

Supporting the Inclusion of the LW4- on the Olympic Programme

Summary

Rowing Australia, in partnership with Canada, Denmark and Switzerland, has submitted a proposal for an alternative Olympic programme wherein the LW4- replaces the M4-.

We believe that this proposal most accurately reflects the desired principles of an event programme, as previously articulated by FISA, and is fully consistent with the IOC's Agenda 2020 principles. Specifically, we consider that the proposed alternative programme will:

- Provide absolute gender equality across both competitors and boats;
- Promote greater universality by providing opportunity for lightweight rowers in both sweep and scull disciplines;
- Provide an appropriate balance between lightweight and openweight boats, by allocating 32% of total qualification places to lightweight athletes (rather than 13% in the alternative programme proposed);
- Ensure a balance of sweep and sculling boats across both lightweight and openweight categories;
- Be consistent with the strong support of lightweight rowing across National Federations, as evidenced by the high level of entries at World Championships;
- Provide closer and more attractive competition at Olympic Games, given that the average margins in lightweight events are closer than in openweight events;
- Retain fourteen quality Olympic rowing events; and
- Ensure that the best talent will compete against the best across all categories of rowing, thereby improving the level of competition and providing the optimal forum to truly award unequivocal Olympic Champions.

This paper supplements the papers and proposals already submitted in support of the Olympic programme proposed by AUS, CAN, DEN and SUI. We confirm the matters already covered in Australia's submission. This paper extends the submission by providing evidence that:

1. The principle of universality, for which we all strive, is dependent on a strong lightweight category;
2. Rowing is sport which requires weight divisions; and
3. The demand for lightweight rowing demonstrates that it is necessary for both the equity, structure and sustainability of the sport.

1. Universality is enhanced by lightweight rowing.

The number of distinct nations competing in World Championships and Olympic Games shows that universality is enhanced through lightweight rowing.

1.1 Size of Competitors

As discussed later in this document, the lightweight category levels the field for many nations with citizens of smaller stature by making rowing accessible to them. It also levels the competition to make it closer and more competitive, and thus more exciting for the spectator.

1.2 2015 World Championships data

At the most recent full World Championships in 2015, there was significant representation in lightweight events of Asian and less traditional rowing nations. For example the 32 entrants in the ML2x contained crews from Angola, India, Ireland, Japan, Korea, Mexico, Portugal, South Africa, Switzerland, Thailand, Turkey, Uruguay, Uzbekistan, Vanuatu and Vietnam. Universality is clearly demonstrated.

In the LM4-, the 22 entrants included four Asian countries (Indonesia, Japan, China and Hong Kong), one South American country in Chile and numerous smaller and emerging rowing nations. The first Olympic rowing gold medal ever won by an African country was in the lightweight fours in London. Despite the high level assessment that the lightweight fours do not assist universality, the above evidence indicates otherwise. Further, having more than one Olympic lightweight event does assist nations in developing the sport and their athletes. The introduction of a women's lightweight four will be a huge boost to women's lightweight rowing and consequently improve universality.

Further, an analysis of Asian country entries clearly demonstrates that with the exception of China which entered all events, the entries of Asian nations were either solely in lightweight events or a majority of them were in lightweight events.

Finally, a review of those smaller and emerging rowing nations with 3 or fewer entries shows that nearly half of these entries were in lightweight events. This again demonstrates the value of lightweight events in developing rowing nations, which would be damaged by reducing the allocation of Olympic lightweight places to 13% (per the alternative proposal).

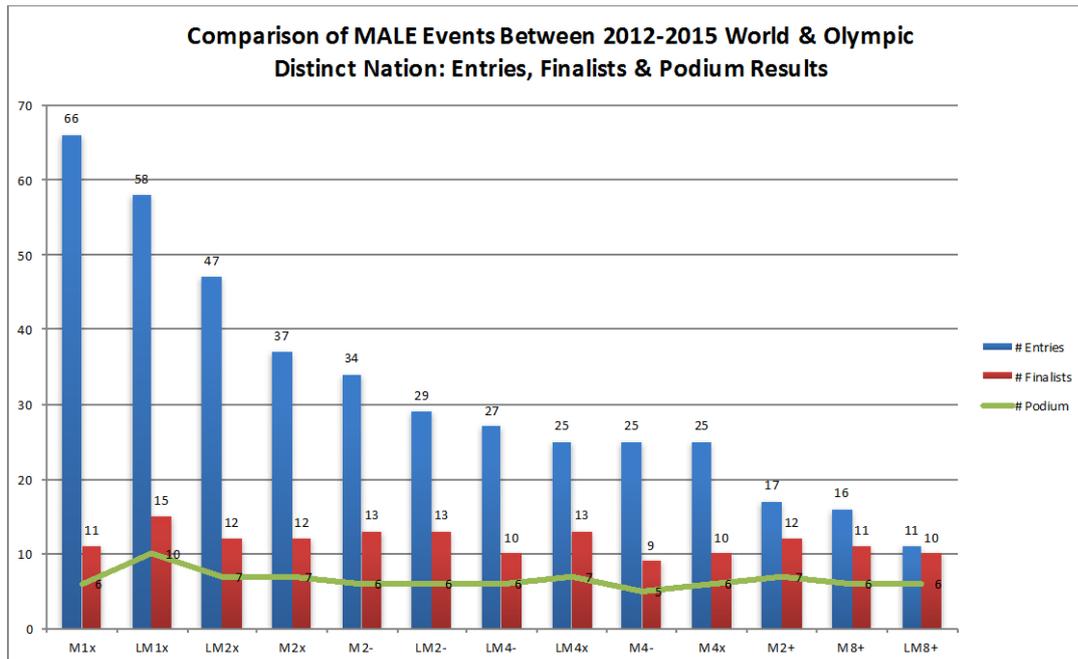
1.3 FISA membership growth

The growth in the number of countries joining FISA has been from countries represented by the Asian, Oceania, South African and South American nations, which have participated strongly in lightweight events.

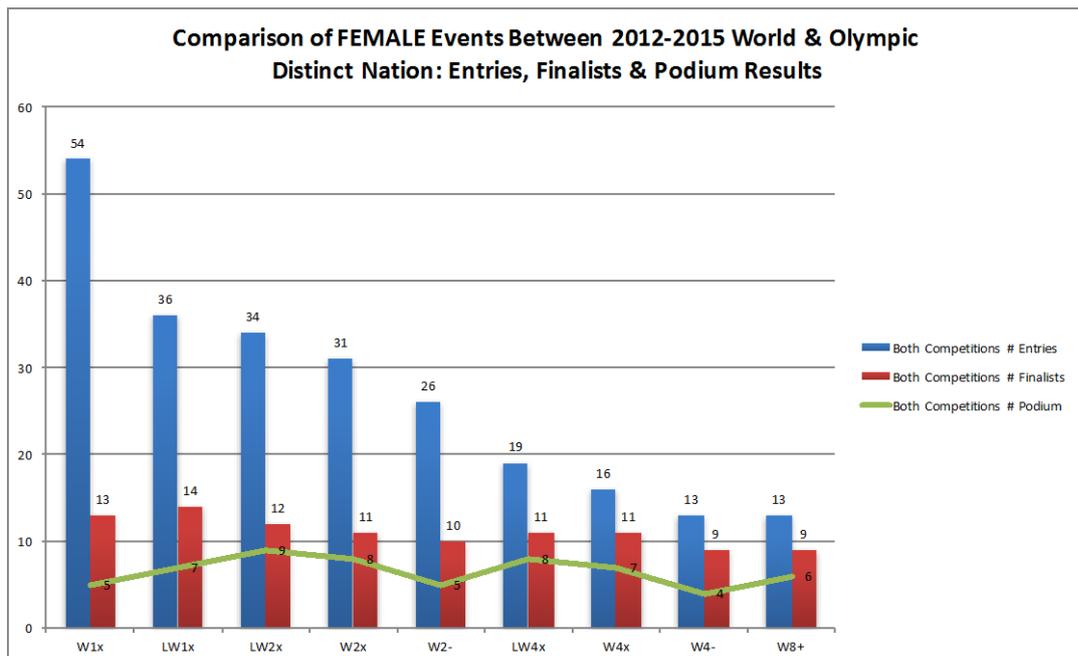
1.4 Number and Depth of Nations Competing in Lightweight Events

Iain Brambell, (former CAN lightweight and Athletes Commission member), has commissioned some analysis which demonstrates, amongst other things, that the number of competing nations is most favourable in lightweight events, as outlined below:

Olympic Games & World Championships: 2012-2015 - Men



Olympic Games & World Championships: 2012-2015 - Women



Further analysis from Ian Brambell's report is presented later in this document and provides further evidence regarding the depth of lightweight rowing.

Conclusion

Lightweight rowing is critical to achieving universality for the sport of rowing. Further, multiple lightweight events creates further universality by increasing the number of entry positions available to National Federations, and in particular smaller and emerging rowing nations.

2. Rowing is a sport which requires weight divisions

Rowing is a strength and endurance sport which favours taller and heavier athletes with long limbs and good cardio vascular systems. Whilst cardio vascular systems can be developed, the other physical characteristics such as height, muscle volume and length of limbs cannot. Results shows conclusively that the strength and leverage advantages which are provided by these physical characteristics cannot be overcome by other skills. Accordingly, crews with smaller and lighter athletes are inevitably unable to compete with taller and heavier opponents. This is evidenced by the fact that, over the past six Olympic Games, no smaller crew has even won a medal in an openweight category.

Further evidence is provided by the following comparison of world best times which demonstrate that openweight crews are in all cases faster than the equivalent lightweight crews.¹ In some cases the differences do not appear great, however the difference between the LM4- and M4- is the equivalent of 2-3 lengths, which is clearly significant and does not permit lightweight crews to make the podium, or to produce tight racing that television and spectators demand.

Event	World best times
M1x	6:33.35
ML1x	6:43.37
W1x	7:07.71
WL1x	7:24.46
M2x	5:59.72
ML2x	6:05.36
W2x	6:37.31
WL2x	6:47.69
M4x	5:32.26
ML4x	5:42.75
W4x	6:06.84
WL4x	6:15.95
M2	6:08.50
ML2	6:22.91
W2	6:50.61
WL2	7:18.32
M4	5:37.86
ML4	5:43.16
W4	6:14.36
WL4	6:36.40
M8	5:19.35
ML8	5:30.24

Unlike other sports which can accommodate different body types through the nature of the game (e.g.: most ball sports), or through different disciplines, as in athletics, rowing does not have that flexibility.

2.1 Height and weight data of medallists

Further evidence is provided by the average height and weight of World Champion athletes across the openweight and lightweight categories.² Whilst the available data has limitations, it is

¹ Sourced from the World Rowing website in November 2016 (www.worldrowing.com/events/statistics).

² The data presented has been extracted from the World Rowing website for 2015 World Championship medallists where available for men and women.

sufficiently robust to demonstrate the obvious differences in the size of open and lightweight athletes and reinforces the need for a lightweight category which is separate from openweight competition.

Event	Men		Women	
	Height	Weight	Height	Weight
1x	195	92	182	70
L1x	185	70	170	59
2x	191	92	180	67
L2x	180	70	172	57

2.2 Differences in average size of human beings by region

It is clear that there are considerable size differences between humans on various continents. For example, there is a 15cm difference between the average height of North Americans / Australian / New Zealanders compared with those in South Asia.

A recent letter from the Chinese Federation has highlighted this issue for members of the Asian Rowing Association. We quote from their letter:

“Lightweight rowing is essential for the universality of rowing sport in the world, especially in Asia. Take China for example - lightweight rowing is a very important path for China to develop university rowing. For those university rowers, whose height and weight only fits the lightweight events rather than the open class, lightweight rowing provides the possibility for them to get involved in high-performance competitions.

Meanwhile, according to the unofficial survey, if LM4- is canceled, China will suffer a loss of 60% - 70% rowing athletes, which will be a disaster for Chinese rowing. Such a change of lightweight events on the Olympic Programme will result in negative effects to Chinese provincial rowing clubs. A large number of provincial clubs that only develops lightweight rowing will give up rowing entirely, which will likely overturn the fundamental system of Chinese rowing development.

In China, especially in the Southern part of China, a high proportion of population just meets the norms for lightweight rowing athletes. At the world-level regattas, Asian countries, including China, have mostly participated in lightweight events and basically only the lightweight crews have achieved good results. If the lightweight events are removed, there will hardly be seen any Asian crew competing in large-boat events, which will cause a dramatic damage to the universality of rowing in Asia.

In conclusion, lightweight events have been playing an essential role in rowing development in China and in the whole of Asia.”

In addition to the differences in size, it is apparent that the weight restrictions of the lightweight rowing category is critical for making the sport accessible to all nations.

This is demonstrated by the statistics drawn from the 2015 World Championships presented later in this paper.

Conclusion

Rowing is a weight sport which requires two weight categories for universality and relevance for most people.

3. The demand for lightweight rowing demonstrates that it is necessary for both the equity, structure and sustainability of the sport.

3.1 Demand for lightweight rowing

The support for lightweight events at World Championships is significant, as demonstrated in the analysis below.³

Table: Analysis of Entries at 2015 World Rowing Championships

	Countries	Boats	% by boat	Competitors	% by rower
Open men	59	153	60	431	63
Open women	41	104		277	
Lightweight men	56	106	40	259	37
Lightweight women	33	65		148	
Total		428	100	1115	100

Boat class comparisons show the depth of lightweight rowing more starkly. The total number of open weight rowers is heightened primarily by the greater number of events.

Table: Depth of Competing Nations at 2015 World Rowing Championships⁴

Open event	Number of nations	Lightweight event	Number of nations
M1x	41	ML1x	32
W1x	33	WL1x	20
M2x	28	ML2x	32
W2x	24	WL2x	26
M4x	16	ML4x	10
W4x	11	WL4x	9
M4	21	ML4	22

The data above shows the obvious demand for lightweight rowing and that it is now a fundamental part of the sport. Equity in rowing demands not only gender equality, but also an appropriate balance of open and lightweights to ensure the sport is accessible to all people from all nations.

Lightweight rowing has facilitated the growth and depth of the sport throughout the world with superb participation levels.

3.2 Lightweight Rowing produces close and interesting competition

The analysis commissioned by Iain Brambell demonstrates that the depth and quality of field in lightweight rowing produces close and interesting competition, which is attractive to television audiences and spectators. This analysis is reproduced below:

The tables below represent the average percentage difference and average time difference (depth of field) between Olympic Rowing results from 1996 to 2012 and World Championships results from 2000-2015. They include conditional formatting reflecting the percent differences whereby the length/thickness of the

³ Data presented is from the 2015 World Championships, as they represent the last full World Championships conducted. (Para rowing is excluded as there are no lightweight events.)

⁴ For the benefit of reconciliation with the table above, not all lightweight events are included in this table even though the results are consistent with the above.

blue bar represents a higher percentage (greater distance between finishes) resulting in a lower competitive depth of field relative to the other events listed higher on the table. Therefore the higher an event is listed within the table the higher the event's depth of field.

The table below provides the rank order of each event's average percentage difference between the Finalists from first to sixth place. This analysis provides a rank order of the events with the deepest quality of competition (close finishes) and therefore the events that contain the best potential for providing enhanced viewer experience, engagement and satisfaction.

1996 to 2012 Olympic Finals
Average Percent & Time Difference From 1st to 6th

Time Frame: Sort By:

	Percent Difference					Time Difference				
	2	3	4	5	6	2	3	4	5	6
LM4-	0.24	0.53	0.73	1.43	2.24	0.848	1.908	2.618	5.146	8.082
LM2x	0.34	0.72	1.21	1.63	2.30	1.320	2.754	4.616	6.248	8.844
LW2x	0.35	0.69	1.20	2.03	2.63	1.476	2.946	5.104	8.578	11.114
M2x	0.41	0.76	1.50	2.08	2.78	1.584	2.934	5.750	7.974	10.632
M1x	0.43	0.75	1.20	2.20	2.80	1.744	3.098	4.944	9.058	11.510
W8+	0.67	0.88	1.47	2.15	2.84	2.496	3.288	5.470	7.992	10.582
M4x	0.59	0.92	1.17	2.33	3.00	2.036	3.222	4.082	8.132	10.458
M8+	0.38	0.68	1.25	1.87	3.09	1.272	2.316	4.228	6.294	10.410
M4-	0.20	0.64	1.22	2.09	3.19	0.724	2.336	4.438	7.598	11.606
W4x	0.54	0.96	1.37	2.22	3.21	2.084	3.730	5.302	8.556	12.355
W2-	0.39	0.61	1.24	2.27	3.34	1.694	2.622	5.350	9.822	14.432
W2x	0.49	1.26	2.16	2.71	3.59	2.032	5.254	9.080	11.382	15.094
M2-	0.53	0.92	1.70	2.43	4.02	2.042	3.572	6.578	9.376	15.648
W1x	0.47	0.71	1.61	2.58	4.06	2.132	3.226	7.270	11.564	18.130

The table below identifies the full range of A Finals raced from 2000 to 2012. This analysis is provided in rank order based on the average percentage difference between Finalists from first to sixth place within each event. This analysis provides a rank order of the events with the deepest quality of competition (close finishes) and therefore the events comprising the best potential for competitive interaction across competitors, positively impacting and enhancing the viewer experience, engagement and satisfaction.

2000 to 2015 Olympic & World Championship Finals
Average Percent & Time Difference From 1st to 6th

Time Frame: Sort By:

	Percent Difference					Time Difference				
	2	3	4	5	6	2	3	4	5	6
LM4-	0.35	0.58	0.85	1.51	2.40	1.244	2.076	3.033	5.376	8.509
LW2x	0.44	0.74	1.26	1.96	2.79	1.867	3.131	5.335	8.273	11.777
M8+	0.37	0.77	1.38	1.98	2.83	1.236	2.564	4.597	6.558	9.353
LM2x	0.41	0.82	1.25	2.01	2.83	1.551	3.132	4.751	7.669	10.846
M2x	0.37	0.85	1.26	2.02	2.85	1.376	3.220	4.760	7.602	10.715
LW1x	0.52	0.91	1.42	2.13	2.97	2.422	4.265	6.617	9.874	13.742
M4x	0.40	0.85	1.27	2.25	2.97	1.387	2.969	4.431	7.861	10.380
W8+	0.59	0.89	1.36	1.91	3.10	2.167	3.293	5.020	7.008	11.489
M4+	0.31	0.81	1.42	2.02	3.12	1.130	2.993	5.226	7.409	11.471
LM2-	0.38	0.81	1.49	2.25	3.17	1.508	3.202	5.894	8.924	12.633
W2-	0.50	0.89	1.52	2.34	3.24	2.146	3.808	6.510	10.016	13.856
W2x	0.48	1.16	1.84	2.40	3.24	1.988	4.836	7.660	9.947	13.431
M4-	0.35	0.76	1.34	2.33	3.33	1.239	2.721	4.809	8.365	11.963
LM4x	0.45	0.84	1.35	2.34	3.41	1.608	3.004	4.811	8.339	12.179
W4x	0.51	0.97	1.50	2.47	3.47	1.967	3.733	5.774	9.488	13.437
LM8+	0.75	1.04	1.65	2.24	3.57	2.592	3.595	5.640	7.642	12.162
W1x	0.55	0.96	1.73	2.78	3.83	2.463	4.258	7.733	12.374	16.977
LW4x	0.71	1.18	1.89	2.50	3.84	2.806	4.643	7.439	9.833	15.181
M1x	0.33	0.83	1.70	2.53	3.92	1.335	3.390	6.919	10.296	15.883
W4-	0.83	1.39	2.65	3.52	4.03	3.307	5.505	10.613	13.855	15.818
M2-	0.69	1.36	1.94	2.96	4.37	2.661	5.226	7.450	11.364	16.804
M2+	0.72	1.21	1.73	2.75	4.38	2.969	5.059	7.204	11.363	18.010
LM1x	0.55	1.09	1.71	2.63	4.44	2.294	4.560	7.138	11.024	18.674
LW2-	1.05	2.31	3.00	3.93	5.56	4.702	10.405	13.503	17.713	25.007

The analysis of the semi-final results across the same time period produced similar results.

Conclusion

The events which produce the closest finishes, and thus contain the best potential for providing enhanced viewer experience, engagement and satisfaction are the lightweight events.