



## Survival at sea. A real experience: 24 hour in a lifeboat

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### ABSTRACT

The current exercise consisted of a group of students will experience staying on a lifeboat for 24 hours, without food or drink. It was realized as part of the activities organized by the Superior Technical School of Nautic, Mechanic and Naval Radio Electronics in Tenerife (University of La Laguna) on the occasion of the celebration of the Week of San Telmo during April 2009. The text includes notes, reflections and conclusions drawn from work done by the students who participated in the experience and are related in the present work.

### 1. Background

An exercise of similar characteristics was developed in 1985 at the Faculty of Nautical on Cadiz (University of Cadiz), at the initiative of the then Nautical Student ANTONIO M. PADRON and SANTIAGO, current Captain of Tenerife, who as Delegate of Students and under the direction of Professor Luis M. Coin Cuenca, collaborated in the organization of the first of these experiences on board a liferaft, without food or drink, and lasting 48 hours, drifting on the high seas.

The result of that first exercise was that, of 25 participants, all Nautical students including Prof. Luis M. Coin Cuenca, left 19, remaining until the end of the test only 6 (among which included the proponents) (Figure 1).

Also, during his time as Professor of the Faculty of Nautical of Cadiz, Antonio M. Padrón, with the same objective, had the opportunity to organize two Summer Courses (1998 and 1999) (Figure 2 y 3), on these occasions with 24 Hours, open to both

the participation of the entire university community as well as other professionals and stakeholders.

In the first exercise (1998), out of a total of 25 students, they left 5, while in the second (1999), with the same number of participants, they left only 3.

In the aforementioned experiences, this due to their peculiarity, intensity and emotional impact, had a significant social repercussion, even the observers of the Spanish Armada and the Air Force (1999).

Figure 1: Exercise developed in 1985 in the Faculty of Nautical on Cadiz.



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### Current Edition (2009)

For this occasion, coinciding dates were decided with the celebration of San Telmo, Patron of seafarers, of un-doubted significance for the development of an exercise of this nature, which was invoked by the old ships when they were seen Surprised by the violent storms on the high seas in order to avoid the dangers of a possible shipwreck (Figure 5).

The exercise was especially aimed at the students of the three Nautical Careers who studied at the Nautical Higher School of Nautical, Machines and Naval Radio of Tenerife, Students of other careers and other members of the University Community as well as professionals of the Sea and people interested in the maritime sector who wanted to share the experience.

In this sense, the maximum number of participants had no more limitations than those derived from the physical space available in the lifeboat that was used during the Exercise: a unit of 9.79 m in length by 3.32 m in a sleeve, of 102 pax capacity.

The participation was also subject to the submission of an application, in a form prepared for this purpose, as well as a Curriculum Vitae and a Medical Certificate confirming a good health condition that did not impede participation in the exercise.

Finally, the selection of the Participants (a total of 29) was made from the CV in order to determine the suitability of the candidates in relation to the characteristics of the exercise.

### Objectives

The objectives of the exercise are based on its generality and specificity:

#### a) General objectives:

- Know the practical aspects of survival on board a lifeboat.
- Develop specific psychosocial skills valid for difficult situations, uncertainty and/or crisis in an emergency.

#### b) Specific objectives:

- Know the techniques and methods of survival at sea.
- Develop a real Survival exercise at sea on board a lifeboat, for 24 hours, without food or drink, in the closest possible approximation to a real incident.

### Survival Theory

Once the occasion arrives, survival at sea will depend, fundamentally, on three conditions:

- The formation
- The availability of sufficient equipment and/or material, in good condition, and
- Training

In the absence of any of the factors mentioned, it is possible that the castaway manages to save the situation but, generally, the chances of surviving will be diminished.

The following advice has been taken from the Survival Manual of the United States Navy SURVIVAL ON LAND AND SEA, a basic source of consultation and reference required to have been drawn from testimonies of thousands of shipwrecks from both ships Merchant, fishing, war and even aircraft.

### Abandon ship

The basic pillar of survival at sea is determined by the immediate actions to be taken once the order to abandon a ship is received.

To this end, and to be properly prepared, the following shall be taken into account:

- Have a knife or razor, a whistle/whistle around the neck, and a pair of gloves.
- Try to carry a small backpack or bag that will be used to store various equipment, including at least a container with water, a flashlight, dry and warm clothing including socks or wool stockings, some glasses and, as far as possible, medical aid for first aid.

The experiences and testimonies of shipwreck survivors have shown the usefulness of always wearing footwear, not only to avoid heat loss but also to keep the lower limbs dry and also protect the feet from chafing, bumps and/or scratches.

Figure 2: Experience developed in the Summer Course of 1998



Before abandoning a ship, it will have to wait until it stops, trying to use -preferably a lifeboat- and jumping in the water only in case it is impossible to land using a rope, ladder, or any other means. Precisely for these moments is when more will be needed of the gloves, avoiding also the slip on the ropes to avoid the possible burns in the hands.

If you choose to jump, the jump should be done with the legs extended and the feet together, keeping the precaution of throwing itself on an obstacle free zone. In this sense, it is especially important to avoid jumping with the life jacket put on -especially from heights above 4 meters- and it is advisable

to throw it first and throw it on it to place it once we are in the water.

Immediately, the first occupation of the shipwreck will be to swim as fast as it can until it is significantly away from the ship to avoid being sucked in by the swirls that originate with the sinking.

In addition, the abandonment will be made -if possible- by both end of the ship (bow or stern -care of the propellers!) and windward, to prevent the wind from causing the ship to approach us by effect of despondency.

Once the castaway has gone far enough, it will swim slowly, just to stay afloat, and trying to grab any floating object or go to a raft or lifeboat.

A very particular and specially serious danger is conditioned by the presence of combustible remnants -whether burning or not- since, among other things, they will produce visual alterations and even poisonings on the shipwrecked.

If, however, it is necessary to jump from the ship on burning fuels, the burns can be avoided following the following procedure:

- Jump through the flames with your feet together and down.
- Swim under water as much as possible and then leave the water with strong force and at the same time gives a wide stroke to remove the flames in order to breathe over the clearing that is thus formed on the area on fire.
- Re-dive underwater.

Obviously, in order to perform this operation, you must first remove the lifeguard and any other garment that may interfere with the dive.

With abandonment, maintaining serenity is as important as swimming. Thus, inexperience, loneliness, fear and despair are going to be the determining factors that lead to the death of many people who are in situations similar to those described here.

The castaway, moreover, must take into account that:

- Choking Kills in minutes.
- Exposure to the outdoors Kills in hours.
- Thirst Kills in days.
- Hunger Kills in weeks.

And, finally, the fear that, aided by psychosocial factors, can produce death in hours.

#### *Drowning (Asphyxiation)*

Several factors are what will favor the possibility of drowning:

- The state of the sea.
- The temperature of the sea.
- The absence of a life jacket.

- The use of inappropriate equipment.
- The weight of the clothing worn by the castaway.

Once in the water we must overcome the natural impulse to panic and move away from the wrecked ship (although we think that, as long as it does not risk sinking, it will always be the safest place).

The most important thing will be to have an appropriate vest; We will also try to stay in shoes or, at least, with socks; The shirt and the pants, being wet, can inflate and support part of the weight of the body even if only for a few minutes. We can, therefore, improve our buoyancy by removing our trousers and knotting each leg at the ankle, then lifting them over the head and submerging them violently forward. It will depress the waist under the water allowing the inflated legs to support us.

Another possibility to improve buoyancy is to buckle the shirt upside down, around the neck, using the bottom to catch air.

These elemental tips can transform the initial feeling of panic into a first hit in the face of adversity. We should not miss the opportunity to practice them, either by doing an appropriate course, or any day on a beach.

If the survivors are several and float with a vest, they can help those who do not possess it, or the weakest ones, by grasping their arms and forming a circle that surrounds the less fortunate. In addition, this way they will be more visible to rescue teams and take better advantage of body heat.

#### *The weather*

The temperature of our environment is fundamental to survive. If the castaway is in the water, with no possibility of climbing a raft, you should try to keep the body as warm as possible. The head, trunk and groin are areas to be protected as a priority, so it is always important to have warm clothing. This, with a life jacket we will adopt a posture that minimizes heat loss as much as possible, keeping the head, including the neck, out of the water, forearms crossed in front of the trunk, lifting the knees intertwined to cover the lower belly (fetal posture).

#### *The lifeboat*

Half the battle is won when you get safely to the raft or lifeboat. Despite the fantastic stories in the newspapers on exceptional cases, statistics show that nearly half of the boats that were drifting for more than 24 hours arrived safely in five days. It is an exception that a lifeboat is not rescued within three weeks. If you have vision, knowledge and initiative, the chances of being saved are many. From that moment what is done will affect not only one's own well-being and one's own chances of being saved, but also those of others.

Do not get excited to avoid burnout. Do not sing or scream, as this is wasting energy and extremely valuable body moisture. If there are many shipwrecks around a raft, beyond the capacity of the raft, the overload will be avoided at all costs and give priority, in any case, to the possible wounded.

No matter how uncomfortable you are, try as much as possible to appear optimistic, and if it is not possible, you will remain quiet. To try to reduce as far as possible the seriousness of the situation, for survival depends on everyone fulfilling their duties; Thus, it is particularly important that the boat or raft assign tasks, even if they are insignificant, to each of the occupants (guards, horizon monitoring, writing an onboard logbook, first aid, group animation, etc).

Once on board the raft or boat, wet clothing will be squeezed as soon as possible, but it should not be removed unless the weather is warm and dry and the wind is moderate. Strip and dry clothing piece by piece. Pay particular attention to the feet. Take off your shoes and socks, and dry them. If possible, wear dry clothing. However, if the boat is wet we will not remove our shoes unless we notice inflammation or stinging.

Figure 3: Experience developed in the summer course on 1999



To protect against cold winds, rain or the sun, a canvas or awning that can be improvised with some clothes will be used, although always remember that clothing is essential during the day to protect yourself from the sun and, at night, from the cold.

They should protect the eyes from the sun reflex, improvising some type of glasses or using a shirt or t-shirt to cover the head, soaking in water from time to time.

Due to the obligation to remain seated for a long time, you will feel pain in the extremities and numbness, followed by inflammation and later blisters or ulcers (the so-called 'immersion foot'). To avoid this, the following precautions will be taken, which have proven to be effective according to the testimonies consulted:

- Keep the boat as dry as possible.
- Try to make sure the feet are dry.
- Loosen the laces of shoes and clothing to facilitate the circulation of blood through the extremities.
- Frequently move your toes and do bending exercises with legs and arms.

#### *The water problem*

Drinking water will be the most prevalent need. If the boat has desalination equipment or rainwater harvesting equipment, it will be used properly, taking care to pre-desalt the surface.

The time that will be adrift will be estimated and the water will be rationed according to the expectations. On average, a person needs about half a liter of water per day to stay in good condition, although - under certain conditions - he can survive with well under a quarter liter. Thus, a person in perfect health can live from eight to twelve days without water.

If there is no water, you should not eat, as digestion consumes moisture from the body. Keeping the water in the body is almost as important as having water to drink.

Figure 4: Departure from the wharf of the School of Nautical, Machines and Naval Radio of Tenerife (April, 2009).



On the other hand, to avoid excessive perspiration will have to refrain from performing unnecessary exercises. If it is hot, the clothes will be kept wet with sea water in order for the evaporation to cool the body, suspending this operation if chills are felt.

The clothes will be rinsed in the sea at least once a day to avoid accumulation of salt. Dry it at dusk to avoid excessive cooling at night. In cool weather keep clothes dry.

You will not drink sea water as this will increase thirst and serious intestinal problems. However, relief can be obtained by moistening the lips and rinsing the mouth with sea water, always remembering that sea water, ingested in any form in significant quantities, is very dangerous.

It also happens with the urine intake because, among other things, it contains harmful substances that greatly increase thirst.

#### *Feeding*

Food is not as important as water. A person can withstand several weeks with water and without food. However, the more food you eat, the better your chances; So count the emergency rations beforehand and learn the best way to distribute and use them.

Distribute food and water at regular intervals. If you do not have a clock to measure the time, the portions will be distributed at dawn, at noon and at dusk. A strict and permanent vigilance over food and water should be maintained. A man of trust will be appointed to take charge of the custody and rationing of food and water.

If you can fish, you will have food and water. The flesh of freshly caught fish is good to eat cooked or raw; Is healthy and

nutritious. Many tribes and some villages usually eat raw fish with gusto.

In the case of having more fish than necessary, the meat will be chewed to extract the juice that, with a similar flavor to that of oysters, is also extremely healthy.

#### *The 'long wait'*

In general, the movement of the boats and rafts will be determined by the currents and prevailing winds, being especially important that we try not to separate too much from the initial position of the shipwreck since this will be the first one to be tracked by the rescue teams.

To avoid the effects of depletion, we will use the 'floating anchor' available in the equipment of boats and rafts.

#### *Orientation at sea*

The importance of guidance is equally important for the shipwrecked, and must attend to the signs and signals offered by the celestial vault and which, for centuries, have been used by seafarers.

As basic data, the place of the horizon where the sun and moon appear, will indicate the cardinal sign East.

The stars also move in the sky from east to west. Their positions relative to each other remain fixed. Thus, the recognition of the 'polar star' -which indicates the direction of the North in our latitudes-, will also facilitate the location of this cardinal sign.

#### *Psychosocial factors*

Lastly, mention must be made of those factors of a psychosocial nature that are going to affect the chances of survival. Thus, among them they emphasize: the capacity of leadership, the work in equipment, the emotional resistance, the serenity, the spirit of sacrifice, etc.

A good technique -based on Neuro-Linguistic Programming (NLP)- is to try to see everything that happens to us in a positive spirit, thinking that everything has its bad part but also its positive effects that with some added value will help us See 'the half full bottle' instead of 'the half empty bottle' and that will reflect on the certainty and the spirit that 'we will surely be rescued' rather than 'surely will not find us'.

#### *Principles of survival*

Having reflected on these extremes and when abandoning the ship is inevitable, we must think that the priority in survival situations should be the security of the majority. In order to achieve this aim, it will be necessary to establish concrete guidelines to which all the group's efforts are directed. These may be -as a final summary- the following:

##### a) *Protection*

For the elements and effects of exposure to the elements.

##### b) *Organization*

When the chief assigned to the survival craft is not on board, a 'leader' should be appointed to coordinate all actions and establish a guard duty for surveillance.

##### c) *Assess the situation*

Try to know where we are and the best way to attract the rescue.

##### d) *Water*

Make an inventory of existing reserves. Rationing from the first moment. Joining efforts to obtain it by other means.

##### e) *Food*

Do not eat unless large amounts of water are available.

##### f) *Desire to live*

Loneliness, fear and boredom can lead to depressive situations that undermine the will to live. It is therefore necessary to keep the mind occupied and a positive attitude.

## **2. The Planning**

It includes the Sequence of Operations as well as the functions of the Coordinators and the operational aspects that had to be maintained during the exercise.

#### *Sequence of Operations*

##### 23.04.2009 - THURSDAY

10:00 Concentration of the Shipwrecked in the School of Nautical (Teachers Room)

- Group dynamic
- Security instructions:
  - Removal of mobiles, cameras, documentation, etc...
  - Review of material (warm clothing, cap, biodramina...).
  - Equipment checks (Life jackets, radar reflector, communications equipment, lantern, tarpaulin, floating anchor, grapnel, razor...).

12:00 Embarkation of Castaways at the wharf of the Nautical School

- Navigation "towed" to the exercise zone

14:00 Arrival at DATUM (Exercise point)

- Latitude 28° - 29.4 N - Length 016° - 08.1 W.
- There is an alternative position to the socaire of PUNTA ANTEQUERA that would be used in the presence of adverse weather conditions.

18:00 First visit - GUARDIA CIVIL

22:00 Second visit - SASEMAR (Remolcador y helicóptero).

##### 24.04.2009 - FRIDAY

02:00 Third visit - Astronomy lesson (A. Padrón y A. Bermejo).

06:00 Fourth visit - CRUZ ROJA

10:00 Fifth visit - PILOTS y SASEMAR (Salvamar).

12:00 Start of maneuver of collection of Castaways.

- Navigation 'towed' to the pier of the Nautical School.

13:00 Arrival to port (Pier of the Nautical School).

13:30 Press conference.

- Coordinators and Castaways

14:00 Popular barbecue organized by the Delegation of Students

#### 27.04.2009 - MONDAY

11:00 Debriefing and evaluation:

- Maritime Captaincy
- Assistants: Coordinators, journalists, collaborating entities and three castaways (elected)

#### 07.05.2009 - THURSDAY

12:45 Conclusions and delivery of Certificates:

- School of Nautical
- I National Conference on Safety and Marine Pollution (CONSEMAR)

#### *Functions of the Coordinators*

##### DIRECTION OF THE EXERCISE

*Antonio M. Padrón y Santiago*  
Capitán Marítimo de Tenerife

- Exercise Director
- Will remain on board one of the support boats

##### COORDINATOR OF SEA OPERATION

*Antonio C. Bermejo Díaz*  
Titular profesor of Universidad de La Laguna

- Coordinator of sea operations
- Will remain on board one of the support boats

##### COORDINATION OF EARTH OPERATIONS

*Leandro Melgar Casillas*  
Operations Manager of the Port Authority of Tenerife  
*Luis Patiño Bouzas*  
Head of CCS

- Will remain localized
- Installation of a tent at the wharf of the Nautical School
- Coordination with Cruz Roja landmasses

##### COORDINATION OF FOLLOW-UP AND RESCUE OPERATIONS

*M<sup>a</sup> Dolores Septien Terreros*  
Head of CRCS of SASEMAR

- Will remain localized
- Follow-up of Castaways
- Coordination with maritime personnel of Red Cross (Evacuations)

- Coordination with CECOES ? 112

##### COORDINATION OF PROTECTION FUNCTIONS

*Juan C. Izquierdo Sánchez*  
Maritime Service of Guardia Civil  
*Roberto Durán González*  
(In patrol)

- Will remain localized
- Establishment of a protection perimeter (3 cables)

#### *Operational aspects*

- The Castaways will embark three journalists (press, radio and television).
- All communications will be made on Channel 13 of VHF, starting and ending with the word EXERCISE.
- SASEMAR will issue the appropriate Notices to Navigators.
- The Castaways will be escorted at all times by two support boats.
- An auxiliary pneumatic vessel equipped with outboard motor will be assisted.
- 'Visits' of Guardia Civil, Sasemar, Red Cross and Practical troops will be allowed, which must be done at the pre-view hours.

#### *Departure To The Shipwreck*

There we were all on the pier, some more nervous than others, very excited and hopeful

Figure 5: Departure from the wharf of the School of Nautical, Machines and Naval Radio of Tenerife (April, 2009).



We were all prepared to embark on a long journey  
It was an atmosphere that was too jovial and unconscious ...  
without knowing exactly what we were going to do during the  
whole exercise  
I was scared to think that I could get dizzy  
We said goodbye to all our colleagues, teachers and the me-  
dia

I shouted at the companions who stayed on the ground: give my family memories! When I come back, I want a potato omellete!

Little by little we moved away from the School. I was facing a new experience: I would spend 24 hours drifting like a shipwreck, with all that it means



A certain time had passed ... the shipwrecked ones began to know us ... we felt the nervousness that we had

#### *The Hot Afternoon*

It was curious, as soon as they left us alone I began to distress, thinking ... they leave and leave us here to our fate

It was very hot, the sky was completely clear and with an incredible sun ... although some wind was blowing

We were alone ... we had to make do with what we had on board

Our boat was now our home ... our refuge ... the companions were like the family

The first dilemma came ... place an awning that we improvised with a tarp and oars

While some put the awning, others organized and ordered the boat ... in short, knowing our new house



The awning was not easy, since everyone wanted to do it their way ... 'too many officers for so little boat'



One of our comrades revealed himself against another and told him ... 'you could do more than send eh !!' ... and almost instantly we all shouted 'eeehhh, what's up !!'



The first discussions arose ... we had to calm down, we had to understand that we were all collaborating there, we had to help one another and not the other ...



The first few hours passed very quickly as we were entertained by the onboard duties



With the passage of time came the desire to go to the service... but... how?? where?



Some chose to bathe, either to refresh themselves ... or to do their needs discreetly

The hours were passing ... to make the experience more pleasant, we tried to get to know each other ... maintaining a constant conversation

Hunger and thirst were beginning to make an appearance ... had to keep the mind entertained

In almost every conversation the subject of food was touched up. Ummm ... the mouth made us water just thinking

We were telling jokes ... until we ran out

Here you lose the notion of time ... the hours were upon us ... and with them boredom

We tried to accommodate as we could ... but it was not easy

Little by little the moods were falling and with it came the night

Shortly before dusk ... in the boat there were 4 different worlds:

- Aft, behind the awning, a group of four chat away from the view of the rest.
- Under the awning, three or four others talk about TV.



- In the middle some sleep since this morning and others play cards.

- On the prow is talk of movies and travel.

Meanwhile ... on the support boat ...

### *The Cold Night*

The evening twilight came and with it the night ... the cold began to tighten ... everything seemed to be going well, but the cold became more and more intense.

The atmosphere, mild of a beginning, was becoming whispers ... and the whispers in an absolute silence.

All the joy that existed on the way out of port had been lost between discomfort, cold and lack of space.



fun.



The cold, the urge to urinate, the discomfort ... more and more I noticed the exhaustion ... but it was impossible to fall asleep.

The hours went slower and slower ... and I still could not sleep.



For a moment I thought of the people who have been lost in the sea ... and I wanted to dedicate a few minutes of my personal silence.

#### *Astronomy Class*

The silence was absolute ... you could only hear the sea and with incredible darkness ... you could see many stars ... it was a perfect classroom to give astronomy.

The Captain Marítimo, Antonio Padrón, and the Professor Bermejo gave us a kind class of recognition of stars.

The truth ... it was very interesting and incredible ... I have seldom seen so many stars together.

Although I liked the Astronomy class ... the truth is that I did not know much because I was half asleep.

Although they all saw the constellations... I only saw the sky full of chops.

It seems that people, without the sun, lose all energy.

As late as the evening we could see the plankton ..... it was amazing how the water lit up in the dark.

With the help of the floating anchor and the flashlight, we fished a small 'guelde' and a 'needle' of about 30 cm that we decided to release because it did not give the 'minimum size' ... it was not a matter for the Civil Guard to come up with a 'chicken' For fishing without a license.

This fact brought some joy to the group, although this would not last too long ... the cold could more than the desire to have



### *The Desired Rescue*

It was time to go home... The wait was endless...



### *The Dawn Of A New Day*

I woke up with my back powdery ... I could feel the hunger ... dry lips and tongue like sandpaper.

Those who were dizzy had a look that said... 'to end once'. After a while suffering ... finally came to look for.



The movement of the ship became more and more intense ... the faces began to turn pale.

You could tell the joy of the group because we wanted to land as soon as possible.



### *Arrival At Safe Harbor*

The most awaited moment ... we were under the minimum ... it hurt us all...

Finally at home ... we arrived singing and wishing to climb the dock and drink water.

Jump to ground ... my only goal at that time was to 'bring something to my mouth'.

At the pier... there were more cameras than TV channels. Amazing!

We had it! Nobody had left!

The deep sea moved the boat in an incredible way... after a while came dizziness and vomiting.

### **3. Conclusions**

The worst thing was to keep watch during the night ... dominated by sleep and tiredness.

For a moment I thought about quitting ... I had my stomach in very poor condition.

I do not know why, the only thoughts that came to mind were about food ... I thought of all kinds of foods.

Hunger lurked inside me and I wanted everything to end ... I was longing to get out of there.

Sleeping was impossible for some ... the vast majority slept little and bad.



There were people who had a really bad time ... at night it was too cold.

One of the best things about the exercise was the practical class of astronomy.

The test helped me to get to know a lot of people and to make new and interesting friendships.

If it had been a real situation I am sure that most of the group would have collapsed.

I would not repeat the experience even if they paid me for it.

If instead of a mock had been a real case ... more than one would have thrown it overboard.

It has been an experience like few in life.

Without a doubt they were unforgettable 24 hours.

The experience was quite rewarding ... I discovered my own limits.

It has been shown that, not at a distance, we know what our body is capable of and how it reacts to unforeseen.

An experience that has been worth living.

I am proud to have belonged to this first group of shipwrecked and very satisfied with the knowledge acquired.

I hope to repeat this experience whenever I can ... have been the most original 24 hours of what I've been living.

This exercise helped me a lot, it helped me to take the strength that I needed to reconfirm myself in what one day I wanted to

choose ... the sea and the boats.

It has been a unique experience, knowing how much your body can endure, what to do to survive, to see how it affects other people, how to control it, how to help those around you, live it in first person, ... have been unique moments ...

I have learned that there are still people with love for what it means to be a real marine.

#### 4. THE MODEL US NAVY, Office of Naval Intelligence (1944)

The experience of the exercise has given us a model that, based on the well-known formulas of outdoor learning and using the sea as a means and differentiating element, facilitates unique experiential experiences that help stimulate development and / or discovery Of important psychosocial capacities that are essential to achieve better and greater performance in the performance of groups and human teams.

Among other capabilities, an experience of this nature:

- Motivates people to cope with conflict and pressure at work (resistance to stress), to take risks and to deal with problems responsibly and in a positive way.
- Power learning, communication, trust, adaptation, cooperation, planning and negotiation skills as well as teamwork.
- Develop self-discovery, self-esteem, group integration, leadership creativity and decision making.

This model, with elements based on maritime training and techniques endorsed by experimentation in social psychology, constitutes the pillar for the development of novel approaches in modern management strategies.

#### Acknowledgment

##### *Collaborating entities*

In this class of Exercises, which complement in a unique and exceptional way the human and nautical training of the future professionals of the sea, it is also of extreme importance the supervision and the technical support that, in this occasion, was in charge of the entities And related organisms:

DELEGACION DEL GOBIERNO EN CANARIAS  
 SUBDELEGACION DEL GOBIERNO EN TENERIFE  
 AUTORIDAD PORTUARIA DE TENERIFE  
 E.T.S. DE NÁUTICA, MÁQUINAS Y RADIOELECTRÓNICA  
 NAVAL  
 CAPITANIA MARITIMA DE TENERIFE  
 SOCIEDAD ESTATAL DE SALVAMENTO Y SEGURIDAD MARITIMA  
 SERVICIO MARITIMO DE LA GUARDIA CIVIL  
 CECOES ? 112  
 CRUZ ROJA ESPAÑOLA  
 PRACTICOS DE TENERIFE  
 ASOCIACION CANARIA DE OFICIALES DE LA MARINA MERCANTE

CENTRO DE ESTUDIOS MARITIMOS DEL ATLANTICO  
 REMOLCADORES Y BARCAZAS DE TENERIFE (GRUPO  
 BOLUDA)  
 CANARIAS MULTINAUTICA  
 RADIO CLUB TENERIFE  
 RADIO TELEVISION CANARIA  
 OVERSEAS CHARTER COMPANY

### *The castaways*

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### *Note*

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### *Epilogue*

In the middle Ages, The men were of iron and the ships of  
 wood; With the overcoming of this exercise, These castaways  
 have shown that, Now that the ships are made of iron, Men and  
 women are also made of iron.

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