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# **On the Absence of a Low-Carbon Commercial Fishing Fleet in the United States**

*(and Canada, Europe...)*

*by*  
***Susanne Altenburger***  
*of*  
***Phil Bolger & Friends Inc., Gloucester, MA***  
***April 5<sup>th</sup> 2016***

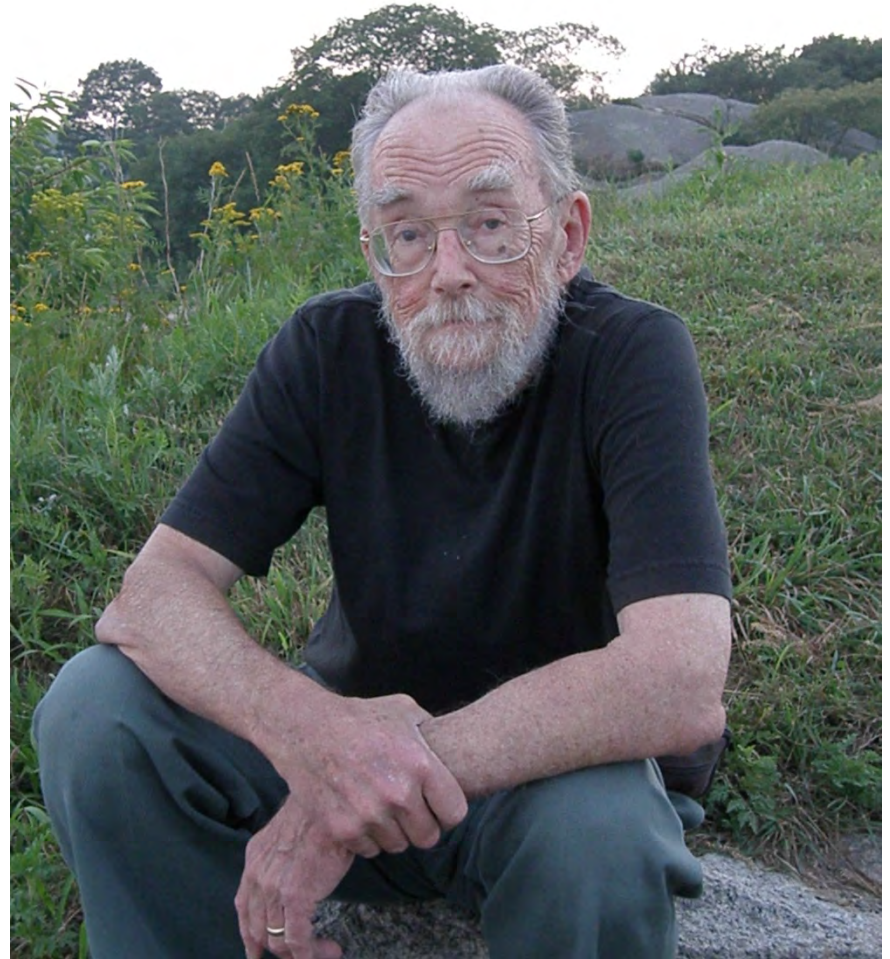
# **1. Who are we ?**

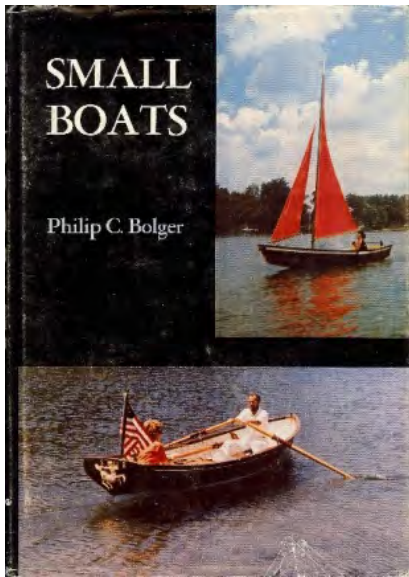
**My husband Phil Bolger worked independently designing boats out of Gloucester between 1952 and 2009.**

**He produced 680 Designs**

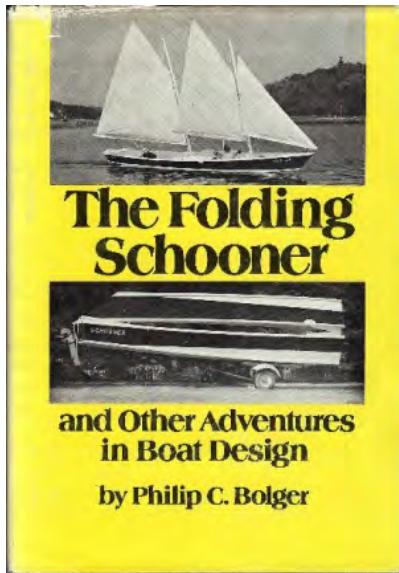
**Beginning March 1948 he discussed his work in hundreds of articles in popular magazines. Since 1972 he wrote 6 books on his work, and four more book-manuscripts are due to be published.**

**He died May 24, 2009 at 81.**

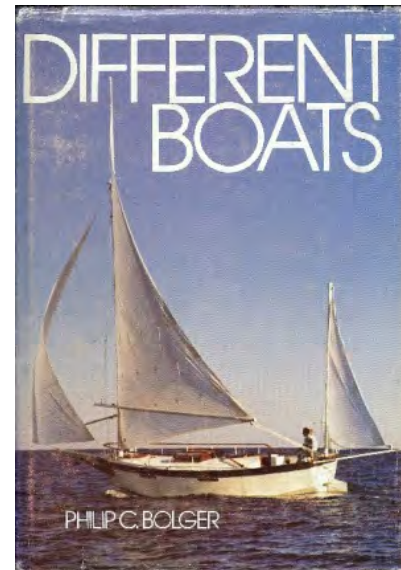




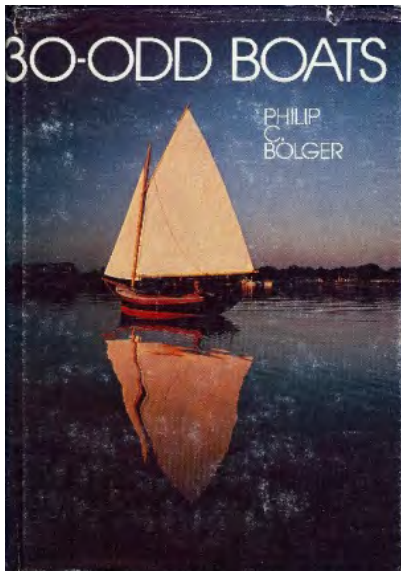
1972



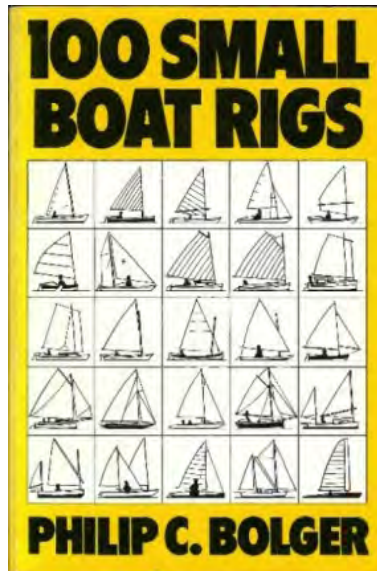
1976



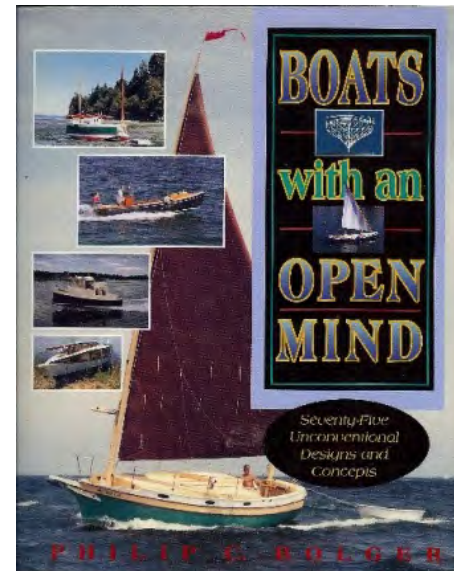
1980



1982



1984

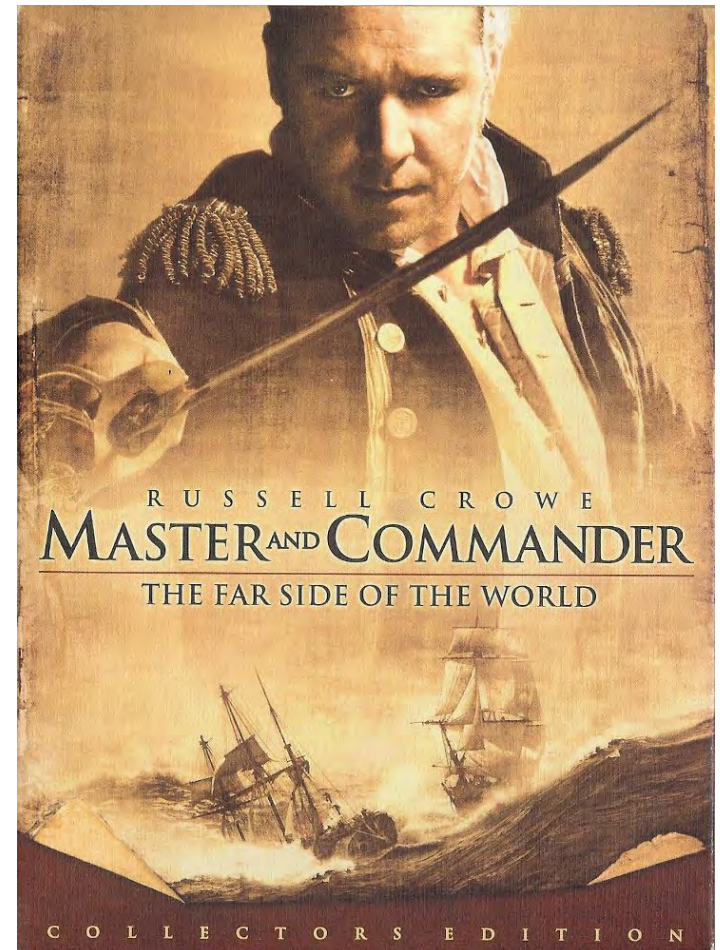


1994

# Phil Bolger's Design-Work seen on Movie-Screens Worldwide

Since 1968/69 Phil Bolger's largest Design – "HMS Rose" – by 2003 a Lead Movie-Actress:

His Design #225 "H.M.S. Rose", measuring 115-foot, 13,000 square-feet of sail, 450-tons as the 24-gun three-masted square-rigger frigate, became the lead actress as 'HMS Surprise' in the 2003 20<sup>th</sup> Century-Fox Movie "Master and Commander" *also* starring Russell Crowe and Paul Bethany.



**Between 1994 and 2009 we worked and lived together, joined in marriage and full-time Design-Work across some 60 Designs, with work discussed in well over 250 articles.**



**The Archive of Phil Bolger & Friends Inc. covers a lot of pleasure- and quite a few commercial craft, with designs ranging from 40lbs to 450-tons in Weight.**

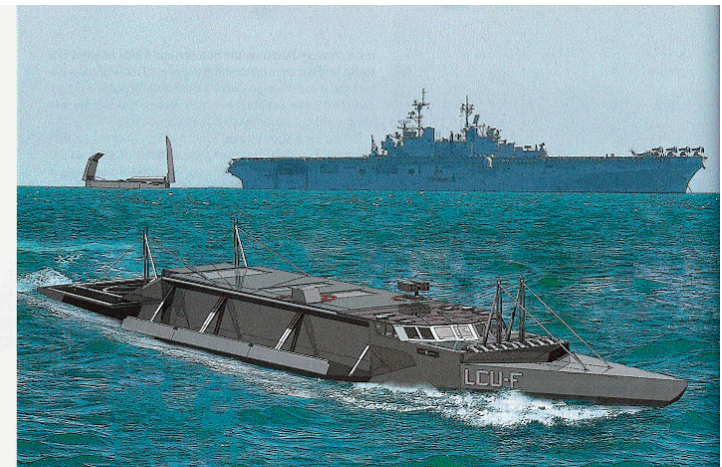
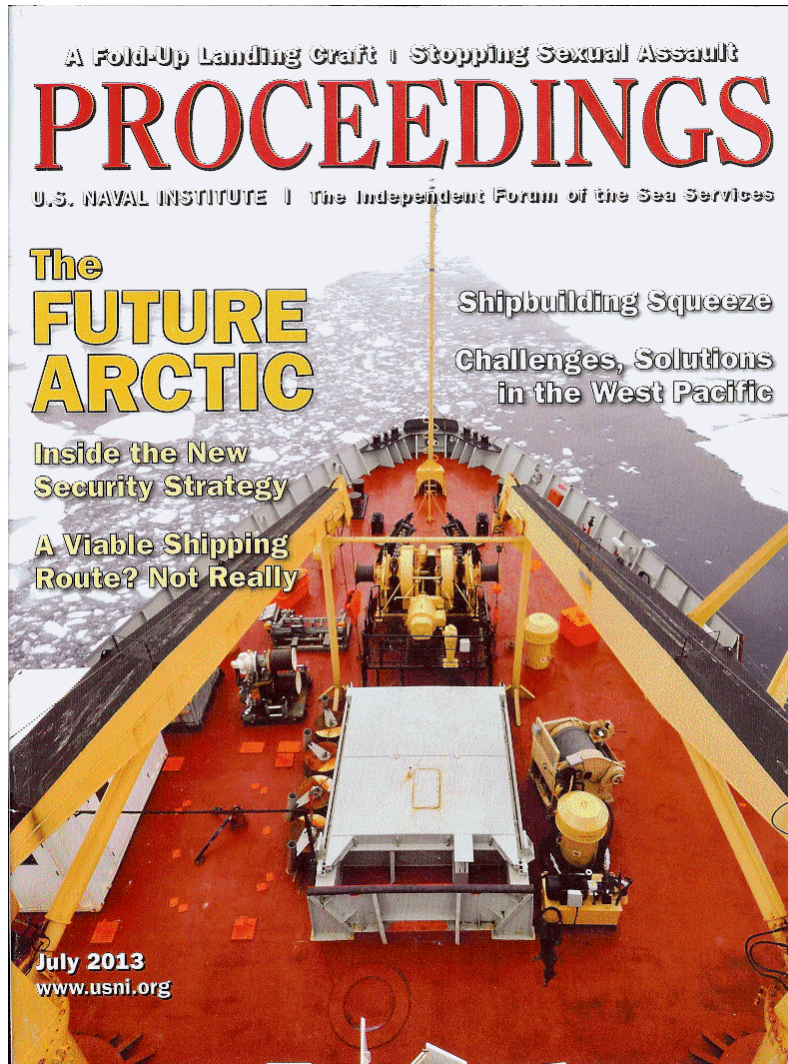








# A Sequence of work with the US Navy since 2002 and US Marine Corps since 2013 – here e.g. “LCU-F”



## A LANDING CRAFT *For the 21st Century*

By Susanne Altenburger; Commander Michael Bosworth, U.S. Navy (Retired); and Captain Michael Junge, U.S. Navy

The old landing craft utility (LCU) is too small and too slow for today's amphibious landings. Here's a proposed successor—with a new, outside-the-box design.

**T**he Navy needs a new, 21st-century landing craft utility (LCU)—the kind of flexible, shallow-draft, fast-moving cargo-carrier required for putting Marine Corps tanks and armored vehicles ashore during a modern-day amphibious landing.

To be sure, technological breakthroughs have given warfighters a wide array of options for transporting personnel and equipment during the first wave of an amphibious landing. The LCAC (landing craft, air

cushion) and the MV 22 tiltrotor aircraft are the newest additions. The Navy is modernizing many of the older workhorses in its amphibious fleet, from the AAV (amphibious assault vehicle) to the LHD-1, LHA-6 and LPD-17. And tactics such as vertical envelopment using large numbers of helicopters have proved effective for limited operations. Indeed, no other navy can match the United States' for numbers, technology, or breadth of experience.



These illustrations show the proposed LCU-F (1) as it would be stowed aboard an amphibious transport ship; (2) preparing to get under way; (3) as it would look just before retracting sponsons. Bottom drawing shows weaponry, including a modified Marine Corps Avenger 2x4 Stinger anti-aircraft mount and an AH-1 attack-helo Vulcan cannon 20/30 mm turret system as roof-surface-mounted units.

modernized LSD 41 class vessels could pack six LCU-Fs in their 340-foot wells. By contrast, the current LCU-1610 class craft is awkwardly sized, and ends up wasting valuable space aboard amphibious transport ships.

Here's how the LCU-F would work. Pre-loading the LCU-F for combat. In anticipation of a hot landing, i.e., not a training exercise, the MEF's vehicles and equipment are pre-loaded onto the LCU-F from a shore-side base or one of the new, mobile landing platforms (LMPs). The unfolded landing craft raises its stern

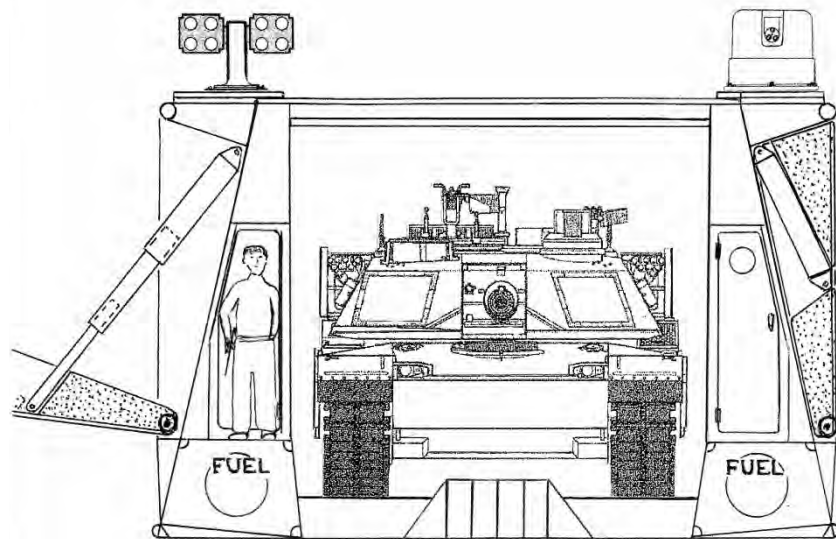
into position, and the combat vehicles are backed over the LCU-F's stern deck into its cargo bay so they will face its stern ramp ready to roll when the Marines reach the beach. Once the LCU-F is loaded and its cargo bays are locked tight, the end modules are folded over on top of its main hull, and the LCU-F powers itself onto the amphibious landing ship for transport and into its assigned storage position by using its flush air stern thrusters. Pre-loading the LCU-F in preparation for the assault mission frees up precious combat vehicle storage capacity aboard each of the MCV's amphibious landing ships.

Getting under way. Once the folded LCU-F clears the amphibious ship's stern gate, it extends a set of gyro-controlled sponsons temporarily increasing its beam (and thus its stability). Then it unfolds its stern section and each of two half-hull sections to reach its full operational length. Once that's accomplished, the crew retracts the sponson and lowers two twin propeller drives to a draft of about 11 feet. Now its two diesels can propel a full combat load at about 10 knots for a range of more than 1,500 nautical miles. All drive components can be purchased right off the shelf.

Armament. Each LCU-F would carry amidships on modified Marine Corps Avenger 2x4 Stinger anti-aircraft mounts and one AH-1 attack-helo Vulcan cannon 20/30 mm turret system, both of them as both on roof-surface mounts and self-defense range. Additional protection would come from shipboard anti-

aircraft weapons systems in the rear, from surrounding helicopters, and from carrier-based fixed-wing aircraft.

Landing. Because of its unusual configuration, the LCU-F would require an unconventional landing. Just over the horizon from the beach, the LCU-F would turn its stern ramp to the beach and accelerate stern first with its vehicles and





Gen James F. Amos, USMC  
Commandant of the Marine Corps



18:21 / 1:05:49

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## WEST 2014: What Do the Sea Service Leaders Want to See in A New Maritime Strategy?



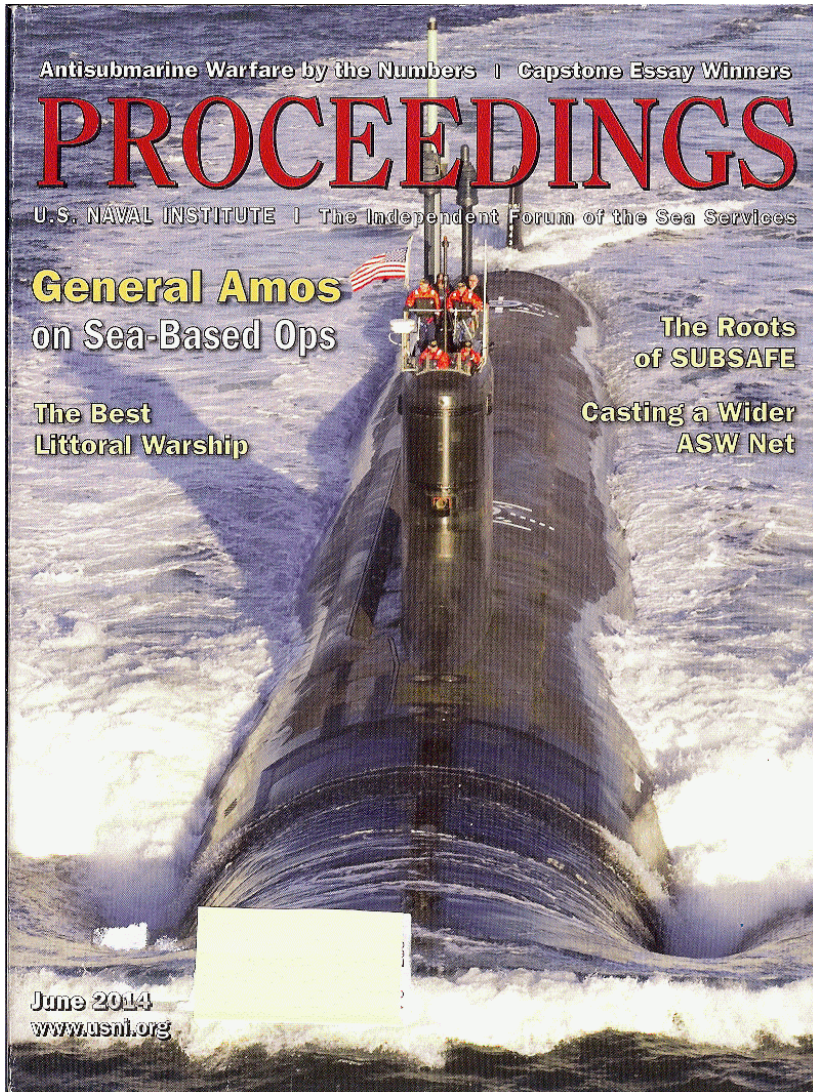
USNavallInstitute

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# BRIDGING Our Surface- Connector GAP

By General James F. Amos,  
U.S. Marine Corps

In a new strategic environment, the Marines' ability to expeditiously get people and equipment ashore may be more important than ever. Emerging platforms and technologies promise to be game-changers.

commitments but also simultaneously preparing for an uncertain future—and we must do so in the most affordable manner. In January 2012, President Barack Obama highlighted our nation's shifting priorities when he announced a renewed emphasis on the Asia-Pacific region as the "tide of war is receding" in Afghanistan. This metaphor could not have been more apropos; not only are our strategic priorities shifting toward a maritime region, but we are again reminded that the United States is, and will remain, a maritime nation.

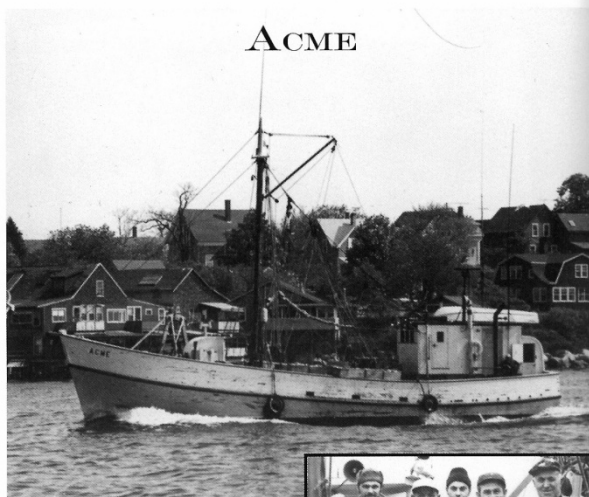
Throughout our history, naval forces have anticipated and adapted to meet the challenges of an ever-changing strategic environment. Perhaps one of the most significant evolutions occurred after the Allied campaign in the Dardanelles stalled on the beaches of Gallipoli in World War I. In its wake, a consensus emerged that amphibious assaults could not succeed against industrial-age defenses. Despite this, a group of contrarian Marine Corps and Navy officers believed it was a viable and necessary capability.

**T**he United States, and more specifically the Department of Defense, has entered a period in which some difficult choices must be made regarding our national security strategy and the military capabilities required to execute it. Consequently, now is the time we must stay focused on not only completing our current

20 • June 2014 [www.usni.org](http://www.usni.org)

# And here two samples of Fishing-Craft: A Dragger and a Lobsterboat for Gloucester Fishers

FISHING VESSEL STATISTICS



BOAT: *Acme*  
HORSEPOWER: 325  
GROSS: 56  
NET: 42  
DIMENSIONS: 60.4 x 17 x 8.3  
WHEN BUILT: 1972  
WHERE BUILT: South Bristol, Maine  
OWNER: Boat Alden, Inc., Massachusetts  
CREW: Captain John Cusumano and sons  
Phil and Filippo, Natale Gabriele and  
Sebastian Ciolino  
SOUGHT-AFTER SPECIES: shrimp, whiting and groundfish  
FATE: Sold to Maine and still afloat  
FLEET SUB-CATEGORY: inshore  
HULL MATERIAL: wood



## 2. The Science-Philosophical Challenge

The Commercial Fishing Industry consists  
of *Two Co-Equal Elements* -  
the 'Resource' and the Fleet:

- 1. The Resource of fish, shell-fish etc., and
- 2. the Fishing-Fleet, without which there'd be no fishing industry.

Both are *CO-EQUAL* !

There would be no industry without either half.

They are two 50% parts of one 100% whole.

However, 98+% of all discussions related to Commercial Fishing cover *only one 50% part* - 'The Resource'. This can thus be called the **50% Model**.

In stark contrast to this massive amount of attention, ***THE OTHER 50%*** of what makes up this industry in its **100%** breadth - the **Fleet-Structure** and its **Daily Operations** (plus **Shore-Side Infrastructure**) – go largely ignored in these efforts.

Therefore, well into 2016 we find a Persistent Tragic Prevalence of the *50% Model* in Fleet-Governance - *even* in EBFM-discussions (EcoSystem-Based Fisheries Management).

Under this steadfastly-insisted-upon **fixation with the 50% model of industry-governance**, the Commercial Fishing-Industry is thus the **last *Industry of Transportation* that has not seen any *Research & Development Programs into 21<sup>st</sup>-century LOW-CARBON Fleet-Economics.***

*There still is no regulatory process underway to link Low-to-Least Carbon Fleet-Economics with Resource-Ecology !*

Neither scientists, ecologists nor regulators appear concerned with the **inherently-fractured logic** of attempting Industry-Governance and even **EBFM** with a de facto mostly **'70-'80s-era design-concepts based *High-Carbon Fleet.*** But things are worse yet...



**By 2016 over 22 years of hard NOAA Technical Prohibitions against Fleet-Innovation towards Low-Carbon Fishing-Craft, Catch-Methods and Operations !**

Starting here in New England in 1994, and going 'federal' by 1999, NOAA/NMFS instituted **regulatory dictates** around *technical/operational assumptions* that never were coherent and certainly have proven themselves to be *untenable* in all sorts of ways since.

Their initial hopes seemed laudable enough in their interest to Limit Fleet-Growth that would otherwise quickly outstrip the resources capacity to support that growing fleet's economics.

**Their regulatory assumptions were that putting hard  
Upper Limits on**

- (so-called) 'Tonnage',**
- Horsepower,**
- Length,**

**would limit the growth of the fleet and thus its  
appetite for the resource.**

**Well, it did not !  
Since it could not !**

## Tonnage

derived from a 'big-ship' context, via coarse ill-suited concepts such as 'gross-' and 'net-tonnage' was super-imposed on a Fleet of much smaller hulls but never unarguably-quantifiable. *Actual Displacement/Weight should been but was not part of the equation!*

It is not unheard of that a given vessel might see its 'tonnage' numbers change through its life-time under different assessments – all without any serious physical alterations, or without impact on its fishing-capacity.

## Horsepower

is physically indeed much less ambiguous than 'Tonnage' since typically measured by the engine-manufacturer.

But even engine-power is subject to a certain range of *informal* options available to the owner/operator of a given fishing-vessel to quietly enhance it within certain expectations of reliability.

That variability of actual versus 'original' output is part of the spectrum of options for a good number of engines in the fleet.

## Which leaves 'Length'

***But to put it bluntly, 'Length' is not 'Size' !***

Throughout the recent history of fishing there have been 60' x 13' fishing-craft, as there are 60' x 25' types, with the latter *likely more than doubling the craft's structural weight and thus gear- and catch-carrying capacity* – clearly demonstrates the futility to ever have deemed 'Length' any plausible regulatory factor, or part of a plausible path towards EBFM.

Length-limitations have typically led to *wider, deeper, heavier, harder-to-drive hulls* - often with decreasing seaworthiness and reduced ergonomics – *actually supporting a multiplication of fishing-effort.*

## A Fleet-Structure frozen in time by ill-suited Regs.

In an age when increasing fuel-costs between '99 and '14 made most other industries seek **technical solutions to compensate for cost-increases of energy**, the NOAA/NMFS/NEFMC/SSC community of scientists, regulators and enforcers **insisted upon legal dictates to the Fleet that**

- either froze the then current *Carbon-Intensity*
- or indicated even higher levels of it !

With Length/Tonnage/Horsepower the 'preferred' regulatory tools for over two decades, **their long-term impact upon the fleet has indeed run exactly counter to any plausible 21<sup>st</sup>-century Fleet or, hopes for EBFM.**

## Immediate and Longer-Term Consequences:

- Between the Projected Life-Span of each fishing-boat,
- and the disastrous momentum of *regulatorily-prohibited fleet-evolution towards lower-carbon opportunities* for the Fleet in the Northeast - *in fact across many Council-Regions across the nation* – *we have by 2016* arrived at a **persistent High-Carbon Fleet-Structure and Operational Parameters** that neither the Bush nor the Obama-Administrations have taken measures to mitigate against.  
No NOAA Leaders have support Low-Carbon R-&-D ?!

**For at least 22 Years now, the Fleet has been dictated to *remain frozen* in this remarkably-backwards under-evolved state of evolution, exposed to**

**- Resource-Fluctuations as we are experiencing a severe case of,**

**- Fuel-Cost Fluctuations, e.g. the 360+% rise '99-'14,**

**- and thus Unpredictable Costs for Hull-Materials, Machinery and Consumables,**

**- the equally-affected Cost of Ice, Transportation of the fish to processing and then to the market etc. etc.**

**- all before the rising likelihood of dedicated ecology-driven statutory penalties for Carbon-Overuse,**

**however defined for this High-Carbon Fleet.**



## A serious 'High-Carbon' *Political Liability* for the Fleet

By 2015 this industry suffers from the most serious political embarrassment of having a ***Deep Fleet-Structural Liability*** against ever appearing any time soon as the 'Stewards of the Fish-Resource', such as via via 21<sup>st</sup>-century low-carbon vessel-attributes and matching highly-selective fishing-methods.

Under the *apparently widespread '50%-Model Hysteria'* many of their leaders – such as the North-East Seafood Coalition – have ***NEVER CHALLENGED*** these dubious but crushing High-Carbon Dictates. Instead, since NSC's founding, they have submitted to these business- and resource-destructive policies.

# Examples of Limiting Hull-Evolution by Length #1



# Examples of Limiting Hull-Evolution by Length #2



# Examples of Limiting Hull-Evolution by Length #3



# Examples of Limiting Hull-Evolution by Length # 4



# Examples of Limiting Hull-Evolution by Length # 5



# Examples of Limiting Hull-Evolution by Length # 6



# Economic Realities of *High-Carbon Dictates*

## Just a Few Hard Numbers

Under these NOAA/NMFS 'High-Carbon Regulatory Dictates here the unavoidable Long-Term Vessel-Economical Consequences under \$2.5/gal, \$4.-/gal and \$5.-/gal

- using one current local **High-Carbon Type**, and
- a matching **Low-Carbon Type** we'd offer under plausible regulations:

- **HC-type @ 4.26GPH (or 1.46MPG) - 1500hrs = 6390gals Annual Consumption**

- **LC-type @ 1.13GPH (or 6.67MPG) - 1500hrs = 1695gals Annual Consumption**

- **HC-type Annual Cost @ 1994-level \$1.1.- = \$7,029.-, @ \$2.5.- = \$15,975.-, @ \$4.- = \$25,560.-, @ \$5.- = \$31,950.-**

- **LC-type Annual Cost @ 1994-level \$1.1.- = \$1,865.-, @ \$2.5.- = \$4,237.-, @ \$4.- = \$6,780.-, @ \$5.- = \$8,475.-**

**The Cost-Savings of LC-craft over current HC-types also illustrates the mid-term protection from energy-price spikes.**



### 3. One Solution: Since 2003 we've proposed defining Vessel-'Size' by its actual measured Weight/Displacement

- Our proposal was to **use ubiquitous Travel-Lifts to weigh the fleet** at 50% fuel, NO crew, NO gear, NO ice, NO shenanigans.
- **This would take between 30 mins and 2hrs depending upon boat-size, ranging from just a few thousand pounds to 400 tons - the maximum lift-capability readily accessible in New England.**



Regulating Vessel-Size by its *Weight* would become the catalyst to encourage *Fleet-Sustainability*

- With that **Vessel-Weight and the Horsepower Limit** on the Fishing-Permit owners and designers would be free to pursue
  - **low-carbon** and eventually *least-carbon hull-types*,
  - from **long-and-lean mono-hulls**
  - to various **multi-hull geometries**.
- Most would likely pursue *modest fossil-, bio-, wind-power etc.* in all sorts of combinations to reduce their operations' exposure to oil-cost.

# What attributes would a 21<sup>st</sup>-century Low-Carbon Type want to feature ?

- **Least-Resistance** running
- **Adequate Stability** as a Work-Platform
- **Variable-Geometry Drive-Train** for distance-running versus actual localized Fishing-Effort
- **Exploration of harnessing Wind-Power** via Sails, Kites etc. *assuming cost and complexity do not undermine any economic & ergonomic demands*
- **Least-Carbon renewable Hull-Materials** i.e. regional Wood, advanced Wood-Composites
- **Plausible Degrees of Sinking-Resistance**

**One late 20<sup>th</sup>-Century Open-Ocean  
Wooden-Hulled Working-Type:**

**1400+-tons US Navy Ocean-Going Minesweeper “Avenger”**

*Other Wooden Combatants with Soviet Union/Russia, Taiwan, Germany, Japan, France, Greece...*



**Early Hull-Evolution driven by Economics:**  
**The earlier Fleets by Hull-Structure and Drive-Train Geometries were (*inadvertently !*) much more sustainable – serving as obvious precedents**

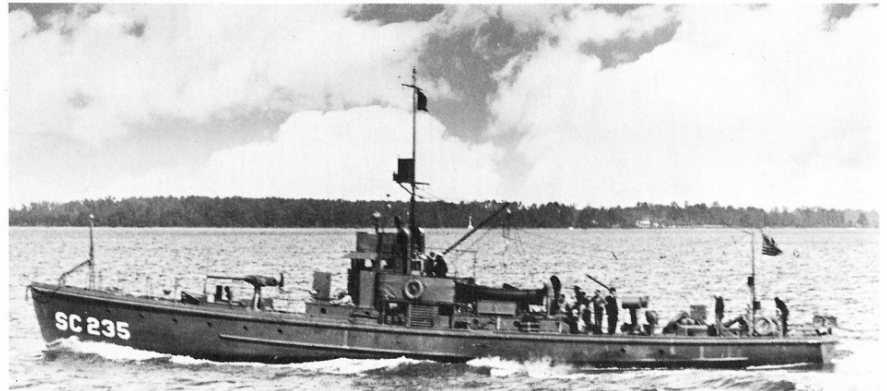


**Leaner Geometries yet – here built 1917-18**  
**REPURPOSED for Commercial Fishing into the 1970s**  
*(Norman Friedman: US Small Combatants, 1987, pp.28-30)*

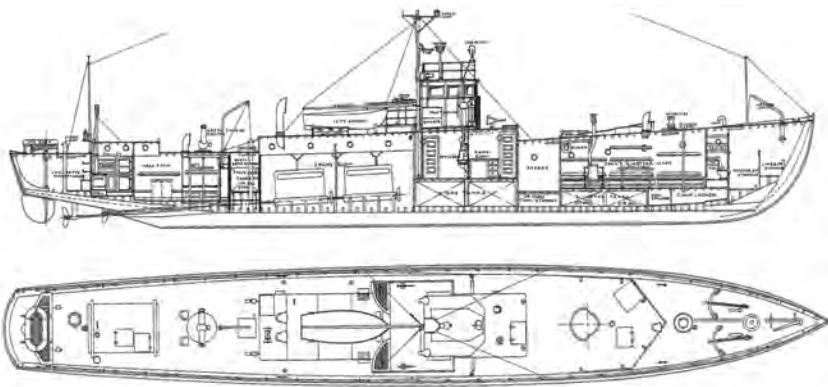
**1917 US NAVY Sub-Chaser (SC)**  
**110'Length (105'WL)**  
**15'5"Beam (14'9"WL)**  
**5'11" Draft on 150,000lbs Displ.**  
**3x220hp x 16kts**

**400+ built for coastal defense,**  
***with 235 Trans-Atlantic Crossings***  
**in USN WW-1 duty, on a Length-**  
**to-Beam ratio of 7 : 1**

30 U.S. SMALL COMBATANTS



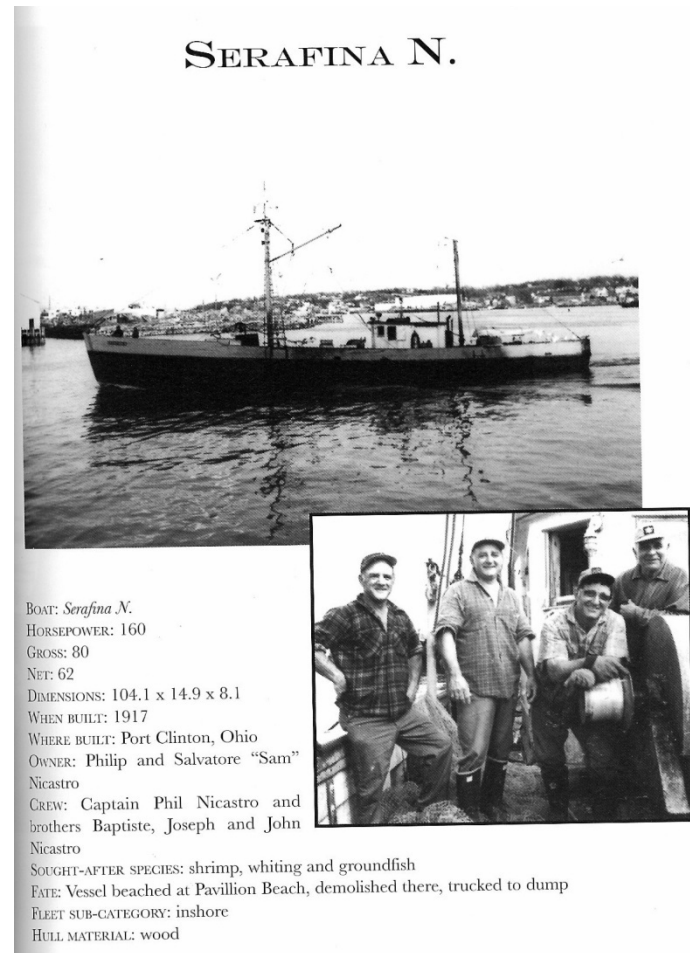
SC 235 shows a standard World War I subchaser battery: a gun (in this case, a 6-pounder) forward, a Y-gun abaft amidships, and a depth-charge track right aft.



# Demilitarized Sub-Chasers would serve fishing commercially (incl. side-trawling) into the 1970s

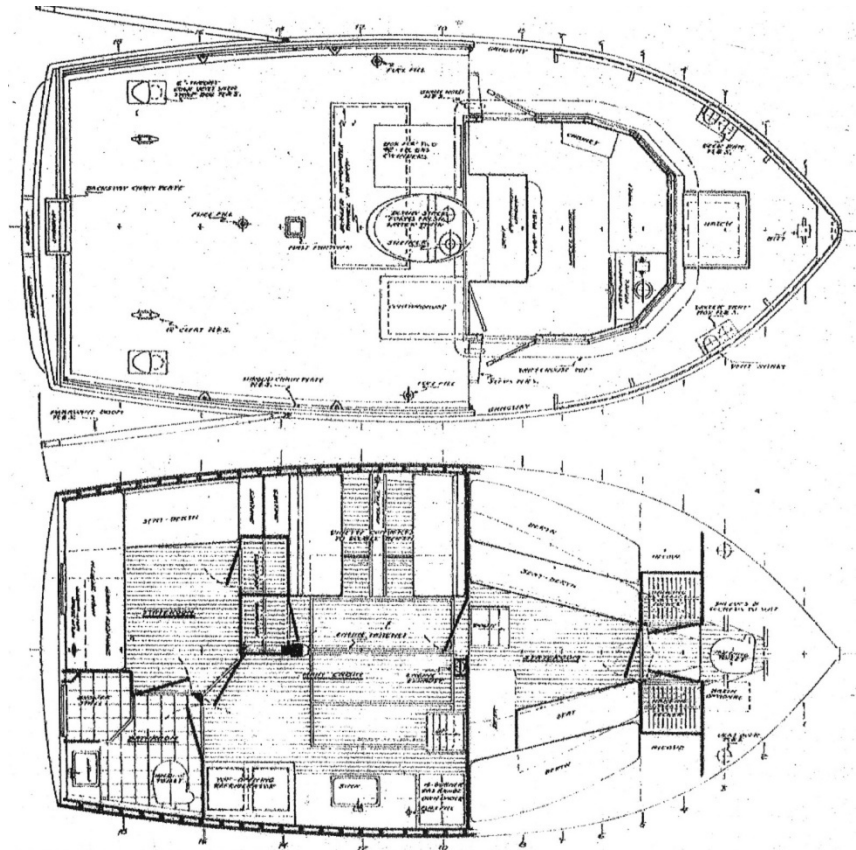
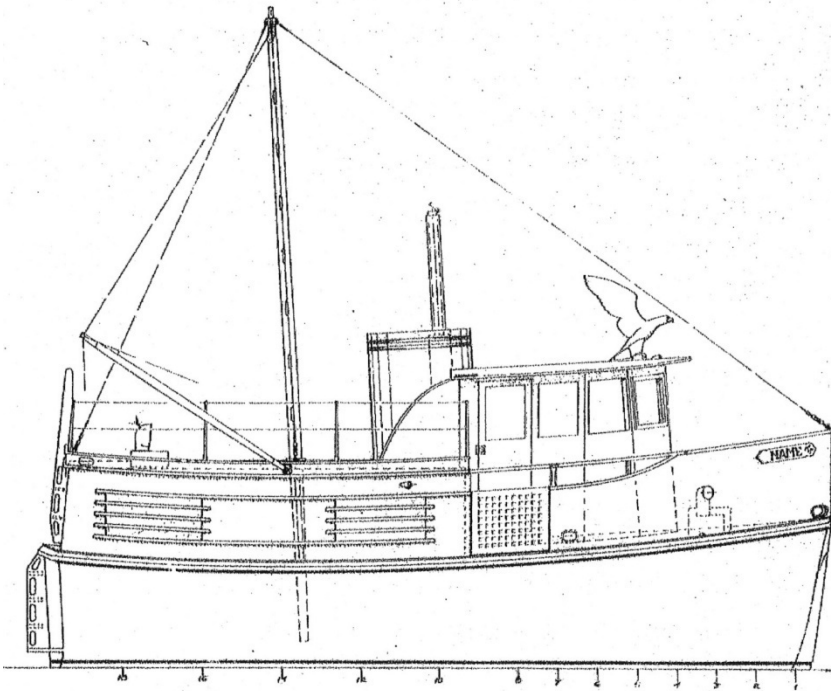
- Over a Dozen worked out of Gloucester alone,
- with 60+ between SC and ME
  - re-powered with single-screw 140-200HP –
  - no bow-thrusters or tugs,
  - fishing inshore & offshore
  - year round,
  - Including as *Eastern-Rigged Draggers* !

*(Photo & text from Peter K.Prybot's "White-Tipped Orange Masts", 1998, p.145.)*



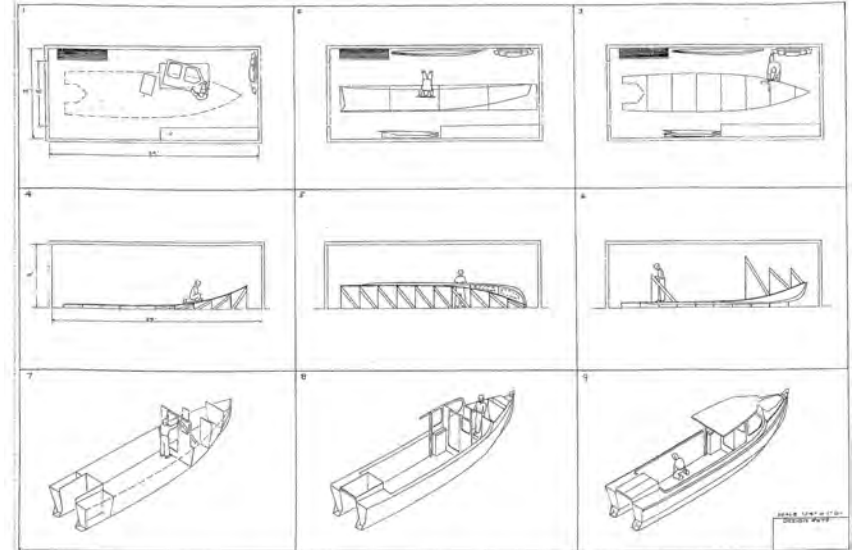
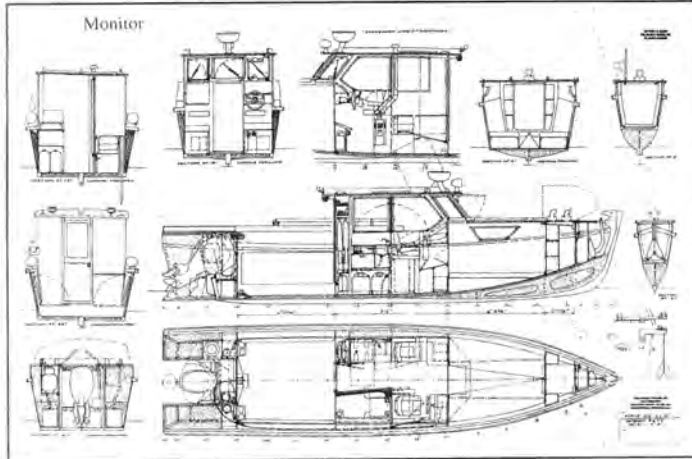
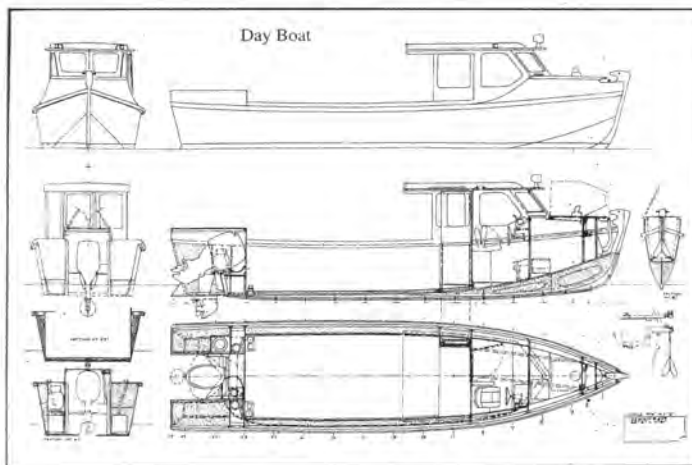
## 4. DESIGN-OPTIONS

Upon Request we've done short wide hulls such as this 'Marina-Queen' at 29'11" x 14'6" (2:1 *length-to-beam ratio*), to match a 30-foot berth-requirement

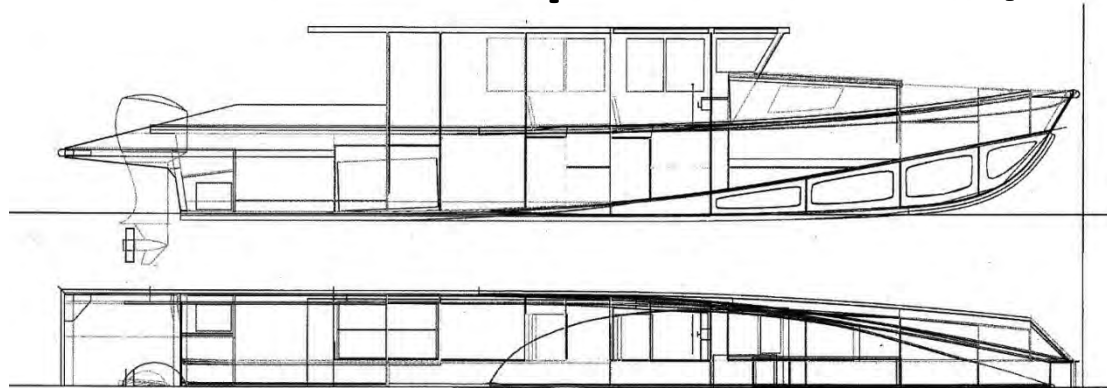




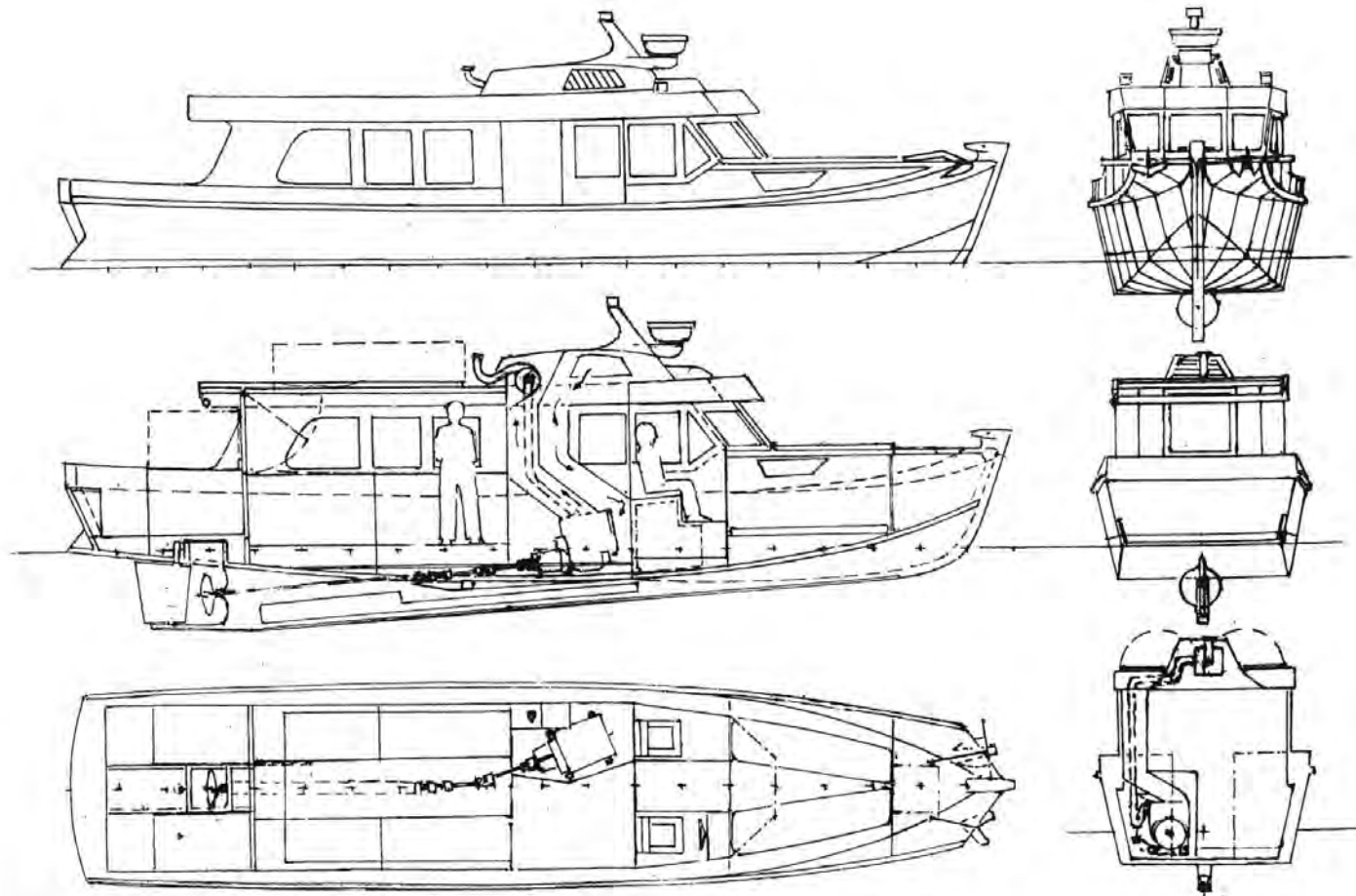
# Design #679 (2007) A Low-Carbon, Owner-buildable, Entry-Level Inshore Craft, 30'8" x7'8"x1' (4.5:1 WL Length-to-Beam ratio)



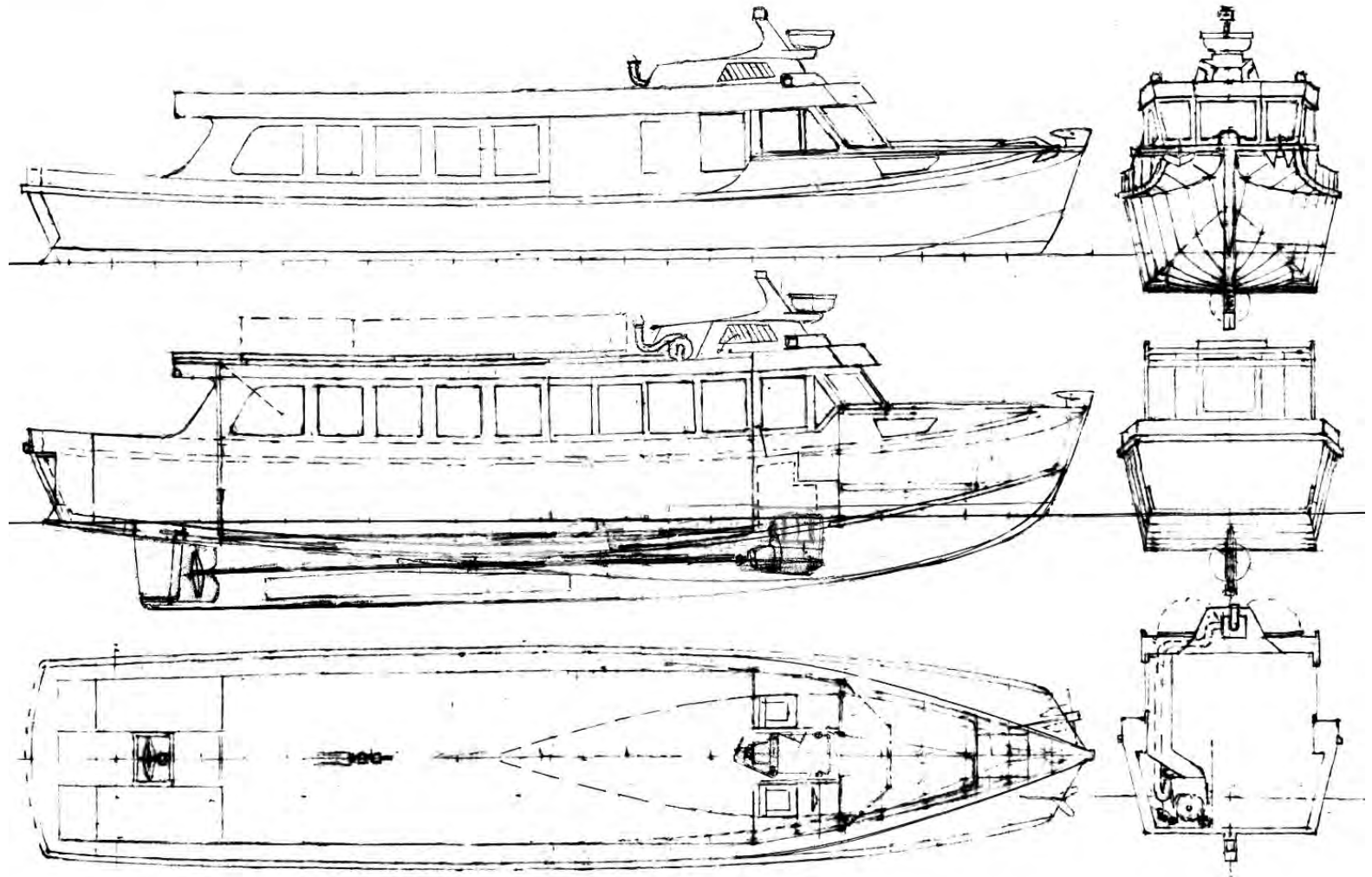
**Design #681 to a US Navy brief, a fast 40-foot  
Container-Correct Coastal Patrol-Boat with 3000+lbs  
capacity, 39'1" x7'5"x225hp x25+kts 4.5 l/b ratio**



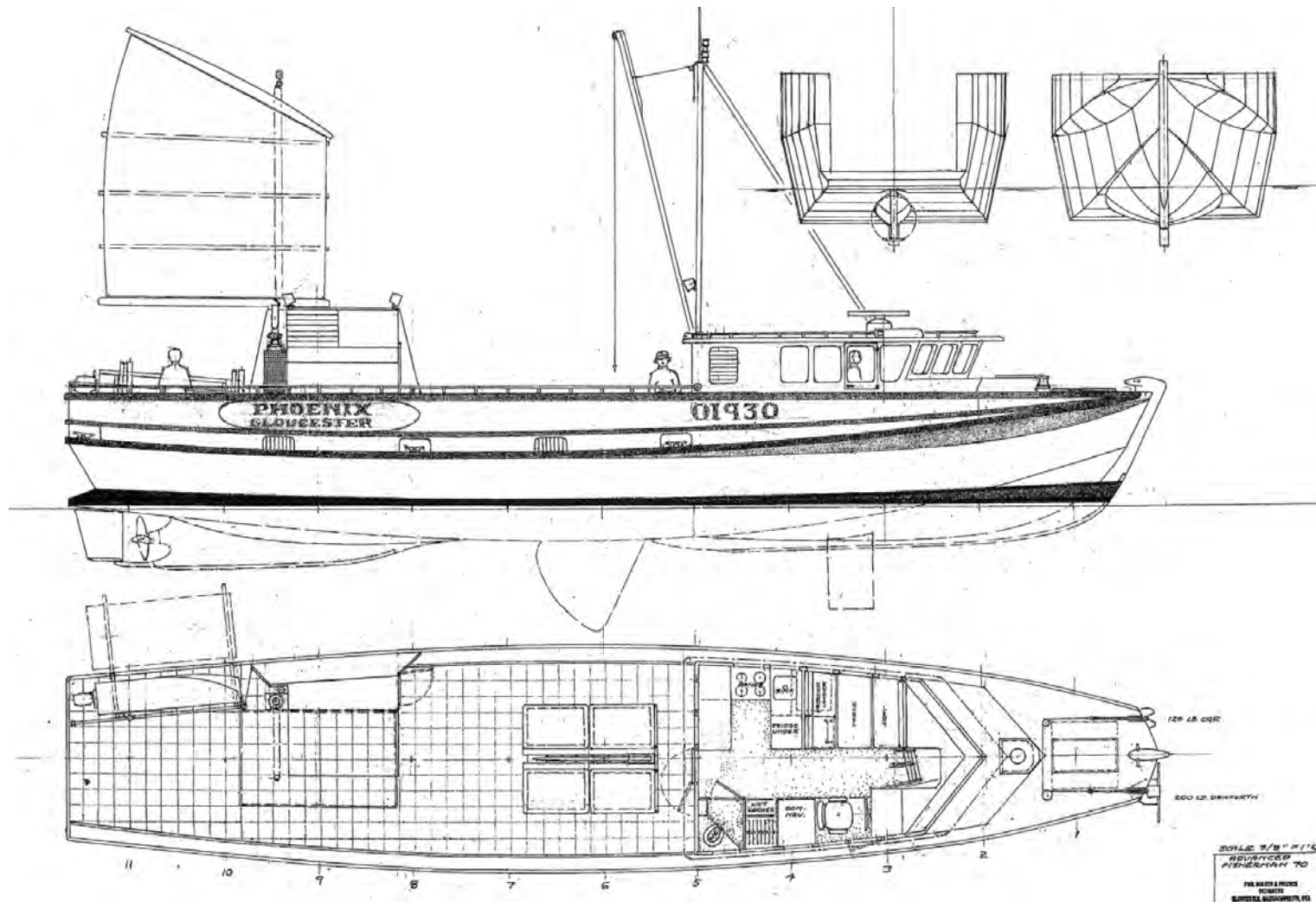
**Here is sketch for a 6000lbs capacity hull,  
powered by 75hp t 8kts, on 40'(37'WL) x 9'(8'4  
WL) x 3'6" with a Length-to-Beam of 4.5.**



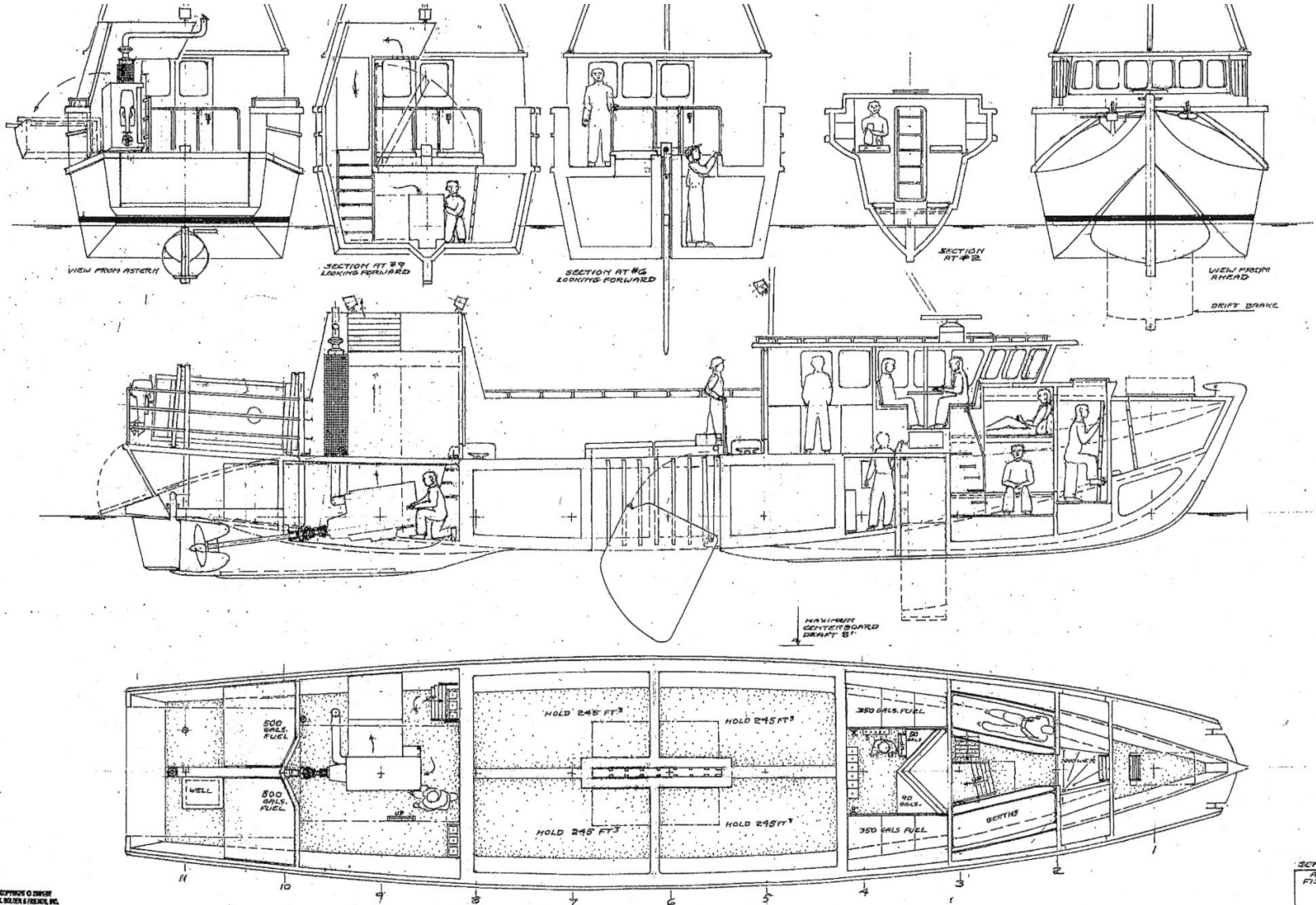
# Inshore/Offshore Fishing-Craft Concept-Sketch w/ 15,000lbs capacity/30,000lbs displ. 50'x10'6" x 100hp x 9kts 5.4:1 l/b



Here is an example for a 30k-220/70D type,  
measuring 60,000lbs full load on 70'length x 14'6"  
beam (5.3:1 WL ratio), good for 11kts



# 30k-220/70D Interior Layout



EQUIPMENT © DISNEY  
 PAK BOLLER & FROGG, INC.  
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SCALE 3/8" = 1'-0"  
 ADVANCED  
 FISHERMAN '70  
 PAK BOLLER & FROGG  
 DESIGNERS  
 WILMINGTON, MASSACHUSETTS, U.S.A.

## **5. Pushing towards a Sustainable Fishing Fleet and matching Regulation starting Nov. 3, 2002**

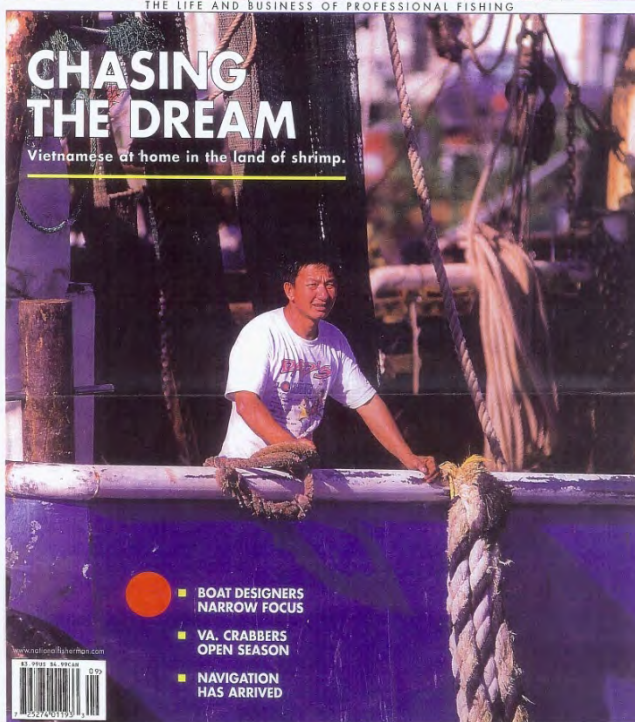
- We started raising the issue locally with Mayor Bell, also head of the North-East Seafood Coalition,
- pushing the agenda in print,
- and doing much talking, incl. multiple testifying before the New England Fisheries Management Council between 2003 and now early 2016.



# In the Sept. '04 issue NATIONAL FISHERMAN helped take the Idea nationally

**ACTIVISTS PUSH FOR OCEANS LEGISLATION**    **GLOUCESTER WANTS BOATS THAT LOOK GOOD**    **YACHTERS GETTING MORE**

**SEPTEMBER 2004**  
**National Fisherman**  
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## DESIGNS ON THE FUTURE

Naval architects Susanne Altenburger and Phil Bojger propose a fishing vessel featuring a narrow, single-chine, composite hull.

**BY DEEVE VAN ZILE**

**A** woman who has attended most stages of the New England Fishery Management Council in Gloucester, Mass., during the past few years has probably been accused by Susanne Altenburger, a naval architect with a German accent and a formidable, almost intimidating gaze that communicates an overwhelming sense of purpose.

If Altenburger decides she needs to talk to somebody, it's unlikely her desired outcome will escape without at least leaving her basic details of a boat design that she and her husband, naval architect Phil Bojger, assert could solve many of the problems facing fishermen in New England and the rest of the country.

There may be some argument over whether a boat design can do everything: Altenburger and Bojger, of Gloucester, say it will, but one thing is for certain: they think boat construction in the New England fishing industry has gone in exactly the opposite direction it should. Fishing boats in the region have become too expensive to build and operate, choosing fishermen to bankrupting, Altenburger says.

"We have a strong feeling that there is not much sustainability involved, including your publication, about boat economics and how much could be done with less hardware, intensely focusing on safety and long-term financial sustainability," Altenburger says. "We think you can do more with less."

It's a radical idea, but not one easily ignored given Altenburger's tenacity and the credibility of her husband. Bojger is a well-respected naval architect with more than six decades and close to 700 boat designs to his credit, included in his design in the *Rose*, a 115-foot replica of the U.S.S. *Scorpion* in *Master and Commander: The Far Side of the World*. Does not have the Hollywood connection, Bojger's ideas can't be dismissed out of hand.

"He's got some pretty unique boat designs that have proven pretty effective in other venues," says Tom Nien, former commander of the Coast Guard cutter *Spencer*, who currently works as a fisheries analyst for the New England Council. "His priority will prosper."

The couple's basic idea is to construct a narrow, long, single-chine hull out of a composite of plywood, foam and fibreglass and then power it with a low-horsepower diesel engine. The two say the boat could be built cheaply by its skipper and crew, keeping construction costs down. In the preliminary design, the boat would be 70 feet in length, with a beam of 14 feet and a draft of 3 feet. It would displace approximately 25 tons and carry 30,000 pounds of ice and fish.

A 160- to 200-horsepower diesel would push the boat at about 18.5 knots. "It's strictly a smaller boat, stretched out long," Altenburger says, adding that the working deck will be 10 feet in length, with an average width of 11 feet inside the rails, and 7 feet at the transom. "It will be wide up front and narrow in the back," Altenburger says. The benefit of a narrow stern is that it will reduce drag.

The hull would be built of multiple sheets of 1/2-inch or 3/8-inch plywood on the outside. This plywood layer will vary in thickness, from about 3 or 4 inches on the bottom to 2 inches at the top. The foam core goes against the plywood. Again, the thickness varies according to the location, being thicker amidships to provide insulation for the fish hold. Another layer of plywood goes against the foam, though it will be thinner than the outside layer.

The rest of the hull will be sheathed in fibreglass and the interior where it is appropriate. For example, the engine room and fish hold will be fibreglass, but not necessarily the living areas.

The overall thickness of the hull will vary according to the structural needs and location. For example, around the fish hold it will be approximately 8 inches thick to provide insulation.

This hull, Altenburger emphasizes, won't require a lot of skill to construct. "There will be no patching of plywood and no need to cold-mould veneers of any sort," she says. Another benefit of the hull's sandwich construction is that transverse framing and longitudinal stiffeners will be reduced if not eliminated.

"There's almost nothing left," she says. "It's almost what they call a monocoque structure. There will be nothing running fore and aft."

The hull's single-chine design will be faster and easier to build and with its wide, flat bottom will work to reduce rolling while remaining stable.

Altenburger concedes the shape and lack of the hull, which lacks a keel, is different from what fishermen have seen before, but says the forms on which it is based have been used successfully in other contexts.

For sure, one major point of divergence from conventional boat design is the boat's shallow draft, which Altenburger says is necessary to reduce fuel consumption but doesn't preclude working in deep water. Many boats with shallow drafts have crossed oceans, with low fuel costs, she says.

"Think of the hundreds of square feet that you have to push through the water," she says. "You should consider how much fuel is required to make her run."

To prevent the propeller from popping out of the water in rough seas, the prop will be located approximately 9 feet from the stern in a partial tunnel that will enclose about 30 percent of it.

One or two centerboards measuring 9 feet by 4 feet will keep the boat from drifting. The centerboards will be hydraulically raised and lowered by battery-powered hydraulic pumps. The first centerboard is just below the wheelhouse to counter the roll effect of the pilothouse and bow.

The second centerboard, if necessary, would be in the engine room. If fishing gear went under the boat, the centerboards could be quickly retracted. The centerboards are a demonstration of a principle the boat's designers call "variable geometry," which they say should be used more often in the design of fishing boats, because once a boat is built with a fixed hull, the owner is stuck with it and all the drag it causes.

By utilizing variable geometry or



SPENDING LESS on fuel and construction equals less labor and operating costs. That's the thinking behind this 70' x 14' x 3' fishing-boat design.

PHIL BOJGER, NAVAL ARCHITECT

**FISHING PEOPLE IN THIS COUNTRY IS PROBABLY THE ONLY PLACE THAT BOAT DESIGNERS NARROW FOCUS**

PHIL BOJGER AND SUSANNE ALTENBURGER MEET AT THE BOAT SHOW.

PHIL BOJGER, NAVAL ARCHITECT


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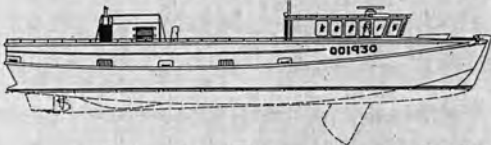
# An Evening discussing the Opportunities at the Gloucester Maritime Heritage Center Dec '04

- A panel offered a variety of perspectives , incl. North-East NMFS-Rep. Allison Ferreira, MIT Prof. Cliff Goudey, Fisherman David Marciano.
- NMFS offered a 2-Year Experimental Fishing Permit to explore advanced hull geometries across Fisheries and Seasons.
- No Interest from Industry Chiefs! None were present that night...



Vessel Design and the Future of Gloucester Fishing

*Phil Bolger and Friends will present a new, fuel efficient fishing vessel design followed by a panel discussion with representatives from the fishing industry, research community, and naval architecture fields.*



Thursday, December 2, 2004  
7pm at the Boathouse at the Gloucester Maritime Heritage Center  
Call (978) 281-0470 for more information.

# It would take another 11 months to get the Perspective into the Gloucester Daily Times by Nov. 26<sup>th</sup> 2005 – some 3-years after we offered it.

### Black Friday — Main Street style

By DOUGLAS A. MOSER  
STAFF WRITER

More shopping to the stores than ever before. Thank-giving, especially in the early morning, because of the crowds and lack of parking. At the mall, this may be so, but on Main Street in Gloucester, with its line of boutiques, consignment stores, coffee shops and restaurants, the pace was a little more casual yesterday.

Through the afternoon, clumps of people wandered along the street, gazing in store windows or ducking in the Loro Cini for a warm-up and a jolt of caffeine. Several shop owners said the frenzied pace of Black Friday is likely confined to the mall.

"Most people go to the mall," said Tim Timmins, owner of the House of Haven, which he said has been open for more than 25 years. "We tried to open early last year at 7 (a.m.), but it didn't work out."

Susan Emerson, owner of 20-year-old Gloucester Music, said she saw an uptick in business, but no mad rush.

"It was a quiet morning and pretty busy around noon, so I think it will work out to be a rug-



### Gloucester Schools, council aim for better relationship

Members of both boards push for improved communication

By DOUGLAS A. MOSER  
STAFF WRITER

"It would be nice to have regular face-to-face meetings so we're all on the same page."

School Committee member  
Greg Vergea

Since early November 2002, we have spent more than 540 unpaid hours approaching private individuals and public officials to see these ideas discussed and realized, with prototypes showing a viable plan untested "consolidation" into oblivion of our fleet already has disastrous consequences for our port. Beyond loss of income to the fleet, shore-side businesses, all affected families and the city's cof-

"We're trying to build an understanding and trust between the City Council and the School Committee," said Jonathan Pope, chairman of the School Committee. "I think there's a lack of information on the City Council side of just what the School Committee does and what we're dealing with in this growing crisis, it was, that to ask small fishing

Please see MEETINGS, Page A5

## The Advanced Gloucester Fisherman Project: One proposal for saving the resource, fleet and port

We have been designing boats in sizes of up to 450 tons out of Gloucester since 1951, completing more than 670 designs to date, including a small number of inshore and offshore fishing vessels.

With six books and more than 500 articles on our designs, we have a solid public track record on the range of our work. Over many years, we have pursued economy of construction and operation combined with safety and survivability of the crew.

Currently we are booked with a work backlog of well over 12 months for designs not associated with fisheries. Aside from 500 years of family roots in this fishing port, we are indeed a part of the working waterfront. And we need a fully functioning, vibrant port, bustling with full-time jobs and good prospects year-round.

At the future of Gloucester's fishing fleet and thus the future viability of our port took progressive turns for the worse, we decided during 2002 to add our voice to the discussion. After well over 50 years of design pursuits of economies with safety and ergonomics, we saw the urgent need for an advanced fishing vessel design that better matches the long-term pressures of tight resource regulation and rising fuel cost in order to offer a chance of long-term survival of the fishing industry—and the resource out there.

Here in our hometown of Gloucester, the evolutionary process can be moved toward safe and competent inshore and offshore fishing vessels that do indeed match the challenge of this comprehensive definition of sustainability.

Since early November 2002, we have spent more than 540 unpaid hours approaching private individuals and public officials to see these ideas discussed and realized, with prototypes showing a viable plan untested "consolidation" into oblivion of our fleet already has disastrous consequences for our port. Beyond loss of income to the fleet, shore-side businesses, all affected families and the city's cof-

### No help to be found

For the few fishermen who do want to break the vicious cycle of unsustainability of resources and fishermen, there is very little help. They certainly will find no answers in research institutions, nor on councils of regulation. The words of Amendment 13 certainly offers no direction out of this destructive cycle. The maintenance of fishing vessels offers next to no solutions, either.

Those officially assigned to think ahead have shown no comprehensive perspective at all. Asking a large number of key actors in the field since late 2002, we were offered no track record of research committees and design competitions, focusing on how the "by design" lower up-front and life-time cost per given vessel might reveal ways for the fishermen to survive and eventually live well with resource sustainability.

Deeply entrenched in political and regulatory routines, the academic, political and industrial thinking on just about all levels is apparently blind to the inherent link between the economics of fishing vessels' first and running cost, and the idea of "sustainability" of resources, the fleet and the port.

Instead, "business as usual" continues unabated, as this port—and many others—loses its vitality by day. One major preoccupation is "over-capitalization" of the industry. It describes the reality of too many fishing vessels, capable of too much catch, being out of balance with the reported amount of fish out there. Indeed many vessels are all too capable of catching "too much," a capability that typically comes at a price in hardware, debt and operating expenses. Thus under the term "consolidation," Amendment 13 has forced the reduction in vessel numbers to the fleet to relieve pressure on the resource. You will see fewer vessels tied up in Gloucester over the coming holidays than in the recent past.

But untested "consolidation" into oblivion of our fleet already has disastrous consequences for our port. Beyond loss of income to the fleet, shore-side businesses, all affected families and the city's cof-



Mark DeTertichis, right, and his brother John, unload lobster traps from their boat at the Jodrey Fish Pier earlier this year.

not even by the most vocal environmental groups.

Almost none of these "leaders" has understood that under any definition of "sustainability" of the resource out there and the communities living off it on shore, it is the large number of small operations up and down the coast in every town and village that offer the best foundation for sustainability-based resource management.

This larger number of smaller actors is inherently more resilient to naturally imposed to the variety of ecological and regulatory challenges so characteristic for an industry, for which the underlying science of inter-species dependencies, migratory patterns and just simple quantity assessments is still relatively undeveloped.



# ICES Conference Oct.30 – Nov.3, 2006 in Boston, Massachusetts

During 5 Days of densely  
Scheduled Seminars and  
Discussions, *there would not  
be a single event* discussing  
**THE RELEVANCE OF ACCELERATING  
ENERGY-COST** in the businesses  
of Fishermen and their  
Families and Communities.  
A Month before, we had  
proposed to the organizers to  
hold at least a Round-Table...



## Incomplete Conference Agenda of ICES Boston 2006

10/30-11/1  
2006

### Missing Topic: "Vessel-Economics"

This may well be the last industry in which the economics of daily operations are not routinely discussed as a Key Element in the Matrix of Resource-Sustainability.

- **Example:**  
Permitting the size of a vessel by its length is as useful as determining the size of any given individual by their height, whether they weigh 150lbs or 400lbs. **Length clearly is not size.**  
Rather, **Vessel-Weight equals size** i.e. fishing capability of any given hull. Currently regulation de facto dictates short, wide, often deep, and inevitably very fuel-intensive hull-geometries.
  - Doubling to tripling of fuel-cost
  - during shrinking access to the resource
  - without multiplication of revenue per pound of resource is ruinous for any industry.
- **Permitting by weight would allow fuel-efficient longer hulls for immediate and permanent economies of operation.** Following physics, for the given permitted weight, modest power in long efficient hulls reduces initial-, running-, and drive-train replacement-costs. This would more likely allow the fisherman to remain economically viable under moderate sustainable catch-limits.
- Any **Sustainable Fisheries Paradigm** must reflect a range of basic technical and operational, and thus ecological and political factors to dramatically improve the chances of keeping both the resource and fisheries viable long-term. There must be
  - **Sustainability by Vessel-Design.**
  - **Sustainability by Construction.**
  - **Sustainability by Operation.**
  - **Sustainability by Choice of Fishing Methods** - old and advanced ones.

If key elements of the fleet are not encouraged to restructure towards maximum fuel-efficiency in time for stock recovery, current socio-economic, regulatory, and political problems will persist - with the resource coming under pressure again and again.

Don't Permit boats by length ! Permit boats by All-Up-Weight !  
**Don't limit efficiency-enhancing length!**

(See National Fisherman, Sept. '04, p.42)





# FISHERMAN LIFE, December 2007, pp. 26-31

## the sustainable fishing boat

*Helen II*, which could hold 50,000 lbs. of dogfish. While she has been completely refitted over her 70-year history, we continued to be on the lookout for a replacement vessel in case the time comes when she can no longer keep up with the brutal pace of our fishery, which often lasts ten months and averages 30 trips a year.

With the introduction of DFO's new integrated groundfish fishery (requiring 100% on-board monitoring and quota to account for all catch), I became convinced that there could be a future for the small-boat hook-and-line fishermen. The new rules made small and medium sized operators more sustainable (financially and ecologically) by enabling fishermen to land and market their target and non-target catch without requiring fishermen to overcapitalize in multiple licenses in order to retain their bycatch. In turn, more money could be freed up for active fishermen to invest in much needed new vessels and gear.



In 2005 I read an article in National Fisherman about a sustainable boat project being developed by Phil Bolger & Friends Inc., a boat design firm in Gloucester, Massachusetts. The prototype vessel that caught my eye was a 70 ft. longliner built of plywood, foam and epoxy, driven at ten knots by a 180 hp Deutz air-cooled diesel. The hull was designed to be built with the minimum of expensive shipyard infrastructure and claimed to be very fuel efficient. The projected cost at the time was approximately \$90,000, plus labour, for a finished draft and powered hull.

Several of their designs, in fact, have been built by amateur boat builders. I was thus very intrigued, although my wife was not at all happy when she found me pacing our backyard with a tape measure trying to figure out if I could build a new fishing boat on her back lawn!

I contacted Susanne Altenburger, Phil Bolger's wife and a designer in her own right, and Ecotrust Canada, a Vancouver-based conservation and community economic development organization dedicated to making the small-boat fleet more sustainable and financially viable in BC. Ecotrust even owns a subsidiary capital corporation that has financed small-boat fishermen. This year we also participated in Ecotrust Canada's Carbon Neutral Workgroup for Small Business in which we calculated the greenhouse gas emissions of our fishing operation. The carbon footprint of our vessel, with catches of 1.2 million pounds of mostly dogfish, was about 70 tons. Shipping the fish to Vancouver and then Europe, the final market, produced another 647 tons of carbon emissions.

A new, more sustainable vessel could reduce fuel consumption and greenhouse gas emissions, a win for both the environment and fishermen. So Ecotrust Canada agreed to fund the research and development of a sustainable fishing boat for BC.

Susanne traveled to Vancouver Island in November 2006, in the middle of a nasty wind and rain storm, to investigate the adaptation of their Bolger design to the West Coast. I gave her a tour of the Ucluelet waterfront and introduced her to the local boat builders, marine engineers and fishermen on Vancouver Island. She and Phil then spent time during the winter designing detailed blueprints for a 32 ft. prototype workboat that could be built in a coastal community and tested for seaworthiness in our North Pacific conditions.

The design uses a plywood-epoxy-foam composite for the hull that is cheaper than both steel and aluminum. Its simple design also significantly reduces shipwright labour costs. Bolger has proven, through the operation of several working vessels, that their sustainable design allows vessels to reach speeds of 20 knots with about half the horsepower of conventional vessels of the same size.

Some design characteristics of their vessel, such as a shallow draft and drop keel, are not common on this coast, but Phil and Susanne have produced a video that shows just how seaworthy these shallow-draft vessels can be. Flat bottom designs often provide a much better working deck than deep draft vessels, an important consideration when fishermen spend 20 hours at the roller for weeks on end.

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28 FISHERMAN LIFE December 2007

## the sustainable fishing boat



Convinced of the design's possibilities, Ecotrust Canada is now actively seeking funding and clients who might be interested in building the 32 ft. prototype workboat. Eric Caswell, shipwright and proprietor of Pioneer Boat Works in Ucluelet, is very impressed with the design deal. "What I really like about Bolger's design is that it is really well laid out and the reasons why they designed things in a certain way are explained," says Caswell. "I'd really like to see one of these boats built." He is now pricing out the cost of building the vessel.

Susanne recently informed me that, after several years of very little uptake on their ideas in their home port of Gloucester, they are now getting a lot of interest from the local fishing community, particularly as the cost of fuel has skyrocketed. Suddenly, a vessel which is fuel efficient, easy to build and less costly than conventional designs is getting the attention it deserves.

Needless to say, a lot of water has passed under the Helen II since I became interested in the design. I first saw in the National Fisherman and I still dream of someday being able to replace her with a vessel that has been specifically designed for the hook-and-line integrated groundfish fishery. Phil and Susanne are still looking at ways to customize the design for my own particular needs, such as distinct holds for different species and a hold capacity under the deck of 50,000 lbs., all within the 57 ft. length restriction.

With people like Phil and Susanne grappling with the functional and sustainable design of vessels and Ecotrust Canada willing to fund this valuable research, I feel confident that there is still a future for those of us who want to catch fish for a living.

## A Boat Designer's Perspective

By Susanne Altenburger of Phil Bolger & Friends Inc.

Phil Bolger & Friends Inc., a Gloucester, Massachusetts-based boat design firm, has drawn plans for over 670 designs, from five-foot plywood dinghies to the 450 ton, square-tigger HMS Rose, the replica tall-ship starting in the Hollywood blockbuster film *Master and Commander*. We have published five books and over five hundred articles on boat design.

At Bolger & Friends, we mostly design for "average folk." Our focus is on simplicity of construction, economy of operation, appropriate levels of seaworthiness and increasingly structural "unsinkability" through built-in positive buoyancy. We design for work and pleasure in steel, aluminum and synthetic fiber-glass construction. We use many different forms of wooden construction methods, from traditional plank-on-frame to a composite of plywood, foam, fiberglass and epoxy.

# Spring 2008 New England's Major Regional ENGO CONSERVATION LAW FOUNDATION offers support



CONSERVATION LAW FOUNDATION

March 30, 2008

Phil Bolger  
Susanne Altenburger  
Phil Bolger & Friends, Inc. Boat Designers  
P.O. Box 1209  
66 Atlantic St.  
Gloucester, MA 01930-1627

Dear Phil and Susanne:

Thank you for sharing your ideas with us about potential new directions for the New England fishing fleet. While it is premature to reach any conclusions about the role the vessels you have designed might play in the regional fishing fleet in the 21<sup>st</sup> century, we completely agree with you that market and world circumstances have shifted to such a degree that the future challenges that New England fishermen face will be shaped by a different set of factors than their predecessors faced. The vision that you have set forth of a lighter, more adaptable, and safer fishing platform that has lower capital and operating costs is worth exploring as a means for meeting these challenges. Conservation Law Foundation fully supports your efforts to take this vision into a serious research and development phase so that the benefits of your proposal can be assessed and understood more thoroughly by regional fishermen.

The modern groundfish fleet in New England was enabled by the extensive federal government grant and subsidy programs of the 1980's that encouraged fishermen to build bigger and more powerful boats. While there are many who, in hindsight, now question the ultimate wisdom of that initiative in light of the over-capitalization of the New England fleet relative to fish abundance and reproduction, the current inventory of high-horsepower, steel vessels reflects the success of that federal effort. Notably, the current New England fleet was built at a time when fuel costs were low and climate change was not even a topic of speculation.

Circumstances have changed significantly. The management system has improved so that effort is being increasingly constrained to more appropriate levels with the result that the industry is less able to support the costs of fishing on unsustainably high catch levels. At the same time, the costs of operating a fishing boat have multiplied, primarily as the result of soaring fuel expenses. While prices for fish to the boat have been slowly rising during this same time frame, the variable costs of catching those fish have increased much more rapidly. The result is declining profitability for individual operations even as fish populations rebound. Given the global demand for fuel and steel, there is little likelihood that the current high costs of boat construction and fuel consumption are ever likely to return to previous levels.

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CONSERVATION LAW FOUNDATION

It seems to us that there are two options in these circumstances. Fishing effort can be consolidated with fewer boats and people catching more of the fish, creating increased efficiencies of operation. This has already been happening over the past decade and the recent efforts to form sectors in the groundfish industry will facilitate that consolidation even more over time. The second option—and the only option that may be available to the smaller, coastal fishermen—is to reduce costs. While we are not in a position to determine whether the designs you are advancing are the only or even the best means of reducing costs for fishermen in the hook and gill net fleets, they are certainly worth exploring.

The second structural change since the 1980's is global warming. We find the vision you offer of "greening" a significant segment of the New England fleet to be very attractive from the perspective of reducing diesel fuel consumption. We have not attempted to estimate fuel consumption in this sector but believe that it is significant. If your designs or other designs that are based on similar principles are functionally viable from a fisherman's perspective and reduce fuel consumption significantly, they may form the basis for a "green fleet" that could reduce regional greenhouse gas emissions and, perhaps, form the basis of a marketing effort built around sustainable harvesting practices.

Finally, we also appreciate and applaud your efforts to rehabilitate the Gloucester boat building tradition. While it is hard to imagine that this region will ever recapture any competitive advantages with respect to steel hull boat construction, there are a number of yards that are well situated to your construction techniques. Indeed, many fishermen themselves are likely to have more than adequate skills to build their own vessel. Although experience prevents us from being sanguine about any prospects of a rebirth of Gloucester's maritime heritage, we applaud your optimism.

We don't have to tell either of you that this is uphill battle on all fronts. There is always tremendous resistance to change and what you are suggesting is radical change by any measure. Nevertheless, your ideas are make intuitive sense, and the cost effective opportunities that you are trying to create for new entrants to the fishery and for the smaller scale coastal fishermen are important. The next key action in our view is to get a prototype vessel built so that fishermen can assess the design and understand its performance better. To that end, we would love to see some of the LNG mitigation funding that has come to Gloucester or the federal "disaster" funding be used to take some of your ideas from the drawing board to the water. Ultimately, perhaps we can look forward to another federal subsidy program that would enable a restructuring of the current fleet to one that could be competitive, safe, efficient, and "green" in the future.

Again, thank you for asking our opinion about your project. We wish you the best of luck with this effort and would be pleased to support your efforts in any way possible.

Sincerely,

Peter Shelley  
Vice President and Massachusetts Advocacy Center

CLF: "Protecting New England's Environment"

# Heading towards \$147.50.-/barrel of oil Summer 2008

## Fishermen Meeting Wednesday May 28th '08, 7 p.m. at the "Gloucester House"

Organized & Presented by  
Phil Bolger & Susanne Altenburger, 66 Atlantic Street, Gloucester

### Topics:

- 1. Low-Fuel-Burn Commercial Fishing-Boats**
  - Progress-Report on the Politics & Funding to build Several Sizes of Prototypes in Gloucester.
  - Presentation of several Advanced Concepts to match \$5.-+/gal of Diesel. We need your Feedback !
  - 38 Fishermen have already expressed Support with their Signatures since Summer '07. And a Good Number have offered Advice on Layout and Use.
- 2. Strengthening the Future of Gloucester's Marine-Industrial Harbor as America's Oldest Fishing Port**

There will be a 20min. video, plus Project Documentation incl. Articles, Letters of Endorsement, Updates on State & Federal Prototype-Funding, plus Hand-Outs, etc.

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Thursday, May 27, 2008 THE GLOUCESTER DAILY TIMES

By Larry  
Erick  
5/26/08

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## Taking 'green' to the sea

Local boat designers see fresh urgency for new vessels



Susanne Altenburger and her husband Phil Bolger stand alongside a blueprint taped on a bulletin board illustrating designs for a more fuel-efficient fishing vessel.

By Phil Sullivan  
CONCORDANCE

A Gloucester couple who have spent years contemplating a new type of "green boat" that will save fishermen lots of fuel money say they believe the time has finally come for their idea.

Phil Bolger and Susanne Altenburger believe their "green boat" will come to fruition because:

- Oil and gas costs are increasing.
- A new environmental group has endorsed their project.
- They're hopeful of finding in the estimated \$200,000 they could need to build up to three prototypes of the craft.
- That progress could not only help the fishing industry combat soaring fuel costs, but the Cape Ann economy as well.

If that ever happens, their boat is endorsed by the local fishermen, Altenburger says. "It will have a steady cash flow. It will revolutionize the city."

Altenburger and Bolger, who have been actively campaigning since 2007 for their boat design, have gotten a key ally. The Gloucester chapter of the Building Factor, a national nonprofit organization, has been selected to build the Cape Ann version of the boat.

"There is a very real urgency to change and what you are engineering is radical change by any measure," Peter

Shelley, vice president of the CIP's Massachusetts Advocacy Center, wrote. "Nevertheless, your vision takes location into account and the cost-effective opportunity that you are trying to create for your markets in the industry and for smaller-scale coastal fishermen are important."

Bolger and Altenburger have also collected signatures of support from 38 Cape Ann fishermen since the summer of 2007 — and those who signed offered advice on the boat's potential layout and use. Altenburger said in that vein, the couple is hosting a "fishermen's meeting" tomorrow

at the Gloucester House restaurant.

Basically, the "green boat" would be larger and narrower with a chineless hull than the traditional fishing vessel. The hull would be built with a combination of plywood, foam, epoxy and fiberglass to save fuel. It would be lighter than most of the boats in the fishing fleet today.

Because of its unique design, it would use significantly less fuel, says Bolger, proprietor of Phil Bolger and Friends, Boat Design, Inc.

But would it really? "I'd like to know if it really works," Bolger says. "I'm, it's very safe. These boats can be

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She said, "and what's good for the fish?"

"We don't want to put any more burden on the movement or be part of the welfare of fishermen," she said.

Altenburger, who's been married to Bolger for 17 years and described herself as his "agony aunt," also said the boat would "float on less power" and fuel — saving fishermen economically.

"If you're operating costs are low, you don't have to fish the resource as hard to make ends meet," she said. "The couple acknowledged that one hurdle,

was the up-front cost for fishermen, who are financially strapped from the effects of fuel and regulations on the industry and fuel costs, costs of fuel. But they hope their prototype project could find seed money to encourage fishermen's own drive to investment in acquiring such a craft.

• When the Gloucester House restaurant.

• Fuel. Free

to learn more

- What fishermen's economic needs, priorities and concerns are.
- How the Gloucester House restaurant.
- Fuel. Free

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# New Mayor and New Chamber of Commerce Chief understand the need for a Sustainable Fleet to have a Sustainable Port

City Hall  
Nine Dale Avenue  
Gloucester, MA 01930



TEL 978-281-9700  
FAX 978-281-9738  
ckirk@ci.gloucester.ma.us

CITY OF GLOUCESTER  
OFFICE OF THE MAYOR

October 29, 2008

To Whom It May Concern:

I am writing this letter as an expression of support for the "Sustainable Commercial Craft Project" developed by Phil Bolger and Susanne Altenburger of Phil Bolger & Friends, Inc., Boat Designers of Gloucester.

Gloucester's port economy, founded and still based primarily on fishing, is under serious stress due to the decline in the resource. Our tax and jobs base have already suffered seriously with immediate effects on the City of Gloucester's budget. To maintain the steady supply of seafood to this port and the nation, this City must lead in the development of low-carbon footprint resource-sustaining operation of commercial fishing craft and of our port. Only a fleet and a port prepared for the 21<sup>st</sup> century will be able to prosper, once resource sustainability is assured.

There is a need to address two major challenges: rising energy costs and the fact that the fishing industry is the last industry forced by statute to remain energy inefficient. Phil Bolger & Friends, Inc. (PB&F) is proposing to design and build several prototypes to pursue a 50% reduction in diesel fuel consumption and explore renewable energy and hybrid propulsion systems for our diverse fisheries. Since the summer of 2002, PB&F have developed this project towards conceptual integrity which has now attracted broad-based support by our fleet - from lobstermen to dragger captains - and ecological advocacy groups such as *Conservation Law Foundation* and *Ocean Alliance*. The *Gloucester Maritime Heritage Center* has agreed to see its boat-shop used for the smaller prototypes' construction with full regularly-scheduled public access to the project for the industry and our community.

By adding another major marine industry, it is hoped to reinvigorate America's oldest marine industrial port. PB&F plans to build these boats on the working waterfront, as most sizes of these vessels - leaner and longer than the current "obese" types - dictate their construction right on the Harbor, as road hauling becomes prohibitive. Across the growing number of specialized yards, commercial boatbuilding for this market offers apprenticeships to our students and opportunities for life-long careers at good wages in an industry based on sustainability of the resource and the demands for matching craft.

Reestablishing Gloucester-based vessel construction re-emphasizes the opportunities of value-adding harbor-dependent ventures such as seafood-processing for broad demand and specialty needs. Processing catch right out of the vessels eliminates quality losses and transportation cost of shipping unimproved product, a key advantage to survive in the market-place. Designing and testing these vessels will demonstrate lean geometries with minimized 'carbon footprint' and should trigger the elimination of persistent regulatory road-blocks against energy efficiencies across the fleet.

Gloucester assumes the lead in establishing the sustainability of fishing, as our port depends on it.

Sincerely,

  
Carolyn A. Kirk  
Mayor



CAPE ANN CHAMBER OF COMMERCE  
Serving Gloucester, Rockport, Essex & Manchester-by-the-Sea

February 4, 2010

To Whom It May Concern:

The Cape Ann Chamber of Commerce supports the Sustainable Commercial Craft Project developed by the late Phil Bolger and Susanne Altenburger of Phil Bolger & Friends, Inc. (PB&F).

PB&F have worked in the design of boats since 1952, building an extensive published track-record of designing craft from 40lbs to over 450 tons, including a number of commercial inshore and offshore fishing craft. I have personally been aware of this work since the 1970s due to professional connections to boat and ship-building first in the Great Lakes Region and later here in the northeast.

As 'America's Oldest Seaport', Gloucester's port economy, founded and still based primarily on fishing, has suffered serious decline in jobs and tax-base due to resource management challenges. As a consequence, many inner harbor enterprises and commercial properties have underperformed for owners and the community alike.

In addition, energy cost increases for water-borne commerce in general negatively impacts every aspect of seaborne commerce. In fact, beyond commercial fishing, tourism-related enterprises such as whale-watching, excursion-tours, charter-operations, ferries, and private and institutional craft are all affected. Declining global energy resources will further exacerbate the problems we face today.

To address these major economic challenges, PB&F has raised awareness and gathered increasing support for the need to revive commercial boat building in Gloucester by offering advanced 'low-carbon' commercial boat designs. Drawing on their extensive design experience, they have developed a sustainable design approach to address these economic and ecological challenges.

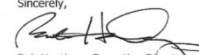
In 2008 the first entry-level design was built here in Gloucester and then commercially fished during 2009. *National Fisherman* and *Commercial Fisheries News* have reported favorably on the project. The United States Navy has engaged the company to pursue the construction of a patrol-craft prototype here in Gloucester in cooperation with the City.

The commercial fleet must move toward operational economies that secure and grow employment and strengthen the tax base in our ports. Establishing operational sustainability requires prototyping and rigorous testing of several sizes of commercial craft.

Public funding for research and development of fuel efficient, cost-effective craft will help our fishing industry to survive and create jobs and economic development for the region and the Commonwealth.

I urge support of Phil Bolger & Friends' Sustainable Commercial Craft Project.

Sincerely,

  
Bob Hastings, Executive Director

# NATIONAL FISHERMAN on #679, Nov. 2009

ALASKA FISHERMAN'S JOURNAL

## National Fisherman

NOVEMBER 2009

INFORMED FISHERMEN • PROFITABLE FISHERIES • SUSTAINABLE FISH

### Sinking spirit

Lobstermen play hardball over turf

One or two people with some carpentry experience can build this boat, though things will go faster if you have a few buddies helping out every now and then.

The Robin Jean cost a fraction of what a fiberglass boat of the same length might set you back, and once built you don't need to load her to the wash rails to pay for the construction, maintenance and operating costs. And that's the point. This is a practical, simple, efficient design that allows fishermen to stay competitive without hammering the resource, while operating with a low-carbon impact.

Practical, efficient, easy on the environment, and simple enough that an amateur boatbuilder can tackle the construction, the attributes of the Robin Jean epitomize the ideals of her designer, Phil Bolger of Gloucester, Mass.

Bolger, who died on May 24, is probably best known among recreational boat owners — who gave him a cult status — as a very unconventional designer. That's not to say that among his nearly 700 designs there weren't a few workhorses, but either way — recreational or commercial — Bolger's interest often lay not so much

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## Boats & Gear Boatbuilding

# Lean and green

By Michael Crowley

**T**he Robin Jean is 30-feet long, 7-feet 8-inches wide, and can be built from four-by-eight sheets of plywood, along with some epoxy, fiberglass and foam. Whether fishing for dogfish, haddock, cod or tuna, she moves easily through the water — top speed 27 knots — with a 115-hp Evinrude outboard.

One or two people with some carpentry experience can build this boat, though things will go faster if you have a few buddies helping out every now and then.

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with how good looking a boat is (though the Robin Jean is nice to look at) but how well it did the job it was designed to.

He was passionate about boats and his way of designing them, but being a Gloucester boy who grew up watching boats being built along the waterfront, Bolger also had a thing for the long-term sustainability of the local fisheries.

As stocks declined and the ranks of local fishermen thinned out, a cause he and his wife and business partner Susanne Altenburger took up was promoting an affordable, fuel-efficient commercial fishing boat.

It always seemed a mystery to Bolger and Altenburger why no one seemed to revolt against the norm of wide and heavy fishing boats that are expensive to operate, which in turn require more fish to sustain, depleting the resource as well as the fishermen's profit margin.

Bolger's solution was an affordable, leaner boat able to run with a minimal amount of power. As Bolger said in the introduction to the design booklet for the Robin Jean: "She is a fiscally and politically res-

ponsible example of how much utility can be attained with low modest investment and carbon footprint, in order to address the socioeconomic and ecological challenges on the table of fishing commercially in the early 21st century."

For years Bolger and Altenburger had tried to get fishermen and industrial organizations to grasp their argument, but with limited — or no — success.

Then Robin Hubbard, who grew up in Gloucester and whose family has been involved in the fishing industry, called Bolger and told him she would build one of his designs.

Hubbard describes Bolger, who was a contemporary of her father, "as a bit of a visionary, in my opinion. He believed in the idea of a lighter, more fuel efficient, more nimble boat." And since Hubbard believes that a small-boat fleet built on those principles and delivering a high-quality seafood product is what Gloucester, as well as other coastal fishing communities, need to survive, the Bolger design seemed a perfect fit. "It will make money. Not big money, but enough," she says.

Hubbard had heard of "Phil Bolger and his designs. I knew he had this boat plan and he and his wife were looking for someone in the city for the past eight years to build it. I had listened to them talk about it and I had met someone who



wanted to go fishing."

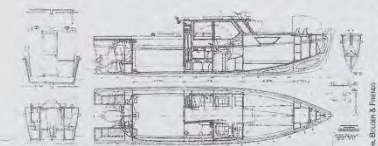
That was Dave Mero, and once Hubbard bought the plan, Mero enlisted the aid of his brother, Dan, who came out from Buffalo, Mass., to help build the boat.

The plans that the Mero brothers had were for Bolger's Blackliner — 2K90/30P. That's Bolger shorthand for operating in the "black," as opposed to the "red," 2,000 pounds of cargo capacity, plus fuel, 90 horsepower maximum, 30 feet long, and a planing hull shape.

What's immediately obvious about this boat is how narrow she is, with just a 7-foot 8-inch beam. The narrow hull "results in low resistance to run at moderate speeds on comparatively moderately four-stroke outboard power," Bolger says in the 35-page design booklet that has step-by-step directions for building the boat.

The narrow beam also makes the boat reasonably easy to trailer.

As lean as the hull is, the design gives her stability with its 6-foot-wide bottom, running more than half the boat's length, before transitioning towards a V-shaped



## LOCAL VOICES

LOCAL VOICES: SUSANNE ALTENBURGER

# It's the only way out that's left

Combining groundfish ecology with fleet economics

You'd figure that this is just another column that won't read like here of inoperable schemes handed by fish of grand malice for by gawking to percent volume - to news quite succeed, despite rich culture of "anti-fleet" activity. "Sustainable harvest-representation," "refining national policies" (under whatever fractious group of ecologists - "fish" and a few sea, indeed - had a few minutes' biology and Plan-B that Economics been damaged to the great cost to business, too many fisheries, not communities. Hard truth being hard truths, one may only examine the tragedy later for sleep.

### Several basic facts define the groundfish industry, its resources and its sustainability

The Commercial Fishing Industry is made up of two equally important elements: 1. The Resource, better known as fish, or seasonal, 50 percent. 2. The commercial fishing fleet - the boats or vessels, fishers go to sea to fish, in the order 50 percent, along with labor and equipment. Without either half, you'd have no industry. And both have to be treated and managed to shared principles of sustainability, since both depend upon each other. If more fish can be harvested on a given resource and the fleet will be reduced. If the fleet structure and operations do not match the sustainability requirements of the resource, both the fleet and the resource will be reduced.

And yet for so many years only one policy approach to two percent challenge!

Neither of the two big players, National Marine Fisheries Service nor Northeast Fisheries Council, have attempted to balance sustainability of the resource with sustainability of the fleet. These two old bodies have pursued the shared policy of focusing over 90 percent of the resources on the Resource, along with massive new vessels and multi-million and advanced state-of-the-art scientific gear, while ignoring the remaining challenges that would in effect an unresolvable High-Carbon Fleet, economically and ecologically rooted to the 1970s and 1980s.

### Facing a high-carbon fleet, no innovations allowed

When, beginning in 1994, NMFS moved to sea from floating length, horsepower and tonnage per fishing gear as a sustainable measuring way to restrict the potential growth of the fleet, NMFS effectively locked in a legal standard a technologically particularly unsustainable set of vessel attributes.

However, between design principles and the lives of people, length is not an indication of size - that can be about half very wide and deep - but weight would be volume - tonnage has proven to be more complex to clearly define craft for any ecological purposes and actual horsepower is not easy to determine by looking at the engine or its horsepower.

Practically, these NMFS regulations came to prohibit any normal technological

fleet evolution toward boats that were longer and broader for the same weight and that could agree, since they are easier to propel yet drive much faster. Such skinner, lower-carbon propulsion vessels could drive more affordable machinery often burning 50 percent or less than current consumption would have allowed the fleet to much better absorb unpredictable resource system and the variations of fuel-cost fluctuations.

The crew of the 67' Kipka Annis makes over 70,000 pounds of cod each at a processing dock in New Bedford. (COURTESY: NORTHEAST FISHERIES COUNCIL)



Crews Annis make, makes out. The 67-foot Kipka Annis makes out 70,000 pounds of cod each at the new Bedford Seaside Fish Auction.

As a 1980s-era high-carbon fleet on the rise. In the middle of the worst Northeast recession these boats in generation, NMFS's handling of the resource and vessel budgets with heavy ERM language - as if ERM's ambition could ever be sustainable without a market fleet. And yet - at least from a 100 percent perspective - the commercial fishing fleet remains an indispensable part of the ecosystem of commercial fishing.

### What we've lost

An ERM-based cutting-edge green fleet would have been able to simply respond to early signs of resource trouble, readily adapt to episodes of surplus catch-limits based on best available science. Doubly resistant to fuel-cost spikes, and simply be much more resilient to political partner to regulatory negotiation. Our fleet would have

been a real ecological debate, with the central policy being both commercial industry and a vital element of ERM-based scientific research - all in the context of a thriving state-of-the-art Working Waterfront.

Instead, due to NMFS' gradual progress by adopting a broad range of economic and ecological challenges through daily small and periodic market interventions in pursuit of fleet and port sustainability, barely, since each boat became stancher in other fisheries as well, this high-carbon vessel has also spilled across into fisheries and instances.

And due to NMFS's failure to protect and address the fleet structure, after 20+ years of high growth the fleet has suffered a significant loss of both economic, viability and ecological legitimacy - in

our many demonstrations, ENGOs may be taking their eye from the prevailing 50 percent sustainability, here observed a significant transition for more heart-felt and dramatically reenergized eco-campaigns.

### The future assistance towards a 21st-Century green fleet

NMFS/NMFS actively has their support programs and credibility on the books. Continued to boost fleet viability. Today, under DPM, NMFS/NMFS's vast and that support programs would be vital solutions for - that led to 21st-century ecological demonstration.

More remarkably yet, NMFS/NMFS is actually over to the fleet stages of quality throwing out the first of what should be several of them above-mentioned, support-directing vessel-regulations. The East Vessel Reduction Initiative connects to the Magnuson-Stevens Act governing commercial fishing in order way, to that draft.

NMFS has effectively outlined and accepted by coast and highly an ecological regulator that has defined 20+ years of best-regulation initiatives that would have been ERM-based vessel-regulations. However, even now, NMFS/NMFS will still require years of considerations whether an ERM-based fleet would actually be allowed.

A Member's Project-style two-step NMFS/NMFS DPM that reform strategy to reduce DPM to conduct sustainable highly to support annual, highly 21st-century ERM-based low-carbon, cost, and sustainable regulation assistance for fishermen toward 21st-century low-carbon fishing by leveraging ERM-based vessel-regulation. Development of a comprehensive budget to offset the fleet grant-funding, favorable lease programs, tax incentives, permit privileged access to each, etc., including transfer of expensive gear from the fleet to the modern type, all to significantly reduce the cost of migrating toward a low-carbon fishing and daily operations mode. This could also be a significant third option for the fleet vessel the two broadside and low-carbon side options that have a real industry support potential. NMFS/NMFS has been discussed publicly, and industry can readily make the vessel species program in the vessel species program locations - only nature may do the rest. NMFS/NMFS fleet-reform policy would go far to offering, substantial hope and guidance to vessel fishermen, their accountants and bankers, those side supports, the rest government, and the rest port communities. Our politicians and port communities and daily operations have not been served by either one nor the other.

Now in 2015-2016, both the equal lives of the center of commercial fishing - the resource and the fleet - deserve of best but poor support toward recovery from this low-carbon fleet and even cost to permit - a significant step toward a low-carbon fishing and daily operations mode.

...towards alternative representation, Phil Blazer of Friends of the Ocean, a boat design office in business since 1979, 100+ design, 100+ critical, 100+ design, including work for NMFS. NMFS/NMFS is not in typically proven vessel-regulation. NMFS/NMFS has been discussed publicly, and industry can readily make the vessel species program in the vessel species program locations - only nature may do the rest. NMFS/NMFS fleet-reform policy would go far to offering, substantial hope and guidance to vessel fishermen, their accountants and bankers, those side supports, the rest government, and the rest port communities. Our politicians and port communities and daily operations have not been served by either one nor the other.

# Samples of PB&F Commentaries on recent Federal/Regional Regulatory Initiatives



## *Comment*

on

### **Omnibus Amendment to Simplify Vessel Baselines (DRAFT published July'14 2014)**

by

*Susanne Altenburger of Phil Bolger & Friends Inc. (PB&F) (09/22/14)*

#### **- 1. Who are we ?**

Since 1952 we have been in the business of designing boat with the Archive featuring plans for craft ranging in size of between 40lbs and 1.050.000lbs, 5'6" to 270", for human-power, sail, inboard- and outboard-power, steam, gasoline, diesel, in a range of materials from conventional wooden-construction over various types of wood-composite, solid and cored fiberglass, ferro-cement, steel and aluminum. Clients include children, commercial operators, yachtsmen, research-institutions, governmental agencies.

With the first national exposure actually in a glossy national periodical in March of 1948, a growing number of publications has now by come to include well over 600 such articles on our work in about every format, mostly for North-American readership, with certain efforts by and in overseas periodicals as well. That significant output led to McGraw-Hill proposing the first of what would be a series of 6 books on our work starting in 1972. More manuscripts are in the process of editing.

For more, examine for instance WIKIPEDIA: [http://en.wikipedia.org/wiki/Phil\\_Bolger](http://en.wikipedia.org/wiki/Phil_Bolger)

This body of work led in 2002 the US Navy to reach to us – with Phil Bolger then at 74 years of age (!) - to consider resumption of an earlier modest series of USN-sponsored (USN) consultancies then reaching back several decades. This time however, a much denser sequence of work would come to emerge.

Some of our thinking was substantial enough to recently see very public support by an active-duty USN CAPT and Prof. at the Naval War College in Newport RI along with a retired CDR, now a mid-level civilian technologist at USN's Naval Sea Systems Command (NAVSEA). In co-authorship with me, Susanne Altenburger of PB&F as the Lead-Author, this article on PB&F's proposal for an advanced medium-speed heavy-lift assault landing-craft, named LCU-F, appeared in the top-level Monthly on matters US Navy, US Marine Corps (USMC) and US Coast Guard (USCG) - the "PROCEEDINGS of the US Naval Institute". Here is the link to our piece in the July'13 issue <http://www.usni.org/magazines/proceedings/2013-07/landing-craft-21st-century> Also GOOGLE 'LCU-F'.

This presentation to the USN/USMC community then resulted in the direct personal attention by the Commandant of USMC, General Amos, explicitly referring to our work as one of four projects to focus further attention on.

<http://www.usni.org/magazines/proceedings/2014-06/bridging-our-surface-connector-gap>

*Our thinking has thus reached the direct personal and fully-publicized attention of one of the highest level of decision-makers in the Pentagon - the boss of the Marines, the Commandant.*

#### **- 2. Why would we want to comment on this Vessel Baselines Amendment ?**

As our civilian published record reflects – only a good fraction of our actual output - , we've had opportunity to design a range of Inshore- and Offshore Fishing-Craft, along with several marine-scientific research-craft.

Since the Summer of 2002 PB&F has been concerned with the emerging deterioration in the economics of our



## *Comment*

on

### **NOAA's Office of Science and Technology's Efforts towards**

### **"Creating an Ecosystem-Based Fishery Management Policy" (EBFM-Policy) based on**

**Dr. Jason Link's Discussion-Draft of September 9<sup>th</sup> 2015**

by

*Susanne Altenburger*

*of*

*Phil Bolger & Friends Inc. (PB&F)*

Submitted 12/16/15

Amended Version of 01/26/16

## **6. “New Public Policies to leave the 50%-Myopia and Anti-Innovation Evil behind”**

**Over a Dozen vital Elements to rationalize under-evolved Commercial Fisheries Governance:**

**6. 1. Correcting the Incomplete Definition of EBFM:  
*Once the resource is subject to industrial harvest, the Commercial Fishing Fleet is an inextricable man-made part of the ecology of the resource.***

***Therefore the Fleet is inherently and unavoidably one central element of any plausible definition of EBFM.***

## **6. 2. *Emphasis on the 'TRIPOD OF SUSTAINABILITY' to assure EBFM-correct Fishing-Fleet Sustainability:***

- **Leg 1. Sustainable Resource-Management**, based on stock-assessment and emerging Eco-System knowledge;
- **Leg 2. Sustainable Fleet-Structure**, based on Least-Carbon Vessel-Economics and Fleet-Practices;
- **Leg 3. Sustainable Shore-Side Infrastructure** typically in socio-economically well-evolved communities.

**6. 3. Removal of the explicit *Anti-Innovation regulatory obstacles*** put in place between '94 and '99.

6. 4. 'Stress-Test' / Purge of any and all **High-Carbon Federal and State Regulation.**

6. 5. Rationalizing Fleet-Parameter by just using measured **Weight and Horsepower** remain the sole direct and honest indicators of any vessel's 'size' and resource-lethality.

**SSC/NEFMC/NMFS/NOAA concepts, reflexes, analytic metrics urgently need to be updated to these two sole restrictions upon vessel-size growth.**

6. 6. *Federal and industry collaboration* (following other such well-established examples of it) *fuelled by grant-driven R-&-D processes to arrive at broadly-accessible innovations for the industry in a decisive move to help the fleet recover from now over 21 years of dictated stagnation, dictated prohibition to ever become ecologically fully sustainable in the comprehensive definition offered by EBFM.*

6. 7. *Revitalize and fine-tune federal fleet-support programs already on the books* *to help the fleet to begin to make up for these tragically-destructive 21 years of dictated developmental stagnation.*



**6. 8. Incentivize the Industry to Migrate Laterally towards such Advanced Sustainable Fishing Craft:**

**a. Re-Write Federal Fleet-Building Legislation** of late '70s/early '80s by exchanging 'capacity-building' references with 'Low-/ Least-Carbon'/'Sustainable Seafood Supply Security'/'National Energy Security' context to focus funding on 'green' types.

**b. Compel largest 'green' advocacy groups to directly financially support the 'migration'** towards the 'greenest/most sustainable' commercial fishing fleet anywhere in the world.

**c. Incentivize fishers with tax-incentives, low-interest loan programs, grants, additional quota units.**

6. 9. *Offer in Any 'Bail-Out/Buy-Out' Program a 'Migration'-Option to Support Fishers Migrating Laterally into Sustainable Hulls and Fishing-Methods:*  
Retaining and demographically balancing the industry's local and regional industrial knowledge-base is vital to its resilience.

6. 10. *Offer explicit REWARDS (quota, access etc.) to exceptional fishers pursuing their own path-breaking innovations towards 21st-century EBFM-correct fishing-craft and fishing-methods. "Green High-Liner of the Year..."*

6. 11. Initiate explicitly-focused R-&-D into Choke-Species-evading fishing-methods that leave e.g. Cod alone but 'targets' abundant species instead.

6.12. Resource-Privatizing 'Consolidation' runs counter to all desirable Resource-Ecological, Energy-Political, Socio-Economic Values, as *it violates the Inextricable Link between Resource- and Industry-and thus Community-Sustainability.*

6.13. Include this whole policy-cluster into the current drafting of the Magnusson-Steven Reauthorization package !

## **7. What about 'Economies-of-Scale' to achieve Industry-'Sustainability' ?**

- **Such proposals are typically**
  - **Highly-Capitalized,**
  - **Centrally-Managed Operations**
  - **running much fewer numbers of**
  - **larger so-called 'State-of-the-Art' vessels.**
- **This model typically means**
  - **de facto 'Corporatization' of the Industry,**
  - usually going hand-in-hand with**
  - **the constitutionally-dubious casual privatization of the publicly-owned seafood resource.**
- **Often highly *specialized*, they are deemed more 'efficient'.**

# But that large-boat fleet's 'efficiency' has Inherent Liabilities:

1. It is perpetually at Risk of *Under-Responsiveness* to commercial fishing's Inherent Uncertainties.
2. It is less suited for small ports near fishing-grounds, and will thus typically face *Longer Steaming-Distances* once nearby resources are depleted.
3. Politically and socio-economically corporate employees differ substantially from owner-operators deeply rooted in community-dynamics.
4. Advanced resource-detection electronics are becoming affordable, useable aboard even smaller craft.
5. In a multi-species ecology under uncertain energy-cost **CONSOLIDATED SPECIALIZED FLEETS** might not have the expected economic sustainability.

## **8. Are there any Constructive Partners to help overcome this tragic Distortion of the Fleet and its Operations towards a 21<sup>st</sup>-century Natural Evolution**

- **Between 1999 and 2008 a Barrel of Oil went from high \$10s to \$148.**
- **But the subject-matter *never found its way on to the regulatory agenda in the North-East, elsewhere in the US nor onto the Federal Agenda under “D” or “R” leadership.***
- **And while e.g. by 2007 60 local fishers and port stakeholders agreed, industry-leaders never resonated.**
- **Apart from *temporarily*-friendly CLF and steadfast ECOTRUST, OCEANA, Ocean Conservancy, EDF and PEW remained consistently indifferent on these challenges.**

- In fact in the North-East EDF and PEW aggressively pushed one particular type of Catch-Shares System under Amendment 16 to the Federal Magnuson-Stevens Act, effective May 1st 2010.
- But they *did not include any explicit provisions to enhance overall Industry Sustainability in response to growing environmental and energy-cost challenges.* No Amendments.
- Instead, as predicted by critics, Consolidation is occurring. *And that shrinking fleet will remain unreformed 'High-Carbon'.*
- Academia such as the regional NORTH-EAST CONSORTIUM, SEA-GRANT etc. has remained indifferent to the challenge to match Resource-Sustainability with Fleet-Sustainability.

- **As a consequence most politicians have been led to believe that it is plausible to trust that 'leadership'.**
- **On a Macro-level both in the U.S. and in Canada *the heavy legacy of hard 'Length'-Limitations continues to stand de facto in the way of the evolution towards Lower-Carbon Design and Operation.***
- **In Massachusetts for instance, there are a few exceptions on State and University-levels to this atmosphere of otherwise widespread indifference to this remarkable set of Federal and regional policy-failures.**



- **Instead, by early 2016, most of that Regulatory-, Academic-, and Industry-'Leadership' keeps dwelling on *who gets what fish when and where...***
- **And things are not much better in Canada nor much of Europe, where a similar conceptual myopia has done little to alleviate that set of Fleets' Carbon Foot-print.**
- **In Gloucester, Fishermen with limited allocation, who likely could have made it on low-carbon craft, have gone bankrupt.**
- **And much of the rest of the industry may indeed be doomed as well.**

# 9. Federal Overarching Guidelines to help structure a more Eco-correct Future for Resource and Fleet ? **Not in anv of these efforts... !**

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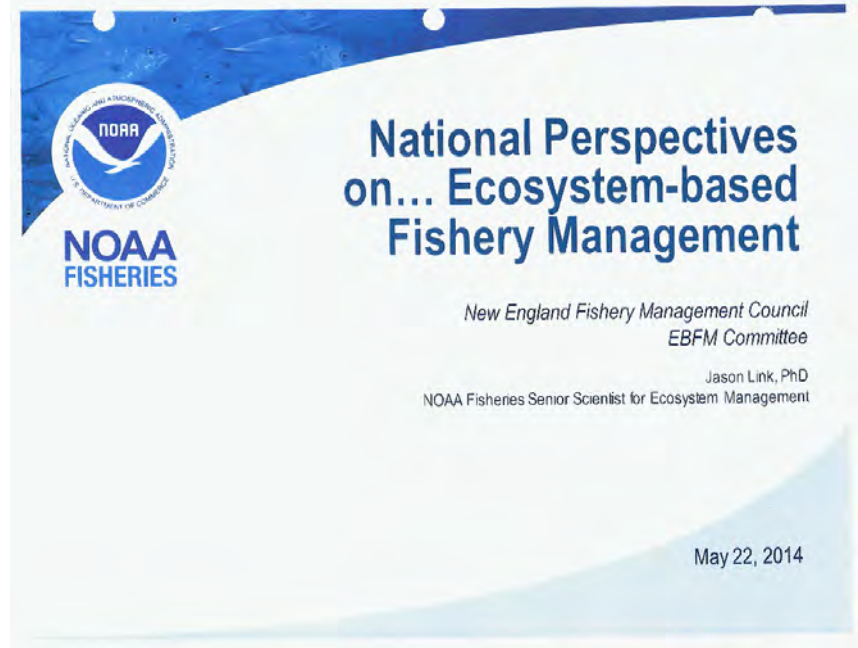
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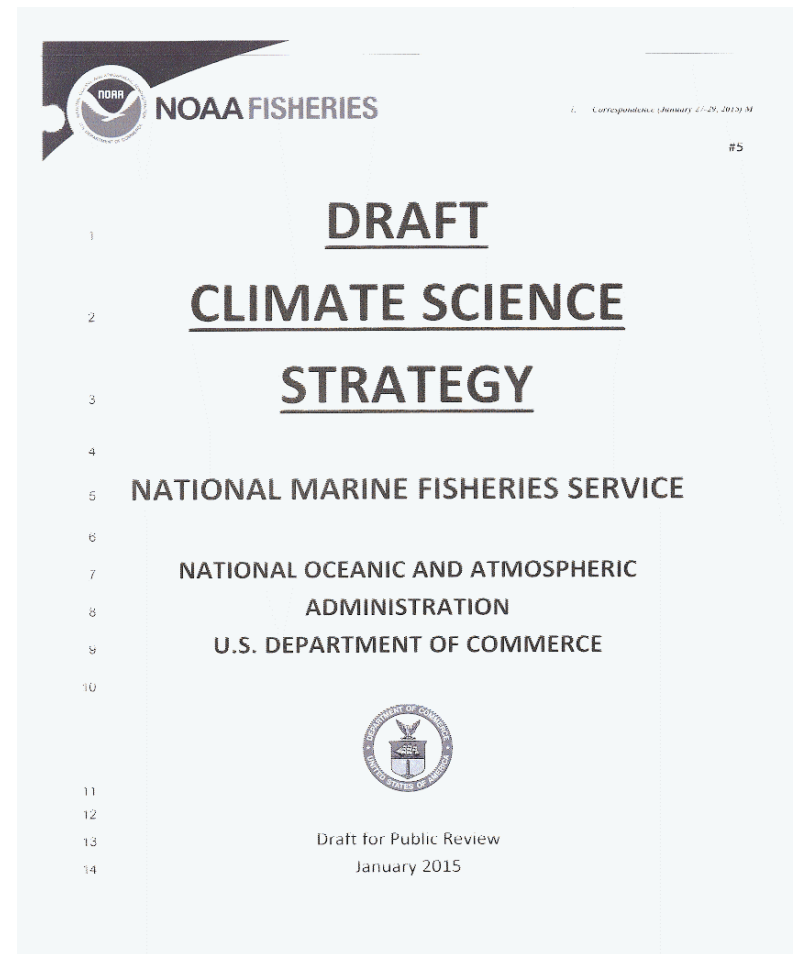
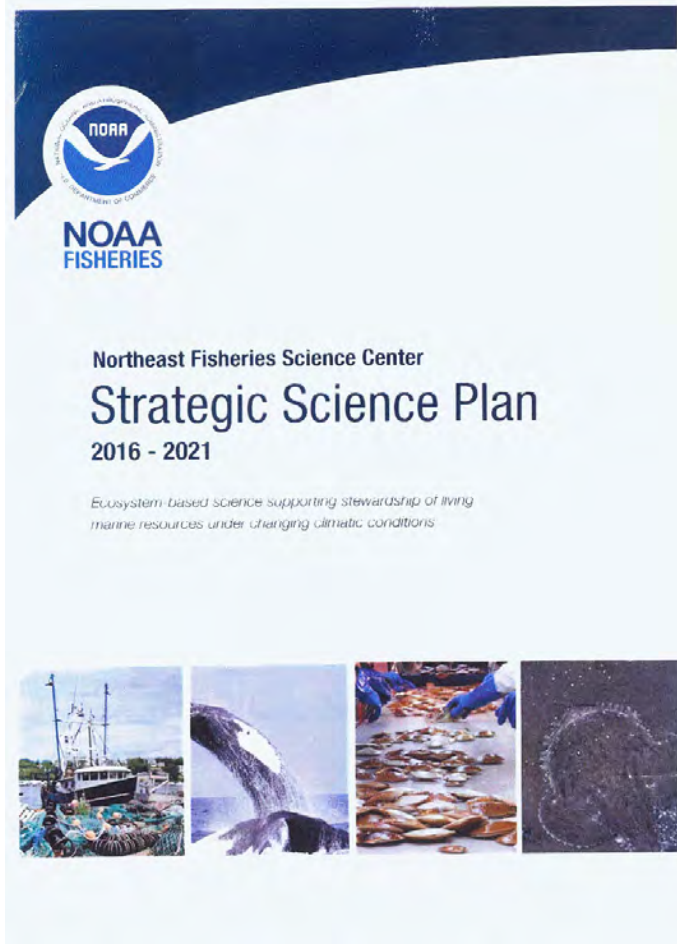
## **Omnibus Amendment to Simplify Vessel Baselines**

Including an  
Environmental Assessment  
Regulatory Impact Review

June 2014



# In any of these ? Not Really... Etc. etc.



## **10. What's the Core-Problem then?**

- **1. *Staffing Choices:***  
How many folks like “Designers of Boats” are on the Personnel-Roster of NOAA, NMFS, NEFMC, SSC ?  
Are there any, anywhere ?
- **2. *Not-Invented-Here Reflexes (?):***  
Without seasoned ‘Boat-Freak’ staffers, who’d think of these questions in the process of considering and writing such regulations ?
- **3. *Indifference to ‘Outside’-Input*** - despite the nominal ‘formality’ of asking for ‘Public Input’.

**The Results are dark for science, industry and resource.**

# **11. In Conclusion:**

- **The idea of a Sustainable Fishing Fleet is a conceptual challenge which has yet to be met by the Fishing- and Regulatory Leadership on this continent - if not that in most other places as well ...**
- **Instead of the Tri-Pod of Sustainability, leading environmentalist are deeply invested in the embarrassing pursuit of some Monopod-Idea of presumed Sustainability.**
- **So far, no Scientists are engaging in the full 100%-spectrum of Challenge on the table under the need to align Resource-Ecology with Fishing-Fleet Economics. No SSC has by 2016 !?**
- **By early 2016, do we know of any explicit **low-carbon** Commercial Fishing Fleet-Restructuring anywhere ??**

One of several remarkable consequences of this history of conceptual and thus regulatory failure is, *for instance*, the professional track-record of an *EDF Senior Ecologist*:

## NOAA Administrator and Under-Secretary Professor Jane Lubchenco

She arrived in 2009 facing a **High-Carbon Fishing-Fleet** and by 2013 came to leave this **highest eco-centric science-position in any Administration** - without ever expressing any interest in addressing **NOAA/NMFS's High-Carbon Dictates since 1994** upon the Commercial Fishing-Fleet.

This third-oldest of industries remains one of the best **'Canary-in-the-Coal-Mine'** indicators of serious degradation of our oceans.

Would she thus rank historically as the top **"High-Carbon dictating Ecologist"** ?

**By 2016 there is no NOAA/NMFS R&D program towards any Low-Carbon Fishing-Types.**

**Even if we at PB&F funded such a project ourselves, we would still not be allowed to realistically experiment all the way towards developing one or several 21<sup>st</sup>-century Low-to-Least-Carbon Fishing-Type.**

**And then Fishers would not be allowed to apply their 'Permit'/'Catch-Share' to such a type in their own use...**

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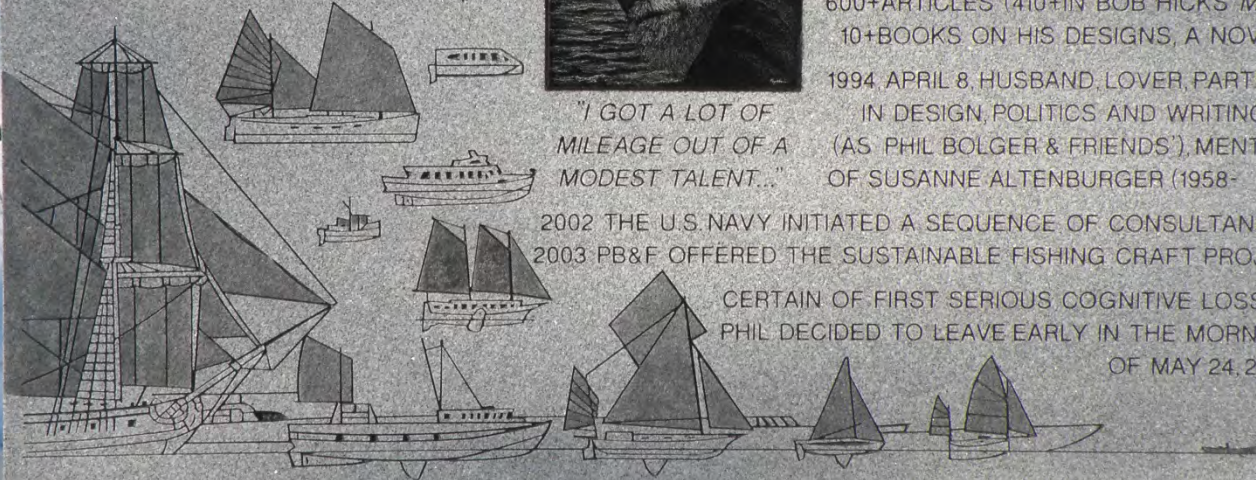
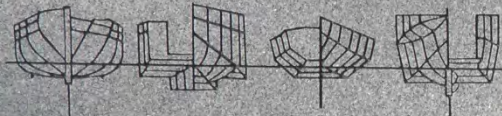
**We have proposed a Public-Private Research-Partnership to at long last catch up with the likely Evolution of the Fleet had that not been shut down.**

**How “Green” is your  
UNOLS Research-Fleet ???**



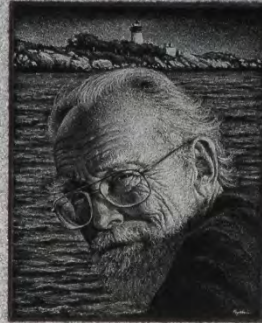


INNOVATOR IN  
DOABILITY, AFFORDABILITY  
SAFETY AND SUSTAINABILITY



# PHIL BOLGER

BOAT-DESIGNER



"I GOT A LOT OF  
MILEAGE OUT OF A  
MODEST TALENT..."

PHILIP CUNNINGHAM BOLGER

BORN DECEMBER 3, 1927

1946-47 US ARMY, JAPAN

1952-'09 INDEPENDENT PROFESSIONAL  
MENTORED IN PERSON BY NICHOLAS  
MONTGOMERY, LINDSAY LORD, JOHN  
HACKER, HOWARD CHAPELLE, L.F.H.  
680 DESIGNS FOR OAR, SAIL, POWER  
DYNAMITE PAYSON'S INSTANT BOATS  
600+ARTICLES (410+IN BOB HICKS' MA/B)  
10+BOOKS ON HIS DESIGNS, A NOVEL

1994 APRIL 8, HUSBAND, LOVER, PARTNER  
IN DESIGN, POLITICS AND WRITING  
(AS PHIL BOLGER & FRIENDS'), MENTOR  
OF SUSANNE ALTENBURGER (1958- )

2002 THE U.S. NAVY INITIATED A SEQUENCE OF CONSULTANCIES  
2003 PB&F OFFERED THE SUSTAINABLE FISHING CRAFT PROJECT

CERTAIN OF FIRST SERIOUS COGNITIVE LOSSES  
PHIL DECIDED TO LEAVE EARLY IN THE MORNING  
OF MAY 24, 2009