Fraser Squadron – Your New Bridge for 2016 - 2017			
Commander	**Dave Mellis - 604-841-2442**	**Executive Officer**	**John Dymond - 604-943-4602**
Education	**Kathleen & Paul Vanderwood 604-946-4184 Nan Lockie – 604-943-0694 Caroline Duguid - 604-671-1624**	**Treasurer**	**Cleve Pryde - 604-943-3536**
Administration	**Meredith Williamson - 604-841-2442**	**Secretary**	**Gouri Chinnappa - 604-940-8711**
Web Master	**Bob Everson - 604-271-2551**	**Membership**	**Vidas Vitkus – 604-948-2188**
Port Captain	**Peter Lefroy - 604-271-5240**	**Supplies**	**Bill Hawryluk - 604-270-2946**
Cruise Master	**Peter Lefroy - 604-271-5240**	**Regalia**	**Donalda Buie - 604-271-7938**
Communications & Historian		**Public Relations**	**Jan Muller - 604-628-2037**
Environment	**Les Muller - 604-628-2037**	**Multi Cultural**	**Rick Easthom 604-946-8389 Jack Tang - 778-919-0723**
Special Projects	**Barb Dymond - 604-943-4602**	**Past Commander**	**Byron Buie - 604-271-7938**
Publications / Fairlead	**Byron Buie – 604-271-7938 Paul Vanderwood - 604-946-4184**		

We thank the Bridge members for serving and are always on the lookout for additional Squadron members to assist with functions. Give Dave a call if you want to be more active in our Squadron.

Cruises – Cruises – Cruises!!

Here is the summer 2016 cruise schedule. Come out and join us at these locations. For more information contact **Peter Lefroy at 604-271-5240**

Cruise 2 - July 1 to 4 - Mill Bay Marina

contact@millbaymarina.ca 740 Handy Road, Mill Bay, BC, V0R 2P1

Local : (250) 743.4303 Toll Free: 1.877.443.4303

This cruise is with Langley Squadron so when booking your reservation make sure you say that you are

with them. **http://www.millbaymarina.ca/**

Cruise 3 - July 29 to August 1

Otter Bay Marina, North Pender Island

250-629-3579 **www.otterbaymarina.ca**

Saturday night pot luck dinner.

Remember the adult's only swimming pool!

Cruise 4 - Sept. 2 to 5

Maple Bay Marina

1-866-746=8482 **info@maplebaymarina.com**

Byron and Donnie Buie (604-271-7938) are in charge of this cruise

Dock Map for Maple Bay:

http://maplebaymarina.com/wp-content/uploads/2015/08/dock_map.pdf

Regalia

Here is a list of the supplies we have on hand for the Squadron members:

3 - CPS ties for men ($20.00 ea.)

2 - CPS silk scarves for dress ($10.00 ea.)

12 - CPS small crest ($2.50) [super sale price]

18 - CPS flags with ropes ($12.00 ea.)

4 – old type FRASER SQUADRON burgees ($15.00 ea.)

2 – new type FRASER SQUADRON burgees ($25.00 ea.)

20 - FRASER SQUADRON pins $2.50 ea.)

1 - FRASER SQUADRON cap ($15.00 ea.)

11 - FRASER SQUADRON blazer crests - can fold into a blazer pocket ($12.00 ea.)

Contact: **Donalda Buie** at **604-271-7938**

Also check out the CPS web site www.cps-ecp.ca and look under ship stores for CPS logo'd items.

Cruise Report – Thetis Harbour Marine – May 21 to 23

Great weather, great company, lots of fun = great cruise! We sailed over from our Point Roberts berth to join the festivities. Thetis Island Marina is highly recommended. The facility is helpful, friendly, clean, has fuel, and those great pies along with garden produce is just down the road. We purchased a bag of prawns which we enjoyed for dinner later in the weekend.

Also at the dock were the Gulf Yacht Club and White Rock Power & Sail Squadron. Both are active organizations that brought numerous vessels to the cruise.

For us sailors there was enough wind to enjoy a sail down to Annette Inlet (Prevost Island) on Sunday afternoon and then a sail back to the home port on Monday.

Big 'thank you' to Peter Lefroy and Dave Mellis who made everyone welcome and had all the events run smoothly.

It is Spring – Update Your Charts and Software Before the Boating Season

How old are the electronic charts that you have on your chart plotter, laptop, iPad, iPhone, etc? Numerous changes have been made to the US charts covering Juan de Fuca Strait and the San Juan Islands. Updates to the US charts are free, thus ensuring that you have the latest version on board at all times. Sadly, updating Canadian charts continues to be costly and cumbersome.

iPad - The **iSailor** e-nav program on our iPad displays a coloured icon indicating that changes have also been made to chart sets that we purchased 'inside the App'. We purchased the Canadian chart sets covering the West Coast and East Coast of Vancouver Island and the US charts for the West Coast of the USA. For both groups the icon indicated that updates were available. A tap on the icon brings in the new charts (a Wi-Fi connection is required for the updates).

The **Navionics** app also indicates that chart updates can be downloaded, however, it now wants a $10.99 subscription fee for the year to access the updates. Once we paid the subscription fee (through the iTunes store), we were able to download all the updated Navionics charts for the cruising area we selected (a Wi-Fi connection is required for the updates).

We use both **OpenCPN and PolarView** on our laptop and both needed to have the US charts updated.

Check your charts and US Coast Pilots or Canada Sailing Directions before setting out.

Traveling into US Waters – You Should Carry the 'US Coast Pilot'

The US Coast Pilot (free) can be found at:

http://www.nauticalcharts.noaa.gov/nsd/cpdownload.htm

The US Coast Pilot 7 - 48th Edition, 2016 covers the coasts of California, Oregon and Washington, and includes Hawaii and other United States territories in the South Pacific. The link is:

http://www.nauticalcharts.noaa.gov/nsd/coastpilot_w.php?book=7

You can select just the Juan de Fuca and Georgia Strait chapters from this 'pilot' for download. Downloads are free. If you install them on the iPad or laptop you have the reference material at hand.

Salish Sea Pilot Releases New Georgia Strait and Desolation Sound Guides

The guides are $9.99 CND each and can be found at: **http://www.salishseapilot.com/#home**

Cruising World Knot Tying Guide

http://www.cruisingworld.com/cruising-world-knot-tying-guide?src=SOC&dom=fb

Calculating an Inverter / Battery System *(Thanks Dave M.)*

Lead-Acid batteries have a much longer life span if they are not depleted more than 50%. This means that your 125Ah battery should not be discharged more than ~60Ah.

Inverter efficiencies are typically greatly exaggerated and reflect only the peak efficiency, at some specific load. That is, an inverter that brags "1600W Surge and Up to 90% efficient" may in reality be a 800W inverter that is only 90% efficient at 480W with the efficiency be considerably less with more or less current draw. Frequently inverters are at their lowest efficiency in low load conditions because the inverter takes some amount of power to operate regardless of load.

> For instance, if the inverter draws 2A @ no load, it may well draw 4A @ 24W output making it only 50% efficient. The same inverter with a 480W load may only draw 22A thus giving it the stated efficiency of "Up to 90% efficient".

A 24W AC device almost certainly has a power supply in it that converts 120Vac to some nominal voltage, likely between 5Vdc and 12Vdc. It may be considerably more efficient to simply power the device directly from the battery (replace the power supply with a DC/DC converter or regulator), or buy a similar device that accepts a DC input. While purchasing a new device that accepts a DC input may seem "expensive", if you consider the cost of 125Ah batteries and a suitable charging system, the device itself can become a trivial expense.

Following are some realistic expectations from a 125Ah, 12Vdc Lead-Acid Battery with a typical low-end, consumer inverter:

> 120Vac device @ 24W ==> 24W = 120V * I ==> I = .2A
> Inverter input = 2A + 24W/12V = 4A
> Battery Life: 125Ah/2 = 62.5Ah ==> 62.5Ah/4A = 15.6 hours

So, you might expect to operate your device for ~15 hours between charging cycles w/o dramatically shortening the life of the battery. The device might actually operate for as long as 30 hours or so on a full charge, but this figure will drop with each charging cycle and you will likely not get more than a couple dozen charging cycles before needing to replace the battery.

Typically people ask these kinds of questions in an effort to "go green" and intend to charge the battery with solar or wind power. If this is your intention, you need to understand that charging a battery also involves losses. For instance, a typical lead-acid battery has a charging efficiency of ~85%. This means that if you input 10A for 10 hours you will have "added" 85Ah to the battery's capacity.

Be careful, "over charging" a battery can lead to explosion, fire or destruction of the battery!

So, if you were sizing a solar panel to operate your 24W device and you had 5 solar charging hours per day, the math would go something like this:

> Device = 24W @ 120Vac ==> battery draw = 4A => 48W @ 12Vdc.
> Assuming this device is going to be "on" 24/7, you would consume:
> 48W * 24 hours = 1.152kWh of 12V power.
> To replace that 1.152kWh of power, you would need to input:

1.152kWh/.85 = 1.355kWh and this would imply a solar panel capable of:
1335Wh/5 hours = ~270W solar panel
With a 125Ah capacity battery you would discharge the battery to 40% capacity before the charging cycle began==>
4Ah * (24 - 5) hours = 76Ah ==> 1 - 76Ah/125Ah = 0.392 = 39.2%

Please note this system would fail if there were a single day of no charging, and the battery life would likely be adversely affected by the continual deep discharge cycles.

For comparison, if you were to replace the device with a 12Vdc device (or replace the power supply in the device with a 12Vdc power supply) and we assume that there is no conversion loss or the conversion loss is equal to the existing losses in the internal power supply (the device simply consumes 24W @ 12Vdc) the sizing of the panel would go as follows:

12Vdc @ 2A = 24W 2A * 24 Hours = 48Ah = 576Wh/Day
576Wh/.85 = 677W ==> 677W/5 = 135W Solar Panel

Your battery would have a charge of ~70% at the beginning of the charging cycle:
2Ah * (24 - 5) = 38Ah ==> 1 - 38Ah/125Ah = 0.696 =~70%

I know this seems like a lot to power a "small device", but the reality of "green energy" and batteries is that most of us take power for granted. The "convenience" of plugging in a device and having it "work" masks the tremendous amount of work that is being done to maintain that device's functionality.

As an example,

1) Assuming you simply plugged your 24W device into a standard 120V outlet, it would cost: 24W * 1kWh/1000Wh * 24Hours/Day * 365 Days/Year * $0.10/kWh = $21.02 per year.
2) Assuming you converted the device to a 12V input and used a 125Ah battery + 130W Solar panel:
Charge Controller ~$50
Battery ~$90
Solar Panel ~$800

Up-Front Total: $940

With a Battery Life of 5 years, annual battery cost would be $90/5 = $18. Savings $3/Year, period of time before system "paid" for itself: $940/$3 per year = 313 years.

3) For the case with the inverter and a single 12V, 125Ah battery the system would never "pay for itself" because it is unlikely you would get more than a year or two out of the battery discharging it more than 50% daily. If you used 2 * 12, 125Ah batteries, you might expect to get five years from them, but the annual cost would be $36 ($180/5 years), and again, you would never recoup your initial investment because your annual battery expenditures would be higher than $21/year.
4) If you were to replace the lead-acid battery with Lithium-Ion battery packs, you might fair better in the long run, but the upfront costs would be considerably higher.

Reference link https://www.physicsforums.com/threads/amp-hours-pulled-from-a-12v-battery.482113/

Over 81% of global commercial fleet now authorised to carry digital publications!

Italy has become the latest Flag State to approve the use of ADMIRALTY e-Nautical Publications (e-NPs) and ADMIRALTY Digital Publications (ADP) as SOLAS-compliant alternatives to paper publications. This decision means that all 1,300 Italian-flagged ships and over 81% of the global fleet are now able to use digital publications to meet SOLAS carriage requirements.

E-Nautical Publications (e-NPs) are electronic versions of official ADMIRALTY Nautical Publications, such as Sailing Directions and the Nautical Almanac. They allow bridge crews to download and apply electronic weekly Notices to Mariners (NMs) in just a few seconds every week, improving efficiency and accuracy on board. A route planned between Shanghai and Rotterdam the updating task that used to take hours is now reduced to seconds.

Warning – Fueling Your Vehicle

WARNING: SAFETY ALERT from SHELL OIL COMPANY

Please send this information to ALL your family & friends, especially those who have kids in the car with them while pumping gas. If this were to happen, they may not be able to get the children out in time

Here are some reasons why we don't allow cell phones in operating areas, propylene oxide handling and storage area, propane, gas and diesel refueling areas..

The Shell Oil Company recently issued a warning after three incidents in which mobile phones (cell phones) ignited fumes during fueling operations

In the first case, the phone was placed on the car's trunk lid during fueling; it rang and the ensuing fire destroyed the car and the gasoline pump.

In the second, an individual suffered severe burns to their face when fumes ignited as they answered a call while refueling their car!

And in the third, an individual suffered burns to the thigh and groin as fumes ignited when the phone, which was in their pocket, rang while they were fueling their car.

You should know that:

Mobile Phones can ignite fuel or fumes

Mobile phones that light up when switched on or when they ring release enough energy to provide a spark for ignition.

Mobile phones should not be used in filling stations, or when fueling lawn mowers, boat, etc.

Mobile phones should not be used, or should be turned off, around other materials that generate flammable or explosive fumes or dust, (i.e.., solvents, chemicals, gases, grain dust, etc...)

TO sum it up, here are the Four Rules for Safe Refueling:

1). Turn off engine
2). Don't smoke
3). Don't use your cell phone - leave it inside the vehicle or turn it off
4).Don't re-enter your vehicle during fueling.

Bob Renkes of Petroleum Equipment Institute is working on a campaign to try and make people aware of fires as a result of 'static electricity' at gas pumps. His company has researched 150 cases of these fires.

His results were very surprising:
1). Out of 150 cases, almost all of them were women.
2). Almost all cases involved the person getting back in their vehicle while the nozzle was still pumping gas. When finished, they went back to pull the nozzle out and the fire started, as a result of a static spark from their bodies from sliding out of the vehicle .
3). Most had on rubber-soled shoes.
4). Most men never get back in their vehicle until completely finished. This is why they are seldom involved in these types of fires.
5). Don't ever use cell phones when pumping gas 6). It is the vapors that come out of the gas that cause the fire, when connected with static charges.
7). There were 29 fires where the vehicle was re-entered and the nozzle was touched during refueling from a variety of makes and models.. Some resulted in extensive damage to the vehicle, to the station, and to the customer.
8). Seventeen fires occurred before, during or immediately after the gas cap was removed and before fueling began.

Mr. Renkes stresses to NEVER get back into your vehicle while filling it with gas. If you absolutely HAVE to get in your vehicle while the gas is pumping, make sure you get out, close the door TOUCHING THE METAL, before you ever pull the nozzle out. This way the static from your body will be discharged before you ever remove the nozzle.

As I mentioned earlier, The Petroleum Equipment Institute, along with several other companies now, are really trying to make the public aware of this danger.

C-Tow Offer for AIS Unit

From C-Tow:

We have put together a box containing 330 keyfloats, 330 C-Tow App flyers, 330 C-Tow brochures, some hats, vests and a couple of our new C-Tow Shirts. Please put the keyfloats, flyers and brochures in the gift bags and distribute the other loot as you see fit.

We have also started promoting an AIS unit at a special CPS price, please circulate to your squadrons.

C-Tow is now in a position to offer **EM-Trak B100 Class B AIS** units to current CPS members at a preferred rate of **$465.00 shipping included, plus taxes**.

This is the same unit that all our C-Tow vessels in Canada have used for many years.

We are offering this CPS special only by phone order at this time. Please call **1 888 354 5554** to order.

EM-Trak B100 Class B

> The em-trak Class B AIS B100 Full feature, high performance AIS Class B transceiver ideal for leisure and small commercial vessels.
>
> The em-trak AIS Class B B100 is easy to install and configure supporting multiple interfaces, USB and SD card. The device simultaneously
>
> transmits and receives all AIS messages in real time and comes as standard with stealth mode functionality (transmit on/off).
>
> No compromise performance and quality at an affordable price. The AIS Class B is the preferred choice for thousands of mariners worldwide.

The secret life of anchors *(Thanks to 'Active Captain')*

If you're like us, every time your anchor drops into the water and disappears, you wonder what happens. Does it flip around? Does it sink into the floor or does it grab something? What happens when the wind shifts? Does the anchor hold in the previously set position or does it move and reset?

Intrigued by these question, Steve Goodwin from SV Panope set out to find answers. He experimented with rigging a float and GoPro camera to a dozen different anchors. Then he dropped each one on multiple types of sea floors with different scopes to see what happened. And "see" is the important part. He even went the further step of simulating 180 degree swings to record what each anchor does in that situation.

Fair warning - starting along this video watching path will melt away hours of your time.

Steve has made all of the videos available on a YouTube Channel. The latest, #56 in the series, is a compilation of many of the other videos. It will give you a great feel for the work he has done on this and can be seen here:

https://youtu.be/l59f-OjWoq0