ISAF Windsurfing Evaluation Trials
Lake Garda, 3rd – 8th May 2004
Final Report

This report has been prepared:

1. to summarise the conclusions of the Evaluation Team on the suitability of alternative Windsurfing Equipment for racing;
2. to assist Council in its choice of the specific Equipment to be used at the Olympic regatta at Qingdao in August 2008.

The Evaluation Team comprised:

Rich Jeffries, USA	Chairman, Vice Chairman of ISAF Windsurfing Committee
Ding Schoonmaker USA	ISAF Vice President
Chris Atkins, GBR	ISAF Events Committee, Chairman Events Committee Olympic Equipment Selection WP
Qu Chun, CHN	Chinese Olympic Sailing Team Leader 2000, resident of Qingdao , BOCOG Competition Manager for Sailing
Mike Gebhardt, USA	Olympic Windsurfing Silver and Bronze Medallist, Windsurfing Coach
Jorunn Horgen, NOR	ISAF Events Committee, ISAF Windsurfing Committee, Two-time Olympic Windsurfing Sailor

CONTENTS

1. EXECUTIVE SUMMARY

The trials showed that neither current Longboards nor current Formula boards are ideal for future Olympic competition.

- Current Longboards do not reflect current trends in windsurfing and do not excite the sailors. If they remain the Olympic equipment then windsurfing as a racing discipline will continue to decline.
- Current Formula boards are not suitable for sailing in the full range of racing wind strengths found at Olympic class regattas, and have not yet been designed with such racing in mind.

However the trials showed that a new "Hybrid" racing board, with exciting planing performance, can sail upwind effectively in 5 knots. Four Hybrid prototypes, and one existing production Hybrid board, were evaluated. While none was 100% satisfactory, they excited the sailors, they suit a wider weight range of sailor, and the designs can be refined in the short term to meet all the requirements of a new Olympic board. Some believe that further Formula development may also enable Formula boards to race in light winds, and this development should also be encouraged.

Similarly rig development has to date focused on meeting either the requirement of Longboard racing or of Formula sailing. The new Hybrid racing boards will stimulate the development of rigs that are suitable for racing upwind and off-wind in both light and strong winds.

ISAF therefore has a real opportunity to re-invigorate windsurfing by changing from the current Longboard to new Hybrid racing boards. The impact of this decision will be:

- to stimulate development in racing hulls and rigs;
- to re-establish windsurfing as a mainstream, popular racing discipline for youth and adult sailing throughout the world;
- to re-unite the windsurfing community, so that all windsurfers will regard the Olympic regatta as the pinnacle event in windsurfing.

To achieve this, ISAF should decide in November 2004 that:

1. The windsurfing equipment for 2008 will be the new Hybrid board.
2. A "one design with tolerances" equipment rule is agreed for this design in November 2004 (see Appendix A for preliminary details).
3. In November 2004 ISAF decides the specific board and supplier / brand to be used in the 2008 Olympic regatta at Qingdao.
    - A "Proving Trial" should be conducted in September 2004 to identify suitable production-quality Hybrid boards
4. In November 2007 ISAF decides the specific rig to be used in the 2008 Olympic regatta.
5. Supplied equipment is used at the Olympic regatta, the 2007 pre-Olympic regatta and the 2007 Combined Classes World Championships.
6. The Hybrid board is encouraged for use at all ISAF events and Regional Games in 2005, and shall be used from 2006 onwards.
7. Slalom racing is included in the Olympic regatta format.
8. For subsequent Olympic regattas, any changes to the equipment rule will be decided at the November conference 4 years beforehand, hull choice will be made 2 years beforehand, and rig choice will be made 1 year beforehand.

Section 4 discusses these primary recommendations in more detail.

The Working Party requests that, between now and November 2004, Council asks it to:

- undertake further specific research to finalise the proposed dimensions in Appendix A;
- conduct the "Proving Trials"
- answer specific questions from MNAs and the industry.

2. BASIS OF EVALUATION

The goal of the Evaluation Team was to evaluate equipment and equipment combinations, in a range of conditions and with varying weight sailors, to assess:

- how well the various options of windsurfing equipment perform, as racing equipment, in typical racing conditions worldwide (starting wind range 5 – 30 knots, racing wind range 3 – 35 knots);
- which equipment would be best for Olympic windsurfing 2005-'8, including Olympic qualifying events and culminating in the Olympic regatta in Qingdao in August 2008.

The following considerations formed the basis of the evaluation:

Optimal equipment for windsurfing racing

- Olympic windsurfing equipment should be chosen to optimise windsurfing as a racing discipline worldwide. Racing in many countries is typically started in wind strengths of 5-8 knots, and any racing board should be able to race in such conditions.
- The equipment chosen should have the necessary sailor-appeal to re-establish the Olympic windsurfing regatta as the premier windsurfing event, and the event that all leading windsurfers want to compete in and win.
- Sail sizes should be chosen so that the equipment can be sailed by typical sailors (not just the world's best), and that the risk of injury is small when handling the rig ashore and afloat.

Reflection of current trends in windsurfing

- Olympic windsurfing equipment should be consistent with mainstream windsurfing as it is performed worldwide.
- The equipment should be able to evolve between Olympics so that it remains state-of-the-art.
- The Olympic equipment should enable youth windsurfing equipment choices to maintain the appeal of the discipline in young sailors and feed such sailors into Olympic competition.
- The equipment and race format should be exciting enough to attract media coverage and enable Olympic athletes to attract sponsorship and display personal advertising.

Appeal of equipment

- The equipment should have immediate visual appeal for the sailor and be exciting for television and spectator.
- It should be both fun and challenging to sail – it should reward sailing skills and time spent practising.
- It should provide the fast, planing performance that is the essential appeal of windsurfing.
- National flags should be able to be displayed on sails.

Quality and consistency of board manufacture

- The equipment should be manufactured to a high quality. It should be reliable, durable and consistent.
- Controls should be easy to use.
- Measurement processes to ensure equipment is fair and conforms to the rules should be simple and low cost.

Global availability of equipment

- Olympic equipment should be available, to a consistent high quality, worldwide.
- Boards and rigs should be able to be supplied equipment at the Olympic regatta.
- The rules should not encourage or reward MNAs funding specific one-off rig development.

Viability of supplier; class structure

- The process for supply and manufacture of the equipment should be financially viable and have the commitment of the parties concerned.
- The existence of a class structure to promote and support the equipment is an advantage.
- The ability for ISAF to have appropriate controls over the equipment is essential.

Cost of equipment
Windsurfing should be a popular Olympic event for small and emerging nations. The equipment, and the total cost of a complete set of Olympic equipment, should not be unnecessarily expensive.

Typical competitive sailor physique
- The equipment should enable a wide weight range of sailors to compete and win.
- The equipment should reward physical fitness, stamina, and agility, without rewarding extreme physical statures or capabilities.

Sailing characteristics of equipment
- The equipment should be suitable for fleet racing in between 5 and 30 knots, and in flat and rough water. This includes starting – in particular sailing from a congested start line, upwind, downwind and reaching.
- The equipment should also be suitable for other forms of racing, e.g. slalom, and this should be identified to enable the Olympic format to optimise the success of the chosen equipment.
- The equipment should be able to be launched in and sailed out of narrow harbours.
- The fins should not be so deep as to restrict where the board can be sailed.

Characteristics required at Qingdao
August daytime Qingdao wind strength across the Olympic course area has averaged 4m/s (7.3 knots) over the past 25 years (see Annex 2). Equipment that enables racing, in particular starting and upwind racing, in wind strengths of 5-8 knots, should be chosen for the 2008 Olympic regatta.

Dependency on pumping
It is not envisaged that rule 42 should apply to windsurfing. However the less the advantage to be gained from pumping, and the narrower the range of conditions that require pumping, the better.

Suitability for Men and Women
Commonality of equipment between men and women is advantageous when it is appropriate. Men and women should be able to train together.

Transportability of board
The equipment should be easy to carry ashore and transport around the world.

3. FORMAT OF EVALUATION EVENT & EQUIPMENT EVALUATED

The Evaluation Event comprised on-the-water equipment testing and presentations from equipment suppliers.

After sailing a board, every sailor completed a written evaluation (see Appendix G). At the end of each day the panel reviewed all that day's evaluations, drew conclusions, and decided what specifically was to be evaluated the following day, weather permitting (see Appendix E). For the first half of the week, boards and rigs were typically evaluated as supplied. During the second half of the week, different sails were tried on each board, and on the final day foils too were changed.

On-the-water evaluation could comprise racing, or specific testing of similar boards to assess their relative merits. Panel members sat with the sailors when they were reviewing such testing, and also sought out sailors for one-on-one discussions to ensure that everyone's views were properly understood.

Sailor debriefs were held on most days to encourage group discussion on the merits of the equipment.

Board options comprised:
- 3 Longboards: Mistral One Design, Mistral Olympic Design, Boards & Less
- 5 Hybrid boards: Mistral Prodigy, Flying Fish Exocet, PD Project, Starboard #1, Starboard #2
- 3 Formula boards: Gaastra, Starboard #3, Neil Pryde.

Sail options comprised:
- Neil Pryde Formula sails: 9m², 10.7m², 12.5m²
- Gaastra Formula sails: 9m², 11m²
- Mistral OD sails: 7.4m² (Gaastra), 8.5m² (North)
- Mistral Prodigy: 8.5m² (North)
- Severne Sails: 9m², 11m²
- Aerotech Sails: 9m², 11m²
- PD Project sails: 7.5m², 11m² (North)

Foils were supplied as part of the board. In addition, Curtis Foils made available some alternative fins to allow investigation of the impact of using specialised fins in place of standard fins.

Hybrid Boards
There were various approaches to Hybrid boards, all aiming to combine acceptable upwind, light air performance with better planing performance than today's Olympic Longboards.
- Mistral Prodigy is a production board from Boards & More that is shorter and wider than the Olympic Longboard.
- Flying Fish Exocet is a prototype with a "canoe-style" displacement bow and flatter, wider transom than the Olympic Longboard.
- PD Project and Starboard #2 are prototypes which extend the Formula shape by adding a forward V-shape displacement hull and Mistral-style centre-board
- Starboard #1 is a prototype with a Formula-style hull with a dagger-board.

Prototype boards were typically 5kg heavier than the equivalent production board would be.

Note on foil terminology
"Fin" is used to define the fixed foil attached near the stern of the board
"Centre-board" is used to describe a rotating foil typically just aft of the mast
"Dagger-board" is used to describe a non-rotating foil aft of the mast.

4. PRIMARY RECOMMENDATIONS

1. The windsurfing equipment for 2008 should be the new Hybrid board.

The Hybrid offers the excellent prospect of re-invigorating windsurfing and re-uniting the discipline. It excted the sailors; it demonstrated good all round performance, the potential to support a wide range of sailor physique. This choice will also spur rig development and will encourage development of sails and rig controls that perform well over a wide weight range.

2. A "one design with tolerances" equipment rule should be agreed for this design in November 2004 (see Appendix A for preliminary details).

Windsurfing equipment must evolve between Olympics so that it continues to remain exciting and state-of-the-art. This is best achieved by allowing the industry to innovate in hull designs and rigs, within class rules that do not reward expensive or unreliable technologies.

3. In November 2004 ISAF should decide the specific board and supplier / brand to be used in the 2008 Olympic regatta at Qingdao.

This will allow and reward the industry to innovate and develop Hybrid boards and rigs, but will ensure the Olympic regatta is a test of sailor not technology, and will ensure that Olympic equipment is available to sailors from every country in a timely manner.

This will also minimise the cost and challenge of measurement at the Olympic regatta.

Any supplier not chosen will be able to continue to market and develop his board, safe in the knowledge that his board can continue to be raced in non-Olympic events, and that his equipment still has an even chance of being selected for the following Olympic regatta.

4. In November 2007 ISAF should decide the specific rig to be used in the 2008 Olympic regatta.

This will allow rig development by all suppliers to continue even after the board is selected, but ensures that at the Olympic regatta all sailors will be using the same equipment.

5. Supplied equipment should be used at the Olympic regatta, the 2007 pre-Olympic regatta and the 2007 Combined Classes World Championships.

This ensures that all sailors from all nations can compete using equal equipment at the Olympics. It tests out the board supply in 2007 to ensure the supplied equipment process works, but does not finalise rigs at that time, allowing a range of rigs can be seen performing on a common hull before the rig to be used at the Olympic regatta 2008 is finally chosen.

6. The Hybrid board should encouraged for use at all ISAF events and Regional Games in 2005, and shall be used from 2006 onwards.

This will ensure that the transition from Longboard to Hybrid happens as quickly as possible in all regions of the world.

7. Slalom racing should be included in the Olympic regatta format.

This will increase the media appeal of windsurfing, and reflect better the whole sport of windsurfing. It will also encourage board, rig and foil design that delivers all-round, manoeuverable boards, rather than focusing solely on highest speed in a straight line.

8. For subsequent Olympic regattas, any changes to the equipment rule should be decided at the November conference 4 years beforehand, hull choice should be made 2 years beforehand, and rig choice should be made 1 year beforehand.

This provides a clear, consistent path for Hybrid board evolution which maximises the potential for choice, industry participation, and performance improvement, without turning Olympic windsurfing into an arms race, and at the same time ensuring that the discipline remains a test of athlete not equipment.

5. OTHER RECOMMENDATIONS

Transition
To accommodate a transition phase from November 2004 until there is worldwide availability of Hybrid boards, the currently registered raceboards, including the IMCO one-design, should be able to compete in Hybrid regattas until the end of 2005.
However the Hybrid board only should be used at ISAF events and Regional Games from January 1st 2005.
Formula boards that meet the weight, fin and rig rules in Appendix A are eligible to compete in Hybrid regattas as they would meet the Hybrid class rules.

Choice of 2008 Equipment
As stated in §4, the board should be chosen in November 2006 and the rig in November 2007. The basis of this choice should be natural selection by the sailors up to those dates, subject to the ability for ISAF to enter into an appropriate agreement with the supplier.

Note on board manufacturer
Almost all production boards are today manufactured in Thailand by Cobra. Cobra offers the most cost effective, high quality board manufacture to the windsurfing industry today. However the brands and the designs are independent of Cobra. Therefore while today Cobra is the "default" manufacture company, should this no longer be true – for instance because Cobra's prices become excessive or its quality deteriorates - the windsurfing companies could move their manufacture to an alternative company such as AHD or *BIC*. Cobra does not therefore present the risks of a lock-in monopoly.

Note on board material
Foam sandwich construction is recommended to give the optimal stiffness to price ratio. Hollow honeycomb construction, which gives optimal stiffness to weight ratio but is more expensive, could also be evaluated as it increases the competitive life-span of the board and allows damaged boards to be dried and restored to original condition.

Weight Range for Competitive Windsurfing Sailors
The choice of windsurfing equipment should suit the average athlete, not be biased to suit light or heavy.

Olympic Regatta Schedule
Olympic windsurfing racing should be scheduled for all days, with lay days if the racing is significantly ahead of schedule. That will maximise the likelihood of completing a full windsurfing regatta if Qingdao winds are light.

Olympic Regatta Format
The Olympic regatta should include a slalom ladder as a "race" in 10-14 knots. An appropriate number of slalom regattas would be two per Olympic regatta (15 – 20% of races).

The Olympic course should be a windward / leeward course with offset marks as appropriate. Race duration should be 30 minutes.

Control of Cost of Rig
Mast weight measurement should be devised to ensure reliability and minimise the likelihood of expensive rig development.

6. WITH THANKS TO…

The ISAF Windsurfing Evaluation Team gratefully acknowledges the assistance received from:

- the sailors, who gave such excellent feedback on the relative merits of the equipment;
- the weather, which ensured plenty of light wind sailing and no chance of over-exposure to the sun;
- the board and equipment suppliers for their innovation in advance and their support of the event itself;
- the ISAF Technical Department, Simon, Sebastian and Lauren, who organised the trials and supported sailors, equipment suppliers and evaluation team so effectively
- the members of the Executive who attended the trials and contributed so much to the discussions;
- the race committee and staff at Circolo Surf Torbole who supported the trials so enthusiastically;
- and most of all to Gianfranco Tonelli and his family, who made everyone so welcome, hosted the Evaluation Team and many of the sailors at their hotel, the Villa Stella, organised the Welcome and Gala dinners, and never stopped smiling.

A. ISAF "One Design with Tolerances" Hybrid Windsurfer Equipment Rule: Primary Measurements *(first draft, to be finalised in November 2004)*

Hull length: 2650 - 3100mm
Hull width: 790 - 1000mm
Hull weight min: 12kg without foils and straps (but including mast track)
Foil length (max): Tail fin: 650mm; pivoting centreboard (optional): 850mm

Rig
The Panel recommends that it conducts additional research and tests after the publication of this report to finalise rig sizes. The choice will significantly influence the direction of Hybrid development, and therefore the success of windsurfing racing worldwide. The recommended sizes are expected to be within the following limits:
Maximum sail size: 9 - 10m² (M) and 8 - 8.5m² (W).
Second sail max size: 8 - 8.5m² (M) and 7.5m² (W).
Maximum mast height, boom length, number of battens: will be chosen to suit sail size.

Regatta equipment inventory: one fin (2nd fin for slalom), one centreboard and two sails.

Notes:
1. Racing should be run for windsurfing in starting winds strengths of 5 – 30 knots, and should continue in wind strengths of 3 – 35 knots. This will ensure that hulls, rigs and foils are developed to deliver all-round performance, rather than focusing on just light or just heavy winds.

2. The length and width min and max have been chosen to embrace as widely as possible the current Formula and Hybrid designs while ensuring that all equipment can be easily transported.

3. The 12kg weight should allow the development of 3m boards with centreboards that remain weight-competitive.

4. Optional pivoting retractable centreboard will encourage the industry to strive to develop boards without centreboards that can go to windward in light wind. If successful, such development would further unify the discipline. It will also enable Formula boards to compete in Hybrid windsurfing racing.

5. The sail regulations need to ensure that sails are developed to cope with broader wind conditions than today's typical Formula sails. In particular, it is desirable that a sail that is good in light winds remains effective in stronger winds. The additional smaller sail is recommended to enable a wide range of athlete weights to compete in strong winds.

6. When the board to be used at the Olympic regatta is decided, the foils will also be specified. The choice of rig will remain open for a further period before being finalised.

7. When slalom racing is included in a regatta, a second fin should be allowed to optimise manoeuverability. A slalom competition should generate the race scores for one "race", and slalom should typically account for 15 – 20% of the races.

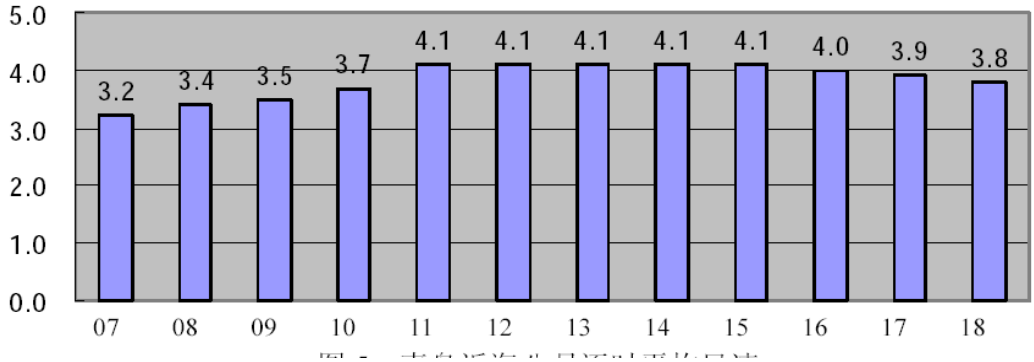
B Qingdao Wind Speeds

The 2008 Beijing Olympics will be opened on 8th August and closed on 24th August.

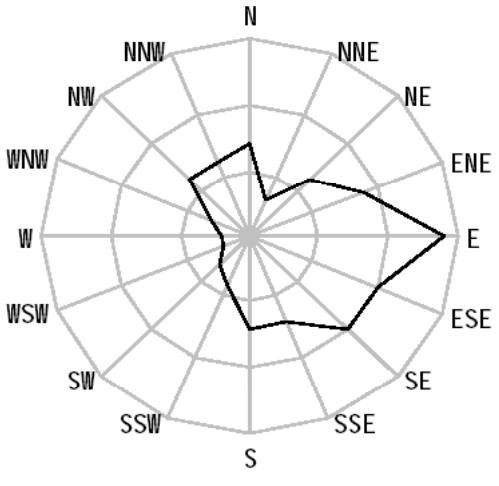
Statistical Data from Observation Station near the Racing Area.

Observation station

Average hill-top wind speed (m/s) in August(1970-1995); 1m/s=1.82knots:



Wind direction rose in August:



Comments about the wind and current in Qingdao in August

a. Most of the daytime is in light conditions. Wind picks up after lunch time (12:00) usually due to the sea breeze circulation, 3 - 5m/s, sometimes up to 6 - 7 m/s.
b. There could be a little chances of thunderstorm depending on the weather system.
c. Most of the wind direction is come from the sea, SE wind.
d. Current is quite considerable during the race. The strongest current will be up to 1 knot in some of the racing area.

C Test Event Sailors

Allison Shreeve (AUS) Female Age: 22, Weight: 65 kg, Height: 1.70 m, Currently ranked 4th ISAF World Ranking Mistral List, 7th Mistral Worlds (Cadiz 2003), 5th ISAF World Sailing Games (Marseille 2002) on Bic Formula board.

Andrea Cucchi (ITA) Male Age: 28, Weight: 96 kg, Height: 1.93 m, 1st ISAF World Sailing Games 2002 Bic Formula, 5th Formula Windsurfing World Championship 2003.

Ben Barger (USA) Male Age: 23, Weight: 73 kg Height: 1.85 m US IMCO Team

Christine Johnston (GBR) Female Age: 28, Weight: 65 kg, Height: 1.74 m, Formula World Champion 2003, 16th Mistral Sydney 2000.

Amelie Lux (GER) Female Age: 26, Weight: 51 kg, Height: 1.63 m, Silver medal Sydney 2000.

Faustine Merrett (FRA) Female Age: 26, Weight: 55 kg, Height: 1.63 m Mistral Worlds 2nd (2001), 3rd (2002), 3rd (2003), Formula Windsurf national level since two years.

Fernando Lodos (ESP) Male Age: 30, Weight: 53 kg, Height: 1.59 m Active Mistral OD sailor.

Helen Cartwright (GBR) Female Age: 25, Weight: 64 kg, Height: 1.70 m, 7th Bic Formula (ISAF Sailing Games - Marseilles), IMCO Sailor International (1996 -2000).

Ho Chi Ho (HKG) Male Age: 22, Weight: 68 kg, Height: 1.78 m 13th Mistral Olympic Test Event 2002, 4th Mistral Lightweight of 2002 Asian Games, 5th Mistral Spa Regatta 2003, 3rd Mistral Men Kiel Week 2003

Magdalena Puciata (POL) Female, Age: 36, Weight: 63 kg, Height: 174 cm. Test team member of “Windsurfing” magazine (Poland), experience as a competitor in Winglider, Lechner and Raceboard Classes (national level). Member of the ISAF Windsurfing Committee.

Mariusz Goliński (POL) Male, Age: 40, Weight: 68 kg, Height: 1.77 m. Test team member of “Windsurfing” magazine (Poland). Former competition IMCO sailor (national level), some Formula Windsurfing.

Micah Buzianis (USA) Male, Age: 33, Weight: 91 kg, Height: 1.9 m. Current PWA World Champion. Involved with the design, testing and development of North Windsurfing Sails and Mistral Formula boards.

Miki Yoshida (JPN) Female, Age: 33, Weight: 51 kg, Height: 1.56 m Competed 2002 Mistral World Championship. Staff member Windsurfing Federation Japan.

Nicolas Huguet (FRA) Male, Age: 28, Weight: 72 kg, Height: 1.83 m. Mistral World Championship - 5th in 2002, 20th in 2003.

Toni Wilhelm (GER) Male, Age: 21, Weight: 75 kg, Height: 1.81 m. 2004 Mistral World Championship - 8th

D. ON-THE-WATER TESTING:

TYPICAL TEST SESSION PLAN

Friday 7th May **Morning session**
Objectivs of the session

Test IMCO vs. New Olympic

Speed /railing
Upwind angle
Down wind
Others

Test "Hybrids"

Marginal conditions
Planning vs no planning - Wind strength
Track back /daggerboard up vs track forward/ daggerboard down - Wind strength ?
Tacking
Speed upwind
Downwind; speed, angle,jibing, …
Others

Test Formula boards; NP vs Gasstra vs Starborad V3

Marginal conditions
Planning vs no planning - Wind strength
Tacking
Speed upwind
Downwind; speed, angle,jibing, …
Others

Group 1 **Women** **IMCO testing**

Faustine	IMCO OD	MOD 7,4	Leader
Amelie	IMCO New	MOD 7,4	
Helen	IMCO OD	MOD 8,5	
Allison	IMCO New	MOD 8,5	

Group 2 **Men** **"Hybrid" testing**

Nicolas	PD	NP 10,7	Leader
Toni	Starboard V1	Gaastra 11,0	
Ben	Starborad V2	NP 10,7	
Steve	Exocet	NP 10,7	
Gonzola	Mistral Prodigy	NP 10,7	

Group 3 **Men** **Formula**

Mariusz	NP	NP 12,5	Curtis Foil big prototype
Fernado	Gaastra	Aerotech 11	Curtis Foil big prototype
Ho Chi	Starboard V3	NP 12,5	Curtis Foil big prototype

E. SUMMARY OF TEST RESULTS

Date	Wind & Condition	Test	Evaluation Summary
Day 1, May 3rd	0-10 knots flat water	Free sailing,	Men and women free sailing to get used to the equipment – there was only wind for a short time
Day 2, May 4th a.m.	10-15 knots, offshore, flat water	Racing	2 races, separate starts for men and women Formula boards planing, faster and better upwind performance than the Longboards and the Hybrids. The Hybrids where planning and worked reasonable on the upwind and downwind. Longboards were much slower. Hybrids and Formula, tacking angle lower, but speed made good better. Sails size. The largest Formula sails, 11 and 12.5, were too big to handle for the lighter men and women.
Day 2, May 4th p.m.	3-7 knots, offshore, flat water, near shore	Racing	2 races, men and women started together The IMCO board and the new Olympic Mistral board were fastest upwind. The Hybrid boards were not as fast as the Longboards. The Formula boards where not able to race.
Day 3, May 5th a.m.	3-5 knots, offshore, flat water	Compar-ative testing, divided in groups	Group 1; IMCO, Mistral New Olympic, Exocet Group 2; Mistral Prodigy, Starboard 1, Starboard 2, PD Project Group 3; NP, Gaastra, Starboard 3 Each group was sailed once by men and once by women, similar weight in each group. In the lightest wind the Longboards were quicker. Little difference between IMCO and new Mistral Olympic. The Hybrids could handle light wind and go upwind reasonably well. Big sails were hard to pump and heavy to handle. Different techniques required to handle the Hybrids. The Formula was not able to test in these conditions.
Day 4, May 6th p.m.	5-12 knots, onshore, small waves, building in the storm. 15-20 knots in periods, then decreasing to 5 knots.	Compar-ative testing, divided in groups	Continue comparative testing in same groups as the day before. Started in light wind, then stormy gusts and light again in the evening. Tested sails together with their boards. Tested similar boards against each other, and tested different sails for the long Mistral boards. For Longboards the IMCO 7.4 m2 had most of the time the same speed as the new 8.5 m2 and was easier to handle and pump. For the Hybrid boards was it difficult to test speed since all the prototype boards were now overweight. In light wind not big difference. With big sail in light wind the nose tends to go under water, and the board is hard to pump. In light wind need to be longer and more volume in the nose. In more wind the boards can be sailed as a Formula board, without daggerboard upwind, and are faster than the Longboard. Formula was fast when planing, but in marginal conditions is not possible to race.
Day 5, May 7th all day	8-18 knots, onshore, variable periods, during the whole day	Compar-ative testing, groups	New groups and objectives for the day. Continue testing with sails and foils. A women's group on IMCO and Mistral New Olympic. Same conclusions as yesterday. No big difference in sail performance with 7.4 m2 and 8.5 m2. No big difference in speed with the bigger daggerboard, rails earlier, but so easily that it rails too much. The old fin works best overall. More drag with new bigger fin. A men's group tested all the hybrid boards with equal sails: NP 10,7 m2. All the prototype boards were by now too heavy. Mistral Prodigy is also heavy. All the boards work in all conditions but differently. A bigger fin was tested on the Prodigy and that worked better. All of them need to be improved both in weight and shape for optimal performance in all conditions and with suitable sails. For men a typical Formula sail, NP 10.7 m2 works well with the boards over 10 knots. When pumping conditions the sail is too stiff and difficult to handle. The same conclusion with the women on 9.0 m2. Better with a smaller and softer sail in lighter wind. The Formula boards performed well most of the day. Some bigger fins was tested, could work in marginal conditions, but were too big with a minimal increase in wind.

F SPECIFICATIONS TABLE FOR EVALUATED EQUIPMENT

(to be added: SF)

G SAILORS' FEEDBACK FORM

ISAF OLYMPIC WINDSURFING EQUIPMENT EVALUATION EVENT

TORBOLE, ITALY - MAY 2004

Name: _____ **Sex:** **Male / Female (delete as appropriate)**

Age: _____ **Weight:** _____**kg**

Start Time: _____ **Date:** _____

Wind Strength: _____ **Knots** **Water Conditions:** _____

BOARD EVALUATED (please tick one)

Boards & Less Canada Society	☐	**Boards & More Mistral One Design**	☐
Boards & More Olympic Design	☐	**Boards & More Mistral Prodigy**	☐
Flying Fish Exocet	☐	**Gaastra Sails**	☐
Neil Pryde Formula	☐	**PD Project**	☐
Starboard Z Class Board 1	☐	**Starboard Z Class Board 2**	☐
Starboard Z Class Board 3	☐		

Have you had any experience with this board before you came to Torbole? Yes / No

_____

Initial Impression of the Board

How would you rate the 'look' of the board?

Poor ☐ Average ☐ Good ☐ Excellent ☐

Comments:

_____

_____

Do you think the board and related equipment reflects the current technology of boardsailing?

Yes / No

Comments:

_____

_____

Sailing Characteristics - Upwind

Manoeuverability Poor ☐ Average ☐ Good ☐

Gust/Controls response Slow ☐ Average ☐ Fast ☐

How well does the board point sailing upwind?

Poor ☐ Average ☐ Good ☐

What do you think of the upwind speed performance in this wind condition?

Poor ☐ Average ☐ Good ☐

In this wind condition did you find it necessary to pump? Yes / No

If so, did this help your performance on this board? Yes / No

Sailing Characteristics - Downwind

Manoeuverability	Poor	☐	Average	☐	Good	☐
Gust/controls response	Slow	☐	Average	☐	Fast	☐

What do you think of the downwind speed performance in this wind condition?

Poor ☐ Average ☐ Good ☐

In this wind condition did you find it necessary to pump? Yes / No

If so, did this help your performance on this board? Yes / No

Sailing Characteristics - Tacking and Gybing

Handling during Tacks	Poor	☐	Average	☐	Good	☐
Acceleration out of Tacks	Slow	☐	Average	☐	Fast	☐
Handling during Gybes	Poor	☐	Average	☐	Good	☐
Acceleration out of Gybes	Slow	☐	Average	☐	Fast	☐

Sailing Characteristics - General

Considering your weight	I'm too heavy	☐	Its ok	☐	I'm too light	☐
Considering your height	I'm too tall	☐	Its ok	☐	I'm to short	☐
Considering your strength	Its ok	☐	Its too powerful for me			☐

What do you feel is the optimum sailor weight to be competitive?

Light Air: _____kg **Heavy Air:** _____ kg

If the wind / water conditions changed during your testing, was there any significant difference in the boards performance between the conditions? Yes / No

If yes, please state your comments:

_____

_____

On Water Sail Controls

Adjustment of Outhaul	Difficult	☐	Average	☐	Easy	☐
Adjustment of Downhaul	Difficult	☐	Average	☐	Easy	☐
Rig movement on mast track	Difficult	☐	Average	☐	Easy	☐

Rig

Do you think the size of the rig and sail are appropriate for this board and your weight?

Too big ☐ Too small ☐ Its ok ☐

Did you find the boom height satisfactory?

Too high ☐ Too low ☐ Its ok ☐

Did you find water starting difficult due to the size of the rig?

Difficult ☐ Average ☐ Easy ☐

Onshore

To handle onshore	Difficult	☐	Average	☐	Easy	☐
Mast Step to Deck Plate fitting	Poor	☐	Average	☐	Good	☐
Board Quality	Poor	☐	Average	☐	Good	☐
Rig Quality	Poor	☐	Average	☐	Good	☐
Footstrap Quality	Poor	☐	Average	☐	Good	☐
Daggerboard Fitting Quality	Poor	☐	Average	☐	Good	☐
Fittings Layout	Poor	☐	Average	☐	Good	☐

OVERALL

How do you think the board would hold up to one year of regular training?

Badly ☐ Average ☐ Good ☐

Would you make any changes to improve the board? Yes / No

If yes, would they be in:

Board_____

_____

Sails_____

_____

Fittings / Rig_____

_____

Do you think this board would be optimal for the expected conditions in China? Yes / No

Comments:

_____

If so which of the below options do you think the board would be appropriate for?

Formula Standard Course	☐	Formula Low Wind Alternative	☐	Funboard Course Race	☐		
Slalom Course	☐	Downwind Slalom	☐	Speed Course	☐		
Olympic Trapezoid Course	☐						

If you could, would you buy this board? Yes / No

How much do you believe this board is worth? €_____
(Including sails, mast and boom)

What did you like most about this board?

_____

_____

_____

What did you dislike the most about this board?

_____

_____

_____

Any further Comments:

_____

_____

_____

_____

_____

Signed _____ **Date** _____