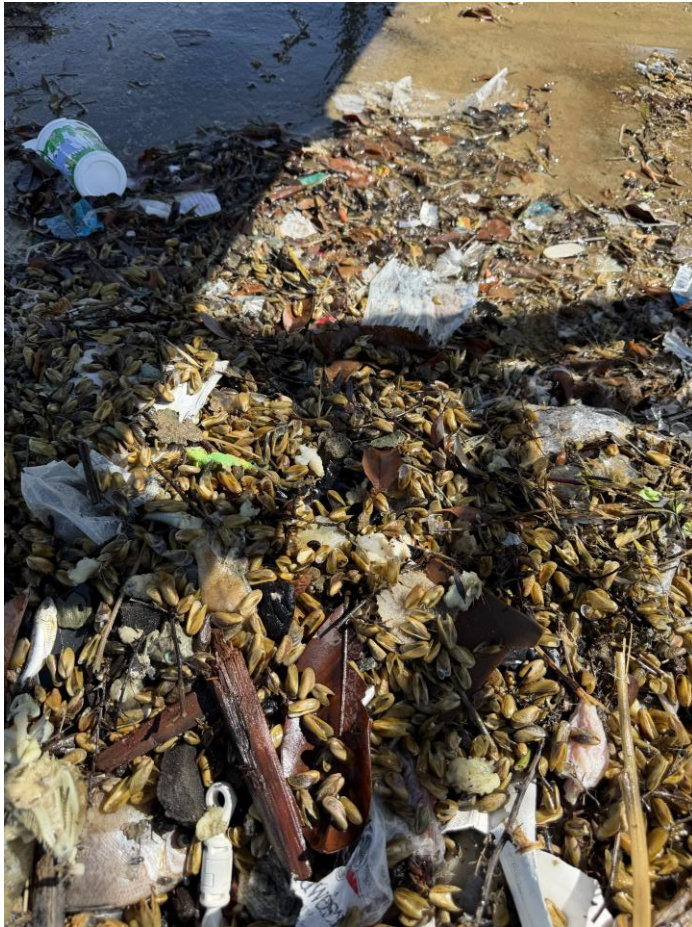
- Beakers and aquaria dosed with 0, 0.5 or 1 ppm copper
- Complete mortality of treated mussels
- Complete survival of untreated aquarium mussels and 90% survival of untreated beaker mussels





Field Observations

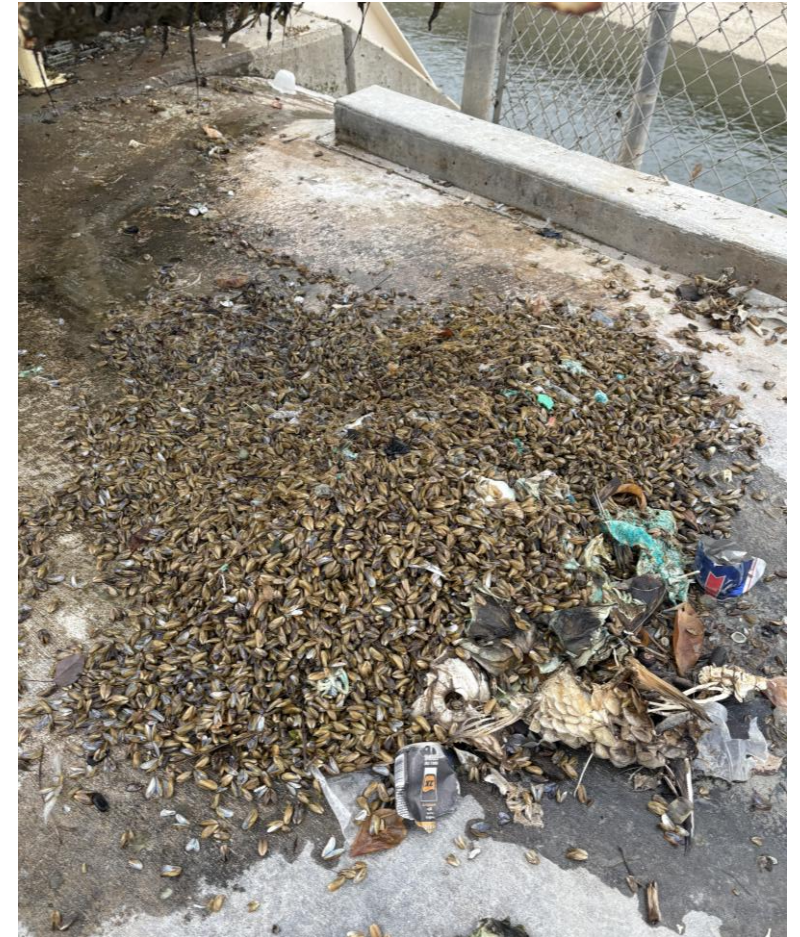




March 17



March 26



March 31

* Rack had been cleaned ~30 hours earlier



March 17, 2026

Vincent Del Papa, email W 61 turnout



March 19, 2026

Vincent Del Papa, email M 12 turnout

Farmer reports to AEWSD





N55



S88



Field established populations (all collections @ 3WAT are 100% dead)





100% dead, all sizes
N55-P1 pipe pulled 3/31/2

Invasive Golden Mussels



Summary

- Significant collaborative effort
- Multiple adjustments and adaptations needed
- Effectively achieved our target lethal thresholds (some ongoing)
- Data suggest we achieved our target 'clean out' of adults all life stages

Thank you for trusting us with your water.

Thank you!

Sam Blue

David Zaragoza

Jerome Lyday

Hector Sedano

Alex Vega

Geoffre Banaag

All AEWSD Staff



Phase 2- Maintenance with Natrix CA*

- Continuous 0.3ppm drip April-October
 - 2016 (average)- 421 totes, \$4.25M
 - 2021 (dry)- 100 totes, \$1.01M
 - 2023 (wet)- 1058 totes, \$10.68M
- Scheduled 0.3ppm injections (March, June-July, Sept-Oct)
 - Same plan as initial clean-out treatment
 - 2016 (average)- 177 totes, \$1.79M
 - 2021 (dry)- 29 totes, \$288K
 - 2023 (wet)- 759 totes, \$7.66M

*prices are for Natrix CA product volumes only

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