

SUSTAINABLE FISHING PRACTICES IN CANADA

Sustainable Eel Group --- June 2019

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Canadian Committee for a Sustainable Eel
Fishery**

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Output Controls

- Catch Limit per License
- Catch Limit per River

Input Controls

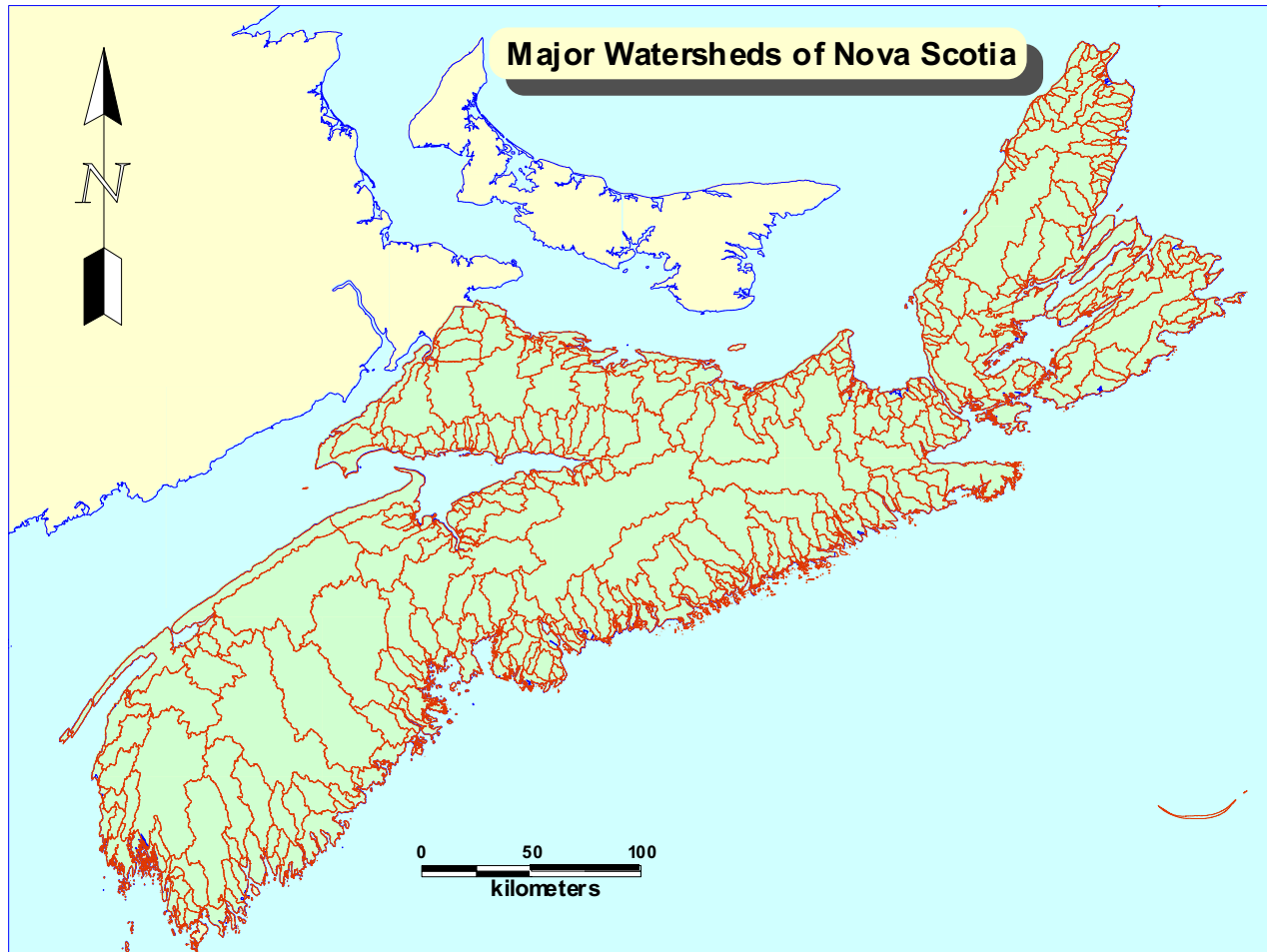
- Gear Spacing
- Fishing Locations
- Gear and Staff Limits
- Real Time Reporting

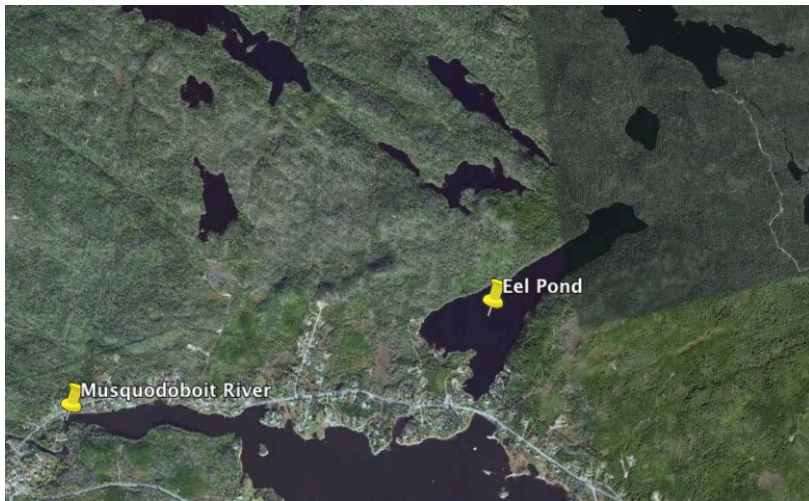
Other:

- Dam Removal
- Population Indexing



State	Site	Gear	Start Year
ME	West Harbor Pond	Irish Elver Ramp	2001
NH	Lamprey River	Irish Elver Trap	2001
MA	Acushnet River Reservoir	Sheldon Elver Trap	2005
MA	Acushnet River Sawmill	Sheldon Elver Trap	2005
MA	Cold Brook	Irish Elver Ramp	2008
MA	Jones River	Sheldon Elver Trap	2001
MA	Parker River	Sheldon Elver Trap	2004
MA	Saugus River	Sheldon Elver Trap	2005
MA	Saugus River	Irish Elver Ramp	2007
MA	Wankinco River	Irish Elver Ramp	2009
RI	Gilbert Stuart Dam (Pettasquamscutt River)	Irish Elver Ramp	2000
RI	Hamilton Fish Ladder (Annaquatucket River)	Irish Elver Ramp	2004
CT	Ingham Hill	Irish Elver Ramp	2007
NY	Carman's River	Fyke Net	2000
PA	Poquessing Creek	Modified Minnow Trap	2008
PA	Poquessing Creek	Lift Net	2008
PA	Poquessing Creek	Backback Electrofisher	2008
NJ	Patcong Creek	Fyke Net	2000
DE	Millsboro Dam (Indian River)	Fyke Net	2000
MD	Turville Creek	Irish Elver Ramp	2000
DC	Anacostia River, Washington Channel, and Rock Creek	eel pots, boat and backpack efishing, and Irish elver traps	2005
PRFC	Clark's Millpond (Coan River)	Irish Elver Ramp	2000
PRFC	Gardy's Millpond (Yeocomico River)	Irish Elver Ramp	2000
VA	Bracken's Pond (York River)	Irish Elver Ramp	2000
VA	Kamp's Millpond (Rappahannock River)	Irish Elver Ramp	2000
VA	Warehams Pond (James River)	Irish Elver Ramp	2003
VA	Wormley Creek (York River)	Irish Elver Ramp	2001
SC	Goose Creek (Cooper River)	Fyke Net	2000
GA	Altamaha Canal	Fyke Net	2001
GA	Hudson Creek	Fyke Net	2003
FL	Guana River Dam	Dip Net	2001





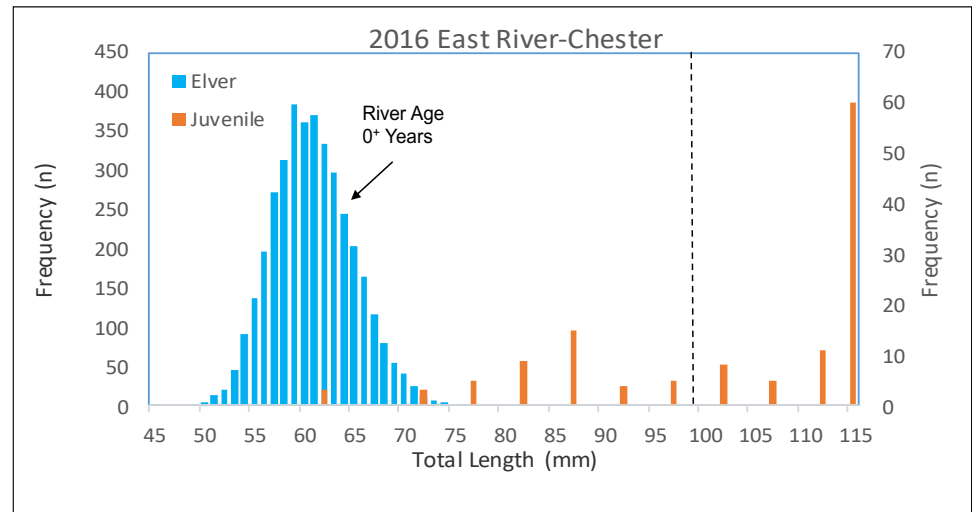
The U.S. Fish and Wildlife Service stated in its 2007 Determination that **glass eel recruitment indices “are the best measure we have to annual reproductive success.”** 72 Fed. Reg. at 4977 The FWS noted that the long-running East River fishery-independent recruitment index continues to show variability but no indication of sustained decline.



East River Elver abundance index

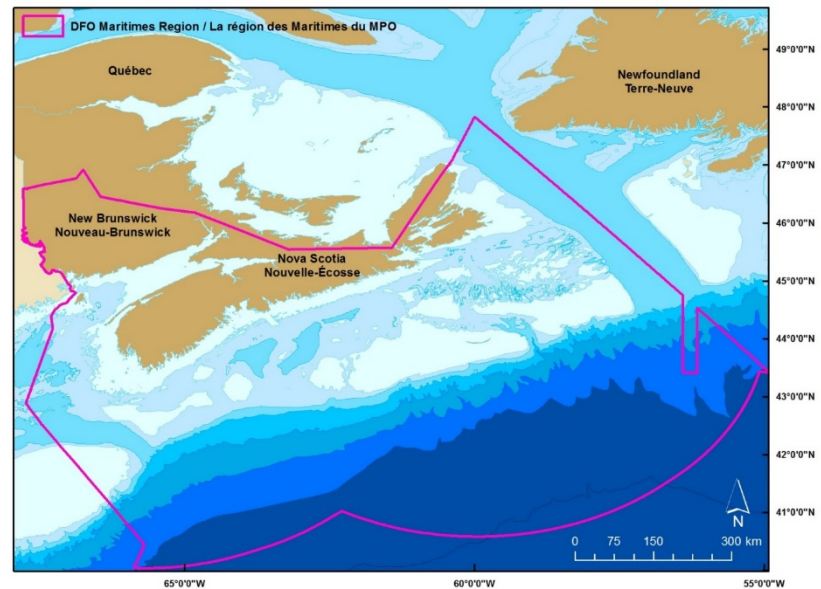


Elvers are defined in Canadian fishery regulations as Eels <10 cm in Total Length

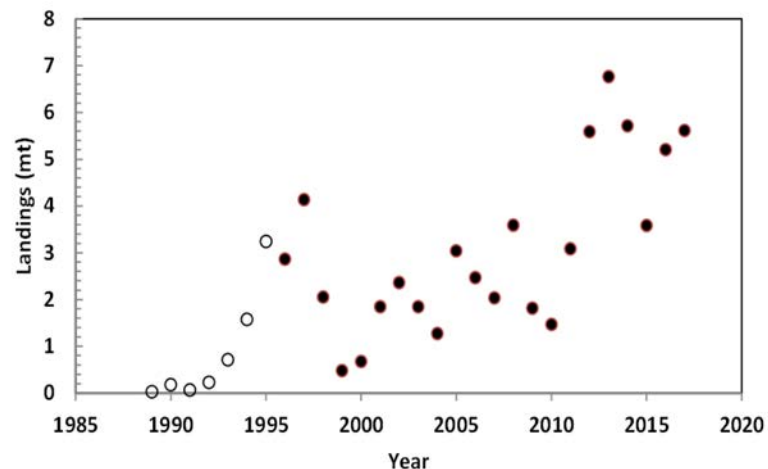


Canadian commercial fishing for elvers occurs only in Maritimes Region (Bay of Fundy – Atlantic Coastal Nova Scotia)

- Experimental fishing in 1986
- Fully commercial in 1996



Year	Fishery	TAC (mt)	Commercial Catch	
			mt	P(TAC)
1989	Experimental	None	0.03	
1990	Experimental	None	0.17	
1991	Experimental	None	0.07	
1992	Experimental	None	0.23	
1993	Experimental	None	0.71	
1994	Experimental	None	1.57	
1995	Experimental	None	3.24	
1996	Commercial	None	2.86	
1997	Commercial	None	4.13	
1998	Commercial	13.3	2.05	0.15
1999	Commercial	13.3	0.48	0.04
2000	Commercial	13.3	0.68	0.05
2001	Commercial	13.3	1.84	0.14
2002	Commercial	13.3	2.36	0.18
2003	Commercial	13.3	1.84	0.14
2004	Commercial	13.3	1.27	0.10
2005	Commercial	9.96	3.04	0.30
2006	Commercial	9.96	2.46	0.25
2007	Commercial	9.96	2.03	0.20
2008	Commercial	9.96	3.59	0.36
2009	Commercial	9.96	1.81	0.18
2010	Commercial	9.96	1.47	0.15
2011	Commercial	9.96	3.08	0.31
2012	Commercial	9.96	5.59	0.56
2013	Commercial	9.96	6.76	0.68
2014	Commercial	9.96	5.71	0.57
2015	Commercial	9.96	3.58	0.36
2016	Commercial	9.96	5.20	0.52
2017	Commercial	9.96	5.61	0.56



- Total annual landings in the commercial elver fishery exhibited an overall increase with time, with the five biggest years occurring in the last six years of the time series that ends in 2017. The annual Total Allowable Catch was not achieved in any fishing year.

Monitoring the timing, strength, and biological traits of elver runs began in 1990 as a Joint Project between (elver) licence holders and Fisheries and Oceans Canada

Re-location in 1996 of the project to East River-Chester has allowed effects of directed elver fishing on elver escapement to be assessed.

- Longest running elver recruitment index in eastern North America

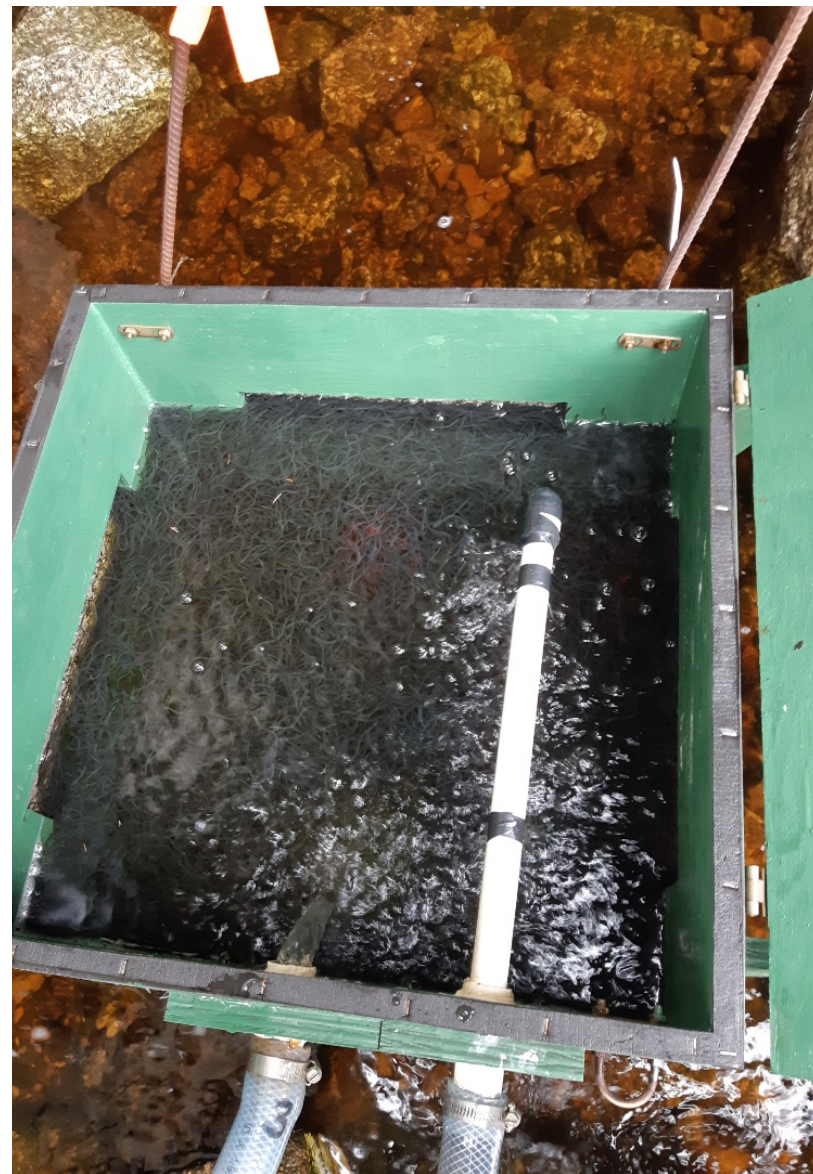
Since 2008 a contracted third party has performed the daily operations of the monitoring project

The project:

- provides core information in support of precautionary management of the fishery
- is a focus of local stewardship and public outreach activities aimed at American eel
- provides opportunities for engagement with the indigenous communities of the region.







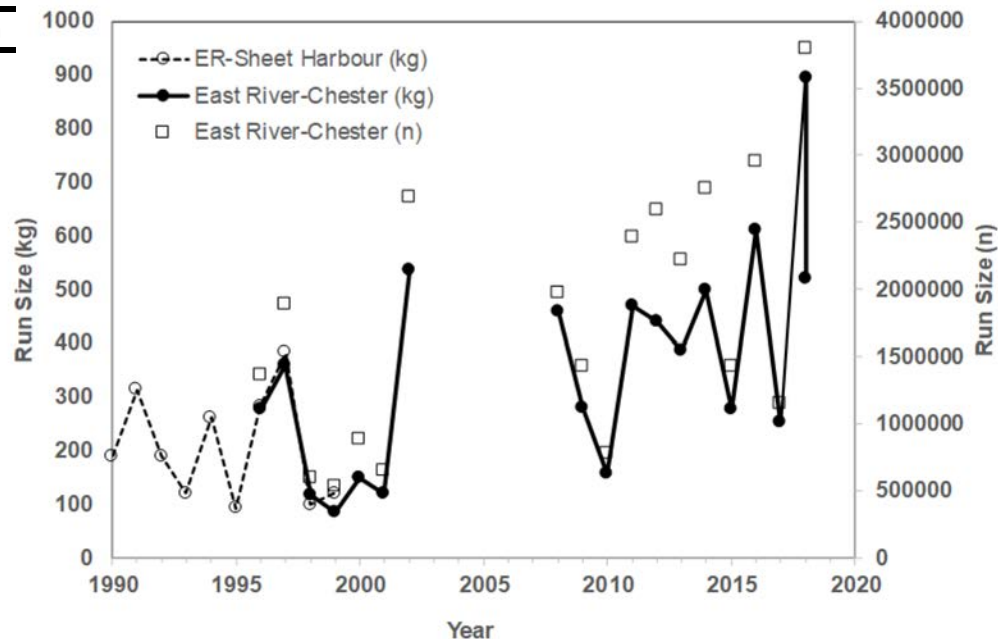


Total Run Size Estimates

ER-Sheet Harbour

East River-Chester

Year	(n)	(n)	Kilograms	Regression
1990	218300	NA	NA	189
1991	376000	NA	NA	313
1992	219200	NA	NA	190
1993	134100	NA	NA	120
1994	309900	NA	NA	262
1995	101500	NA	NA	93
1996	336500	1367609	277	282
1997	467400	1887151	359	383
1998	109200	594729	117	99
1999	134600	530760	85	121
2000	NA	879854	149	NA
2001	NA	647516	120	NA
2002	NA	2689021	536	NA
2003	NA	NA	NA	NA
2004	NA	NA	NA	NA
2005	NA	NA	NA	NA
2006	NA	NA	NA	NA
2007	NA	NA	NA	NA
2008	NA	1970988	458	NA
2009	NA	1426196	280	NA
2010	NA	774811	156	NA
2011	NA	2390790	468	NA
2012	NA	2587177	439	NA
2013	NA	2214696	387	NA
2014	NA	2748237	499	NA
2015	NA	1430167	277	NA
2016	NA	2951576	610	NA
2017	NA	1150707	253	NA
2018	NA	3793992	896	NA
2019	NA	-	520	NA



Total run size to East River-Chester (area =132 km²)

- Varies significantly from year to year
- Has increased significantly since 1996 at an average annual rate of
 - 50-70 thousand elvers per year
 - 15 kg per year

Rod Bradford, Ph.D.

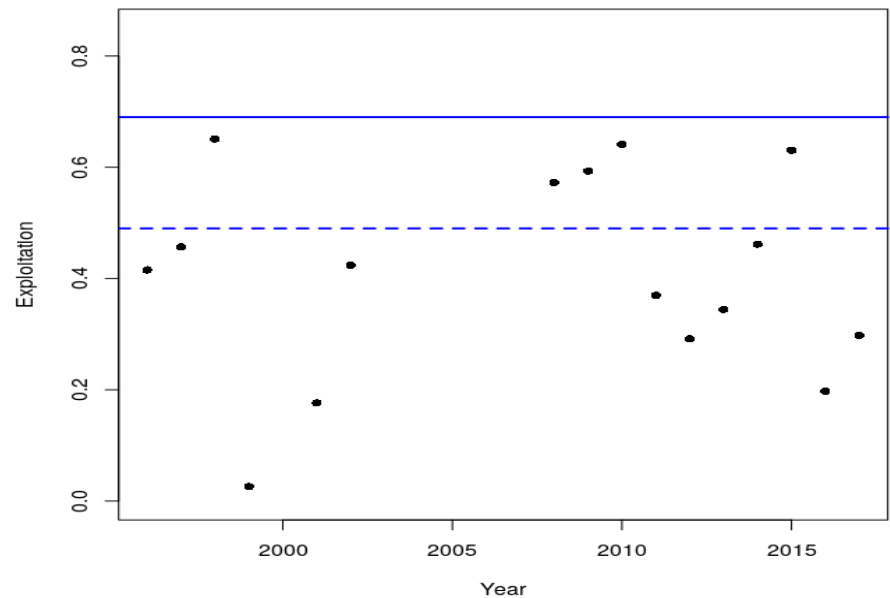
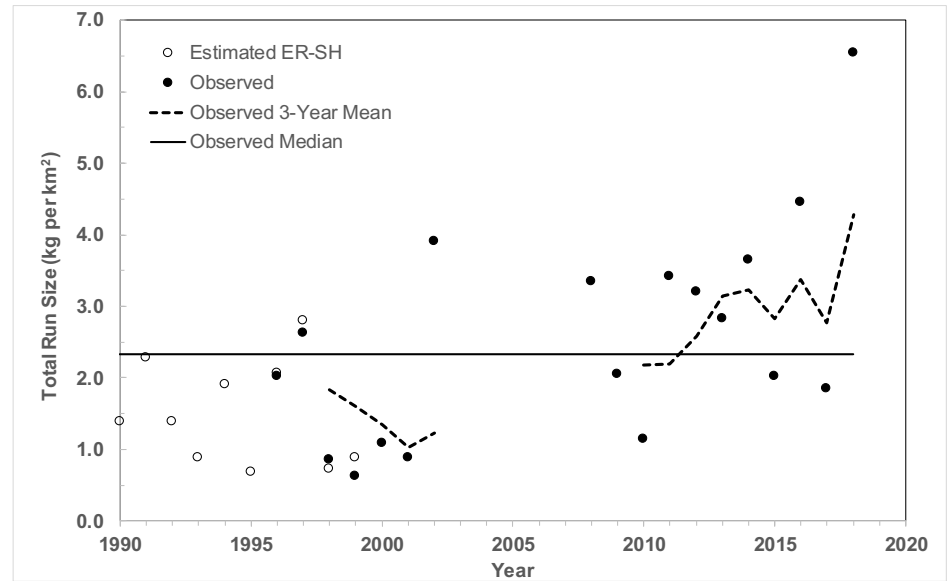
Department of Fisheries and Oceans Canada

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1996-2017 Median Run Size (320 kg)

- used to establish target and limit reference points for the elver fishery
 - RP's from Spawner Biomass per Recruit analysis
- Watershed drainage area used as the estimate of rearing habitat availability to help set individual river quotas
 - Median Run/km² = 2.33 kg
 - SPR₅₀ = 1.14 kg/km² (F = 0.69)
 - SPR₃₀ = 1.61 kg/km² (F = 1.2)
- Decline in the 3-Year running mean to below the time series mean would prompt a re-assessment of the fishery

Exploitation rates for the local ER-C fishery have never been in the critical zone and have been in the cautious zone (between solid blue and dash blue) in 5 of the 16 years of monitoring.





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