



Save Medina Lake

committee update with

LAMCOS membership

November 17, 2016

WHO IS SAVE MEDINA LAKE?

3-1/2 years ago, a group of concerned citizens formed the Save Medina Lake committee (SML) as part of Medina Lake Conservation Society.

The fundamental question of the committee was:

Why was Medina Lake drained from 2007 to 2013, while all comparable lakes in Central Texas were not?

Today the SML committee has almost 15,000 followers on Facebook and receives over 100,000 views on many of our posts.

We have gathered 10,240 signatures on a petition supporting our efforts.



GUIDING PRINCIPLES

1. Save Medina Lake is a data and fact driven organization. Research and data analysis drives all of our work.
2. Save Medina Lake **does not** challenge the water rights granted to the BMA to divert water for irrigation and municipal purposes. **HOWEVER** we seek to include in the permit Water Conservation and environmental policies and consideration of all stakeholders in and around the lake
3. Surface water in Texas is owned by the state and held in trust for the citizens of the state. **It is our democratic right to seek influence over how the water in Medina Lake is managed.**





What we have learned

A TREMENDOUS AMOUNT OF WATER CAN BE RELEASED FROM THE MEDINA LAKE VALVES

Projected Outflow Volume Capacity Medina Dam

48" Valve							36" Valve						
Lake % Full	100%	80%	60%	40%	20%	Lake % Full	100%	80%	60%	40%	20%		
Gallons per Minute	353,988	335,823	312,188	281,712	230,017	Gallons per Minute	265,491	251,867	234,141	211,284	172,513		
Acre Feet per Minute	1.09	1.03	0.96	0.86	0.71	Acre Feet per Minute	0.81	0.77	0.72	0.65	0.53		
Acre Feet per Year	Valve 100% open	570,860	541,660	503,335	454,060	373,176	Acre Feet per Year	Valve 100% open	428,145	406,245	377,410	340,545	278,130
	50% open	285,430	270,830	251,668	227,030	186,588		50% open	214,073	203,123	188,705	170,273	139,065
	25% open	142,715	135,415	125,834	113,515	93,294		25% open	107,036	101,561	94,353	85,136	69,533

Note: This estimate was calculated using the manufacturer valve specifications and assumes the top of valve piping is at 974'. Accuracy is +/- 15% for unknown factors. 09/18/2015. Acre Feet per Minute calculation updated.

Over 200,000 acre feet can be released in 1 year from the smallest valve @ 50% open.

Total capacity of Medina Lake is 254,823 AF



BMA DOES NOT MEASURE HOW MUCH WATER IS RELEASED FROM MEDINA LAKE

- Aside from rain fall, the valves are the most important factor in determining Medina Lake's level.
- More important than evaporation, aquifer recharge, leakage around the dam
- The smallest valve opened just 50% will release ~200,000 AF, **80%** of the lake's capacity.
- This is enough water to serve SAWS 1.7 million customers for 1 year.



PERMIT FROM TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ)

- Allows BMA to:
 - impound *237,874 AF (77,511,000,000 gallons) in Lake Medina and 4,500 AF (1,466,000,000 gallons) in Diversion Lake.
 - divert 66,000 AF (21,510,000,000 gallons) from the river into the irrigation canal.
- The 100 year old permit has never been amended despite the very significant population growth in our area.

*Note this is ~17,000 AF less than total capacity of the lake, 254,823 AF



TCEQ PERMIT

- THE PERMIT **DOES NOT** CONSIDER THE ENVIRONMENTAL CONSEQUENCES OF HAVING A SUBSTANTIAL WATER RESERVOIR IN A SEMI-ARID AREA
- THE PERMIT **DOES NOT** INCLUDE ANY OBLIGATIONS TO CONSERVE WATER FOR THE GOOD OF THE GENERAL POPULATION NOR LEAVE WATER IN ANY OF THE LAKES
- THE PERMIT **DOES NOT** DEMAND BMA TO MAINTAIN A CONSISTANT AND HEALTHY FLOW IN THE MEDINA RIVER TO ENSURE ENVIRONMENTAL FLOW AND TO PREVENT SALTWATER INTRUSION.
- THE PERMIT **SHOULD INCLUDE A CONSERVATION LEVEL TO ADDRESS** THE REALITIES OF TODAY'S WATER ISSUES.



HOW MUCH IS MEDINA LAKE'S WATER WORTH?

- 66,000 AF is worth annually:
 - \$2.3 million at \$36 per AF (current Farmers price)
 - \$4.5 million at \$69 per AF (current SAWS price)
 - \$132 million at \$2,000 per AF (SAWS Vista Ridge project)
- The annual payment to BMA from the customers San Antonio/SAWS was \$2.5 million in 2013, 2014 and 2015. This was >80% of BMA's annual income for these years.
- If the lake is **OPERATED** properly it will be a reliable lake with a reasonable water level. THEN, the lake will support a substantial and dependable economy and will generate significant tax revenues.



BMA'S HAS **NOT** FULFILLED IT'S WATER CONSERVATION PLAN

MEASURE #3 | IMPROVE METERING OF WATER

Install additional meters at Medina Dam and Diversion Dam and along all major canals **to measure water in storage** and **water released** into BMA canal system. Install meters at each individual irrigator's check dam and/or turnout to measure water delivered to each individual user

Date Begin	2007	Target Date	2017
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- Medina Dam. Only 1 meter has been installed by USGS in 1999 to measure water in storage, ie. BEFORE the 2007 plan. **NO additional METER(s) INSTALLED TO MEASURE WATER RELEASED.**

DESPITE THIS, BMA CLAIMS MEASURE #3 has been completed!



URS STUDY – GROUNDWATER RECHARGE FROM DIVERSION LAKE



Technical Memo: USGS Estimates of Recharge to Edwards Aquifer from Diversion Lake

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Table 2. Predicted Recharge to Edwards Aquifer, Comparing Constant Lake Levels

Lake Stage Fixed at Elevation Mean Sea Level (USGS) (ft)	Estimated Recharge into Edwards Aquifer (ac-ft/day)
910	9.1*
911	0.1
912	20.8
913	53.0
913.5	73.4
914	96.7*
915	152.0*
916	218.8*
917	297.1*

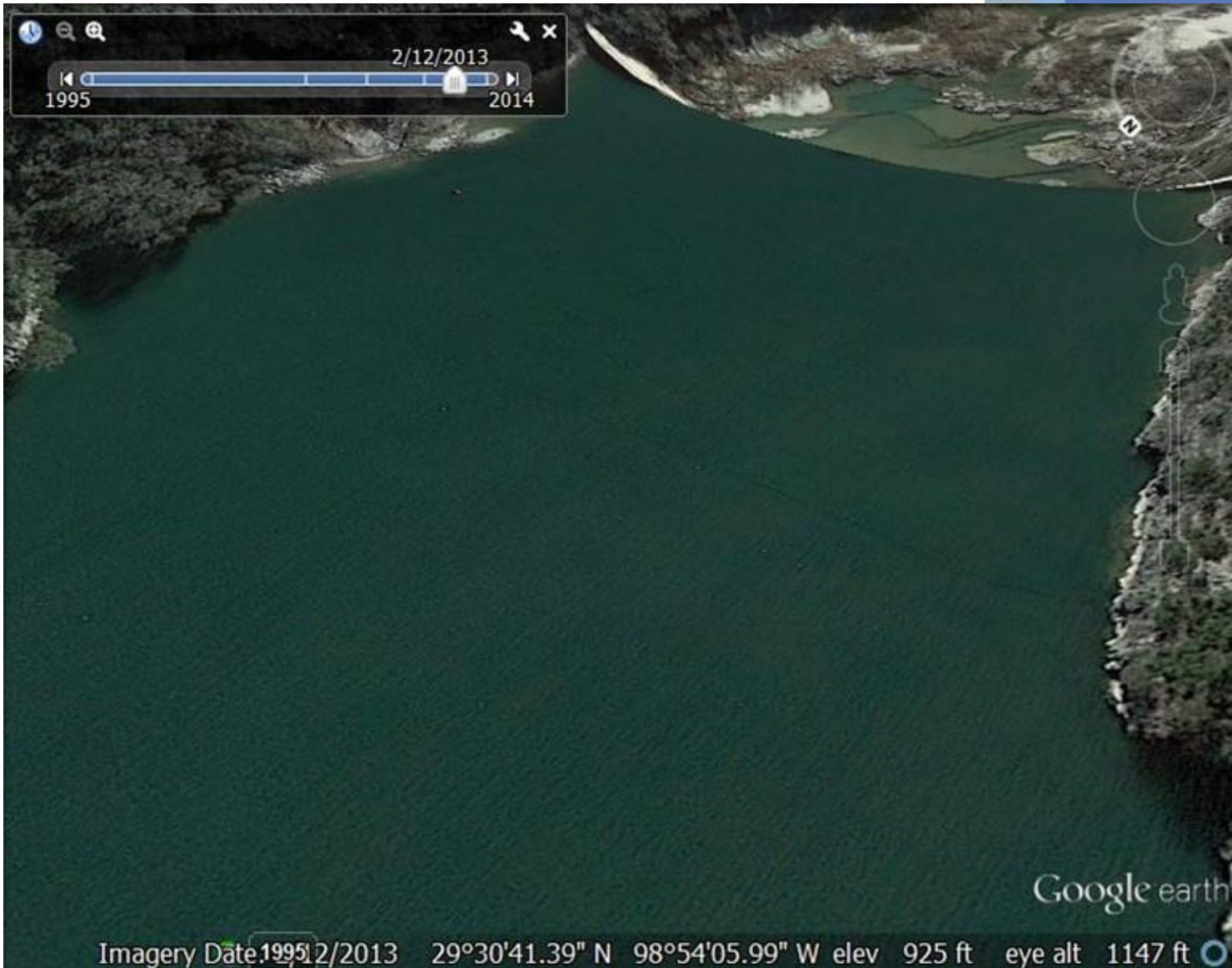
Lower level to 913.5 to irrigate. **DO NOT OPEN VALVES**

Amount of recharge to the aquifer increases exponentially as the water level increases

*Extrapolations outside data set (not supported by measurements, based on equation).



DESPITE THIS KNOWLEDGE, BMA KEPT DIVERSION LAKE FULL OR OVERTOPPING THE DIVERSION LAKE DAM DURING THE DROUGHT, EVEN WHEN NOT IRRIGATING
SOURCE: GOOGLE EARTH



**Diversion Lake
Dam
02/12/2013**

**5 months after
the farmers were
cut-off**

**5 weeks before
shutting valves
on Medina Lake
Dam.**

PROBLEM STATEMENTS

1. Data analysis proves that the reason Medina Lake was drained in 2013, and not just low as other lakes in the region, is **because the valve(s) at Medina Lake were not managed and were left open.** The lake was drained from 100% in 2007 to 25% in 2009 to 6% in April 2013.
2. The management of Medina lake has essentially **not changed since the lake was built 104 years ago.** Despite significant population growth, and thousands of people depending on the lake, there is NO insight or transparency. Even worse, absolutely NO data exist or is made available to the public.

Due to pressure by SML, the BMA implemented a website this past March. However, it contains very limited data at this time.





SML's Short Term Goal:
BMA responsibly manages
the lake

MEDINA LAKE VALVES

For the first time ever to our knowledge, the Medina Lake valves were closed for 9 consecutive months from last winter thru this year's spring/early summer growing season.

It has been demonstrated that permitted water can be delivered to the farmers thru seepage around the Medina Lake dam and withOUT opening the valves.

This is possible by lowering Diversion Lake to the targeted 913.5 level stated in the URS study while irrigating.

How do we know this is possible?

Not because BMA publishes this information...



BECAUSE... SML FLIES A DRONE



[Link to YouTube video of valves discharging](#)

***RECENTLY 1 OF OUR PILOTS HAS BEEN
THREATENED BY THE BMA.***



AS A RESULT OF THE THREAT, SML SENT A PRESS RELEASE AND RECEIVED A SIGNIFICANT AMOUNT OF POSITIVE MEDIA COVERAGE FROM THE NEWS PAPERS AND NEWS STATIONS

PRESS RELEASE - SAVE MEDINA LAKE, October 26, 2016

BMA threatens citizens for seeking and sharing vital information regarding Medina Lake.

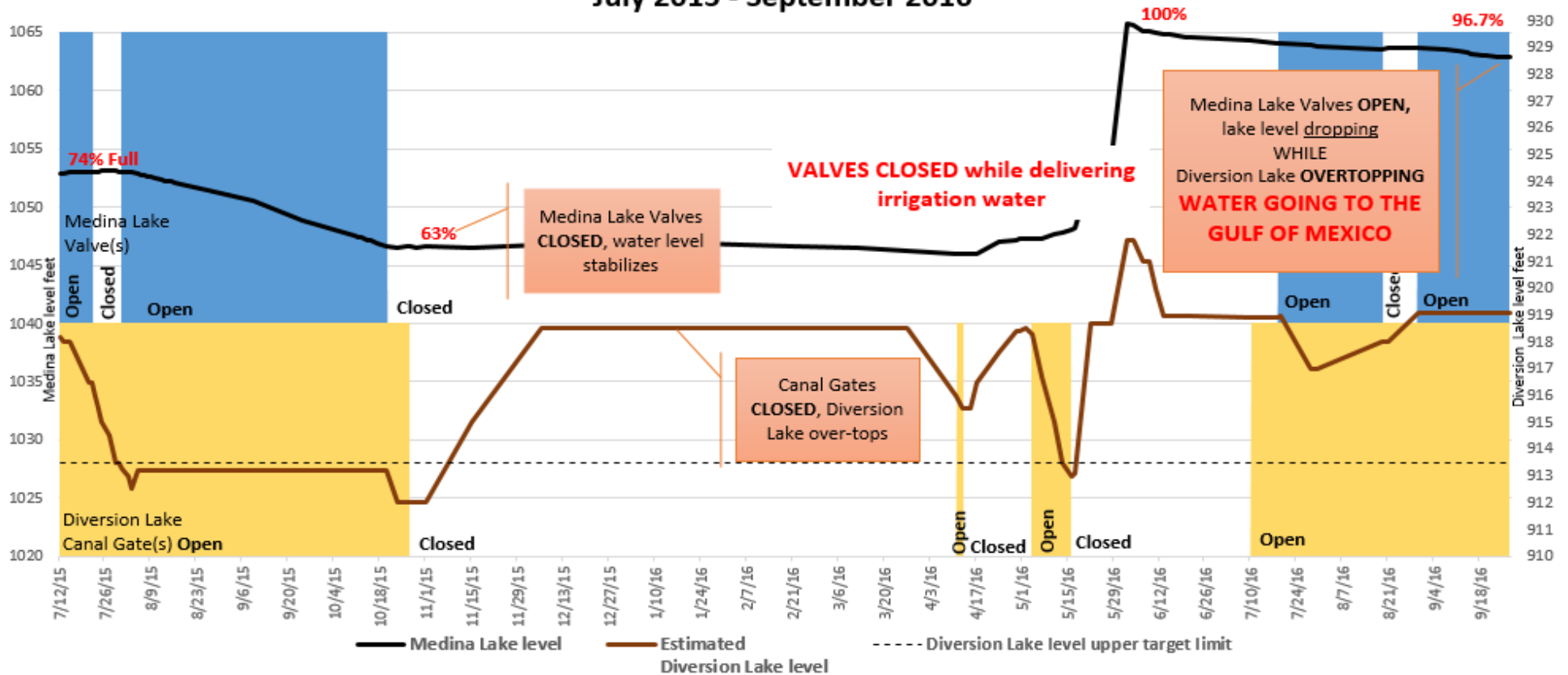
BMA (Bexar-Medina-Atascosa County Water Control and Improvement District) has through their legal council sent a letter to one of Save Medina Lake's Drone pilots, which only can be interpreted as an attempt to intimidate the pilot from flying on behalf of Save Medina Lake. The letter not only demands that the pilot "cease and desist" all flight activities in the vicinity of Medina Dam, but also demands that the pilot shall "provide the names and addresses of all persons to whom you disclosed, displayed, or distributed the image and all other images of District dams and real property." Since the pictures in question have been posted on the Internet, such a request proves an amazing ignorance.

The sole reason for Save Medina Lake flying drones is to provide vital information to the public. Information, which BMA in violation of Texas Government Code, refuses to supply.



DRONE DATA CHARTED SINCE JULY 2015

Medina Lake Historical Status Board
July 2015 - September 2016



BOTH DRONE PICTURES AND CHART are AVAILABLE ON OUR FACEBOOK PAGE – Save Medina Lake



SML ATTENDS BMA BOARD MEETINGS TO:

- Demonstrate presence and pressure for improved water management
- Correct numerous misinformed, incorrect statements by BMA's Business Manager
- Recommend water conservation improvement opportunities such as changing the mistake in the TCEQ permit
- Network and form relationships with board members, especially the new members.

[Link to YouTube Oct 10 BMA Board Meeting](#)



SAVE MEDINA LAKE HAS **DISCOVERED A SIGNIFICANT MISTAKE** IN THE PERMIT GIVEN BY THE STATE OF TEXAS TO BMA

- When Texas Water Commissions (predecessor to TCEQ) issued the current permit to BMA in 1981 it determined that the maximum capacity of the lake was 237,874 Acre Feet (AF) due to sedimentation at the bottom of the lake. The impoundment level was reduced to this level in the permit.
- However, a latter Texas Water Development Board study in 2003 determined the lake's maximum capacity was 254,823 AF **not** 237,874 AF. **YET THE PERMIT WAS NOT CHANGED** even though lawmakers in 1981 clearly intended for the impoundment to be set to 100% of the lake's capacity.
- While the Lake has a capacity of 254,823 Acre Feet, the permit only allows BMA to impound 237,874 Acre Feet. A difference ~17,000 Acre Feet.
- **This is a significant amount of water** and will make a difference during drought periods!

From early July until Monday, November 7th, the valves were open. They are now closed.

WHY HASN'T THE BMA CORRECTED THIS MISTAKE?





SML's Mid Term Goal:
Contractually, BMA
responsibly manages the lake

SAWS RELATIONSHIP

SML routinely meets with SAWS and has formed a positive relationship.

Although SAWS provides BMA with 80% of their budget, they have not received significant amount of water since 2012. They do not plan to receive water from the canal system in the foreseeable future.

SAWS is partnering with USGS to perform a new study Medina Lake's recharge to the aquifer. Their goal is to understand if it is more efficient to take their permitted water from the aquifer vs. BMA's canal system. This would require the lake to maintain a healthy level and potentially a conservation level.

We view this as the most promising avenue to contractually force BMA to operate responsibly.



ANALYSIS ON BMA'S WATER DISTRICT

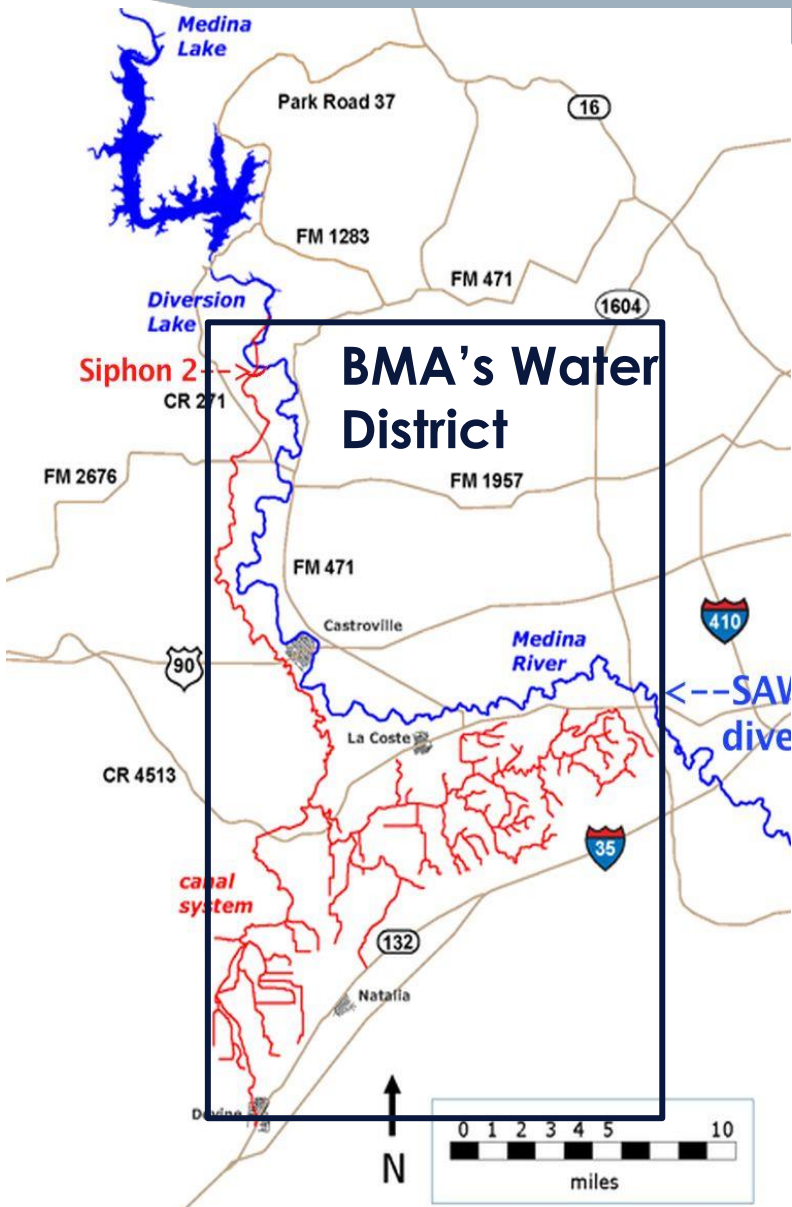
SML BELIEVES BMA'S WATER DISTRICT
(land owners on red canal system in
black box) **HAS DRAMATICALLY
CHANGED OVER THE PAST 100
YEARS**

Yet, the permit has essentially not changed in
the last 100 years.

Therefore we are in the process of performing
analysis on BMA water sales invoices to
determine how many farmers, how many
acres, type of crops, etc...

THE GOAL OF OUR ANALYSIS is to
understand these changes in demographics.

SML does not challenge the 66,000 AF permitted to the
farmers and SAWS



2017 LEGISLATIVE SESSION

SML has formed positive relationships with our state leaders Representative Andrew Murr and Senator Dawn Buckingham.

As with the 2015 legislative session, we will participate in the session to lobby and provide testimony for improved water management policies such as HB2308, Economic Impact Bill on Appropriation of State Water.

SML will provide support in Austin to the BCRAGD as needed.

The Goal of our participation is to continue to inform state decision makers on Medina Lake's situation and to form and strengthen positive relationships with leaders in Austin should there be a need in the future for legislative changes.

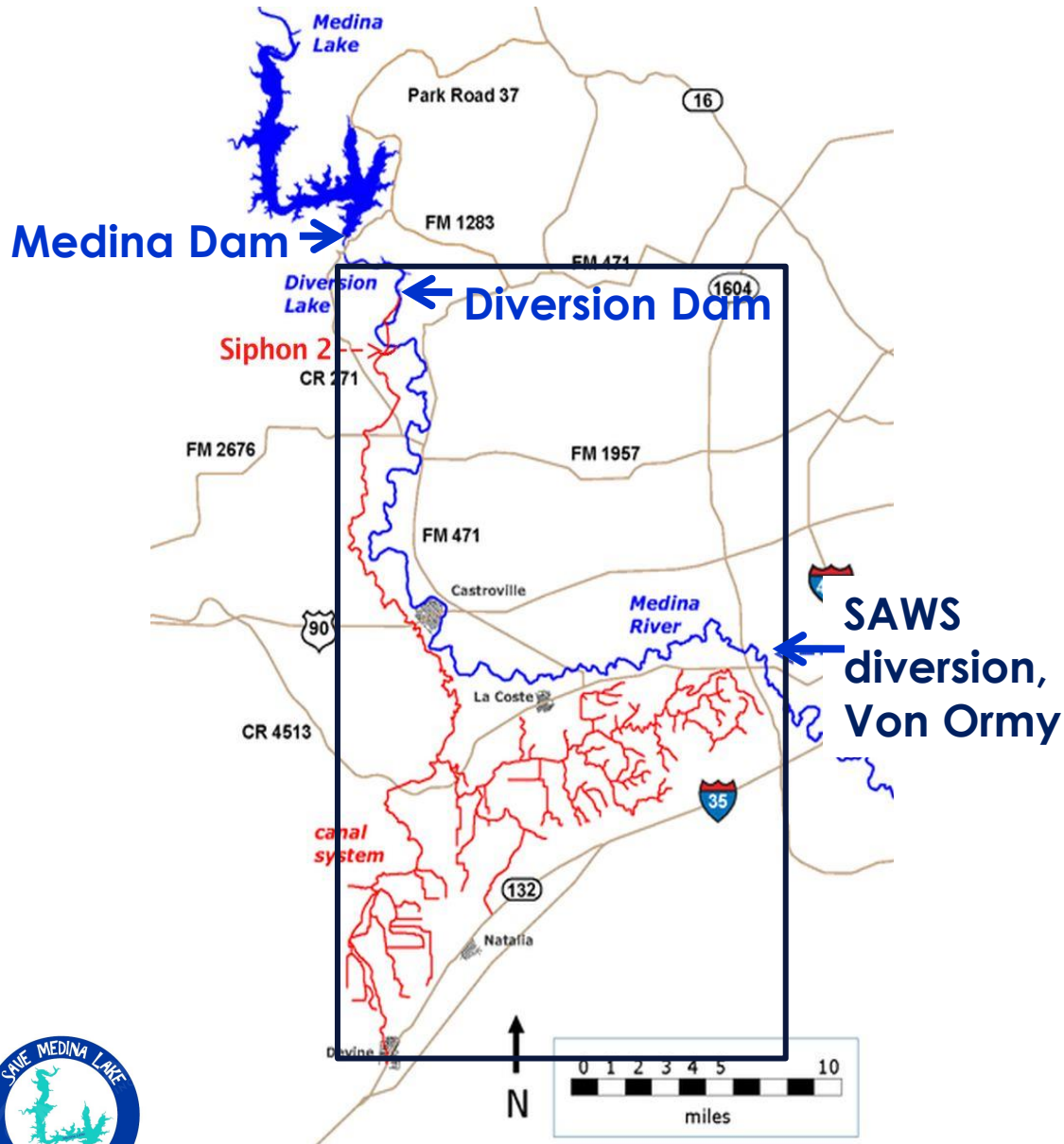
MEDINA LAKE IS NOW ON THE MAP IN AUSTIN!





SML's Long Term Goal:
All Stakeholders are involved
in responsibly managing the
lake

THE BMA BOARD



Although most of the water comes from Bandera County, **NO ONE in Bandera County** has a “say” (join BMA’s board) in how Medina Lake’s dam is managed. Not even Lake Front property owners

Only property owners in BMA’s district (land owners on red canal system in black box) can serve on the board.



POTENTIAL CHANGES TO THE PERMIT

SML believes the permit should be updated to reflect the changes over the past 100 years -

- How the lake is used
- All stakeholders involved
- The need to conserve water, open Medina Lake valves only when necessary

Some areas of updates to be considered –

- A conservation level. There is diminishing return to releasing water once the lake level drops below a certain point.
- Impoundment level changed to top of spillway of Medina Lake 254,823 AF. **THIS IS CLEARLY A MISTAKE.**





How can you help?

- ✓ Share this information with your friends and family.
- ✓ If you have not already , join our Facebook page – Save Medina Lake
- ✓ Respond to Call to Actions made on Facebook - attend BMA meetings, contact the BMA office, contact local and state leaders, etc.
- ✓ During the past 12 months contributions have totaled \$10,338.83 and the expenses have been \$12,860.55. Expenses have been for drone flights, open records requests, promotional materials, legal expenses, etc...

We are expecting additional legal expenses in the upcoming months.

Your donations are needed and appreciated to help continue our efforts.





Thank you!

Send an email to rjmulherin1@gmail.com if you are interested in a copy of this presentation.