The Lake Merritt Institute

A COMMUNITY BASED, NON-PROFIT CORPORATION

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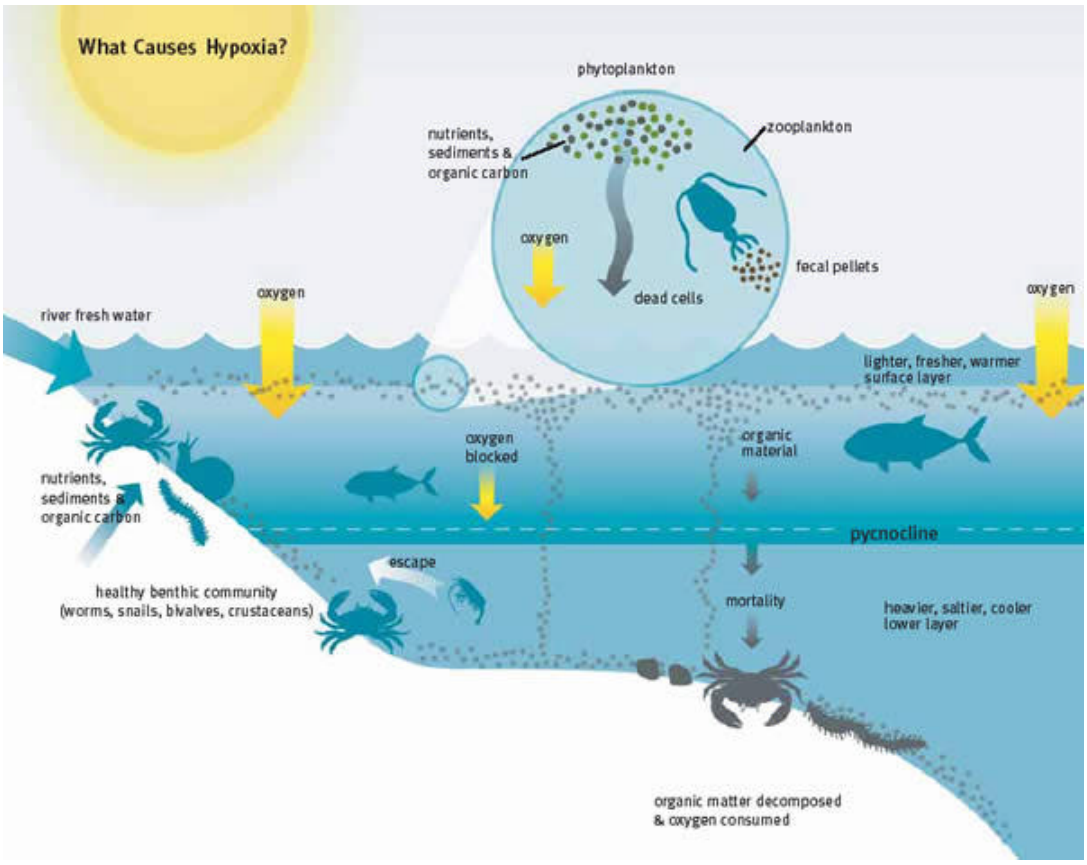
OXYGEN LEVELS PLUMMET: As all dedicated Lake Merritt Institute members know, whenever there is rain (or a 50% chance of rain in the forecast) our county flood control engineers close the tide gates during incoming tides. This is done to prevent water from entering the Lake from both tides and rainfall, potentially causing a flood such as occurred in 1962. But although this protects us from flooding, there is a sinister side.

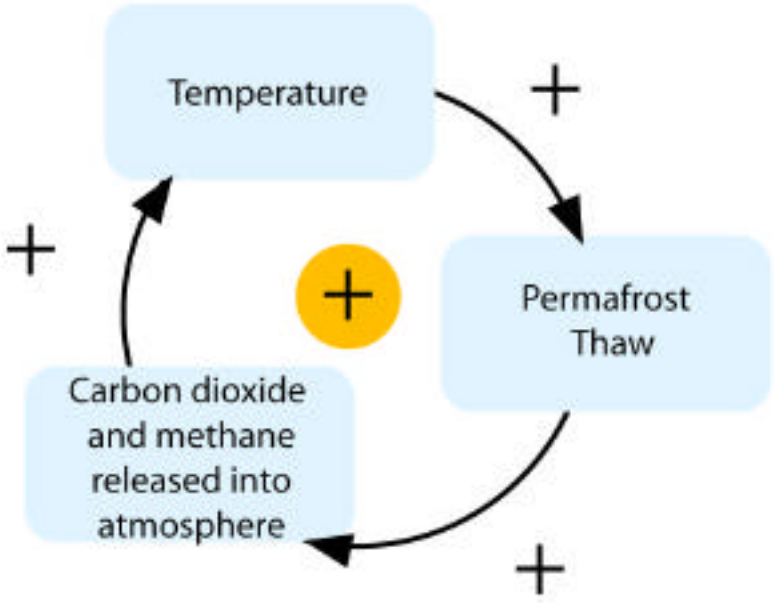


With no incoming tides, fresh water from rain forms a separate layer above the heavier, salty water on the bottom. This lower layer is trapped because the lake outlet is 3 feet above the bottom and it cannot mix with the upper layer. The longer the gates are closed, the more likely there will be acutely low oxygen levels in the bottom layer. This is what happened in mid-January when the Oakland High Environmental Academy measured levels as low as 2 parts per million (ppm) which is 3 ppm below the water quality standard. Since these levels, or lower, were likely sustained for several days, our bottom probably became a dead zone, as shown in the graphic above.

CLIMATE CORNER (dedicated to keeping sea level below Lake Merritt)

Positive Feedback Loops Drive Climate Change: Climate skeptics like to point out that, during the last 650,000 years or so, global average temperatures have typically begun to rise *before* levels of carbon dioxide (CO_2) rise. They claim this is evidence that CO_2 does not cause the temperature rise, but this is only partially right. It is slight changes in orbital cycles (e.g. tilt, eccentricity and wobble) which change the amount of heat we receive from the sun, that initially begin the process of bringing our planet out of an ice age. Once this begins, powerful positive feedback loops take over. These loops, like the feedback on a microphone, continually amplify themselves.

For example, warmer temperatures mean less CO_2 can dissolve in the ocean (which contains more carbon than the atmosphere in just the surface waters) so more of it ends up in the air, which causes warmer temperatures, which results in less CO_2 in the ocean and more in the air, which causes warmer temperatures and so forth. Methane released from melting permafrost is another positive feedback loop.



A methane / CO_2 positive feedback loop

One of the biggest feedback loops is the albedo (reflectivity) of the earth. Ocean ice reflects about 50 - 70% of the radiation from the sun (80 - 90% when covered with fresh snow) but the dark, ocean water reflects less than 10%. This means that as the temperature rises, there is less ice in the arctic, which causes more heat to be absorbed in the ocean, which causes less ice, which causes more heat absorption, which leads to more temperature increases etc. The problem is we can't refreeze the arctic ocean, so this loop will continue to operate and increase the earth's average temperature. To get an idea of how powerful this is, consider that an earth covered with ice would be about –40°C, while an all ocean earth would be about 27°C. Our current average earth temperature is 15°C and increases of more than 3 degrees would prove disastrous to civilization and other forms of life. It has been estimated that total loss of arctic ocean ice (predicted to occur during summers by as soon as 2050) would add an additional 70% of the heat we are now experiencing from CO_2 increases since 1800.

MEANWHILE, IN INDIA…

Please do not try this at Lake Merritt.

ADDICTED TO PLASTIC: The Institute has just purchased the DVD "Addicted to Plastic" a documentary about how plastic products have dominated our lives, how they end up as trash, and a few, partially reassuring, examples regarding what some people are doing about it. Featured are sections on the plastic ocean, the plastic food chain, plastic bottles and plastic bags. It will be shown prior to some of our volunteer events and to school groups.

BIRD COLUMN: Brand New Bird at Lake Merritt

The January Golden Gate Audubon 4th-Wednesday walk was treated to a long and leisurely look at a Red-necked Grebe - possibly the same one someone reported earlier in the month, as it was in much the same place (the open area between the islands and the fountain at El Embarcadero), and before this it hasn't been seen at the lake in many years, if at all. It's a chunky bird with a body about the same size as a Clark's or Western Grebe but with a much shorter neck and a heavier yellow spear of a bill - plumage all gray and white at this time of year, giving rise to the usual "so why is it called red-necked if its neck isn't red?!" (Answer: it hasn't put on its party clothes for the year yet.)

Not that party clothes, or at least party spirits, weren't in evidence elsewhere. The White Pelican that lives in the bird paddock - a rescue bird with a crippled wing - has started to grow a breeding bump at the end of that huge beak, hoping to recruit companionship for the summer. (Which might work - the flock reached 11 last year.) And out behind the islands, the Common Goldeneyes were on display - males swimming in a stately fashion with their black heads and white full-moon cheeks tipped far back, looking at the sky

while the brown females chased each other, heads outstretched at water level, apparently bent on mayhem.

All the rest of the winter ducks were in evidence, except for the Barrow's Goldeneyes (crescent moon instead of full moon), which are probably down at Laney College. But we had both kinds of scaup (black heads and gray backs), Canvasbacks (with the ski-jump beaks), Bufflehead, Ruddy Ducks, and the usual one-each Tufted Duck, Ring-necked Duck, and Redhead (a female) in the scavenger flock near the Nature Center.

The little Green Heron perched for a while at the end of the leftmost island, and a Belted Kingfisher - a male this year, identifiable by being all blue and white, with no orange cummerbund - was in one of the remaining dead trees.

A lot of juvenile Double-crested Cormorants were swimming about - the bronze-colored birds with snaky necks and orange bills - but I didn't see any adults. I hope the black adults return next month, but life is going to be tough for them as one of their favorite nest trees has blown down. Looks like they'll mostly have to put up with trees that still have leaves on 'em, as very few of the preferred bare branches are left.

Across Bellevue in the park, the trees were jumping with woodpeckers. At one point we saw a pair of Nuttall's Woodpeckers (with the full ladder back and a call like a soft police whistle), a Downy Woodpecker (broad white patch in the center of the back), and our second Red-breasted Sapsucker (brick-red head, shoulders, and throat) all together in the same tree, along with an American Robin.

We saw 43 species all told; all in all, as nice a day as you could ask for - even a gleam of sun - and that's saying a lot at Lake Merritt....

RECENT SCENES FROM LAKE MERRITT:

Water about 3 feet higher dislodged the barrier.

Our new (11 year old) truck.

This edition of "Tidings" was published entirely with private funding donated to the Lake Merritt Institute. To contribute to the Institute, contact us at 510-238-2290 or 568 Bellevue Avenue, Oakland, CA 94610.