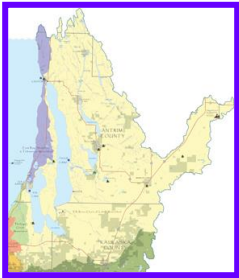


E.A.S.T WATERSHED



E.A.S.T
Shown in
purple.

ERCOL
Shown in
yellow

Source: GT Bay Watershed Protection Plan and Townships Master Plans.

E.A.S.T has 4% of Grand Traverse Bay water inflows

E.A.S.T has 24 streams entering the Bay – twice that number in total (map) from Elk Rapids to Norwood.

E.A.S.T. has forested residential living along East Bay beaches, inland living in dune settings, rural homes, villages, farms and businesses.

E.A.S.T upland farms feature orchards, vineyards, row crops, and confined or pastured cows. Uplands drain through 3 local creeks; Mitchell Creek incl. Mud Lake in its 12 sq. mile basin, Paradine-McGuire Creek and Creswell Creek.

ERCOL – WPIT

E.A.S.T watershed - sister to Elk River Chain of Lakes – ERCOL

E.A.S.T & ERCOL share a common boundary at the land ridge along US 31 from Elk Rapids to Norwood. WPIT is Watershed Plan Implementation Committee.

Waters flowing towards Grand Traverse Bay are in E.A.S.T.

Waters flowing towards the Chain of Lakes are in ERCOL.

NOTE: TNN is working under the auspices of the Watershed Center – GT Bay, with Tip of the Mitt Water-shed Council. This work is part of the overall MDEQ and EPA sanctioned GT Bay Watershed Protection Plan.

Human Waste Disposal Crisis Averted

1.5 MILLION GALLONS TRUCKED FROM ER SEWAGE PLANT

Source: MDEQ Residuals Management Plan for the ER Wastewater Treatment Plant

Sewage solids were trucked out of Antrim County for injection into suitable farmlands away from surface waters, groundwater and homes NOT land disposed in Torch Lake and Milton Townships as 5 years ago.

2010 Crisis - Sewage sludge land disposed in local townships ran-off.

There was evidence that sludge from five sites ran off into ditches, streams and the Bay. A football field-sized bloom of slimy green algae that feeds on sewage (Cladophora) was observed by a TNN scientist at Mitchell Cr. November storms spread slime along miles of beach. TNN published aerial photos to document the practice – **vowed never again!**

2006 Crisis - Septic tank solids land disposed in Milton ran-off.

Life threatening E.coli in local waters including the Bay were vetted by an eminent MSU scholar. TNN publicity of water testing and aerial photos gained public support to end the practice locally. DEQ executive leaders agreed to enact rigorous water testing and remediation. The disposal site was shut down and a human waste storage silo was blocked.

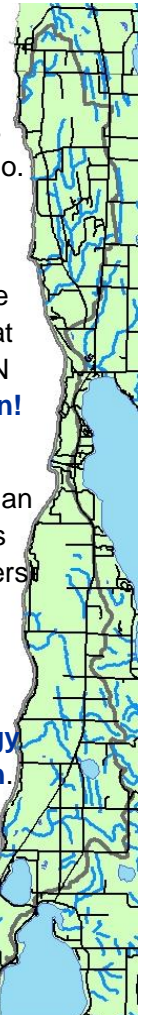
These crises committed TNN to the conviction that human waste not be land disposed in our narrow water-rich townships. Strategy was adopted to prevent future crises with testing and negotiation.

TNN - ER officials agreed on tighter specifications two years ago.

ER leadership inspected a sludge degraded beach near local creeks. It was agreed the practice was not neighborly - change was essential to protect watersheds for Mitchell, Paradine-McGuire and Creswell Creeks. ER Village staff and engineers produced tighter specs and funding to protect local waters. TNN Pres. Termaat advocated to Village Council, which approved as part of Wastewater Treatment Plant upgrade.

Thumbs-up for ER Village - Achievement in Improving Water Quality.

The Village produced a sewage treatment plan that requires oversight by elected officials and diverts human waste land disposal away from local waters and homes.



2016 TNN ANNUAL FUND RAISING CAMPAIGN
Over 10 years of progress with your donations

- Your donations are basis for **matching grants** for clean water and beaches.
- Have cut E.coli counts over an eight year period in dirty farm creeks
- Redirected human waste land disposal away from local waters and homes
- Work to restore a more natural range of water level in the Bay & ER Harbor
- Public advocacy against pollution and excessive ground water withdrawals
- Analyzed Townships government spending & taxes. Press for Openness
- TNN is an active voice, publishes quarterly TNN News, and speaks up

Please contribute \$75, \$100, \$200, \$500 (form attached)

Help watchdog TNN avert crises through rigorous analysis and planning

FEMA – Not just Ocean Floods

Source: FEMA website & homeowners.

Our area is in a flood plain which extends from East Bay into the Chain of Lakes - defined by lands below 99 year flood elevation - **584 feet above sea level**. Homes below that grade need insurance to buy or re-finance.

To request exclusion from the flood plain requires technical proof of a land survey. This must be conducted by a registered land surveyor.

Several home owners have had success obtaining exemption on Juniper Drive, Joe Marks Trail and Apache Trail (Torch Lake)

<http://map1.msc.fema.gov/idms/IntraView.cgi?KEY=53122238&FIT=1>

We are all in the Bay watershed!



BOATING - THE LONG SLEEP

ER PARKS & REC PLAN INCLUDING HARBOR – AMENDMENT APPROVED

Source: ER Village Council Minutes

Compromise Amendment to the current Parks & Rec Plan approved by ER Village Council. The Plan includes Harbor boating recreation programs, and community outreach. TNN advocated for the Amendment noting ER Harbor is just 1/3 its historic size. And the shore from Ptobego pond to Inwood harbor is man-made.

The Harbor is essential to boaters – hoist, harbor or trailer.

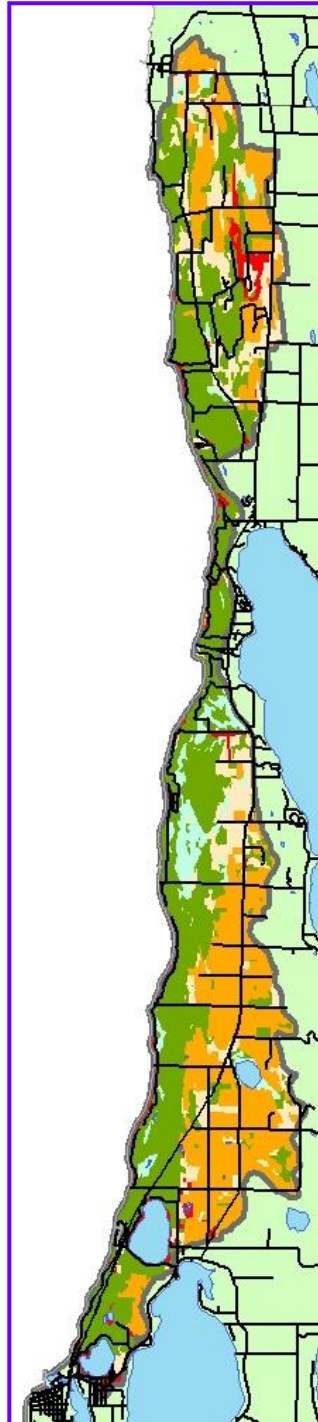
Boats, under 20 feet - 2,000 pounds can be kept at cottages on hoists or trailer launched. **It's very difficult to keep larger boats on a cottage hoist.**

Shallow, rocky, in-shore waters on windy East GT Bay prevent it. Hoist boating limits outings to flat water. It is hazardous to enter a hoist in waves.

Boats 25+ ft must lease in ER Harbor

“NEW” SEWAGE SLUDGE TO BE LAND DISPOSED 2X PER YEAR – IN 2017

Source: Village of Elk Rapids Approved Wastewater Treatment Plan. - Maps by Maureen Pfaller of gtbay.org.



“Old” sewage sludge was trucked out of the County (page 1). Two-thirds of the emptied settling ponds are to be forever shut down as the ER Sewage Treatment Plant converts to an enhanced biologic process. “New” sludge will be land disposed at least 2X per year vs. “Old” sludge once every 15 years.

TNN is committed to diverting “new” sludge out of the County in perpetuity to farm fields suitable for safe injection of human waste away from waters & homes.

RE-CONNECT LOCAL STREAMS TO THE BAY.

Connectivity of Great Lakes Rivers-moderator Mary Khoury - Nature Conservancy

A recent Conference, describes principles that are also vital for healthy eco-system in Mitchell, Paradine-McGuire & Creswell Creeks - from origin to outflow.

The E.A.S.T Action Plan will include:

1. Re-plant steep eroded stream banks.
2. Remove large debris that blocks stream flow.
3. Sequester mud banks polluted by sewage sludge.
4. Reintroduce native plants and aquatic species.

This requires expert partners, committed land-owners, DEQ, Antrim Erosion Control and contract staff.

THIS WORK IS NOT FUNDED.
Matching grants depend on your donations.

Thumbs-up for King Orchards for Renewable Energy

KING ORCHARDS GOES SOLAR WITH A 52 KW FIELD

By: Christofer Oberst <http://www.andnowuknow.com/>

CENTRAL LAKE, MI – King Orchards is taking its first leap into alternative energy. Early in October, the family-owned and



operated business kick started production on its newly installed 52 kW solar field. The system is located behind King Orchards' retail market on U.S.-31 Hwy in Kewadin, Michigan.

John King said he is very excited about the installation of the solar field. “Generating sustainable energy is an important initiative of ours, especially as we are stewards of the land and our livelihood is so dependent on the environment and weather,” he said. Though this is the first alternative energy source for King Orchards, it's not expected to be the last.

King Orchards offers fruits and vegetables, including tart and sweet cherries, apples, stone fruit, raspberries, asparagus, and more, and markets cherry juice concentrate around the world.