

## **Table of Contents**

## Volume I

The A	dvisory Council	1
1.	Membership and Meetings	1
	Activities and Recommendations of the Advisory Council	1
3.	Officers for the 27 <sup>TH</sup> ITTC Advisory Council	3
The E	Executive Committee	5
1.	Introduction	5
	Obituaries	5 8
3.	Committee Membership	8
	Committee Meetings	8
5.	Committee Decisions	8
The R	Resistance Committee	11
1.	Introduction	11
2.	Facility Bias Worldwide Campaign	12
3.	Trends in Experimental Fluid Dynamics, (EFD)	25
4.	Trends in Computational Fluid Dynamics	30
5.	Scaling and Extrapolation	36
6.	Turbulence Stimulation	42
7.	Recommendations	48
8.	References	49
The P	ropulsion Committee	61
1.	Introduction	61
2.	UPdate the state-of-the-Art for Predicting for Propulsion Systems Emphasizing Developments Since the 2008 ITTC Conference	
3.	Review of ITTC Recommended Procedures Relevant to Propulsion (Including	95
	ProcedureS for Uncertainty Analysis).	
4.	Identify the Parameters that Cause the Largest Uncertainties in the Results of Model ExperimentS, Numerical Modelling and Full-Scale MeasurementS Related to Propulsion	99
5.	Check the Possibility of Adopting the Findings of the Powering Performance Committee of 25TH ITTC for Improving the ITTC-78 Method	103
6.	Follow Developments in the Field of Podded Propulsion with a View	104
	Addressing the Lack of Model-Scale and Full-Scale Data in the Public Domain	
	Noted in Procedure 7.5-02-03-01.3, "Podded Propulsor Tests and	
	Extrapolation". Investigate the Possibility of Improving the Procedure	
	Including Separating it into Logical Parts Such as Resistance, Propulsion, and	
	Ext	
7.	Comment on the Impact of Developments of Propellers for Ice Going Ships in	106
	the View of the Increasing Operations in Ice Covered Waters and Changes in	
	Regulations	
8.	Conclusions	110
9.	References	111



The Manoeuvring Committee		
1.	Introduction	123
2.	Progress in Experimental Techniques	124
3.	Progress in Simulation Techniques	129
4.	Benchmark Data and Capabilities of Prediction Tools	137
5.	Manoeuvring and Course Keeping in Waves	147
	Manoeuvring In Confined Waters	150
	Uncertainty Analysis	154
	Scale Effects	155
	Slow Speed Manoeuvring Models	161
	. Procedures	165
	. Conclusions	167
	Recommendations	169
13	. References	169
The Se	eakeeping Committee	183
1.	General	183
	Review of State-of-the-Art	185
	Workshop on Validation and Verification of Non-Linear Seakeeping Codes	219
	Uncertainty Analysis and Benchmark Data	225
	ITTC Recommended Procedures	226
	Conclusions	228
7.	References and Nomenclature	231
The Ocean Engineering Committee		247
1.	General	247
2.	State of the Art	248
3.	Reviewing the Existing Procedure	272
4.	Parameters Causing Largest un Cetainties in Ocean Engineering Tests	272
5.	Benchmark Studies – VIV	274
б.	Mooring Line Damping	277
7.	Guidelines for Hydrodynamic Testing of Renewable Energy Devices	283
8.	Procedure for Dynamically Positioning Systems	283
9.	Conclusions	284
10	. Recommendations	285
11	. References	285

viii

Proceedings of 26th ITTC - Volume I



The Sp	299	
1.	Introduction	299
2.	Terms of Reference	300
3.	Recommendations and Proposals for Future Work	302
4.	Experimental Uncertainty Analysis	302
5.	Water Properties: Equations and Uncertainty Analysis	303
6.	State of the Art Review	304
7.	Multi Component Force Balances – Dynamometers	309
8.	Methodology for UA in CFD	312
9.	Propulsion - Open Water	321
10.	Reporting Uncertainties	327
11.	UA – Simple Best Practice	328
12.	The 1978 Question	328
13.	References	329
14.	Appendix A: Confidence Through Uncertainty	331
15.	Appendix B: Proposal for Future Work	333
16.	Appendix C – Partial List of Symbols <sup>4</sup>	335