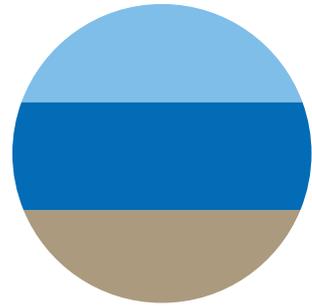


GEORGIAN BAY FOREVER



SUMMER 2012
VOL 3, ISSUE 2

WATER LEVELS, WATER QUALITY, WETLANDS AND INVASIVE SPECIES

SO, WHAT'S THE VERDICT



**STUDY BOARD'S FINAL
REPORT ON WATER LEVELS.
THUMBS UP OR DOWN?**

PAGE 4 & 5

INSIDE:

CORPORATE PROFILE

CANADA STEAMSHIP LINES
LINES UP WITH GEORGIAN
BAY FOREVER

PAGE 6

WATER QUALITY

GETTING INTO THE GREEN
MUCK OF ALGAE BLOOMS

PAGE 7

VITAL SIGNS SPEAKERS SERIES II

GREAT SPEAKERS,
GREAT COMPANY

PAGE 8

Georgian Bay Forever is a proud member of the Waterkeeper Alliance.



GEORGIAN BAY
BAYKEEPER

GEORGIAN BAY
FOREVER



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SUMMER 2012

Georgian Bay Forever is a community response to the growing need for major research and education projects to sustain the Georgian Bay aquatic ecosystem and the quality of life its communities and visitors enjoy.

We help monitor the Bay's well being, throughout the seasons, year after year.

We fund the research needed to protect the environmental health of Georgian Bay and the surrounding bodies of water. Using our research findings, we inform and educate the general public and governments about any threats to environmental health and propose possible solutions.

Through conferences, workshops and seminars we are educating the Georgian Bay community. By teaming up with reputable institutions we enhance the credibility of our research and we strengthen our ability to protect what's at stake.

Georgian Bay Forever, formerly the GBA Foundation, is a registered Canadian charity (#89531 1066 RR0001). We work with the Great Lakes Basin Conservancy in the United States, as well as other stakeholder groups all around the Great Lakes.

Deeply rooted and broadly drawn, Georgian Bay Forever is steered by lifelong devotees to the Bay. We are committed advocates, educators, environmentalists, realists, idealists, and of course, residents.

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U.S. citizens wishing to make a donation to support our work can do so by giving to:

Great Lakes Basin Conservancy
PO Box 504, Gates Mills OH
44040-0504
USA

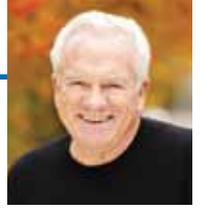
(Please add a note saying: "For Georgian Bay Forever")

This newsletter is just a snapshot of our work. For the most up-to-date information on our projects, longer versions of newsletter articles and on breaking news about Georgian Bay, please become a regular visitor to our website.

GeorgianBayForever.org

Tynan Studio (tynanstudio.com) graciously
contributes photo services to Georgian Bay Forever

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By David Parkes

SOUND SCIENCE BUILDS BRIDGES



Georgian Bay Forever's guiding principles mandate the use of science as the basis for our research and communication initiatives. Our mission is to protect and enhance Georgian Bay's aquatic environment by funding accredited research into our core issues: water levels, wetlands, invasive species and water quality.

For many years, Forever has funded the wetlands research of Dr. Pat Chow-Fraser of McMaster University. You may have seen her student crews loaded down with nets and biology equipment up and down the east and north shores of Georgian Bay and the North Channel of Lake Huron. Some of our supporters have hosted the McMaster students at their cottages and provided boats and canoes for them to do their fieldwork.

Thanks to the generous donations of our supporters, the students have been able to complete some important research, including the first mapping of Georgian Bay wetlands, aided by IKONOS satellite imagery that Forever purchased. This research has been useful in our continuing efforts to educate our governments on the long-term impacts of sustained low water levels on our ecosystem, and we hope to turn it over to the Ministry of Natural Resources for inclusion in the official record.

The research agreement between Georgian Bay Forever and McMaster has now been completed. On behalf of our charity's board—and all of our supporters—we thank Pat and McMaster University for their efforts and meaningful results.

While our work with McMaster has ended, our research with other universities is expanding with the help of our new Science Advisory Committee, which is chaired by director Mike Hensel, an environmental consultant. His group includes: Dr. Gail Krantzberg of McMaster University's Dofasco Centre for Engineering and Public Policy; aquatic scientist Dr. Neil Hutchinson; aquatic and terrestrial biologist Al Sandilands; water quality specialist Patsy Cross; coastal engineer Milo Sturm; geotechnical engineer and hydro-geologist Paul Bowen;

Cam Portt, aquatic and fisheries biologist; and Mike Fortin, environmental economist.

Georgian Bay Forever struck its Science Advisory Committee to provide us with expert advice on the kind of research we should be conducting, to help us evaluate the research completed, and to assist us in the selection of the best institutions and people to do our research. The committee has devised a new adjudicated process for project selection, inviting universities to submit research projects that address our core issues.

I'm very pleased to report that the response has been impressive: we have received proposals from five research groups so far including three universities, York, Guelph and Queens, and our Science Advisory Committee has evaluated all of them. We've chosen one but we hope to be able to finance a second this year. Our new boat, the Georgian Bay-keeper, will be instrumental in this research.

Solid research is fundamental to everything our charity does. The challenges facing Georgian Bay may cause us grief, but emotion doesn't sway governments and others who need to be educated about its problems. Only solid research, presented without acrimony will do the trick. Fortunately, we are now winning the attention of government and regulators through a collaborative, educated and factual approach.

Building trust through reliable science takes time. It also takes money. We thank all of our donors who have supported our work done to date, and we ask for your continued support for our new research programs.

Enjoy the summer and remember Georgian Bay Forever watches over the Bay 12 months a year.

“The challenges facing Georgian Bay may cause us grief, but emotion doesn't sway governments.”

A Correction: we regret that we omitted to include three donors in our list of supporters in the previous issue of this newsletter. They are John and Sandra Birnbaum (\$1-249), Tim McConnell (\$500-999) and Jon and Shelagh Grant (\$500 – 999). Our apologies.



By Penny Pepperell

Adaptive Management and Lake Superior Regulation 2012

An underwhelming approach to the problem of low water levels

What it does and how it works

The Study Board is recommending to the International Joint Commission the most cautious approach to the water levels issue of all the options it investigated. It's taken eight years, cost over 17 million, produced 100 technical reports, and engaged 200 scientists and engineers.

It's the Study Board's final take on how to "manage fluctuating lake levels in the face of uncertainty over future water supplies to the basin while seeking to balance the needs of those interests served by the system."

It entails no new structures and no big costs. Instead It would rely on a streamlined chain of command, better data acquisition,

more refined modelling and a higher degree of responsiveness on the part of the managers of the existing control structures. Essentially it would bring a 1990 regulation plan up to 2012 standards.

"The new plan will provide additional economic benefits to commercial navigation, hydroelectric generation and coastal zone interests, on the order of a million dollars per year depending on net basin supply. In the driest NBS sequence, navigation through the Sault Ste. Marie locks and hydroelectric production at the Sault Ste. Marie plants would be threatened with closure under 1977A, [the current plan] but not under Lake Superior Regulation Plan 2012 [the proposed plan]"

The controls on the St. Mary's River release water to Michigan-Huron or retain it based on complicated rules governing when the water levels need adjusting. In the future this adjusting would take into account that, unlike the other Great Lakes, Lake Superior is not expected to receive sufficient precipitation to compensate for the increased evaporation due to the higher temperatures expected with climate change. (Lower levels would put the lake sturgeon spawning beds in the St. Mary's River at risk, an important consideration for the Study Board.) Consequently it won't have much water to spill out to the downstream lakes, a crucial factor in any calculation of how to share the water wealth.

For Georgian Bay, the new plan would mean that if the net basin supply were to trend upwards, an unlikely scenario, it would receive less water, and under drier conditions, much more likely, it would also get less, exacerbating our drought problems.

The water-rationing problem is made worse by the fact that raising water levels a tiny bit in Michigan-Huron, takes big chunks out of Superior. This is due to basin-to-lake ratios, local runoff and over-lake precipitation.

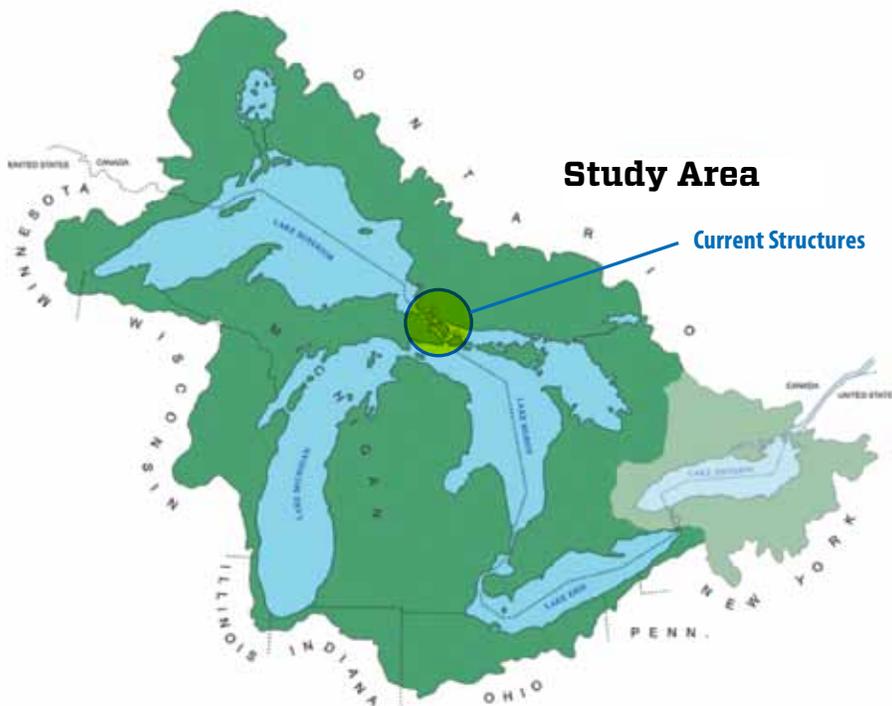
And making it worse *again*, is the Study Board's preference for naturalizing the St. Mary's River outflow, The net effect would be smaller month-to-month releases that are more closely tied to Lake Superior water levels than occur now.

The great unknowns and limitations, and then there is climate change

The Study Board's final report represents 22 years scientific light years of understanding climate change but rather than creating greater certainties, its investigations have widened and deepened the unknowns.

It admits to only an imperfect knowledge of net basin supplies and ability to predict water levels a month ahead.

"In terms of the limits of the Study's hydroclimatic analysis, perhaps most notable from the perspective of effective lake



The controls on the St. Mary's River release water to Michigan-Huron based on complicated rules governing when water levels need adjusting. Map courtesy of the Upper Great Lakes Study Board.

(CONTINUED ON PAGE 10)



By David Sweetnam

The Case for Multi-Lake Regulation

Phase I of the Upper Great Lakes Study determined that, since 1963 erosion and climate change have been the two biggest causes of the decline of nine inches or 23 centimetres in the St. Clair River, and that the conveyance capacity there has increased about six per cent due to erosion.

This has put the International Joint Commission in a bind. Legally, it is required to mitigate for those dredging operations, and secondly, no one gave their approval for the erosion, which is materially affecting water levels. In other words, this is an unapproved diversion from Lake Huron. Throw climate change into this mix, and the IJC is facing some serious challenges.

So what to do. Consider multi-lake regulation: a plan with structures for Huron and Michigan, that today have no mechanisms to manage water levels, unlike the other Great Lakes. In its latest report, the Upper Great Lakes Study Board recommended setting up a Great Lakes – St. Lawrence River Levels Advisory Board, as part of its Adaptive Management approach. This is a first step towards a management regime that's heading towards multi-lake regulation. Georgian Bay Forever has been promoting this for years, so we are pleased to see this in the final report.

There are basically two choices facing the IJC and us: active and passive. Do we act to mitigate the impacts of climate change with its predicted extreme water levels, implementing solutions designed to avoid these extremes, or do we passively allow these extremes to occur and then try to manage the damage through complex bureaucratic systems?

The Study Board has come down in favour of the passive approach. Moreover, it has advised against further study of multi-lake regulation option *at this time*, shutting the door on a detailed feasibility analysis of contemporary technologies, costs and benefits.

The financial and time constraints placed upon the Study Board were such that only an analysis of previous reports—written between 1926 and 1977—and a cursory overview of possible alternative technologies like

No one approved the erosion in the St. Clair River. In effect, it has created an unapproved diversion from Lake Huron.



A ship entering the St. Clair River. Photo courtesy of the Upper Great Lakes Study Board

flap gates and turbines were included in its analysis of options to address water levels.

"The impacts of multi-lake regulation... were not evaluated directly in this exploratory analysis. Such an assessment would be required if multi-lake regulation is considered in the future as a means of dealing with extreme water levels."

Meanwhile, the costs resulting from the passive option, Adaptive Management, are myriad and ill defined. Computer models show increasing frequencies of extreme high and low water levels with the system becoming more flashy. So adjustments have to, should be, made.

Much as Georgian Bay would love to

get its water back, simply restoring water levels to a higher level would mean that the flashiness would oscillate around the higher restored level and result in flooding, worse flooding than would happen under Adaptive Management. And that is why some folks in southern Lake Michigan have resisted the entreaties of Georgian Bay for more water.

Consequently, there is a demonstrated need to *manage* the water.

Multi-lake regulation might take 20, 30, perhaps 40 years, including all the necessary assessments and government approvals, not to mention finding governments willing to

(CONTINUED ON PAGE 10)

CANADA STEAMSHIP LINES

A corporate sponsor with a big presence on the Great Lakes and personal attachments to Georgian Bay

By Iryna Revutsky

Canada Steamship Lines is proud to be a corporate sponsor of Georgian Bay Forever. CSL aligns itself with regulators, scientists and organizations such as Forever to get feedback on its operations, the bio-diversity of the various geographies the ships sail within, and to be a part of the solution related to environmental challenges and sustainability. Canada Steamship Lines has enjoyed the benefits associated with the Great Lakes for over 100 years, and it hopes to be able to do so for many years to come.

The company has extensive historical ties to Georgian Bay. CSL owned the Midland Grain Elevator, and many of the company's current fleet were designed and built at the Collingwood Shipyards. Currently the Midland location is used only as a shipping point for wheat, although occasionally CSL moves stone from northern Georgian Bay and grain into Owen Sound. All company vessels use the main shipping channels on Lake Huron.

CSL is privately owned by the Martin family. The CEO, Rod Jones has property on Georgian Bay, near Parry Sound and is a member of Forever's board of directors. CSL's vice president of government and industry affairs, Kirk Jones grew up in Wasaga Beach, where his family owned and operated Jones Motor Boats for over 20 years. Kirk graduated from the Owen Sound campus of Georgian College with a degree in Navigation Technology.

CSL owns eighteen vessels that regularly navigate the Great Lakes. Recently, the company invested in four new self-unloading vessels named the "Trillium Class" vessels, which feature the lowest energy-per-ton-mile of any comparable ship.

The CSL Group ships or transfers over eighty million tons annually, with thirty million tons being moved on the Great Lakes alone.

Ballast Water Challenges

CSL views ballast water, which is pumped on and off a ship to maintain its stability and trim, as two separate challenges—organism introduction and organism transfer—and



The Birchglen upbound Lake St. Clair. Photo credit: Mark Schacter, July 2011

therefore espouses two separate solutions to protect natural ecosystems.

Addressing the introduction of invasives issue, CSL enrolled in the U.S. Coast Guard's voluntary Shipboard Technology Evaluation Program (STEP). STEP will enable CSL to install prototype ballast water treatment systems to test these emerging technologies.

On the Great Lakes, organism transfer is the more prominent issue. Of the 180 invasive species present in the Great Lakes, only 30 are not already evident throughout the Lakes. In cooperation with the Ballast Water Collaborative, CSL undertook a risk-based approach with regard to established invasive species present in the Great Lakes.

Currently, CSL is working on an initiative to prevent the transfer of the 30 "uncommon" species, and will be testing mechanical filters during the 2012 season on the Great Lakes. The filters will be installed on-board the vessel The Richelieu. Participation in this project is in cooperation with the Canadian Department of Fisheries and Oceans directed by Dr. Sarah Bailey.

ECOSPEC: A way to reduce harmful pollutants

In 2011, CSL signed a contract with ECOSPEC Marine Technology to install the CSNOx technology onboard the vessel The Spruceglen. Once certification of the system's performance is completed, CSL will become the world's first CSNOx freshwater-environment project.

ECOSPEC CSNOx is the only commercially viable way to effectively reduce harmful pollutants such as sulphur dioxide, nitrogen oxide and carbon dioxide from emissions of large ocean trading vessels. All three gases are removed in one process and in a single system, without using harmful chemicals. This feature sets it apart from existing conventional scrubbers that increase CO₂ emissions due to chemical reactions in the scrubbing process; these older technologies also lack the capability to offset CO₂ emissions due to the additional energy they use.

Georgian Bay Forever is proud to be associated with Canadian Steamship Lines. It recognizes its contribution to the environment, and supports its vital activities on the Great Lakes.

GEORGIAN BAY FOREVER'S SUMMER 2012 PROJECTS

By David Sweetnam and
Michael Hensel

Canada Research Teams

Forever will be assisting Team Canada this summer in a five-year project on coastal wetlands to determine which wetlands are improving, staying the same or degrading. The team, comprised of 60 graduate students and a number of scientists working as part of the international Great Lakes Coastal Wetlands Consortium, is covering Lake Erie, northern Lake Ontario and Lake Huron/Georgian Bay.

Coastal Water Quality Testing Program

Forever will once again be testing coastal water quality in partnership with the Township of Georgian Bay and the Severn Sound Environmental Association in conjunction with the lake partner program run by the Ontario Ministry of the Environment and by our new research projects as described below. Improvements to our data collection is allowing our work to be included in larger studies of Great Lakes health.

Honey Harbour Causation Study

The causation study is seeking to scientifically explain why we have been experiencing changes in water quality over the past 10 years.

Paleolimnology is the study of lake sediments, such as the remains of aquatic plants, to reconstruct past environmental conditions. It identifies long-term trends in water quality and algal and aquatic plant communities. Such a study can determine if changes are significant or if they remain within the natural variability of the ecosystem.

Recent water quality studies in North Bay, South Bay and Honey Harbour show no substantial variations over time to explain the changes occurring there, although some small fluctuations have been noted such as Secchi depth and chlorophyll that may indicate an invasion of mussels.

Climate change and other external stressors such as invasive species are influencing conditions in Georgian Bay, but when such changes began, and if they are acting together with other factors such as human-induced nutrient enrichment, is not clear.

If causation is discovered and com-

bined with future factors, such as low water levels and climate change impacts, the study results may offer a glimpse into future changes in the Georgian Bay ecosystem.

Scientific Advisory Committee and New Approach

A new approach and process for research projects was initiated this year. (Please see the President's Message, page 3 for more details.) The projects we are hoping to support this summer program include:

Blue Green Algae Blooms

Why are blue-green algae blooms on the Georgian Bay coast seemingly limited to Sturgeon Bay and where else could they occur? High total phosphorus leads to more algae growth and oxygen depletion in bottom waters as well as their being a factor for filamen-

tensely every two weeks from June to the middle of August; and six more bays will be sampled once in late August when oxygen depletion peaks. Characterizations will include chlorophyll a, total phosphorus, dissolved phosphorus, dissolved iron, sulfate, nitrates, ammonium, unfiltered total kjeldahl nitrogen, temperature, dissolved oxygen, conductivity, pigments, redox, phytoplankton, cyanotoxins and Secchi depth.

New technologies to study Georgian Bay biodiversity

As each wetland has a unique blend of species, measuring the actual plant and animal biodiversity at each site and monitoring for any changes over time is preferable, although costly and time consuming. DNA barcoding, a technique for assessing ecosystem health,



A previous year's research team hard at work in a Georgian Bay wetland. Dr. Pat Chow Fraser has now completed her field work for Georgian Bay Forever.

tous and blue-green algae blooms. But given that blue-green algae is better at acquiring phosphorus than its algal competitors, why don't they dominate at low phosphorus levels? Understanding this would be useful for avoiding toxic blooms.

Dr. Lewis Malot of York University plans to identify these risks. The work is co-sponsored by Environment Canada and the Ontario Ministry of the Environment. Sturgeon Bay and two other bays will be sampled in-

allows a whole soup of samples to be analysed in order to determine the biodiversity of a given site. Forever is hoping to find funding partners for projects using this technology this summer.

We all think of Georgian Bay as a vast and largely pristine area, but data show that the ecosystem is experiencing stress. Increasing impacts of climate change added to the existing stresses must be understood to protect the Bay. Our kid's kid's kids will thank us.

VITAL SIGNS WRAP UP

By Penny Pepperell

Vital Signs II, held on April 14, again at the Toronto Reference Library in Toronto, was a success to match the speaker series of last year. But this one had a different flavour. A sense of some consistent themes ran through the presentations.

The importance of data and monitoring to establish conditions on the ground and in the water

Dr. Jan Ciborowsky, professor of biology at the University of Windsor set the tone with his presentation on developing and evaluating Great Lakes environmental indicators of ecological condition of coastal margins. His effort is part a project by SOLEC (State of the Lakes Ecosystem Conference), sponsored by both Canada and the U.S., to continually refine these indicators of health across the Great Lakes.

The number of variants Jan mentioned was huge: 2,000 coastal wetland indicators; 17,000 kilometres of shoreline; 212 variables for the condition of the water; 5,971 watersheds; 200,000 hectares of wetlands and 160,000 hectares of wetlands to be sampled. Separating the distinguishing features from the “noise” involves splitting the lakes into eco-regions and then identifying sample sites, all the while noting the distinctive characteristics among them. For example, fish behaviour differs based on whether they are in cattails or bull rushes. The objective is not to create averages, which Jan noted, don’t work, but to identify what stressors can be tolerated before an effect is apparent.

Scott Vaughan, the (federal) commissioner for the Environment and Sustainable Development, drove home the importance of SOLEC’s efforts in his keynote address. Based on his department’s audits of Environment Canada, he identified significant gaps in environmental protection and monitoring, gaps he didn’t expect would be closed, due to budget and program cuts.

“Most OECD countries lack Canada’s overall water-quality monitoring,” Scott said, and yet he professed very little faith in the data. “Too often, ecosystem monitoring tends to focus in one species as an indicator of many. Engineers assess impacts in times

frames of three, four and five years rather than three, four and five *hundred* years.”

Fortunately, this more all-embracing approach has found a home in recent studies of the Athabaska River in Alberta, where it has been acknowledged that the impact of the Tar Sands project on water quality, the ecosystem as a whole, aquatic life diversity and water temperature isn’t known. Monitoring there now costs in the neighbourhood of \$50 million a year. This more fulsome approach should be the model, especially as, of the 8,000 environmental assessments done every year, most have to do with water quality.

We don’t have an abundance of our water and biodiversity. Our resources are teetering close to the tipping point.

Scott noted despite that the public’s belief that Canada has an unlimited supply of clean, fresh drinking water, 60 per cent of Canada’s water falls in either the poor, marginal or fair categories. There are significant problems with nutrient loading and heavy metals.

Dr. Saad Jasim, director of the Great Lakes Regional Office, International Joint Commission, Water Quality, echoed this theme in his presentation. As one of the chief architects of the rehabilitation of Walkerton’s water and as an IJC Commissioner, he spoke with pride of Ontario leading the provinces in water quality standards. Following the Walkerton disaster, he established a program that has trained 23,000 people in wastewater treatment at a specially-built training facility as well as at a mobile unit that visits communities requiring it.

Still, Saad has serious concerns about the water that the 45 million people around the Great Lakes drink. Dissolved reactive phosphorus, which leads to algae growth is an old culprit that has reasserted itself, in Lake Erie especially—it’s back to where it

was in the ‘60s. Blue-green algae are very often the site of toxins, killing birds and fish and clogging boat motors, necessitating beach closures with attendant health and economic impacts.

Ballast water discharge is still a concern although no new invasives have been attributed to this source in the last four to five



Clockwise from top left: Uli Rath, Collingwood; David Sweetnam, Executive Director, Georgian Bay Forever; Peter Storms, member of the Board of Directors of the Sans Souci and Copperhead Association; Scott Vaughan, Commissioner of the Environment and Sustainable

years. The newest threat comes from pharmaceuticals and other chemicals, such as are found in shampoos and other personal care products. Waste treatment plants are not designed to filter out these substances. People metabolize only 25 per cent of their prescriptions; the rest is excreted as waste. Hormones send the wrong signals that can be picked up by birds and fish. Saad described how treatments using ozone have shown significant effects in breaking down these chemicals.

Waters and Fish, address on coastal fish communities on Lake Huron. He described his state of mind ranging from hope, anguish and despair as he contemplated his subject. On the positive side, the nearshore communities have not been disrupted to the same extent as the off shore communities with some species like small mouth bass feeding on invasives. On the other hand, there are stressors like the round goby, low water levels and temperature changes, with of course the resulting wetland destruction.

Heat waves, drought and changes in water levels make planning complicated. Increasing drought puts great stress on fish habitat and wetlands and the lake trout of Lake Ontario and Erie among others."

Arunas described "an imperfect storm" of a climate-change-triggered event that happened this spring in the Moon River. A modest to low snowpack with warm and then cold temperatures led to a high flow, quickly followed by a low flow leaving the spawning walleye high and dry in a torpor waiting for the right conditions to mature.

Climate change was implicit everywhere in David Sweetnam's, executive director of Georgian Bay Forever, presentation on the recent Upper Great Lakes Study Board Report on water levels and multi-lake regulation. (This subject is covered in detail in two articles on pages 4 and 5.) Climate change is driving the extreme concern about how the environment will or won't survive the next hundred years. But we hope science, as demonstrated by the scientists at the Vital Signs, will give us the tools to adapt as best we can.

Guidelines, Regulations and Jurisdiction

The question of who is responsible for what, and what the short-comings are, go right at the heart of Scott Vaughan's job as a commissioner of the auditor general's office. As such he has grave doubts about Environment Canada removing fish habitat protection from the Fisheries Act. "Environmental groups are right to be concerned. The federal government is scrapping the regulations, and the policy is no longer going to be with Environment Canada. What is going to happen to fish habitat policy?"

Saad zeroed in on the jurisdictional issue when discussing what has been in turn responsible for, and the solution to, the Walkerton crisis. "We used to have guidelines that weren't enforceable and now we have regulations that are."

Asian Carp

To lighten the mood, while staying admirably on message, documentary filmmaker Alex Miffin showed his film "Carpageddon" and took questions from the floor. With much footage from south of the border where Americans have been scrambling to adapt to the invasion of Asian carp, Alex painted a dire scenario for the Great Lakes if Asian carp breaches the barriers. As Arunas said, "Our fish communities will be a memory if Asian carp invades."



Closer to home and very much in our backyard, are the native fish of Georgian Bay's coastal regions, the subject of Arunas Liskauskas's, management biologist for the Upper Great Lakes Management Unit, Ontario Ministry of Natural Resources, Coastal

Climate Change

Scott Vaughan pointed to a two to three degree Celsius increase as inevitable and it might be as much as four degrees. "The structure of the biosphere is changing. We are entering a wholly unknown area of uncertainty.

regulation is how little the lake dynamics on inter-annual and decadal timescales are understood.

“The current understanding of the Great Lakes system in terms of the factors that will affect the performance of a regu-

The Study Board’s recommendation that further study of multi-lake regulation not be pursued at this time is foolhardy. Given that the Study Board has identified the limitations of the control structures in the St. Mary’s River, the almost certain low water levels expected in the future, and the positive benefits of multi-lake regulation, it would be prudent for the IJC to commission a detailed feasibility study of it in conjunction with the proposed plan.

lation plan can only be described as ‘fair.’ There is a long record of lake levels and a reasonable understanding of the regulation and net basin supply that produced those levels. There are numerous major modelling and data collection efforts. Nonetheless, the long record of historical observations is actually quite sparse spatially, because the great-

est area of the basin is comprised of the lake surfaces. There are only spatially sparse and temporally short-recorded observations in these overlake areas. Also, ... the greatest uncertainty in net basin supply is the runoff due to incomplete gauging of the land area. Thus, a comprehensive understanding of lake water balances remains elusive.”

This level of uncertainty throws even the modest goals of the plan in doubt, especially when considering that the Study Board acknowledges that *extreme extremes* outside the historic norms are beyond any regulatory plans’ capabilities, especially those of the proposed plan.

Now add to this all the uncertainties of climate change. The trend is downward but water levels might also rise intermittently. Ice cover will likely be thinner, temperatures and winds should go up, increasing evaporation, but more intense precipitation is predicted to compensate for the evaporation loss in all the Great Lakes, except Superior.

“Beyond the next 30 years, some projections of more extreme water levels in the upper Great Lakes may have more validity. However, due to the limitations of these models for this region, there is, at present, no completely satisfying representation of future water balance (i.e., one that takes fully into account water recycling within the basin.)”

The Problems with Adaptive Management

The Study Board insists that current water levels fall within normal historic extremes, and it expects Great Lakes stakeholders to keep on adapting to it. Georgian Bayers have three problems with this.

First, what is normal rests on a very narrow application of chart data; it doesn’t take

account of the *unprecedented sustained low* that is doing so much damage to our wetlands. Secondly, the storms that might deliver the compensating precipitation for all the expected evaporation could dump a year’s worth in a few downpours: possibly a historically un-normal occurrence. Besides the obvious dangers of flooding, such downpours would saturate the soil and increase the runoff of nutrients and sediments heralding more water quality problems.

Thirdly, this “get-used-to it-it’s-normal” edit is consistent with the Study Board’s thinking that what’s natural is better than what is unnatural. This is fine as a principle goes, but it has limited application to Georgian Bay’s predicament that is the result of a flawed engineering plan to dredge the St. Clair River. Nothing natural is going to undo what was done in the ‘60s.

Adaptive Management provides no relief for the drying out wetlands of Georgian Bay, except if there’s a flood, but not a big flood. Under the dry scenarios, *less* water will be coming our way from Lake Superior than is provided for under 1977A.

The Study Board has retreated from IJC’s request that it look seriously at addressing the unmitigated damage done by enlargement of the shipping channels. Instead the Study Board has proposed a plan that will offload the costs of climate change, mining and dredging to regional stakeholders. The right thing to do would be to face the challenge head on.

The Upper Great Lakes Study Board’s final report can be downloaded at www.iugls.org/docs/Lake_Superior_Regulation_Full_Report.pdf

pay the price. If we started today, we would be looking at the year 2042 for the grand opening ceremony.

With a stepped up timetable—such as the federal government has instituted for its proposed pipelines—a multi-lake regulation plan could get underway in 10-15 years, so by 2022 we could be in a position to protect all of the priority interests of the Great Lakes. And there are staged ways of approaching this. By optimizing solutions based on the most probable conditions and taking the first steps to implementing them, we could

begin to reverse the century of manmade changes foisted upon the system.

Doing nothing will be very costly, and not just for us, but for the next generations. Is it fair to push off these tough and necessary decisions to our children’s children? What kind of stewards are we who refuses to act when the warning signs are here, who refuse to protect our resources?

We need to stop waiting for perfect information and perfect solutions and get on with creating meaningful changes that will increase the resilience of the Lakes in the face

of growing evidence that the changes coming will be adverse. Until we stop increasing the carbon load in the atmosphere, we need to shoulder the true costs of our activities and if that means that we have to fork over billions of dollars to protect these aquatic treasures, then so be it. The costs wouldn’t be out of line with other infrastructure projects, far more modest projects, and the rewards might be measured in hundreds of years.



THESE MARINAS STEPPED UP TO HELP PROTECT THE BAY. IS YOURS ONE OF THEM?



GEORGIAN BAY FOREVER THANKS THE ABOVE MARINAS FOR THEIR STEADFAST SUPPORT OF OUR WATERKEEPERS' BOAT FOR SCIENTIFIC RESEARCH. WITHOUT THEIR HELP, WE WOULDN'T STAY AFLOAT!

"THE BAYKEEPER" INDICATES THAT GEORGIAN BAY FOREVER IS A MEMBER OF THE WATERKEEPER ALLIANCE, A GLOBAL MOVEMENT OF ON-THE-WATER ADVOCATES WHO PATROL AND PROTECT OVER 100,000 MILES OF RIVERS, STREAMS AND COASTLINES IN NORTH AND SOUTH AMERICA, EUROPE, AUSTRALIA, ASIA AND AFRICA. FOR MORE INFORMATION GO TO WATERKEEPER.ORG

WOULD YOU PREFER TO STAY IN TOUCH VIA EMAIL? OR MAYBE YOU WOULD LIKE SNAIL MAIL AND AN EMAILED NEWSLETTER? PLEASE SEND YOUR ADDRESS TO EXECUTIVEDIRECTOR@GEORGIANBAYFOREVER.ORG



The McGregor Bay Shoal

“GEORGIAN BAY IS MAGICAL.”

It’s the wind and the water and the rocks. And for us, it’s family, a place where generations build memories. We want the place to be as special for our grandkids as it was for our grandparents. Georgian Bay Forever cares about the same things we do.

—Scott and Carole White

McGregor Bay