

/// THE DIRT

Farming innovations can fix food supply system

By Terry Platz

The following is a Q&A by Terry Platz of Beacon Institute for Rivers and Estuaries of Clarkson University with Michael C. Finnegan, president and CEO of Continental Organics LLC, a Hudson Valley sustainable agriculture company, committed to setting new standards for the aquaponic industry. Finnegan, also known for leading the successful negotiations for the landmark New York City Watershed Agreement as general counsel for Gov. George Pataki, will share his knowledge of water issues in a panel discussion on Sept. 19 at Beacon Institute's Center for Environmental Innovation and Education at Denning's Point in Beacon.



Michael Finnegan



Terry Platz

The innovative sustainable farming practices you have implemented at Continental Organics are generating extraordinary results. The most striking is your ability to use up to 90 percent less water than conventional agriculture. What was the thought process for your innovative approach to farming?

Finnegan: According to the United Nations Food and Agriculture Organization, agriculture accounts for 70 percent of the world's freshwater withdrawals. Global population is expected to exceed 9 billion by 2050, putting even greater pressure on water resources as agricultural use is projected to increase by 19 percent over the same period.

Agriculture has been identified by

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IF YOU GO

What: "Watershed & Agriculture: The past, present & future of farming and fresh water" with Continental Organic's Michael C. Finnegan, Glynwood's Kathleen Frith and Clarkson University environmental engineering and agriculture expert Shane Rogers. A talk to explore the effects of industrial agriculture on our freshwater supply, moderated by Fred Osborn III, commissioner, Taconic Region, New York State Parks.

When: 7 p.m. Sept. 19.

Where: Beacon Institute for Rivers and Estuaries, Clarkson University, Center for Environmental Innovation and Education, 199 Denning Avenue, Beacon.

Cost: Free and open to the public. Advance online registration is requested.

Web: View all of Beacon Institute's 2013 events at www.bire.org/events.

COMING ONLINE IN MY VALLEY

Visit www.poughkeepsiejournal.com/myvalley for this story and the latest environmental news:

Tuesday: One-third of the world's conifers are at risk. Find out why.



Students cast off with rods and reels at Norrie Point in Staatsburg. COURTESY PHOTO

Rules ensure future anglers

Sport is 'held to higher standards'

By Karen Maserjian Shan

For the Poughkeepsie Journal

Jay Martin has been fishing for a long time.

His father started him on the sport when he was 5 or 6 years old. Now a retired high school English teacher, Martin is a United States Coast Guard-licensed captain with more than 30 years of experience fishing on the Hudson River. During the spring he takes four to six people at a time on chartered fishing trips through his business, Reel Easy Charters in Kingston. They fish for spawning striped bass on the Hudson River.

"I have newbies who have never fished, and I have aged and seasoned veterans who come out with me," Martin said. "It runs the full gamut of someone who's never held a rod to someone who can maybe teach me a few things."

Some of Martin's anglers practice catch-and-release fishing, where caught fish are returned safely to the water. Others keep their catch — within limits.

"By regulation, they're only allowed to have one fish kept per angler per day, so that way they don't put too big a dent in the spawning population," Martin said.

More than 1 million people fish annually in New York state, with freshwater anglers making some 21

million fishing trips, according to the state Department of Environmental Conservation. In fact, an estimated \$1.8 billion is generated annually through the state's sport fishing industry, which supports nearly 17,000 jobs.

Last year Gov. Andrew Cuomo allowed the DEC to increase the number of Free Fishing Days, where people can fish for free in fresh or marine waters without a fishing license.

Yet consider that Greenpeace, a global organization that works to protect and conserve the environment as well as promote peace, reports roughly 90 percent of the ocean's big fish have been fished out. Prime causes of fallen fish populations are overfishing, pirate fishing and destructive and unsustainable fishing methods, including large-scale industrial fishing fleets.

Moreover, the Food and Agriculture Organization of the United Nations reports fishing, along with other human activities, contributes to an imbalance of marine ecosystems through overfishing and excessive fishing, bycatch of juvenile fish and marine life, ghost fishing, where fish are trapped in abandoned gear, bottom damage resulting from mobile bottom gear and the use of dynamite and poisons to fish.

Other related activities causing environmental harm include the dumping of gear, unwanted organisms, pathogens, and non-indigenous, foreign or alien species by fishing vessels; organic pollution from unregulated wastes from coastal processing plants; and exhaust fumes and refrigerant gases from fishing vessels.

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Check for air leaks cuts energy costs

By Lalita Malik

Last week I wrote about the energy audit of my house, which had the main objective of finding air-leak sources that resulted in higher energy consumption. A week after the audit, I received the results and suggestions for solutions, based on what the audit found.

There were three major opportunities for improvement: sealing air leaks; changing all existing light bulbs — approximately 75 bulbs — for CFLs, except the eight fluorescent lights, which will require changing



Lalita Malik

the light fixtures; and upgrading appliances more than 25 years old. The biggest part of the job was sealing the area around 15 recessed lights on my upper floor. This required moving the insulation in the attic, sealing the area around the fixtures and replacing the insulation. Energy Management Solutions would handle everything except upgrading appliances.

I was pleasantly surprised. A year ago, one company had told me to add reflective insulation in the attic at a cost of more than \$3,000. Another had suggested blowing insulation into the attic at a cost of \$2,500.

I asked whether I needed more insulation and was told, no, the model did not call for

that. No replacement of windows or doors was necessary. NYSERDA had a program to subsidize 10 percent of the cost. I agreed to get the work done. Energy Management Solutions handled the paperwork with NYSERDA, and within a few weeks a crew showed up, led by Jeremy Scott, to do the work.

They arrived before 8 a.m. to beat the heat that builds up in attics. After the light fixtures were sealed, Jeremy set up the door with a CFM meter and fan and started blowing air to check the area for leaks. Everyone walked around with caulking guns feeling for moving air. Every so often, they checked the CFM meter for progress. The readings were gradually fall-

ing from 4,552 CFM @50 pascals. I pointed out the areas where mice snuck in. The crew sealed around water pipes, drains, ductwork and windows. To my surprise, they found air leaks around the new windows in my basement that had been replaced three years ago. It seems the contractor who installed them did not caulk around the frame before replacing the molding. Aha. Now I know why my basement was always so cold. It was not my heating system.

They finally stopped at 3,940 CFM @50 pascals. They could not find any more sources of air leaks. All my light bulbs were swapped for

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Fishing

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Fortunately, the Food and Agriculture Organization reports, an awareness of environmental issues related to fishing has grown among fisheries and the public, including a rise in environmentally acceptable fishing practices.

Last year the American Sportfishing Association launched its FishSmart Tackle program that has the recreational fishing industry, anglers, federal and state fisheries managers and scientists, collaborating on fishing techniques, management approaches and tackle that reduce catch that need to be returned to the water and improve the survival of released fish.

“Beyond the economics, FishSmart is the right thing to do,” said American Sportfishing Association President and CEO Mike Nussman. “Our sport is being held to higher standards and greater scrutiny in today’s world, and it is incumbent upon the industry to continue to be the leader in promoting responsible stewardship of fishery resources. Such efforts are beyond the scope of any single organization; it will require the efforts of all of us, working together, to make this happen.”

Anglers, the state DEC

ETHICAL ANGLING

- » Observe restrictions on fish sizes, fishing seasons, species bag limits and conservation measures.
- » Land your catch quickly to minimize exhaustion and try to keep it in the water during hook removal.
- » When fishing from a boat, avoid dragging the anchor and fishing gear on the bottom. Use marine sanitation devices to prevent untreated sewage from being pumped overboard.
- » Scan the sky, land and water for marine mammals and seabirds before casting to reduce the risk of an encounter.
- » Minimize hooking seabirds and sea turtles.
- » Never harm marine mammals, even if they attempt to steal the bait or catch. Try to deter them with horns or whistles.
- » Feeding wildlife could change the animal’s behavior.

Source: National Oceanic and Atmospheric Administration

ON THE WEB

- » Are you an ethical angler?: www.nmfs.noaa.gov/sfa/management/recreational/documents/ethical_angler_web.pdf
- » Fishing responsibly in New York state: www.dec.ny.gov/outdoor/9223.html

Fishing license information and places to fish: www.dec.ny.gov/outdoor/fishing.html

PROGRAMS OFFERED

- » Free Family Fishing Day to be held 9 a.m. to 2 p.m. Sept. 22 at the Ashokan Reservoir, Woodstock Dike, West Hurley.
- » Norrie Point Fishing the River to be held 1-4 p.m. Oct. 5 at Norrie Point Environmental Center in Staatsburg.

reports, can help promote responsible fishing by following ethical practices, such as using nontoxic sinkers and jigs to avoid harming birds through ingestion of the lost pieces, not leaving behind discarded gear and monofilament fishing lines lest wildlife become caught in

them, avoiding introducing non-native plants and animals from one area to another, following regulations on using fish as bait and practicing catch-and-release fishing.

To further ensure the safety of fish and their waters, the state DEC has monitoring programs and



Marist College students display their “catch of the day” during a field program at Norrie Point in Staatsburg. COURTESY PHOTO

establishes fishing regulations. One new regulation, Martin said, limits how many herring anglers can use as bait per day to protect the population.

Also, because the American shad population has had a serious decline partly because of overfishing, fishing for them has been banned in the Hudson River.

Environmental pollutants in fishes’ natural environment can have an effect on fishing, too.

Take polychlorinated biphenyl, said Martin, the chemical contaminant that formerly was dumped into the Hudson River, harming fish and the environment. As a result, commercial fishing of striped bass in the Hudson River has been banned since the late 1970s, an indirect blessing, said Martin, since

“Commercial (operations) take more in on one pass than you or I do in a lifetime with a rod and reel.”

Martin encourages catch-and-release fishing on his chartered fishing trips and, over the past years, has taught techniques to striped bass anglers.

“The less handling and the less time out of the water, the fish is more likely to have a healthy release and go on its way,” he said.

Following fishing regulations and ethical practices ensures that fish will be there for future generations.

“That’s the biggest thing,” Martin said. “Just play by the rules.”

Ryan Coulter, a DEC fisheries biologist who leads many free fishing clinics in the region, said fishing creates a great opportunity for friends and

family to spend time together while enjoying the great outdoors.

One program, “Fishing the River at Norrie” in Staatsburg, affords easy access to fishing for people of all ages and skill levels, especially beginners.

A catch-and-release practice is taken, where fish are returned to the water.

“Fishing the river at Norrie Point is a free family fishing clinic open to the public. All rods, reels, bait and tackle are provided. During the event, DEC fisheries staff are on hand to teach the basic techniques of fishing and to educate folks about fishing the Hudson River,” Coulter said.

Karen Maserjian Shan is a freelance writer: mkshan@optonline.net

Costs

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CFLs, including 20 on dimmers. The energy improvements that Energy Management Solutions had signed up to do were done.

I turned on my air conditioner and waited with baited breath to see how often it kicked in. I found

it turning on less frequently, and the house was more comfortable.

I decided to replace my old refrigerator with one that was Energy Star rated, since it is the appliance that runs all the time. Finding a refrigerator that fit in the space occupied by my old one turned out to be a huge challenge. After many visits to the store armed with measurements and

ratings, I finally found one that could potentially fit.

I had to remove the tiles from under the refrigerator and hire a handyman to move the cabinet next to the refrigerator to get the new one to fit. It was finally done.

I replaced my 25-year-old oil-fired water heater with a GE Heat Pump water heater.

The payoff came when

I received the friendly neighbor letter from Central Hudson saying I had used 30 percent less electricity than the previous year. My oil consumption dropped 50 percent. Yippee.

Next week: Is solar an option?

Lalita Malik is a member of the Dutchess County Environmental Management Council.

Weekly Weather		
Aug 29 - Sept 4, 2013		
Temperature (F)	High 8/30/2013	84.7°
	Low 9/4/2013	51.5°
	Average	70.5°
Precipitation (in)	Weekly	1.37
	Year-to-Date	36.53
	Average Year-to-Date	30.40
Historical Temperature (F)	Record High 8/30/1991	95°
	Record Low 8/29/1986	38°
	Average	67°
Ozone (ppb)	High 9/2/2013	49
UV (mW/m2)	High 9/2/2013	193
CO2 (ppm)	Average	417
Precipitation pH	Volume-Weighted Mean	4.69
For current weather data, visit: caryinstitute.org/emp		
Data provided by: Cary Institute of Ecosystem Studies (Historical temperature from Poughkeepsie, Ozone data from NYDEC.) www.caryinstitute.org		

Farming

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the Environmental Protection Agency as a major source of water pollution in the United States (streams and rivers 48 percent, lakes 41 percent) largely from animal waste, chemical fertilizers, pesticides, herbicides and feed additives such as antibiotics and hormones.

Our first consideration of “water” issues at Continental Organics did not concern supply but rather waste discharges, which have been an issue for both fish farms and hydroponic greenhouses alike.

After more than a year of research, we determined that recirculating aquaponics systems were the best for a variety of reasons including resolving water discharge related concerns.

Aquaponics is a combination of aquaculture (growing fish in tanks) and hydroponics (soilless plant cultivation) in which water continually flows from the fish tanks through greenhouses where the plant’s roots filter the water and then return to the fish tanks. Since the water continually recirculates, there are no discharges.

Since whatever you do

to the plants directly impacts the fish, we use no chemical fertilizers, pesticides, herbicides or fungicides. And, since any fish treatments will likewise adversely affect the plants, we use no antibiotics, no growth hormones and no methyl-testosterone (a sex-change hormone almost universally administered to farmed fish throughout the world).

We also added a composter for all food production waste. The result is an almost ideal micro-environment for food production which uses 90 percent less water, has no effluent discharges, grows food 365 days a year — without GMOs, hormones and chemicals. Its yields can be nine to 10 times higher than conventional agriculture.

The model has proven to be both economically and environmentally sustainable. That is why we believe that climate-controlled agriculture, utilizing recirculating aquaponics technology, will be an increasingly important part of the food supply system of the future.

Terry Platz is associate public affairs officer for the Beacon Institute of Rivers and Estuaries in Beacon. The Dirt is a regular feature in My Valley.

A LOOK AT OUR CHANGING ENVIRONMENT

Solar power plants boom in Calif., Ariz.

The world’s largest solar energy plant is going online this summer in the Mojave Desert in California. The Ivanpah plant is a 377-megawatt power station that doesn’t use photovoltaic technology. Instead, it is a solar thermal energy plant that uses sunlight to heat water in boilers to make steam, which then turns turbines to generate electricity.

It has taken six years to build the plant, which uses more than 170,000 mirrors to focus sunlight onto three boilers that sit on top of towers standing nearly 500 feet above the desert floor. The enormous facility, which occupies 3,500 acres of federal land, will generate enough electricity to power more than 140,000 homes. It is twice as large as any previous solar thermal energy plant.

The Ivanpah plant is one of many large projects that are part of California’s ambitious energy program aimed at producing at least one-third of the state’s enormous electricity needs with renewable sources by the year 2020.

The southwestern deserts are home for multiple solar energy projects. In fact, the Ivanpah plant is not expected to hold the record for a solar energy plant for long.

The Agua Caliente Solar Project in Yuma County, Ariz., is a huge photovoltaic project that went online in 2011 with 30 megawatts of capacity and has been expanding ever since. It reached 250 megawatts last year and is expected to reach 397 megawatts some time in 2014.

The desert sun, through photovoltaics and thermal solar technology, is driving a boom in solar energy.

“Earth Wise” is heard on WAMC Northeast Public Radio and is supported by the Cary Institute.

ON THE WEB

Mojave Mirrors: World’s Largest Solar Plant Ready to Shine: <http://news.nationalgeographic.com/news/energy/2013/07/130725-ivanpah-solar-energy-mojave-desert>

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