ROAD MAP FOR FULFILLING MARKET & OPERATOR NEEDS IN SEAPLANE OPERATIONS WITHIN EUROPE

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Seaplane operations of the more serious kind should never be embarked on lightly.

Since approximately 1947 in Europe commercial seaplane operations had largely become stagnant. Seaplane flight was only continued by those who took the seaplane lightly and were mere “tobogganers”. They went flying for fun and either skated around near home, or chanced shortening their days by accepting risks which were imperfectly understood.
Those who had work to do have remained dormant, and are only now asking to be taken seriously. They have the responsibility to set high standards for the future of seaplane operations.

Through FUSETRA we hope to survey the whole field of seaplane flight. We need to cover the needs for regulations relating to seaplane operations, how landing sites are selected and managed and the reasons seaplanes are built in certain ways and why the principles surrounding seaplane operations have something of the quality of dogmas. These should become evident through FUSETRA where our aim is to wed description with explanation and to anticipate regulatory and operational questions.

When the two Wrights Orville and Wilbur, launched themselves upon the tides of the new ocean of the air on the 17th of December 1903, they won immortal fame with a simple engineering structure that had few moving parts outside the engine. From that day, the process of refining the aeroplane began. At first it was slow and hardly perceptible, but it gained astonishing momentum over the next 100 years.

By necessity in the early years of the development of flight, the seaplane predominated, however as technology improved and with the advent of newer and stronger materials, the momentum veered toward aircraft operating predominantly from land bases.

During world war two, seaplanes played an important role on both sides of the conflict, and during this time some worthy seaplanes were built which except for their engines (fuel costs) could well be aircraft capable of supplying a competitive and safe seaplane operation today. They are notably Dornier DO 24, the Shorts S 25 Sunderland and the Consolidated Aircrafts Catalina Flying Boat. There were other seaplanes or flying boats operational in that era which would all be considered as too large for the present requirement.

The first two of the above were designed and built in Europe, yet we have let these fine examples become inert and along with it European seaplane operations have fallen behind the rest of the world. This situation is unacceptable when studies show that there is a need for a reliable seaplane network within Europe.

In my first speech to FUSETRA in Biscarrosse on the 14th May 2010, I gave a five point plan which needed to be addressed and used as the starting point of a road map to navigate seaplane regulatory matters. I have been disappointed that as a group we generally ignored my starting point and have allowed time to pass us by, with the result that there is still a long way to go along the road to planning smoother commercial seaplane operations.

I repeat the five points below:

1. *A better understanding of the seaplane pilots requirements for safe operations, and a means of streamlining future training, licensing and recurrent checking of seaplane aircrew intending to operate within Europe.*
2. *A European controlled and regulated system of approving or licensing seaplane operating bases so as to be acceptable for all commercial seaplane operations in the same manner as regular airfields. They should have an accepted method of classification when risk assessment is taken into consideration and remove the need for an operator to negotiate with various authorities other than their own authority when extending operations within Europe.*
3. *Alleviation on Flight Time Limitations so as to better meet the requirements of seaplane operations thus making them more financially sustainable without any resultant erosion of flight safety standards*
4. *Set up an achievable minimum level of training and acceptability of Dock Operating Crew so as to be multi-functional with regard to, assisting in the arrival and departure of aircraft on pontoons or piers, passenger handling, as well as manning the requirements of Rescue and Fire Fighting activities.*
5. *A system of Security management at and around seaplane bases which would be financially achievable to the operating companies and acceptable to the traveling public.*

Added to the above should be a need for new technology aircraft capable of providing a more reliable service when taking into account sea surface conditions

Items 1, 3, 4 and 5 of the above have been basically achieved to an acceptable level through consultation with our own NAA and EASA. This however can only be stated as achieved when considered locally. Europe wide 4 and 5 will still require further work. Item 1 of the 5 steps is complete Europe wide in all but one important point. All my other reservations regarding licence validation have been satisfactorily achieved.

This one point is that ICAO licences validation only being allowed a maximum of one year. It is understandable that pilots arriving in Europe and flying conventional aircraft would take advantage of the system if their validation were allowed to go beyond one year. But a reliable and successful seaplane operation relies on past seaplane experience to operate safely and at the same time satisfy the investors return on their financial investment.

Under the present rules, the seaplane pilot is treated in the same manner as a conventional pilot in their validation requirements, and with the resultant high turnover in acceptable pilots, I feel safety is being jeopardised.

Item 2 above, is still poorly understood throughout Europe, although satisfactory at local level. It is my belief that this along with the need for more suitable aircraft is the major stumbling block to future commercial seaplane operations.

Countries outside of Europe, notably North America, where commercial seaplane operations continued unabated, were less stringently regulated and were getting ahead of the regulations. This is not to say that they were running unsafe operations, but that the seaplane operators themselves were generally self disciplined, and aware of the adverse publicity any accident would receive.

As such this self discipline allowed the authorities to be more flexible in their regulating role.

From recent reports however, it would appear that the regulators are now ‘catching up’ with the industry, and regulations are becoming tighter and more rigidly applied.

In Europe the opposite can be said to be the case. The commercial industry all but faded completely around 1947, but with the advent of a single Europe and EASA, coupled with the new interest in the possibilities of commercial seaplane operations, the industry is being forced to 'catch up' with the regulators who have been more focused on conventional commercial air operations which has resulted in a lot of regulatory material (or lack of it) handicapping serious commercial seaplane development. This vacuum has left the industry with the task of trying to convince the regulators on the need for alleviations on a small number of regulations (EASA Annex 3 OR) concerning commercial aviation so as to be able to enter the market at a sustainable level, yet still be compliant with the important requirements of accident prevention and flight safety.

The major obstacle between the seaplane operators and EASA over the development and management of landing sites must be satisfactorily addressed if there is to be any future for seaplane operations in Europe. There are wide ranging differences in the regulatory requirements, between member states. In some cases, a set of regulations exist regarding seaplane operations which are unknown to the NAA. An example is in Italy where the ministry for infrastructure and transport decree 01/02/2006 Article 8 quote: *landing sites are limited to flights with origin and destination within the national territory with non-stop flights and without stopping in another state.* ENAC however were not aware of this regulation.

If a seaplane operation is to be successful the choice of landing sites is a complex issue requiring experience and careful consideration in terms of geographic relief, prevailing wind and weather considerations, availability of fuel and other necessities, and last but not least, good market research. Not all areas of water which at first glance look suitable for a seaplane landing site. The operator must have experience in this choice of site, and be able to not only convince, but demonstrate to the NAA its suitability. This is however a difficult task when the authorities cannot agree among themselves, especially at local level. This problem needs to urgently attended to.

The choice of aircraft is also a subject where experience by the operator is paramount to a successful commercial operation. I have noted that the universities studies for FUSETRA while very interesting, do display a lack of operational experience in what the commercial seaplane market requires.

Complicated float retraction while advantageous in the cruise stage of flight will add to the commercial operators worst fears because of the penalty caused by a significant increase in empty weight, which reduces revenue pay load. True, it will reduce drag and improve cruise speeds, however as the most lucrative routes will prove to be of 30 minutes or less, the advantage of cruise versus payload will show payload to be the more important factor.

I noted that the presentations at workshop 3 in Friedrichshafen completely ignored the three most widely used seaplanes in commercial aviation, notably the two Otters and the Beaver. As I have pointed out in an earlier paper to FUSETRA, these aircraft have a lot of failings, but they have a lot more attributes than those suggested at the workshop which will result in a more successful commercial operation. There is a lot of useful technology for an improvement in seaplanes, but they will require more thought in their suitability as to how they will be able to be safely handled for fast turn-around requirements. This is an absolute must for successful commercial operations.

The presentations at Friedrichshafen mentioned other aircraft which are available at present in the float plane configuration, but experience has shown us that they are not robust enough to operate economically in near inshore conditions, and more susceptible to corrosion in the high acid waters found in the Mediterranean waters.

The presentation also indicated aircraft that could possibly be reconfigured as flying boats, however the cost of the reconfiguration would be prohibitive, and the aircraft would still have two of the major hazards which are the seaplane operators Flight Operations Managers nightmare; low propeller and over wing fuelling.

The engine position in the BNI and the Twin Otter has a high risk value, and we have had to introduce procedures to lower the risk value which are costly in both engine ware and time. The BNI also requires over wing fuelling which is costly in time, and has a high risk value in busy waterways.

Of what is immediately available, the Dornier Sea Star Twin turboprop would be my first choice, however I would want as a straight float plane rather than an amphibian, and suitable docking arrangements would have to be considered. Fuelling might also be problematical. It would have to be reduced to a 9 seat configuration, but this would allow for added baggage allowance.

There is no doubt in my mind that whatever direction the future seaplane takes, there are some basic requirements required if it is to be of use commercially. These Are:

- Propellers well out of the way
- Single point fuelling in a position which would not require ladders or other structures to be accessible.
- Easily manageable for berthing on a pontoon or other floating structure with a walkway to the quay.
- Constructed from materials able to withstand the formidable invasion of corrosion expected in near shore operations.
- Able to handle considerably rougher surface conditions than what the present fleet availability can.

If the future seaplane cannot offer a solution to the above requirements, then it becomes obvious that the Otters and Beavers already in operation will still be the choice of the experienced seaplane operator.

About the author

Barry Lightening has been the Flight Operations Training Manager and Ground Operations Manager of a successful European seaplane operation which can arguably be considered as the most experienced, and in terms of passenger miles, the largest seaplane operation in Europe.

While 4 years of operations and over 7000 incident free commercial water movements in general terms cannot be considered as well experienced, he has had to developed the airline as well as his own knowledge of seaplane operations during a phase when commercial seaplane operations in Europe had become stagnant, and as such was required to learn the 'hard way'.

The knowledge gained through this experience is now being distributed through FUSETRA to help other existing and/or potential seaplane operations in Europe.

GLOSSARY

ENAC.....Ente Nazionale l'Aviazione Civile
Maneuvering Area.....One or more Maneuvering areas may be established on the landing site
Movement Area.....This is an area of water within the landing site on which seaplane operations may take place.
Landing Site.....An area of water available for the use of seaplanes
LS.....Landing Site
NAA.....National Aviation Authority
Seaport.....Harbour or Port used for shipping activities
TOLA.....Take off and landing area at a landing site


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