

Additional results Part II

Quantification of matrices and calculation of stock differentiation indices for European hake

Otolith shape

	GSA	1	1	1	12	12	3	3	4	4	6	6	NA	NA	SA	SA
GSA	Port	Estepona	Málaga	Roquetas	Gulf of Tunis	Tabarka	M'digu	Nador	Annaba	Ghazaouet	Castellón	Torrevecija	Cádiz	Huelva	Agadir	Mehdia
1	Estepona															
1	Málaga	0														
1	Roquetas	0	0													
12	Gulf of Tunis	0	0	0												
12	Tabarka	0	0	0	0											
3	M'digu	1	1	1	1	1										
3	Nador	1	1	1	1	1	0									
4	Annaba	0	0	0	0	0	1	1								
4	Ghazaouet	0	1	0	0	0	1	1	0							
6	Castellón	0	0	0	0	0	1	1	0	0						
6	Torrevecija	0	0	0	0	0	1	1	0	0	0					
NA	Cádiz	1	1	1	1	1	0	0	1	1	1	1				
NA	Huelva	0	1	1	1	1	0	0	1	1	1	1	0			
SA	Agadir	0	1	0	1	1	0	0	1	1	1	1	1	1		
SA	Mehdia	1	1	1	1	1	0	0	1	1	1	1	0	0	0	

Otolith core microchemistry

	GSA	1	1	1	12	12	3	3	4	4	6	6	NA	NA	SA	SA
GSA	Port	Estepona	Málaga	Roquetas	Gulf of Tunis	Tabarka	M'digu	Nador	Annaba	Ghazaouet	Castellón	Torrevecija	Cádiz	Huelva	Agadir	Mehdia
1	Estepona															
1	Málaga	0														
1	Roquetas	0	0													
12	Gulf of Tunis	1	1	1												
12	Tabarka	1	1	1	0											
3	M'digu	1	1	1	1	1										
3	Nador	1	1	1	1	1	0									
4	Annaba	1	1	1	0	0	1	1								
4	Ghazaouet	1	0	1	0	0	0	0	0							
6	Castellón	1	1	1	0	0	1	1	0	0						
6	Torrevecija	1	1	1	0	0	1	1	0	0	0					
NA	Cádiz	1	1	1	1	1	0	0	1	1	1	1				
NA	Huelva	1	1	1	1	1	0	0	1	1	1	1	0			
SA	Agadir	1	1	1	1	1	0	0	1	1	1	1	0	0		
SA	Mehdia	1	1	1	1	1	0	0	1	1	1	1	0	0	0	

Meristics

	GSA	1	1	1	12	12	3	3	4	4	6	6	NA	NA	SA	SA
GSA	Port	Estepona	Málaga	Roquetas	Gulf of Tunis	Tabarka	M'diqu	Nador	Annaba	Ghazaouet	Castellón	Torre Vieja	Cádiz	Huelva	Agadir	Mehdia
1	Estepona															
1	Málaga	0														
1	Roquetas	0	0													
12	Gulf of Tunis	0	0	0												
12	Tabarka	0	0	0	0											
3	M'digu	1	1	1	1	1										
3	Nador	1	1	1	1	1	0									
4	Annaba	1	1	1	1	1	0	0								
4	Ghazaouet	1	1	1	1	1	0	0	0							
6	Castellón	0	0	0	0	0	1	1	1	1						
6	Torre Vieja	0	0	0	0	0	1	1	1	1	0					
NA	Cádiz	1	1	1	1	1	1	1	1	1	1	1				
NA	Huelva	1	1	1	1	1	1	1	1	1	1	1	0			
SA	Agadir	1	1	1	1	1	0	0	0	0	1	1	1	1		
SA	Mehdia	1	1	1	1	1	0	0	0	0	1	1	1	1	0	

Genetics

	GSA	1	1	1	12	12	3	3	4	4	6	6	NA	NA	SA	SA
GSA	Port	Estepona	Málaga	Roquetas	Gulf of Tunis	Tabarka	M'diqu	Nador	Annaba	Ghazaouet	Castellón	Torre Vieja	Cádiz	Huelva	Agadir	Mehdia
1	Estepona															
1	Málaga	0														
1	Roquetas	1	1													
12	Gulf of Tunis	1	1	1												
12	Tabarka	1	1	1	0											
3	M'digu	0	0	1	1	1										
3	Nador	0	0	1	1	1	0									
4	Annaba	1	1	1	0	0	1	1								
4	Ghazaouet	0	0	1	1	1	0	0	1							
6	Castellón	1	1	0	0	0	1	1	0	1						
6	Torre Vieja	1	1	1	1	0	1	1	1	1	0					
NA	Cádiz	1	1	1	1	1	1	1	1	1	1	1				
NA	Huelva	1	1	1	1	1	1	1	1	1	1	1	0			
SA	Agadir	1	1	1	1	1	1	1	1	1	1	1	0	0		
SA	Mehdia	1	1	1	1	1	1	1	1	1	1	1	0	0	0	

Hydrodynamics

	GSA	1	1	1	12	12	3	3	4	4	6	6	NA	NA	SA	SA
GSA	Port	Estepona	Málaga	Roquetas	Gulf of Tunis	Tabarka	M'diqu	Nador	Annaba	Ghazaouet	Castellón	Torre Vieja	Cádiz	Huelva	Agadir	Mehdia
1	Estepona															
1	Málaga	0														
1	Roquetas	0	0													
12	Gulf of Tunis	1	1	1												
12	Tabarka	1	1	1												
3	M'digu	1	1	1												
3	Nador	1	1	1			0									
4	Annaba	1	1	1			0	0								
4	Ghazaouet	1	1	1			0	0								
6	Castellón	1	1	1			1	1								
6	Torre Vieja	1	1	1			1	1								
NA	Cádiz	1	1	1			1	1								
NA	Huelva	1	1	1			1	1					0			
SA	Agadir	1	1	1			1	1					1	1		
SA	Mehdia	1	1	1			1	1					1	1	0	

Body morphometrics

	GSA	1	1	1	12	12	3	3	4	4	6	6	NA	NA	SA	SA
GSA	Port	Estepona	Málaga	Roquetas	Gulf of Tunis	Tabarka	M'diqu	Nador	Annaba	Ghazaouet	Castellón	Torre Vieja	Cádiz	Huelva	Agadir	Mehdia
1	Estepona															
1	Málaga	0														
1	Roquetas	0	0													
12	Gulf of Tunis	0	1	0												
12	Tabarka	0	0	0	0											
3	M'digu	1	1	1	1	1										
3	Nador	1	1	0	0	0	0									
4	Annaba	1	1	0	0	0	0	0								
4	Ghazaouet	1	1	1	0	1	0	0	0							
6	Castellón	0	0	0	1	1	1	1	1	1						
6	Torre Vieja	0	0	0	0	0	1	0	1	1	0					
NA	Cádiz	1	1	1	1	1	1	1	1	1	1	1				
NA	Huelva	0	0	0	0	0	1	1	1	1	0	0	1			
SA	Agadir	1	1	0	0	0	0	0	0	0	1	0	1	1		
SA	Mehdia	0	0	0	0	0	1	0	0	1	1	0	1	0	0	

CPUEs

	GSA	1	1	1	12	12	3	3	4	4	6	6	NA	NA	SA	SA
GSA	Port	Estepona	Málaga	Roquetas	Gulf of Tunis	Tabarka	M'diqu	Nador	Annaba	Ghazaouet	Castellón	Torre Vieja	Cádiz	Huelva	Agadir	Mehdia
1	Estepona															
1	Málaga	0														
1	Roquetas	1	1													
12	Gulf of Tunis	1	1	1												
12	Tabarka	1	1	1												
3	M'digu	1	1	1												
3	Nador	1	1	1			0									
4	Annaba	1	1	1			1	1								
4	Ghazaouet	1	1	1			1	1								
6	Castellón	1	1	1			1	1								
6	Torre Vieja	1	1	1			1	1								
NA	Cádiz	1	1	1			1	1								
NA	Huelva	1	1	1			1	1								
SA	Agadir	1	1	1			1	1								
SA	Mehdia	1	1	1			1	1								

SUM

	GSA	1	1	1	12	12	3	3	4	4	6	6	NA	NA	SA	SA
GSA	Port	Estepona	Málaga	Roquetas	Gulf of Tunis	Tabarka	M'diqu	Nador	Annaba	Ghazaouet	Castellón	Torre Vieja	Cádiz	Huelva	Agadir	Mehdia
1	Estepona															
1	Málaga	0														
1	Roquetas	2	2													
12	Gulf of Tunis	6	7	6												
12	Tabarka	6	6	6	1											
3	M'digu	8	8	9	6	5										
3	Nador	8	7	8	5	5	0									
4	Annaba	8	8	7	1	1	5	5								
4	Ghazaouet	7	7	8	3	3	3	3	1							
6	Castellón	5	5	4	3	2	9	8	4	4						
6	Torre Vieja	5	5	5	3	2	9	7	5	4	0					
NA	Cádiz	8	8	8	7	7	7	7	7	7	6	6				
NA	Huelva	6	7	7	6	6	7	7	7	7	5	5	1			
SA	Agadir	7	8	6	6	5	5	5	5	5	6	5	5	5		
SA	Mehdia	7	7	7	6	6	5	4	5	6	6	5	4	3	0	

COUNT

	GSA	1	1	1	12	12	3	3	4	4	6	6	NA	NA	SA	SA
GSA	Port	Estepona	Málaga	Roquetas	Gulf of Tunis	Tabarka	M'digu	Nador	Annaba	Ghazaouet	Castellón	Torre Vieja	Cádiz	Huelva	Agadir	Mehdia
1	Estepona															
1	Málaga	9														
1	Roquetas	9	9													
12	Gulf of Tunis	9	9	9												
12	Tabarka	9	9	9	7											
3	M'digu	9	9	9	7	7										
3	Nador	9	9	9	7	7	9									
4	Annaba	9	9	9	7	7	9	9								
4	Ghazaouet	9	9	9	7	7	9	9	7							
6	Castellón	9	9	9	9	7	7	9	9	7	7					
6	Torre Vieja	9	9	9	7	7	9	9	7	7	7					
NA	Cádiz	9	9	9	7	7	9	9	7	7	7	7				
NA	Huelva	9	9	9	7	7	9	9	7	7	7	7	8			
SA	Agadir	9	9	9	7	7	9	9	7	7	7	7	8	8		
SA	Mehdia	9	9	9	7	7	9	9	7	7	7	7	8	8	8	

SDIs by port

	GSA	1	1	1	12	12	3	3	4	4	6	6	NA	NA	SA	SA
GSA	Port	Estepona	Málaga	Roquetas	Gulf of Tunis	Tabarka	M'digu	Nador	Annaba	Ghazaouet	Castellón	Torre Vieja	Cádiz	Huelva	Agadir	Mehdia
1	Estepona															
1	Málaga	0														
1	Roquetas	0.22222222	0.22222222													
12	Gulf of Tunis	0.66666667	0.77777778	0.66666667												
12	Tabarka	0.66666667	0.66666667	0.66666667	0.142857143											
3	M'digu	0.88888889	0.88888889	1	0.857142857	0.71428571										
3	Nador	0.88888889	0.77777778	0.88888889	0.714285714	0.71428571	0									
4	Annaba	0.88888889	0.88888889	0.77777778	0.142857143	0.14285714	0.55555556	0.55555556								
4	Ghazaouet	0.77777778	0.77777778	0.88888889	0.428571429	0.42857143	0.33333333	0.33333333	0.14285714							
6	Castellón	0.55555556	0.55555556	0.44444444	0.428571429	0.28571429	1	0.88888889	0.57142857	0.57142857						
6	Torre Vieja	0.55555556	0.55555556	0.55555556	0.428571429	0.28571429	1	0.77777778	0.71428571	0.57142857	0					
NA	Cádiz	0.88888889	0.88888889	0.88888889	1	1	0.77777778	0.77777778	1	1	0.85714286	0.85714286				
NA	Huelva	0.66666667	0.77777778	0.77777778	0.857142857	0.85714286	0.77777778	0.77777778	1	1	0.71428571	0.71428571	0.125			
SA	Agadir	0.77777778	0.88888889	0.66666667	0.857142857	0.71428571	0.55555556	0.55555556	0.71428571	0.71428571	0.85714286	0.71428571	0.625	0.625		
SA	Mehdia	0.77777778	0.77777778	0.77777778	0.857142857	0.85714286	0.55555556	0.44444444	0.71428571	0.85714286	0.85714286	0.71428571	0.5	0.375	0	

SDI > 0.66
0.33 < SDI < 0.66
SDI < 0.33

SDIs by GSA

GSA	1	12	3	4	6	NA	SA
1	0.15						
12	0.69	0.14					
3	0.89	0.75	0.00				
4	0.83	0.29	0.44	0.14			
6	0.54	0.36	0.92	0.61	0.00		
NA	0.81	0.93	0.78	1.00	0.79	0.13	
SA	0.78	0.82	0.53	0.75	0.79	0.53	0.00

AVERAGE SDI	0.705065823
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