Update on the SBT close-kin tissue sampling, processing and kin-finding 2024
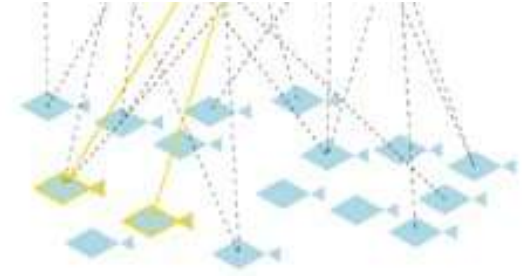
Jessica Farley, Paige Eveson, Rasanthi Gunasekera

CCSBT-ESC/2409/09

Time-series estimate of absolute abundance of adults

Aim:

- Collect 1,500 tissue samples/year in Indonesia (adults)

- Collect 1,600 tissue samples/year in Australia (juveniles)

- Extract DNA & genotype

- Analyse genotype data

- Identify the number of POPs & HSPs

Summary of CKMR work since 2015

| Sampling season	No samples collected Adults/Juveniles	Genotyping completed	Kin-finding completed
2014/15	1500/1600	Yes	Yes
2015/16	1500/1600	Yes	Yes
2016/17	1500/1600	Yes	Yes
2017/18	1500/1600	Yes	Yes
2018/19	1500/1600	Yes	Yes
2019/20	1500/1600	Yes	Yes
2020/21	1500/1600	Yes	Yes
2021/22	0/1600	Yes	Yes
2022/23	148/1600	Planned for 2024 (juveniles and a small number of adults)	Planned for 2025
2023/24	236/1600	Planned for 2025 (juveniles and a small number of adults)	Planned for 2026

CSIRO

Number of fish used in kin finding after quality control checks

Year	Adults	Juveniles
2006	0	1317
2007	0	1325
2008	0	1356
2009	0	1347
2010	972	1315
2011	958	963
2012	536	876
2013	959	903
2014	922	899
2015	0	953
2016	951	854
2017	971	948
2018	700	756
2019	1440	1449
2020	1421	1512
2021	1431	1384
2022	0	1176
Total	11261	19333

CSIRO

Identify POPs: weighted-pseudo-exclusion statistic

- 123 POPs identified

POP Weighted Pseudo-Exclusion Statistic
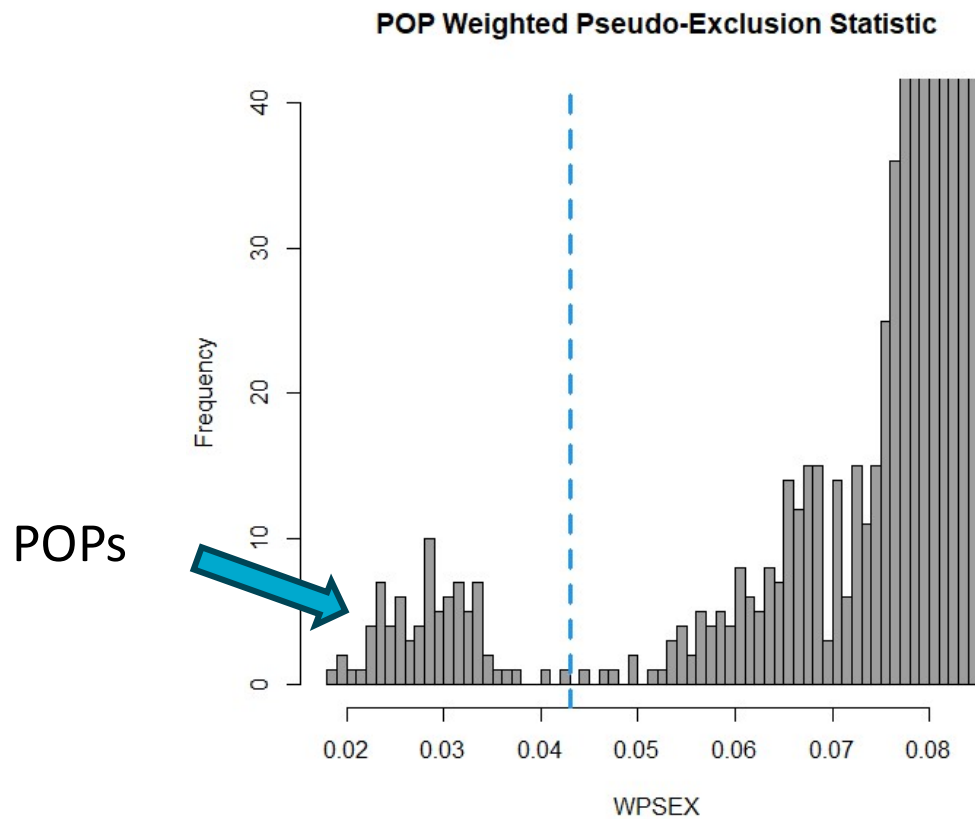
Number of POPs

Adult capture year

Juvenile birth year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2016	2017	2018	2019	2020	2021
2002	0	0	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2003	0	5	1	2	0	0	0	1	0	1	0	0	0	0	0
2004	0	2	0	0	3	0	0	0	0	0	0	0	0	1	0
2005	1	4	5	4	1	0	0	1	2	0	0	0	0	0	0
2006	NA	4	3	2	0	0	0	0	0	0	0	0	0	0	2
2007	NA	NA	3	4	1	3	2	0	2	0	1	0	0	1	1
2008	NA	NA	NA	NA	0	1	1	1	0	0	0	2	0	0	0
2009	NA	NA	NA	NA	0	1	1	1	0	0	0	0	1	1	0
2010	NA	NA	NA	NA	0	0	1	4	0	2	0	0	1	0	0
2011	NA	NA	NA	NA	NA	0	1	2	1	2	0	0	0	0	0
2012	NA	NA	NA	NA	NA	NA	0	1	1	0	0	1	0	0	1
2013	NA	NA	NA	NA	NA	NA	NA	0	0	1	1	3	1	1	0
2014	NA	NA	NA	NA	NA	NA	NA	NA	0	0	1	0	0	1	0
2015	NA	NA	NA	NA	NA	NA	NA	NA	NA	1	0	0	0	0	0
2016	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	2	1	0	1	1
2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3	0	1	2	0
2018	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1	2	3	0
2019	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1	0	2

Identify HSP: pseudo-log-odds-ratio statistic

- 232 HSPs identified (includes 4 FSP)
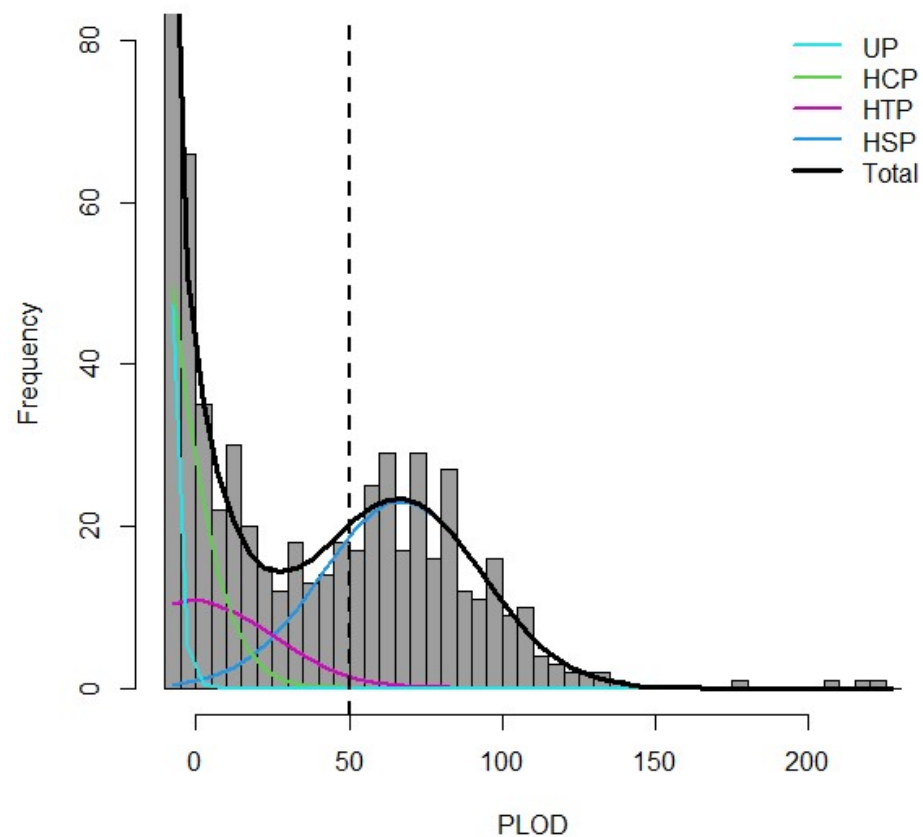
Number of HSPs

Birth year of older sibling

Birth year of younger sibling

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
2003	2	4	2	1	0	0	1	0	0								
2004		6	3	6	2	2	1	0	0	2							
2005			5	3	3	3	0	5	1	1	0						
2006				8	4	1	3	5	3	0	1	1					
2007					3	3	2	2	2	2	2	1	2				
2008						5	1	1	2	3	0	1	0	2			
2009							1	2	1	0	0	0	0	4	2		
2010								2	1	2	1	0	1	1	0	0	
2011									3	2	1	0	3	4	1	1	0
2012										3	2	1	1	1	2	1	0
2013											2	4	1	0	1	0	0
2014												2	2	1	4	3	1
2015													4	2	1	3	0
2016														6	4	5	6
2017															5	2	4
2018																5	3
2019																	4

See CCSBT ESC 2024 paper 12

"Update on SBT catch monitoring and capacity building for biological sampling of spawning ground catches in Indonesia"

Acknowledgements

- Sampling teams and processing companies in Port Lincoln, Australia
- Seatec and ASBTIA - Australia
- Sampling teams and processing companies in Benoa, Bali Indonesia
- RCF-BRIN and DGCF - Indonesia

Thank you

CSIRO Environment
Jessica Farley
Research Group Leader

+61 3 6232 5189

Jessica.farley@csiro.au
csiro.au

Australia's National Science Agency