



### To fly a seaplane!

#### Extracts from Cesare Baj's foreword to the book "Seaplane Operations"

Seaplane: a word which evokes a glorious past and some special moments in the history of human flight. One thinks of trips made around the world, of polar expeditions on the 1920s and 30s, Atlantic cruises, Pan American's transpacific flights and the Boeing 314, the famous Clippers.

Another great prerogative of the seaplane is the favouring of human contact. This special means of transport is interesting and pleasant for the pilot and passenger, but also for whoever comes in contact with it. The seaplane, in other words, brings aviation to areas in which it is unknown, and brings the joy of flying to people who would never of their own accord go to an airport, and who in many cases have never seen an aircraft up close.

It is also a perfect means with which to learn how to fly. Who learns to fly on water receives a more complete foundation than who learns on land, if only for the fact that the seaplane pilot has the knowledge and traditions of two great universes, aviation and marine, which otherwise remain clearly separated.

But perhaps the most sublime aspect of the seaplane is that sense of freedom which comes from moving generally outside the artificial world of airports, controlled air space, and aeronautical bureaucracy. In water flight, one often operates in complete solitude and with the radio completely silent from the moment in which one gets into the aircraft until one leaves it at the end of the flight.

It is an activity which allows one to return to the purest roots of flight, in which only the essential factors play a part: the pilot, the technical means, and the natural elements.

**Cesare Baj - Lake Como, Italy**

### From the Editor

It was sad to hear of the death of a boy in Washington State USA in January who was a passenger in a Cessna 206 amphibious floatplane, piloted by his father, that landed wheels down in Lake Goodwin (see p2).

Co-incidentally, I received pictures of a beautiful Turbo Otter amphibian which landed wheels down on water and also ended up inverted. Watch it on YouTube ([youtube.com/watch?v=hhL2vFFvCP8](http://youtube.com/watch?v=hhL2vFFvCP8)). The time it takes from when the wheels first touch the water to being inverted is just 4 seconds! Fortunately, in this disaster no one was seriously injured – except the pilot's pride and a beautiful aircraft ruined.

Amphibious aircraft are simply one of the most versatile and fun aircraft, and there is an exquisite joy to executing a smooth water landing. But I am sure that every pilot who flies amphibious seaplanes has a story to tell about how they almost landed wheels down in the water.

So, with safety in mind, I asked Dale to prepare an article for us on the special quality of amphibians (pages 4 & 5).

Over Christmas I read the book "Seaplane Operations" co-authored by Dale DeRemer and Cesare Baj. Its focus is on float planes rather than floating hull aircraft, but most of what they have to say is relevant to both. I cannot recommend it highly enough.

It's a solid book of 400 pages, arranged in 26 chapters, with a wealth of information from basic through to advanced techniques which synthesise both author's lifetime of experience in aviation, particularly in seaplanes. And it's filled with more than 1,000 illustrations and interesting historical photos.

The book has an interesting history which I will expand on in the next newsletter but I must say that I enjoyed the blending of the author's styles - Cesare's descriptive Italian and Dale's more direct American.

In the column opposite I have abstracted a little from Cesare's foreword to the book. Expect to see more extracts from this valuable book in upcoming SPAA newsletters.

### Gear UP to "kiss the water" ###

**Ross Vining (VH-RRZ) - Editor**

# Good News and Bad, from the State of Washington USA

## Lake Union Seaplanes Seattle



Dear Editor

Go to the Lake Union Virtual Museum at <http://www.lakeunionhistory.org> and watch the seaplane exhibit

*After watching the video I felt like going flying, at Lake Union.*

*But I will have to be content with a Cessna 210 around the Darwin coastline on Australia Day 2011.*

*The clip is good to watch and advertises how well water and aviation can get along with each other."*

Lake Union is a fascinating urban lake in the centre of Seattle.

The first seaplane flight on Lake Union was in 1914, just eleven years after the Wright Brothers' first flight.

Then in 1916 Bill Boeing built a hangar on the shores of the lake and began building seaplanes and training pilots on the lake. This was the start of the mighty Boeing company.

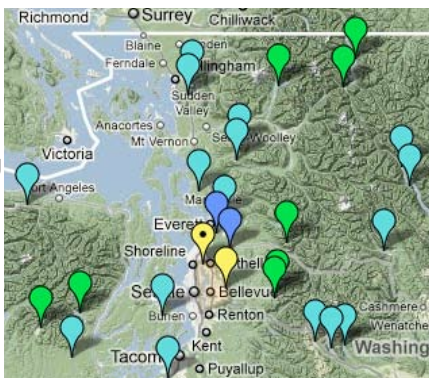
Today it is one of the busiest seaplane bases in the world, where airplanes, sailboats, kayaks and wildlife mix with surprising harmony.

Lake Union is also home to Kenmore Air who operate scheduled flights, air taxi, flight seeing and training from the lake.

If you want to be truly jealous of the variety of places to fly a seaplane, visit their google map of seaplane destinations within short distance of their base. The map lists 28 separate stunning lakes.

To see it go to the advanced training page in the flight training part of their website <http://www.kenmoreair.com/company/FlightInstruction>

Paul Rawnsley



## Tragedy on Lake Goodwin



A six-year-old boy was killed on Lake Goodwin in Washington State, on 22 January when a Cessna 206 float plane he was a passenger in flipped as it landed and trapped him in the flooded cabin.

It appears that the seaplane's wheels were down.

The father, was able to escape but his son remained strapped into his seat belt and trapped under the water.

Local seaplane pilot Ken Berger said . . . -

*Lake Goodwin is a very nice lake here in Washington State. Very friendly for seaplanes with a dock for seaplane tie off at the north end and a restaurant across the street from the parking. We have an active pilot's association, the Washington Seaplane Pilot's Association, and we are committed to keeping Washington water open for all pilots.*

*This is a very unfortunate accident. We are all potentially vulnerable. It can be pretty inhospitable in the world just outside our cockpits. Lake Goodwin waters are about 43 degrees this time of year. That does not give anybody much time to survive in a crash. According to our news reports, the father/pilot just barely survived the hypothermia, even though his exposure to the elements was quite short.*

*I learned something about this back in 2006 with a crash in cold water of my own. I was left with a few important lessons:*

- *Get your passenger unclipped first thing, they often cannot help themselves;*
- *You will only have with you what is on your body, so be prepared to survive with what is in your pockets and on you;*
- *Consider having a mini canister of oxygen handy in the cockpit;*
- *Know the terrain you are over and how to swim or hike to civilization.*
- *You never know when your turn will come up to test your survival skills. I hope we will all be lucky, and ready.*

Ken Berger - Jan 25, 2011



# Dorniers Old and New



## Dornier DoX - 1930

Perhaps the most dramatic flying boat ever built was the giant Dornier Do X. Conceived by Dr. Claudius Dornier, the giant flying boat was launched in 1929 as the largest, heaviest and most powerful aircraft in the world.

In initial flights it set a new world record by carrying 169 people (150 passengers, 10 crew & 9 stowaways!). A record that would not be tested for 15 years. Weighing 48 tons, the plane taxied for 50 seconds before slowly ascending to only 650 feet. It flew for 40 minutes at a maximum speed of 105 mph finally landing on Lake Constance.

The luxurious accommodations and service on the Do X were in keeping with the standards of transatlantic liners. Several cabins on the main deck held passengers comfortably on 32 double seats and two single seats, while the cockpit, captain's cabin, navigational office, engine control room and radio office could be found on the upper deck along with quarters for the 14 man crew. The lower deck held fuel and stores.

The enormous plane was initially powered by twelve 525 horsepower Siemens Jupiter engines mounted in tandem on the wing. Later it was refitted with 610 hp Curtiss Conqueror engines and could then reach the dizzying height 1,650 feet, that was deemed adequate to cross the Atlantic.

The Do X took off from Freidrichshafen, Germany on November 2, 1930 commencing its trans-Atlantic proving flight. The route took the Do X to Lisbon, down the Western African coast, across the Atlantic to South America, and north to the United States finally reaching New York on August 27, 1931. The final leg of the trip began again on May 21, 1932 from New York to Newfoundland, on to the Azores, and finally to Berlin where the Do X was met by a cheering crowd of 200,000.

The Do X was retired to the Berlin Air Museum in 1934 and was destroyed by an allied air raid in 1943. It remains, by its sheer physical strength and size, one of the most extraordinary seaplanes in history.

For amazing footage of the DoX flying look for the "bomberguy" site on YouTube.



## Dornier S-Ray 007

In 1921 Claude Dornier created the Libelle seaplane.

Now more than 80 years later, Claude's grandson, Iren Dornier, and his team have used lightweight carbon and composite

materials to create a modern amphibious multi-purpose version of the Libelle.

Its called the S-Ray 007, and this 2 seat aircraft has:

- An empty wt of 500kg and MTOW of 800 Kg
- A high wing for a shaded, cooler cockpit.
- Electric Fowler flaps, up to 30° to enable STOL capability
- A water rudder to assist manoeuvrability.
- Electrically actuated tricycle landing gear that can be lowered in water.
- Wings that fold 90° for ease of transport
- A single lift point to enable deployment/recovery by ship.



Check out their website and the videos of flight by the 2nd prototype in the Philippines.

[www.do-sray.com](http://www.do-sray.com)



# Amphibians are different

By Dale DeRemer\*



Because they can land on water and land, amphibians have more systems for the pilot to know and understand, they fly differently, they carry less payload and may have major weight and balance issues. They have special emergency procedures and are often viewed by regulatory people with suspicion because they can land in so many different places.

## Water upsets

In general aviation as a whole, amphibians have a higher accident/fatality rate than straight seaplanes with one accident type prevailing: landing on water with one or more wheels extended almost always results in a spectacular upset with a high rate of passenger fatalities.

The tragic, recent accident on Lake Goodwin in which a young boy's body was removed from the plane by a diver cutting his seat belt nearly an hour after the accident is just another in a long list of passengers found drowned in submerged cabins of upset amphibians with their seatbelts still on, and not a mark on their bodies. While the deceleration of an upset is rapid and spectacular (in the photo below, the black spots you see are the two rubber bumpers flying from the front of the floats!) the passengers die because they didn't know that they needed to get themselves out of the cabin, or they didn't know how to do that. Although we will never know for sure, there is good reason to believe those passengers never had a proper passenger safety briefing, repeated before every flight, addressing the procedure for exiting the upset cabin and surviving after exit. Clearly, the pilot's responsibility.

Gear down water landings shouldn't happen. But they do, because pilots are human. We make mistakes.



*The destruction of this aircraft resulted not from a wheels down landing but from a very flat, very high speed approach*



*Wheels down water landings are spectacular with high deceleration forces and virtually always followed by upset and cabin flooding. It is imperative that pilot and passengers know how to get out of a flooded cabin, then how to survive. The Turbine Otter survivors were lucky to have boats to step into - most water aircraft land where there is no help nearby*



Gear warning systems help but don't solve the problem. No one single thing does. The one thing that always worked the best for me was to assign the task of checking and calling "gear is up for water landing" or "gear is down" to the principal passenger. After having been properly briefed, they enjoy being a 'crew member' with safety responsibilities during the flight. Amazingly, they almost always did that before I asked for their report. And, a complete passenger briefing was always a comfort to me because I knew my passengers were well prepared to fend for themselves properly if anything happened (and, maybe even save me if I became disabled during the accident!)

A comprehensive seaplane passenger briefing, with briefing checklist can be found at <http://www.secureav.com/Passenger-Briefing-Listings-Page.html>.

For additional seaplane pilot study materials, check out the Seaplane Pilots Model Code of Conduct at <http://www.secureav.com/Seaplane-Listings-Page.html>.

### Landing gear malfunctions

I don't consider a landing gear malfunction in an amphibian an emergency—just a non-standard operation. Whether the gear is locked down, not locked down, partially down or position unknown, the only good option is to choose the best available location on land for the touchdown. Considerations as to where to put your bird include availability of:

- grass or other smooth surface,
- emergency services (ambulance, hospital),
- repair services, etc.

Believe it or not, I have actually had an airport manager deny me access to his airport because I had a gear problem in an amphibian! I guess he didn't want me to put a groove in his runway with my float, or, more likely, he didn't want the liability.

The picture shows that aircraft, that had one main stuck



*Most amphibian gear emergencies are really only 'non standard procedures'*

up and three wheels 'probably' down (as reported by a tower after fly-by). The landing on grass alongside a runway at another airport was a non-event. The paint wasn't even scratched on the keel strip. Three wheels were locked down. Just because it was the right thing to do, the airport manager called an ambulance out from town and it is seen on the runway, just off the right wing tip.

Float and hull aircraft can be landed effectively on land without wheels if the proper techniques are used and



*Float or hull landings on land are typically successful if the terrain is friendly.*

a proper surface exists. If the surface is smooth, the biggest danger is that the surface provides so much drag that the aircraft noses over. I landed the 180 in the next photo in a wheat stubble field after an engine failure. Ground run was 255 feet, so there was a whole lot of decelerating going on! The bird was back in the water the same afternoon, the only damage being some polished keel strips.

### Critical altitude

Amphibians have something unique, called 'critical altitude'. Critical altitude is the number of feet AGL (above ground level) needed to get the gear down in case of engine failure. The gear transit time in some amphibians is very slow—more than 30 seconds. If your gear is up, and you are not above critical altitude, you don't have the option of lowering the gear in case of a power loss.

And, faced with an engine failure, I would rather land with gear down in an amphibian on:

- roads (better directional control),
- hard surfaced smooth fields (same reason),
- short fields and rocky fields (I can steer between fence posts, avoid some rocks and if I have to hit rocks, the gear is one more thing between hard things and my soft body).

Situations calling for wheels up landing include:

- water,
- furrowed fields (land across the furrows),
- in wetlands, bogs, soft fields, soggy fields and
- if you are not sure the field is hard enough.

Further discussion of the finer nuances of this and other amphibian emergency procedures, including making your own checklist, can be found in the emergency procedures chapter (#15) of the book **Seaplane Pilot**.

*\*Dale DeRemer is Professor Emeritus, University of North Dakota - Aviation and has 24,000+ hours as an ATP and CFI. Dale is known as the father of the SEAWINGS national FAA safety program for seaplane pilots and he has authored many articles and books on aviation, particularly seaplane safety. He was 1998 SPA Seaplane Pilot of the Year and in 1999 was inducted into the Flight Instructor Hall of Fame at Oshkosh.*

## Floatplane Follies



Aviators, residents and visitors to Bankstown were treated to a rare spectacle on Christmas Eve last.

Phil Dulhunty's Cessna 180 VH-BNJ had been fitted with new floats and since they are NOT amphibious, it needed to be trailered to the river.

In Canada and the northern states of USA, seaplanes are taken out of the water in winter because the lakes freeze over. Usually they land on wet grass at airports, after a fire truck hoses the area down. How they become seaplanes again after the winter is often quite spectacular. Some operators use a special DOLLY to take off. Once the aircraft has reached take off speed it climbs into the air and the dolly is stopped by an automatic brake. Other operators fly their float plane of speeding a flat top truck.

So why aren't all seaplanes amphibious?

The advantages are obvious, but they have disadvantages too: (1) the cost (about double the price); (2) greater weight (a 4 seat landplane, becomes a 3 seater on straight floats, but only a 2 seater on amphib); (3) More maintenance costs, especially in salt water.

So unless an amphib is a MUST, it's more economical with straight floats. The problem with overhauling a floatplane is finding an airport with access to a waterway. Bankstown used to have easy access to the Georges River, but alas, the Council has planted rows of lovely trees down the access road. However, the aircraft could fit between the power poles and the trees if we transported it SIDEWAYS – and lifted it into the river with a crane.

The day came, and an advance guard informed the residents that BNJ was coming and would they mind moving their parked cars and trucks for just a few minutes. They were most co-operative and cameras appeared everywhere as BNJ manoeuvred down the road sideways. Diners at the restaurant beside the launching ramp deserted their lunch to come and watch; and in many cases, to help!

Finally the plane was launched, and took off into the far blue yonder never to return to Bankstown. It's a great pity that Bankstown is becoming less and less an aviation facility and that seaplanes especially are having to find other places for their major overhaul.

I'm sure the residents of Rabaul Rd will be disappointed!

Philip Dulhunty OAM  
Chairman – Seaplane Pilots Assoc Australia



## SP-6000 Dream machine

Dear Editor

I thought SPAA members might be interested in our LightWing SP-6000, 5 seater amphib currently under construction in Ballina NSW. We call it our **Dream Machine**.

The SP-6000 was inspired by the Dehavilland bi-plane that was restored by Mothcare in Murwillumbah about 10 years ago, this aircraft is a large plywood box with the pilot at the front, a small toilet at the back and 6 or 8 seats in between, it has an isle and seats either side. The engines are 2 x 4 cyl Gipsy Major of about 150 hp each. In the 30s, I believe it was one of Australia's first passenger aircraft. The aircraft has folding biplane wings, its a bit slow, but it's a fun flying machine, and you see it at fly-ins in northern NSW. I thought "why not transfer this concept to a kit plane?"

The SP-6000 is state of the art carbon fibre, wings are aluminium and initially, a single aircraft or auto-conversion 300 hp engine will power the ship.

The fuselage is 1.4m diameter, with a centre aisle and a small toilet or galley can be added. The centre section is round so the body could be extended in the future to carry 8 or 10 passengers or more gear.

The design is mine with assistance from local and international engineers.

The first SP-6000 has a constant cord strut braced high wing, and we are planning a low wing version as well. We have built a number of 2 seat float planes in the past so there is some knowledge and experience in the bank.

Tooling will be complete during 2011, float tooling already exists so the carbon fibre floats will appear in the first half of 2011. Performance of the SP-6000 high wing will be mid range, cruise about 130 kts stall around 50 kts, range about 1,000 nm. As a float plane, the idea is the ultimate getaway machine with the ability to carry camping gear, bikes etc for 2 or even live aboard with a bed and small galley in the rear.

Details are posted on the [www.lightwing .com.au](http://www.lightwing.com.au) web site as progress continues.

Regards

Howie Hughes  
Australian LightWing.



# Limping Home from a Desert Drama

By Ross Vining



I left Marree in outback South Australia at sunrise. It was gorgeous; crisp air, dead calm, clear sky, flying along the track of the old Ghan Railway, (see pic above) past numerous watercourses and lakes, normally dry, but brimming with water now, from the recent rain.

I so much wanted to have a splash but I couldn't. I was flying a fixed gear SeaRey. Who ever heard of a fixed gear SeaRey? Well it's a bit of a story.



I set out from Adelaide in October after the BIG wet in outback Australia. Lots of water was flowing down Cooper Creek into Lake Eyre. This only happens a couple of times a century, so I had to take a look.

Enroute, I landed at many places

including glassy water on the normally dry "Lake Frome".

Big rains bring boggy conditions and when I landed at Cameron's Corner to spend the night I bogged in heavy mud when taxiing up the drive (see pic 2). This probably



(2) Bogged at Cameron's Corner

exacerbated stress cracks in the undercarriage system that had slowly been developing, unbeknown to me.

Because of the bad conditions I was the only visitor for a week, since all the roads were cut by flood waters. The next day I departed at sunrise and headed north, straight up the SA/Qld border, landing on a few lakes and a couple of tracks just for the sheer joy of it. Hey, this is supposed to be the Strzelecki Desert but every slight depression was filled with water. Water, water



(3) "The Dig Tree" is a monument to early explorers

everywhere; a SeaRey pilot's delight.

The Burke & Wills "Dig Tree" on Cooper Creek was a good spot for morning tea. I sat under the very coolibah tree that inland explorers Burke & Wills and their party would have sat under in 1860, (pic 3) with the messages still carved in the trunk. Since I had just flown over the country the men and camels had walked through I could appreciate the sense of despair they must have felt to arrive back at the campsite to find that their

CAMERON CORNER TO MERTY		CLOSED
STRZELECKI TRACK		
MERTY TO MOOMBA		CLOSED
MOOMBA TO INNAMINCKA		CLOSED
MERTY TO MT HOPELESS		CLOSED
MT HOPELESS TO LYNDHURST	4WD	
MT HOPELESS TO ARKAROOA	4WD	



(4) At the Bowser at Mungerannie Pub



relief party, after waiting more than 4 months, had finally given up and departed that very morning. Most of the men perished before help arrived. I was very glad to have my Searey nearby!

Heading west from the Dig Tree, I splashed my way along Cooper Creek admiring hundreds of pelicans and other water birds.

Stopped for fuel at Innamincka, which just consists of a petrol station/general store and a pub. All roads were cut by flood waters so I had the place to myself. From Innamincka I headed down the Cooper again and west to Mungerannie.

Mungerannie is a hotel with a petrol bowser. There is nothing else. It's pretty much the half way along the Birdsville Track. I love these outback watering holes – so full of character and characters. It's time to meet publican Phil and his mate John (pic 7).

I had rung a few days before to check about the airstrip and was told, "the strip's a bit boggy, you'd be better off landing on the road out the front of the pub." So that's what I did, and taxied right up to the bowser (pic 4). Refuelled, had a yarn and a cup of coffee with Phil and John who said no vehicles had been on the Birdsville Track for a week.

Ready to go, we pushed the SeaRey back to clear the bowser. But what was that loud cracking sound!?!?\*\*\*???



(5) Broken left leg!

The port wheel had caught in a hardened rut in the dirt and my lovely SeaRey was in a heap on the ground with the left gear leg sticking out at an odd angle (pic 5). This was not good.

(6) Both bulkhead supports snapped.



Both main gear leg supports were completely snapped in two (pic 6). And the brackets, levers and connecting arms that operate the undercarriage retraction mechanism were bent out of shape.

This bird was not flying anywhere until that broken leg was mended, but where would I get some spare parts?

Spare parts come from Florida, USA. That would take a while. And I would need to get back to Adelaide to order them.

Phil said that no one had come down the Birdsville Track for a week, but he added optimistically that things seemed to be drying out so there might be a 4WD vehicle in a few days. I could then hitch a ride to Marree and keep trying to hitch rides southwards. If I was lucky, I might get back to Adelaide in 4 or 5 days.

(7) John & Phil at Mungerannie Pub



Thinking of my wife, my work and abandoning my SeaRey in the middle of a desert, didn't hold much appeal. I needed another solution.

Having built my own experimental aircraft I figured I should be able to fix it with a bit of improvisation. So, with help from Phil and John I lifted the aircraft onto a couple of old tyres and dismantled everything. A short length of square steel pipe found in the back shed was fashioned into a sleeve to go over the broken parts.

The inner arm of the gear leg was lashed to the upper bulk head beam. It was not pretty – but it was probably stronger than the original, and the repair did not affect airworthiness (pic 8), but I could not retract the gear and land on the many delicious watercourses along the way home.

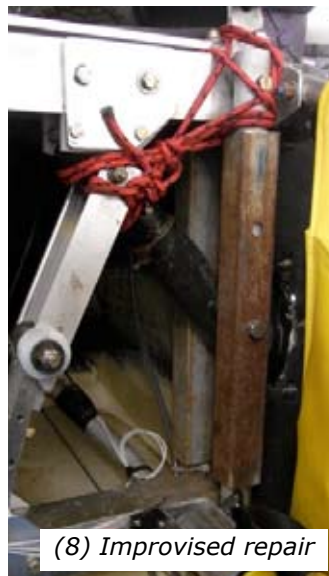
With the repairs in place, I said goodbye to my new friends and successfully flew 800km back to Adelaide, stopping several times for fuel.

Close examination of the right side revealed cracks in both bulkhead uprights also. My SeaRey has a pretty hard life; it has landed on many unimproved strips and several farmer's fields and I'm sure that was a key factor to the development of the stress cracks in the uprights. Getting bogged at Cameron's Corner probably exacerbated the problem and then the major stress of the hard rut at Mungerannie was the final straw.

The replacement bulkhead uprights are now made of chrome molly steel and VH-RRZ is roaring to go again and negotiate some more rough landings!

Regards, **Ross VH-RRZ**

(8) Improved repair





# Letters • Letters • Letters • Letters

Dear editor Ross from across the big pond.

My name is Bruce Hinds and I'm president of the Washington State Seaplane Pilots' Association USA. Bill Wainright from Oregon forwarded me your most recent newsletter and I just had to say what a wonderful job you've done.

It's been my philosophy to share all safety related information I can with everyone since we are all in the same "boat" together. After reading your newsletter, it's obvious we share many of the same issues.

Do you have any Republic Seabee Pilots in the SPAA? I also produce a our Seabee Club Newsletter which is free to anyone who is interested. Recent newsletters are on the [www.republicseabee.com](http://www.republicseabee.com) website.

*The SeaBee "Tinny"  
Australia's first!*



I understand that only 2 SeaBees made it to Australia. One was damaged in a fire in the 1950s and was converted into what you Australians call a "tinny". Apparently one of the first Tinnys in Australia. There's a

good story about it at [www.youtube.com/watch?v=IZUf1Q2LUqQ](http://www.youtube.com/watch?v=IZUf1Q2LUqQ)

If any Australians are interested in Seabees I would love to hear from them.

Bee Sea n'ya, Bruce Hinds, President  
Washington Seaplane Pilots' Assoc, [www.wa-spa.org](http://www.wa-spa.org)  
Director, SPA National Seabee Club Newsletter  
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G'day Ross,

As an ex seaplane CPL, I'd like to refer SPAA members to a Squidoo lens I did about seaplanes. I had a 20+ year career in seaplanes with 3,500 water landings under my belt, and would be happy for SPAA members have a look and make a comment.

At least 8 of those years were on the Grumman G164 Agcat at the Gold Coast a Red Baron, of course.

You can see it at [www.squidoo.com/funwithseaplanes2](http://www.squidoo.com/funwithseaplanes2)

*(Editor - This is really worth a look!)*

Cheers

Harry Lynn +61 7 5533 9584 / 0418 886 229



**Harry Lynn's Red Baron Seaplane**

Dear Editor - I thought that readers might be interested in some background to the aircraft that was featured on page 5 of the December newsletter.

It is a Noorduyn Norseman, somewhat larger than a Beaver and pulled along with 600 hp engine. It beat the Beaver into the market by a few years. Pilots had a love, hate relationship with this bird. It was fast but very noisy (even compared to the Beaver). It was hard to get off the water because it had a stall speed of about 83mph because it had a high speed rather than a high lift airfoil.

Red Lake, Ontario is the Noorduyn Norseman capital of the world. They have a nicely restored one up on a pedestal near the water base and there are still a few 'going to work' every day', almost all based at or near Red Lake as that is where the expertise is to keep them flying. I have seen a couple of them privately owned, but that didn't last long, since they are noisy, hard to fly and expensive to maintain.

Dale DeRemer



**Wuff Wuff** - It's a common greeting on the international SeaRey on-line discussion group where new comers are welcomed by the "old timers" with a round of WUFF WUFFing.

It stands for "Wheels Up For Flying" it is recognition that more SeaReys have been lost to wheels down landing in water than all other causes combined!

Fortunately, such landings in a SeaRey usually don't cause serious injury. But it wrecks the aircraft.

Aerodynamically a SeaRey flies the same, wheels up or wheels down. But an error in landing configuration is very different. A wheels up landing on land typically produces no damage other than scraped fibreglass.

A wheels down landing on water typically induces an upset aircraft which really ruins your day.

This situation is the norm for most amphibious aircraft. **WUFF WUFF**

Dear Editor

The Regulations and Seaplane Operations by Jack Peters published in the December issue of "On the Step" should be printed out and carried in the aircraft by all seaplane operators as it can be a very persuasive document to discuss and show to any complainants.

In my aircraft I also carry a copy of the Environmental Policy Statement

Regards

Philip Dulhunty

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