



Galvanic Corrosion - More Shocking!

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UNITED STATES COAST GUARD AUXILIARY



When we wrote about Electric Shock Drowning, we were also setting the table for a related and more common problem - what is called Galvanic Corrosion. The same elemental forces that could translate into ESD will definitely create an environment whereby your boat's metals can "melt away"...

What Is Galvanic Corrosion?

When two dissimilar metals are in contact with each other, the base requirement for galvanic corrosion is in place. What does dissimilar mean? Well, how about a bronze propeller and a stainless steel drive shaft? Or stainless steel screws holding aluminum trim tabs in place? Or just the grounding strap on a boat, connecting all the various metals? But more than contact is required. An "electrolyte" has to be present too - a substance to conduct electricity (the flow of ions) between the two dissimilar metals. And an excellent electrolyte is seawater... What happens is that the more "noble" metal (bronze, for example) destroys the less noble metal (aluminum, for example) by dissolving it, ion by ion, in favor of itself. This is galvanic corrosion.

And the marina provides a primordial "soup" for all the boats via the shore power ground. Every boat is connected to the green AC grounding wire of the marina and to their own boat grounding system, engine and underwater running gear. The water of the marina completes the circuit from all boats to all boats!

Clearly, the best idea to have your boat protected with zincs, the least noble metal available, so that the



zinc is "sacrificed" at the expense of all other metals. Zincs should be placed on the running gear struts, on the transom (in the water) and on any internal part that is in contact with seawater - like a raw water cooling system. However, if you have plenty of zincs and the boat next to yours doesn't, physics will require that your zincs protect both boats simultaneously (and without your knowledge) until they "melt" away - exposing you and your less diligent neighbor to the full onslaught of galvanic corrosion...

What Can I Do?

Well, you could disconnect the AC green ground wire from the boat's ground point. This will break the circuit and fully halt the corrosion cycle. However, this

is a very dangerous condition. Electricity can "jump" from your AC system to your DC system simply by the wires of the two systems being in proximity to each other. Out through your engine block to your running gear and into the water... See column on "Drowning - Shocking!" Clearly, that danger is far higher than worrying about a prop dissolving before your eyes...

So, a Galvanic Isolator would do very nicely! It sits connected to the green ground wire, close to the shore-power inlet. It blocks, quite simply, the flow of ions between your boat and everybody else's. The Galvanic Isolator also has a "trip" system (via something called a diode) that stops the low-voltage galvanic action from occurring but will allow dangerous AC power build-up to get to the ground, if any.

The better Galvanic Isolators have something called capacitors built in. They allow even low levels of AC to pass through. Stray AC current, as pointed out in the "Drowning - Shocking" column points out, even as low as .01A, can paralyze a swimmer so you want it running to ground as efficiently as possible.

So, don't go swimming at the marina and maintain that green grounding wire in good condition. The life you save may be your own.

BTW, if you are interested in being part of USCG Forces, email me at JoinUSCGAux@aol.com or go direct to the D1SR Human Resources department, who are in charge of new members matters, at DSO-HR and we will help you "get in this thing..."

Tides for Moriches Inlet starting with September 18, 2013

Day	High/Low	Tide Time	Height Feet	Sunrise/Sunset	Moon Time	% Moon Visible
Wed. 18	Low	12:10 AM	-0.3	6:35 AM	Set	96
18	High	6:27 AM	3.6	6:55 PM	Rise	
18	Low	12:34 PM	-0.2			
18	High	6:47 PM	3.7			
Thur. 19	Low	12:57 AM	-0.4	6:36 AM	Set	99
19	High	7:14 AM	3.7	6:53 PM	Rise	
19	Low	1:24 PM	-0.2			
19	High	7:34 PM	3.7			
Fri. 20	Low	1:42 AM	-0.3	6:37 AM	Set	99
20	High	7:59 AM	3.7	6:51 PM	Rise	
20	Low	2:12 PM	-0.2			
20	High	8:19 PM	3.5			
Sat. 21	Low	2:24 AM	-0.2	6:38 AM	Set	97
21	High	8:43 AM	3.7	6:50 PM	Rise	
21	Low	2:57 PM	-0.1			
21	High	9:05 PM	3.3			
Sun. 22	Low	3:05 AM	-0.1	6:39 AM	Set	93
22	High	9:27 AM	3.5	6:48 PM	Rise	
22	Low	3:41 PM	0.1			
22	High	9:52 PM	3.2			
Mon. 23	Low	3:44 AM	0.1	6:40 AM	Set	87
23	High	10:13 AM	3.3	6:46 PM	Rise	
23	Low	4:25 PM	0.2			
23	High	10:42 PM	2.9			
Tues. 24	Low	4:24 AM	0.3	6:41 AM	Set	79
24	High	11:00 AM	3.2	6:45 PM	Rise	
24	Low	5:10 PM	0.4			
24	High	11:33 PM	2.8			
Wed. 25	Low	5:05 AM	0.5	6:42 AM	Set	71
25	High	11:49 AM	3.0	6:43 PM	Rise	
25	Low	6:02 PM	0.6			
Thur. 26	High	12:25 AM	2.6	6:43 AM	Set	62
26	Low	5:54 AM	0.7	6:41 PM	Rise	
26	High	12:38 PM	2.9			
26	Low	7:02 PM	0.7			

Weather Forecast	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed
E Moriches, NY (11940)	Sep 18	Sep 19	Sep 20	Sep 21	Sep 22	Sep 23	Sep 24	Sep 25
	Sunny	Sunny	Sunny	Scattered T-Storms	Few Showers	Sunny	Sunny	Cloudy
	70°F	73°F	75°F	73°F	73°F	70°F	69°F	71°F
	53°F	57°F	62°F	64°F	57°F	53°F	56°F	55°F



by TONY SALERNO

FISHING WITH TONY

RFA SAYS NEW NRC REPORT SUPPORTS "FLEXIBILITY"

An independent, peer-reviewed panel of scientific experts has found that "the benefits and costs of introducing more flexibility in determining the time to rebuild should be considered" by Congress when reauthorizing the Magnuson Stevens Fisheries Conservation and Management Act (Magnuson-Stevens). The Recreational Fishing Alliance (RFA) is praising the report as an example of independent scientific advice which should be given serious consideration by Members of congress.

The new study from the National Research Council (NRC) of the National Academies entitled Evaluating the Effectiveness of Fish Stock Rebuilding Plans in the United States examines the ability of U.S. fisheries management to reduce overfishing in coastal fisheries, and officially finds that current stock rebuilding plans are not flexible enough to account for uncertainties in scientific data and environmental factors that are outside the control of fishermen and fisheries managers.

RFA has fought an uphill battle for Magnuson-Stevens reform since 2007, calling for incorporation of limited management flexibility, particularly to manage around rigid, arbitrary and unscientifically backed rebuilding deadlines. RFA executive director Jim Donofrio calls the NRC report "vindication" for 7 years of rallies, demonstrations, and lobbying effort by the political action organization, but stopped short of saying 'we told you so.'

"Even a few members of the national boating and tackle industry split with us on the flexibility issue, some of whom felt that by reasoning with groups like Pew Environment Group and the Environmental Defense Fund it would help keep the pressure off anglers," Donofrio said. "When the highest peer-view panel of experts in the country says arbitrary rebuilding deadlines have no conservation benefit and are actually damaging to our recreational sector, it proves anglers and business leaders are the ones who should be in the driver's seat, with Pew folks attempting to reason with us."

The comprehensive findings by NRC say strict rebuilding deadlines as written into Magnuson-Stevens sound good in highly charged political settings, but found they're not entirely sensible, nor are they practical. "Fish stock rebuilding plans are designed to achieve rapid rebuilding of biomass and spawning stocks consistent with the biological characteristics of the resource," the NRC report states, adding "however, the requirement to rebuild within 10 years, if biologically possible, eliminates certain management options from consideration that could lead to greater social and economic benefits while still supporting stock recovery in the long run."

"The 2006 Magnuson-Stevens reauthorization made American fishermen 'accountable' to the point of economic collapse, but when will a law be upheld in this country that actually makes our government accountable for their role in a broken system," Donofrio said. "NRC found the government data to be flawed; now they've reported that inflexible deadlines are destroying our coastal fishing industry, what more does Congress need to help us make a stand against ideologues, bureaucrats and a broken law?"