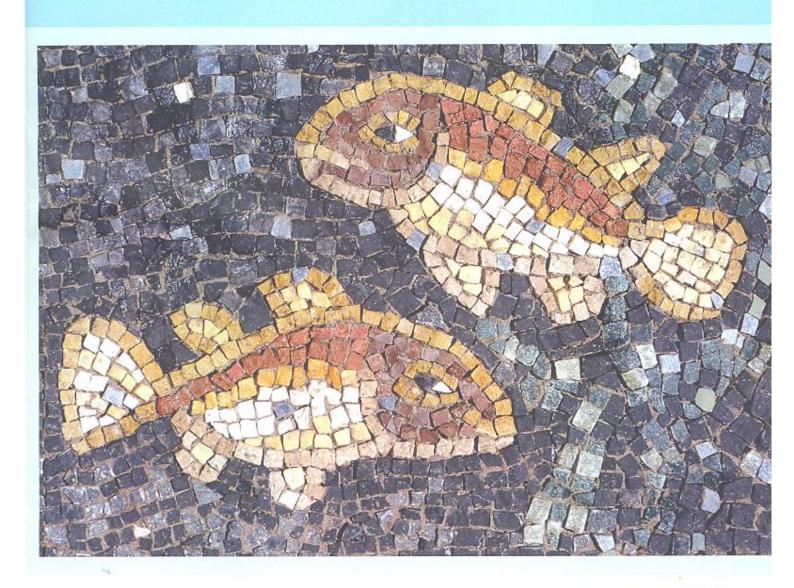
## Fish identification tools for biodiversity and fisheries assessments

Review and guidance for decision-makers





## Contents

Prepa	aration o	f this document	iii
Abstract			
Acknowledgements			
Abbr	eviations	and acronyms	viii
Reco	mmenda	tions	1
1. In	troducti	on	3
2. Us	er pers	pectives	7
2.1	Fish taxonomy in biodiversity and fishery assessment and		
	management		7
2.2	A fishery inspector's view of fish identification		
2.3	Identification and commercial names of fishery products:		
	a view from the industry		
3. Sp	ecies id	entification tools	11
3.1	Specie	s ID tools included in this review	11
3.2	Criteri	a for the evaluation of species identification tools	12
3.3	Evalua	tion of species identification tools	13
	3.3.1	On-site taxonomist	13
	3.3.2	Local (folk) expert	13
	3.3.3	Local reference collection	14
	3.3.4	Image recognition system	15
	3.3.5	Field guides based on dichotomous keys	16
	3.3.6	Integrated Photo-based Online Fish-Identification System	
		(IPOFIS) exemplifying Interactive Electronic Keys (IEKs)	17
	3.3.7	IPez (morphometric software)	17
	3.3.8	Scales	18
	3.3.9	Otoliths	19
	3.3.10	Genetic identification through single nucleotide	
		polymorphisms (SNPs)	19
		Genetic identification using barcoding	20
	3.3.12	Acoustic fish identification	21
3.4	Web-b	ased fish identification and information resources	22
4. 56	electing	an identification tool	25
4.1	Users		25
4.2	Selection criteria		25
	4.2.1	Response time	28
	4.2.2	Accuracy	28
	4.2.3	Resolution	28
	4.2.4	Type	29
	4.2.5	Resources	29

5. De:	31	
5.1	Catch reporting by fishers (logbooks)	32
5.2	Assessment of introduced fish species in a lake	32
5.3	Monitoring catch during exploratory fishery	33
5.4	Reporting catches of lake fisheries (exotic species)	33
5.5	Reporting catches of marine artisanal fisheries	34
5.6	Fingerlings of aquaculture species are correctly identified	
	by suppliers	34
5.7	Reduction of bycatch through pre-harvest survey	35
5.8	Port inspections of fishery catches	35
5.9	Vessel inspection on the high seas	36
5.10	Live fish inspection by customs (CITES)	36
5.11	Verification of origin of catches	37
5.12	Fish product inspection by customs (CITES)	37
5.13	Distribution and characteristics of populations	38
5.14	Provision of data for the ecosystem modelling of living	
	marine components	38
5.15	Development of application to distinguish living objects	
	from submarines	39
5.16	Fish inventory for gear development to minimize bycatch	39
5.17	Changes in species diversity due to climate change	39
5.18	Taxonomic training of students	40
5.19	Anglers track the spread of aquatic invasive species (AIS)	40
5.20	Assessment of genetically modified fish in waters and markets	41
5.21	Corroboration of the geographic origin of fishes as documented	
F 22	in catch certificate	41
5.22	Traded fish is labelled correctly	42
5.23	Investigating the alleged presence of exotic and GM species	42
5.24	Divers identify marine organisms	43
6. Cor	45	
Annex	47	
Annex	49	
Annex	51	