



The Binnacle

Victoria Model Shipbuilding Society
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Yahoo! Newsgroup : VIRCB
Vancouver Island Radio Control Boaters



Boat-a-Thons ...



Photo by Bill Sturrock



Photo by Bill Sturrock

...ARE SERIOUS BUSINESS...

...BUT RELAXING!

ON THE HORIZON

INFORMATION ON UPCOMING EVENTS

Aug 12 Boat-a-Thon
Sept 1-3 Saanichton Fall Fair
Sept 15-16 **Host:** Western Regional IOM Championship
Sept 16 Boat-a-Thon



MEETINGS: Second Thursday 7:15-9:15
313 Brunswick Place
Next is Sept 13th!



POWER: Sundays 10 – 12
Harrison Model Yacht Pond (HYP)
Dallas Road at Government.



SAILING: 1st and 3rd Sundays 1 – 3 PM
Beaver Lake
Next is Aug 19th!



LANGFORD LAKE NAVY
Wednesdays 9:30
Langford Lake, Leigh Rd at Trillium



From the Bridge

Since the last meeting we had the Strawberry Festival, Luminera, and a Power Cup.

Those all turned out with a lot of excitement and good participation. My sneaky daughter went and threw a 40th wedding anniversary party for Marion and I. Three months too late, but she wanted to make sure that we would have good weather; after several drinks of wine the weather didn't matter! A good time was had by all. Thanks to all who came.

Oh yeah, the Power cup - I didn't do too well did I? Some lessons that I learned (relearned?) Even if the schematic does not show a fuse, put one in anyway. If you have to hot wire the motor to make it run (full speed, forward only) make the connection after the fuse (if you had one) that way you have some security if something shorts out, and you will deprive your friends of a smoke show. If you have two batteries that look the same, charge them both up, that way you won't bring the dead one. Fortunately mine don't look the same anymore. We had a good time at the aircraft museum show, lots of planes of course some fine hot rods, and English cars and its very seldom that you get to meet a fella with a pilots license with a whole bunch of 00000000000's followed by a 2

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Victoria Model Shipbuilding Society

General Meeting – 12 June 2007

Call to Order 7:15 with 22 members and 2 guests

1. Ken Ensor joined and is now a member
2. Jeni Reynolds from Luminera attended and discussed our participation.
3. Our participation at the Aviation Museum Open House was also discussed

After the business meeting Dave Taylor talked about how to use multi-meters and provided some very useful handouts to those in attendance. President Dave put some of this knowledge to use.

Mike Creasy discussed scale speed and offered to set up a test course at the next Boat-a-thon
Meeting adjourned at 9:00

2007 Executive Committee

President: Dave Denton	478-1800
Vice-Pres: David Taylor	652-6480
Secretary: Ron Hillsden	479-5760
Treasurer: Tom Pound	595-6487
Show Coordinator: B. Andrews	479-2761
CRD Liaison: Ken Lockley	477-5830
Barry Fox	294-0350
Parks Liaison: Dave Denton	478-1800
Binnacle Editor: Bill Sturrock	479-0239
Quartermaster: Bob Rainsford	383-2256
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Sailing Director: Barry Fox	294-0350
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Director at Large: Ernest Reid	652-8579
Publicity: Dave Denton	478-1800

From The Bridge

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Coming up on Aug 12 - a Boat a Thon at Harrison Pond. The weather will cooperate! Sailing at Beaver Lake, Aug 19

September 1 2 3 is the Saanich Fall fair. We are going to be beating the bushes again I bet , so do your best to find time to help us out as this is one of the major financial supports for the year. Many thanks In advance.

September 15 and 16 we have the honour of hosting the Westcoast I.O.M. championships at Beaver Lake. Barry Fox will be running it and we will have to supply whatever Barry needs in the way of help. This is too big for just a few people to run .We will need power boaters as well, so stand by to turn too.

See you at the meeting and on the water.....
Dave Denton (Smokey)



Photo by Bill Sturrock



Photo by Bill Sturrock

VMSS MODEL BOAT PHOTOGRAPHY CONTEST

OPEN TO MEMBERS OF ANY MODEL BOAT CLUB

Just a few Rules:

1. Maximum of 3 entries per amateur-photographer/member: **DIGITAL (jpg) only!**
2. Send by email attachment to: vmss@shaw.ca **subject line: "PhotoContest Entry"**
3. Model ships and related topics only, please. **Limit of 3 entries** per person.
4. Deadline **November15th, 2007.**
5. Judges decision final; prizes to be announced at a later date in the Binnacle.

NOTE: It is intended that the top 12 BEST entries will be used in our VMSS Calendar for 2007. **Questions:** email to: vmss@shaw.ca

GOOD BOATING AND SHOOTING!!

Old Wood & Rusty Iron – by Mike Creasy What Makes A Bow Wave?

Good question.... maybe when the Queen drives past? Seriously, a bow wave is created by the hull forcing water out of the way, creating a dolphin's playground at the pointy end, and a stern wave farther back. The sound and look of these waves, which form the ship's wake, is strangely fascinating and always calming. Who hasn't stood at the rail and contemplated the price of gasoline while gazing at the white foam sliding by?

The puzzling part for many scale modellers is the relationship between scale speed and a realistic looking bow wave. The answer is sort of simple.

A model's bow wave will never look completely realistic because our models don't go fast enough to generate the aeration needed to create the white foam that makes a bow wave "real". The actual speed of most models is less than 5 knots, and most are displacing only 10 to 20 pounds of water. There's just not enough water being pushed out of the way fast enough to cause air bubbles to form.

That being said, why do marine designers use scale models to test hull designs?

There's much in common between a good model and a real ship or boat. Ignore for the moment the foamy white of a real bow wave and look instead at its shape. Much of the real (full-size) boat's wave is solid, un-foamy water, just like we see on the yacht pond.

Now, if your model is a true representation of the real thing – in terms of underwater shape, length/width ratio and all that stuff, it will produce a wave that is similar to the real thing. Not identical, and not foamy white, but similar in shape and location relative to the stem. The stern wave and the combined wake behind the boat will also be similar. Of course, this also assumes that your model is running at the correct scale speed, and for that we have to thank a fellow named William Froude, an English physicist who developed something called Froude's Law of Comparison.

Froude's Law gives us an easy way to compare the speed of a model with the speed of a full-size boat, using the square root of whichever scale you use. Details are available online at many sites including Wikipedia, and I've posted a spreadsheet file on the VIRCB group website. If you time your boat over a 100 foot straight line (such as we now have at Harrison Model Yacht Pond), you can read the scale speed of your model from this spreadsheet.

Alright, so now we have a well-built model running at the appropriate scale speed. The next question is, why do some models go so much faster than the real thing? Certain battleships come to mind. After all, if the laws of physics and hydrodynamics are transferable from ship to model, and real ships have a maximum hull speed, then why can models smash this speed in scale?

Most of us have heard that a boat's speed is limited by the bow wave, and that as a boat goes faster, it will try to rise up over the bow wave. It turns out this isn't really true.

A displacement hull's speed is not limited at all – if you have the power, you can push it as fast as you want. You might run out of fuel very soon, or even start making your displacement

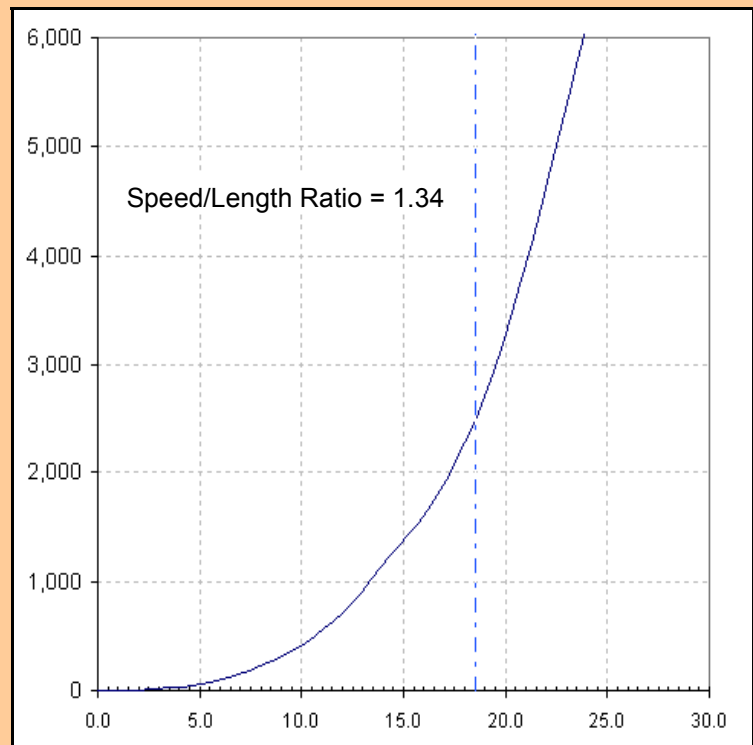
hull get up and plane, but it'll go if you push hard enough.

There is instead a *practical* speed for displacement hulls, and it all has to do with the rise in drag created by speed, and the power needed to overcome this drag. What many of us might not know is that most of this drag is created by the interaction of the bow and stern waves, and not by the boat trying to climb over the bow wave created.

Wave making resistance is the term used by naval architects and designers (and no, I'm not) to calculate the speed at which the wave created by the hull's forward motion is equal to the waterline length. Once this wave begins to interfere with the stern wave, drag rises sharply.

For displacement hulls, the calculation of wave making resistance is the same – regardless of whether they are in a model yacht pond or out on the deep blue. This speed, essentially, is the speed at which thrust and drag are in reasonable balance. Often called the "hull speed", it can be roughly calculated as a ratio of speed and length, using the formula:

$$\text{speed in knots} = 1.34 \times \text{square root of length in feet.}$$



The fascinating part of all this for scale model builders is that "hull speed" or wave making resistance calculations are the same for our boats too. If you try this calculation for a 60 foot boat, the result is 10.4 knots. If you have a 30" model of that 60 foot boat, its "hull speed" is 2.12 knots. Applying Froude's Law of Comparison for a 1:24 scale model, we find that 2.12 knots actual speed is the correct scale equivalent of 10.4 knots in the full size boat!

This relationship between speed and drag also explains why the most economical cruising speed is usually somewhere closer to a 1.00 value, where speed-related drag is much lower (see Chart)

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THE SUB SUBJECT

What I'd hoped to dish up this month has materialized. I can now fill my self imposed allotted space with both general and more specific comments on Scott Mumford's successful completion of a *Small World Models* Oyashio kit...an approximately 1,100 Canabuck dent in his liquid assets. To that he had to add an RX, three servos, a 7.2V battery pack, paint, glue and such and the price of a more powerful Speed 400. Sounds steep? Not to scratch builders who do not keep track, or prefer sundry forms of creative accounting.

Those among you who took the time to read the March to July "Sub Subject" columns may have gathered that I'm not one to give standing ovations to KITS. Main reasons are my lack of interest in, impatience with, and understanding or instructions, even those in untranslated English, coupled with the personal experience...as spit upon and invectivized in the May 2007 Binnacle. Now: how did Scott get entwined with submarines?

He did take his time, but his inherent interest in subs had lingered for years. Still, what he'd heard (and read) on authoritative levels, coupled with his look-before-you-jump savvy had made it plain that sub modeling was...well...kinda tricky. Meanwhile, he is piker. His Exeter model is testament to that: four screws, four motors, two speed controls and mixers...? That could give a seasoned modeler brain spasms that no Aspirins or their generic equivalents could touch.

So Scott placed a prepaid internet order, with a promised 10 to 12 week delivery time. He got it okay...as happy and as full of expectations as an eight-year-old on Christmas Eve. Then he found that one or both of the participating postal services had busted the model's stern all that what's also known as "excrement."

But then e-mails, telecoms, et cetera put him (no GST or import duty this time 'round) in possession of what was expected from the get-go. No disappointment: S.W.M. had done near invisible mending, and used a shipping box that could have given pause to a yegg with Fort Knot ambitions. Scott got value for his bloated grand.

The way in which the Oyashio model is so perfect, professionally precise and cleverly engineered that it could have come off a Black & Decker or General Electric mass production line. It exudes the finesse and ingenuity sometimes found in top-of-the-line appliances and other consumer goods. For example, Scott let me assemble some of the five or so main components that make up the model's innards. They slipped together so sweetly, easily and in such alignment that I had to remind myself that I'd started off holding two pieces.

Among all of the already touted workmanship, the main at first gloss aspect is the delicately sculpted shape of the bluish-opaque compartments for motor, batteries and servos... plus the ballast tank.

The ballast tank's on-board gas container's minimal size bespeaks the delicate trim of the 33.5" l.o.a. model (1.96-scale). It's about the size of a senior Bic lighter, or a dieted down 1.5V "D" cell. But, yes, now that Scott's Oyashio is trimmed, she can be dived and surfaced at least six times on one charge of gas. More important, as witnessed at HMYP on a

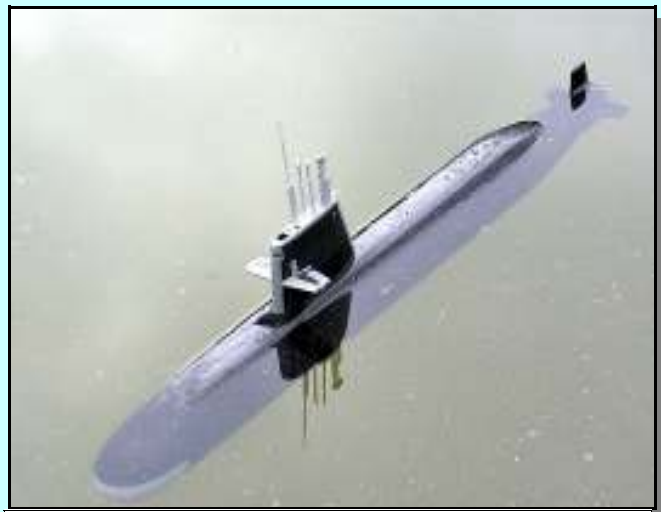
wind still Sunday, it keeps the little bugger at periscope depth for as long as the operator and batteries last. Impressive. That ballast tank deserves a couple more words.

It is operated by one servo, extended by a 1/8" rod that goes through a watertight seal in the ballast tank's rear bulkhead. A disk with a sloped surface sits on the end of the shaft. Turned clockwise, the disk depresses the gas valve's stem. Gas flows; water is voided. Then about an inch behind the disk, the servo shaft carries a cam. Upon the servo twisting counterclockwise, the cam lifts the air valve off its seats, and the tank floods. Simple, but clean and clever.

That model's shipment comes with a 20 page 5.5" x 8.5" booklet with 33 black and white photos, and minimal text. Kind of quite clear to me. Almost.

Some background on the prototype: Oyashio was the first of Japan's five Shio class boats. She was launched on October 15, 1996, *i.e.* modern and relatively new for contemporary submarine fleets. While "Shio", apparently, translates to "Tide", the "Oya" prefix could mean "Parent" or "Ancestor". Either way, it indicates that she is the class's lead boat, followed by Michisio, Uzushio, Makishio and Isoshio. Very meaningful, no doubt, to Japanese speaking folks, but over the radio...? Not the "Sub Subject's" problem.

As far as the boats' looks go, nothing much to distinguishes them from what the German, Italian, South Korean, Swedish and other navies are putting to sea. The Oyashio's length (269'), surfaced tonnage (2,750 t.) And her



Scott Mumford's Oyashio model. Photo by Bill Sturrock.

placement of fairwater planes up on the sail all indicate that the honchos in the Land of the Rising Sun were after a coastal defence vessel...not blue water jobs with under ice capability. In other respects, the design is as generic as can be, with one possible exception, *i.e.* placement of the sail.

The sail seems to sit proportionately farther back than on other subs of similar size and age. One unconfirmed reason may be the length required in the torpedo room to house the torpedos and Harpoon missiles. Whatever, the Shios have a

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clean, functional, uncluttered look and are easy to model. But still, I tip my baseball cap to S.W.M. and Scott. The way he leaded and foamed her to get the model to do what it does took tenacious patience.

Next month, to accommodate a request, the column will **Romanus Unicum**

treat once more with “how to prevent model subs from leaking?” Bear in mind, though, that even the multi-billion dollar prototypes are not immune. Water pressure rising 0.42 lbs./square inch for every foot of depth sees to that.

What Makes A Bow Wave? (Continued from page 3)

One thing to keep in mind when considering hull speed is that the values were developed at a time when steam was king, and powerplants were heavy. Speed for many displacement hulls of First and Second World War vintage are much higher than the “hull speed”. For example, the British 1943 Manxman class minelayers had a waterline length of 410 feet, giving a hull speed of 27.2 knots. In reality, they could do more than 40 knots! Mind you, it took 72,000 shp to do it!

With power from a modern, lightweight powerplant, you can see that an awful lot of drag can be overcome. For modellers, the power available from a small electric motor is, in scale, immense.

What’s it all mean? Three things: 1) there is no absolute limit on how fast a displacement hull will go, 2) if you want a realistic looking bow wave, you’ll have to fake it (white paint & airbrush), and 3) we have a scientific basis for calculating the scale speed of our models.

I’ll take that as proof that my 60 knot scale model battleships aren’t overpowered!

Bibliography:

Jane’s Fighting Ships of World War II, 1946/47
Wikipedia



Bow and stern waves demonstrated by **Alex James’** superb rendition of the CF’s new **Orca 55**. The full-sized Orca Class Patrol Craft Training vessel measures 33-metres long, with a displacement of 210 tonnes and a top speed of 20 knots. Photo by Bill Sturrock.

Speed Kills!

Our first go at the speed trials produced good results, with most boats showing very appropriate scale speeds. There was a call for the fire boat after one boat showed the strain of a full-speed run. The smoke was realistic, too.

Scale speed results are:

Ken Ensor ‘s Landing Craft 33	23.5 seconds, 1:12 scale = 8.7 kts
Jack Plummer’s St. Anthony	31 seconds, 1:48 scale = 13.2 kts
Alex James’ Orca 55	42 seconds, 1:48 scale = 9.8 kts
Bob Rainsford’s Retriever	32 seconds, 1:24 scale = 9.1 kts
Scott Munford’s Pacific Birch	20.5 seconds, 1:32 scale = 16.3 kts
Dave Denton’s L’il Toot	36 seconds, 1:24 scale = 8.1 kts
Mike Claxton’s Hilbre	46 seconds, 1:24 scale = 6.3 kts
Bill Andrews’ Dauntless	34 seconds, 1:36 scale = 10.5 kts
Doug Allen’s Sandpiper	31 seconds, 1:24 scale = 9.4 kts
Mike Claxton’s Pusher tug	37 seconds, 1:24 scale = 7.8 kts
Bill Andrews’ Island Dawn	26.5 seconds, 1:30 scale = 12.2 kts

Next time trials at the Boat-a-Thon August 12. Bring your rocket ship!



August Sailing News

Fall is coming soon and we should get out lake back in another month or so. The hot weather this year has brought the swimmers back to Beaver Lake and made sailing a bit more challenging. We have had to alter or "normal" courses a bit to avoid sailing among some of the more adventurous of them. But it is a public park and we have a great sailing venue for almost 9 months of the year so that is a small price to pay.

On the horizon are a few events.

The first up is the inaugural Western Regional IOM regatta to be held on Beaver Lake the weekend of September 15 – 16. I'm still looking for a few people to help run the event. I'd like to sail in the event so if I can prevail on 3 or 4 more people to jump in to help we will be in great shape. Please call me or write, or come on over and see me to let me know you're in.

In October, MVIMM in Nanaimo will host the Western Regional Soling regatta. While most of the Soling population around here is in Nanaimo, I know there are a few others around so it should

be a good event. The organizers are trying to contact all the known owners and get them to either come out to sail in the event or to at least put their boat up for "charter" and let some of the rest of us join in. More news on this one next month.

In addition there are a few other less formal things in the offing. I'll be emailing the sailing list over the next while to see who might like to make a few day trips to Nanaimo, Saltspring and maybe other places for some good sailing and some good companionship. Keep your eyes and ears out for that.

We had a good "Monster Garage" session earlier in the year and there was some interest in another so I'm looking for a little feedback on who might be interested in attending such a session. Again let me know if you are interested and I'll see what we can do.

For now, my big concern is getting that help for the Regional IOM events so please think about and let me know soon.

-Barry



Aviation Museum August 5 2007

B.Fox Photo



B.Fox Photo

Flag Sale

All Flags 2 " or smaller are now \$2.00
Please add \$1.50 for mailing

All Flags 3" or larger are now \$4.00
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