Some stories **about finding wild salmon and sea trout** in and around the Wester Ross Marine Protected Area

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Photo by Anwen Page

What kind of fish?

mackerel

The Scottish record rod caught mackerel of 3lb 12oz was caught near Ullapool in 1965 by Ewen Scobie

A 4.5kg (9lb 14oz) haddock was caught off the Summer Isles in 1980 by M Lawton:
a Scottish rod-caught record!

?

plaice

The British record rod caught plaice was caught in the Sound of Longa, Loch Gairloch by H Gardiner (Age 16) in 1974

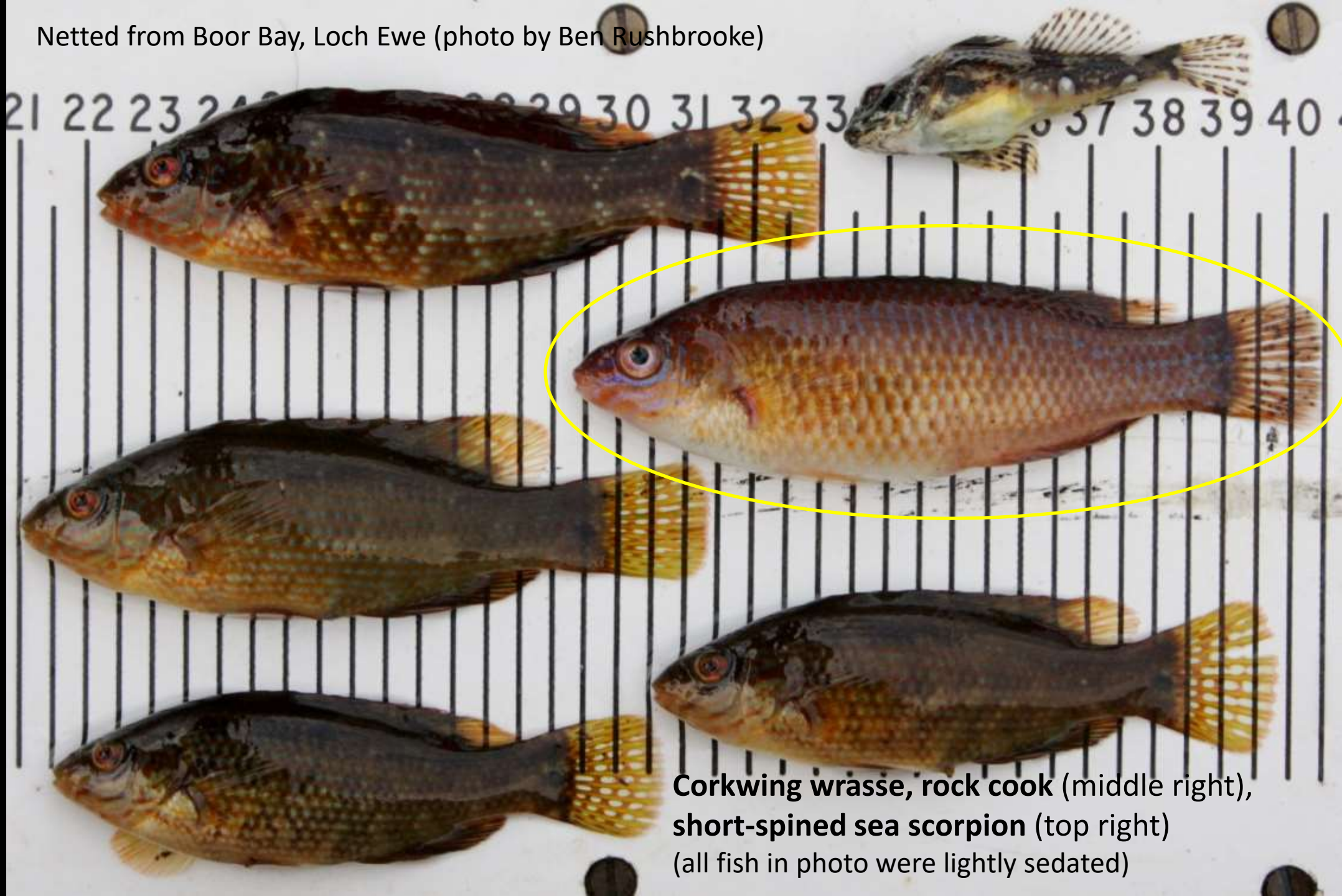
?

A **Scottish record**

Rock cook (Small-mouthed wrasse)

of 2oz (56g) was caught from Achiltibuie

by D. F. McKendrick in 1985



Corkwing wrasse, rock cook (middle right), **short-spined sea scorpion** (top right)
(all fish in photo were lightly sedated)

?

juvenile cod

We’ve seen lots of juvenile cod in a coastal fyke net trap in Loch Ewe this year!

?

Ray Dingwall with fresh 17lb male salmon caught by Gavin Ramsay, River Ewe, May 2007

Wild salmon were important to people in Wester Ross in the past . . .

Gairloch Heritage Museum
taigh-tasgaidh ghearrloch

Gairloch MUSEUM
Taigh-tasgaidh Gheàrrloch

Pictish stone depicting salmon and sea eagle

Are they still important?

Gairloch MUSEUM
Taigh-tasgaidh Gheàrrloch

https://www.gairlochtimes.co.uk/category/issues/page/9/

For some people, wild salmon are still important!

WRFT Salmon in (and out of) the Classroom project

Plockton Primary School Children photo by Naill McKinnon; a few years ago . . .

Why is the Wester Ross Marine Protected Area important for wild salmon?

Wester Ross Marine Wildlife

A healthy, productive coastal ecosystem provides food for juvenile salmon

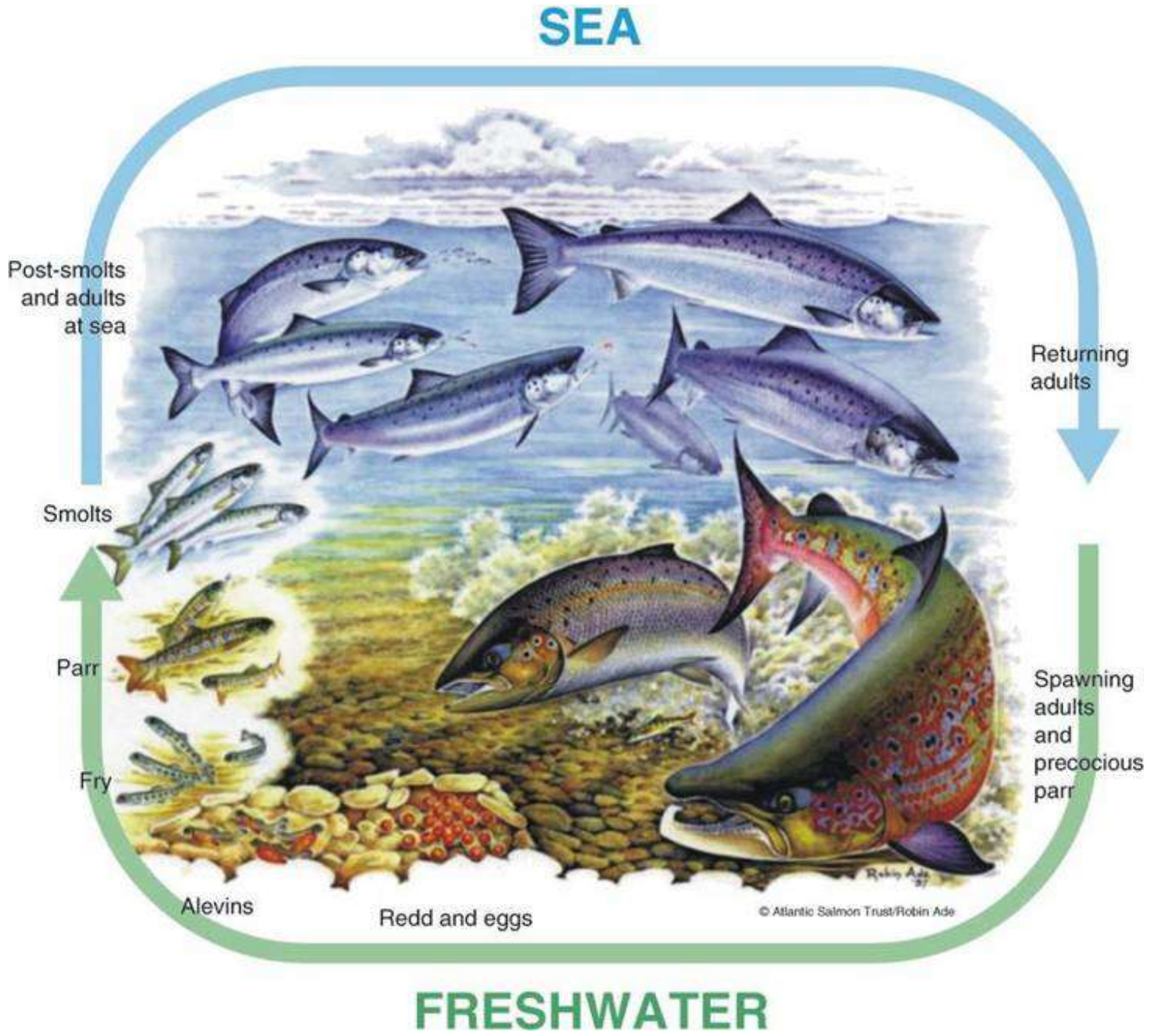
By coincidence

Six major salmon rivers flow into the Wester Ross MPA!

https://marinescotland.atkinsgeospatial.com/nmpi/

Wild salmon life cycle

- 1 to 3 years in freshwater
- 1 to 3 years at sea before returning ‘home’
- most adult salmon spawn only once
- a few salmon survive to spawn two or three times.

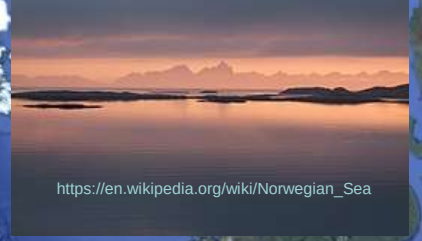


Where do salmon go?


Grilse: a salmon that returns to freshwater after just 1 winter at sea

Where do salmon go?

Norwegian sea



Greenland seas

Salmon bring back marine nutrients from the ocean . . .

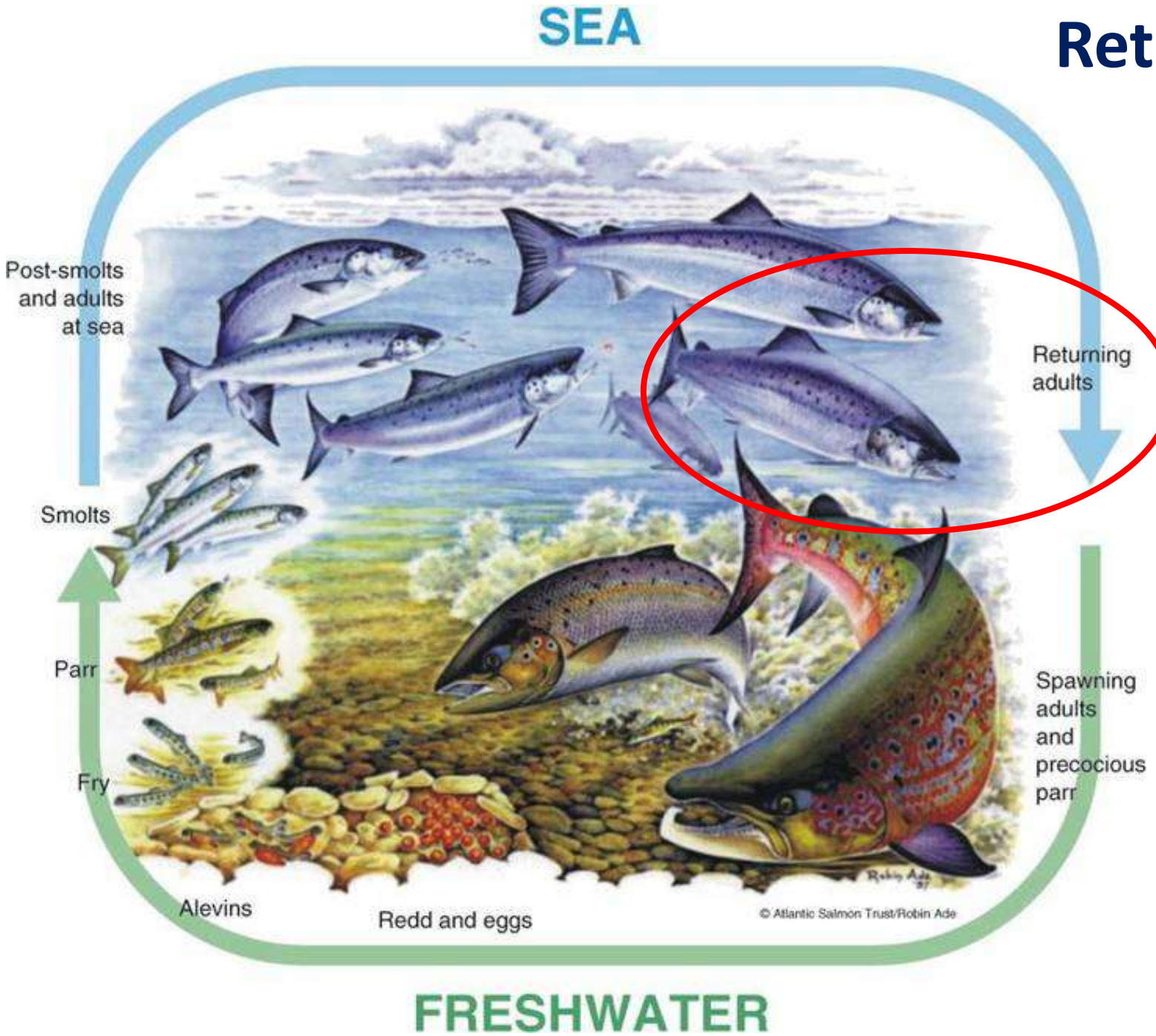
other items in the 3D viewer

Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image Landsat / Copernicus
Image IBCAO
Image U.S. Geological Survey

Google Earth

Imagery Date: 12/14/2015 66°20'51.67" N 10°47'35.68" W elev -1367 m eye alt 6405.34 km

Returning adult salmon

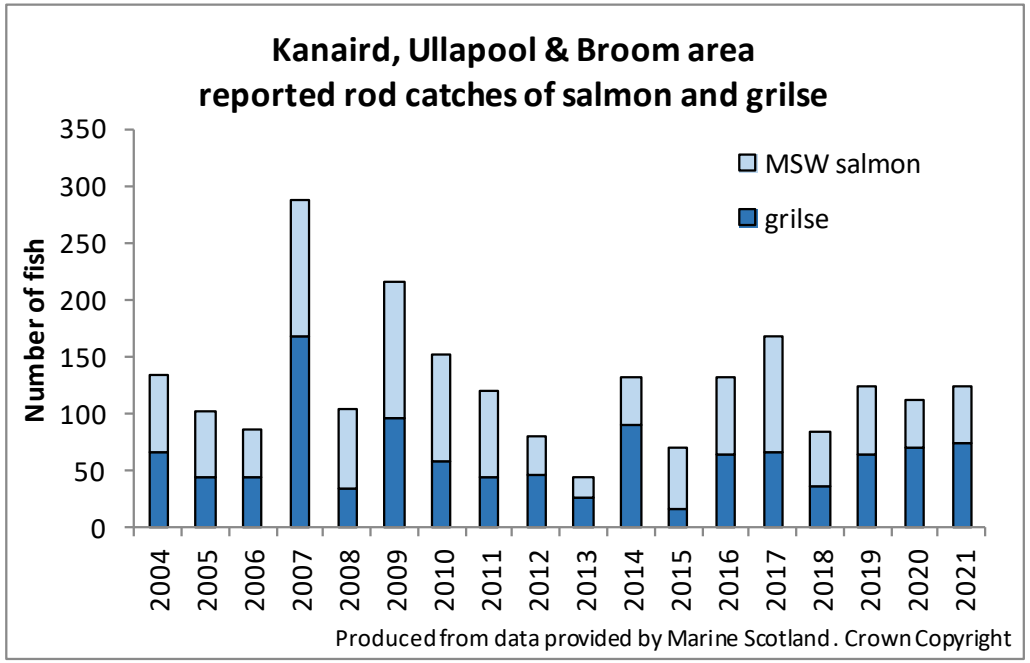


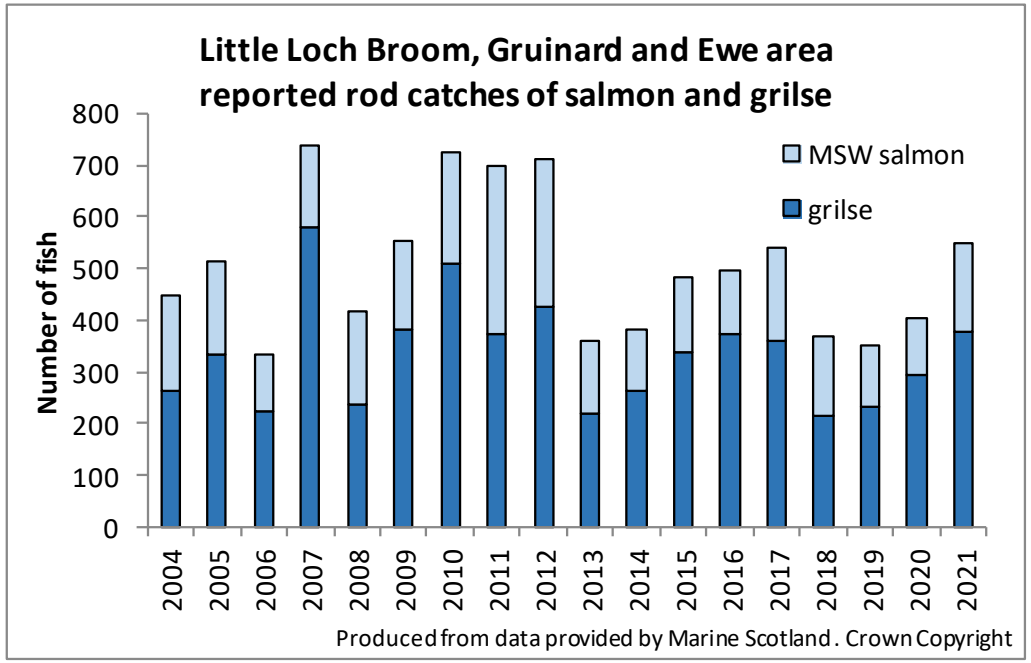
Releasing an adult salmon, September 2022

How many adult salmon return from the sea to freshwater?

How many salmon return to the rivers which flow into the Wester Ross MPA?

Rod catches:



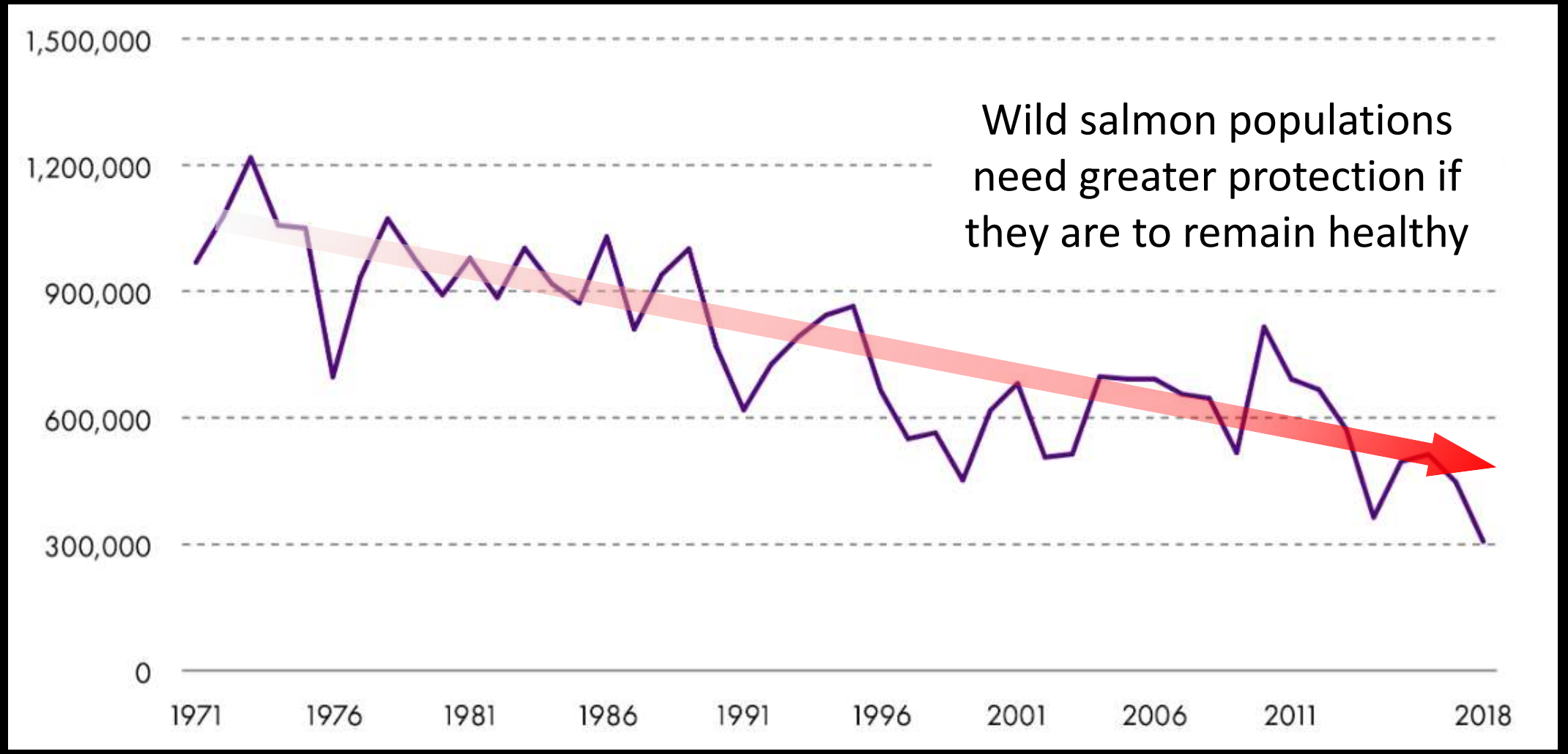


In a good year (since 2000), **around 1000 adult salmon and grilse** have been caught by anglers in the rivers which flow into the Wester Ross Marine Protected Area.

If the rod catch represents about 10% of the salmon that enter freshwater from the sea (studies suggest the rod catch can vary from <5% to >15% of the salmon that enter freshwater), then **perhaps over 10,000 adult salmon have returned from the sea to Wester Ross MPA rivers** in some recent years?

Historically, **this figure would have been much higher**.

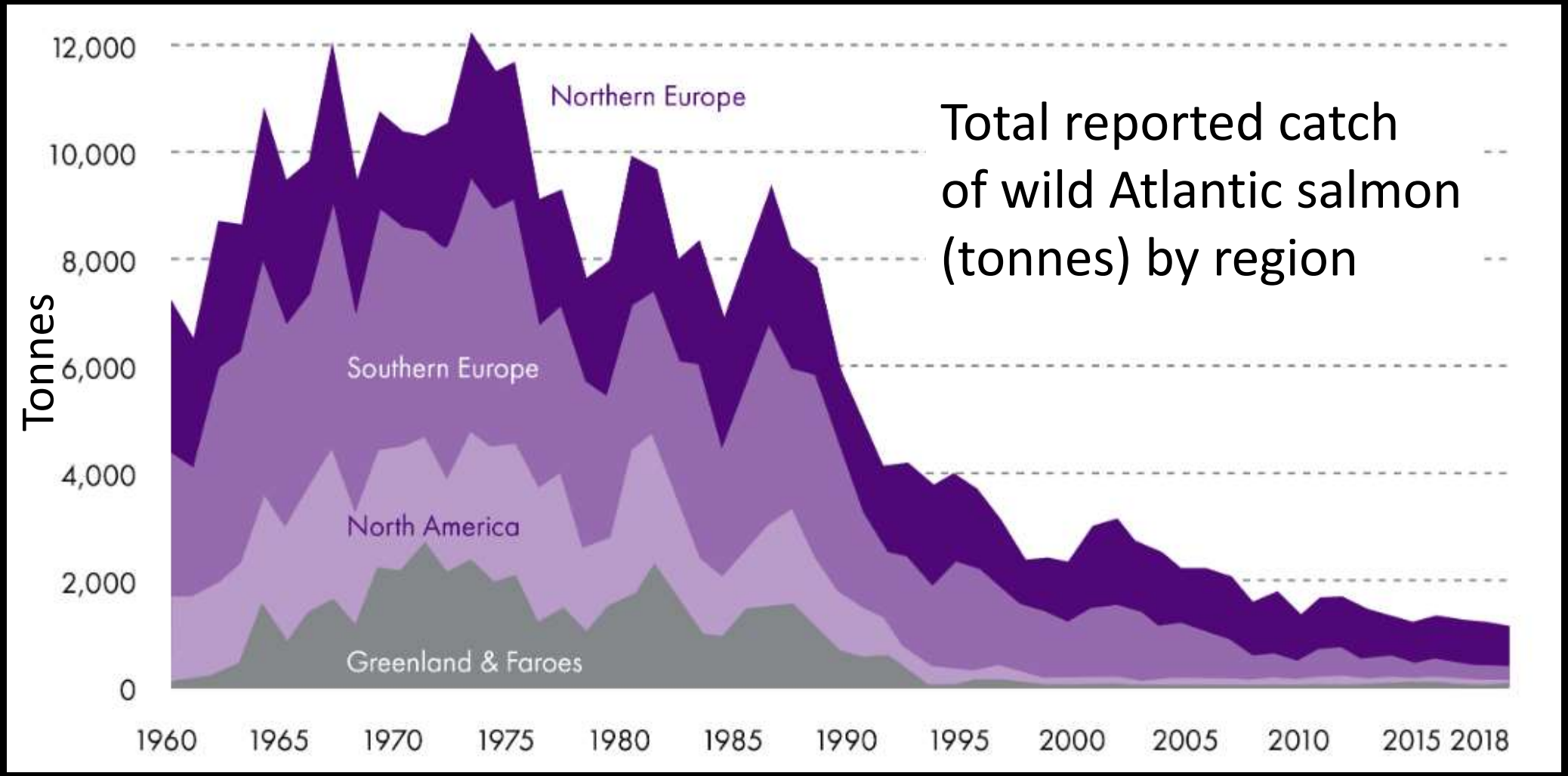
Estimated numbers of salmon returning to Scottish coastal waters



https://digitalpublications.parliament.scot/ResearchBriefings/Report/2019/8/19/Wild-Salmon#Salmon-fishery-statistics-2018

ICES. (2019). WORKING GROUP ON NORTH ATLANTIC SALMON (WGNAS). ICES Scientific Reports. 1:16. 368 pp. Retrieved from https://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/Fisheries%20Resources%20Steering%20Group/2019/WGNAS/WGNAS_2019.pdf [accessed 13 May 2019]

Numbers of wild Atlantic salmon have been declining almost everywhere



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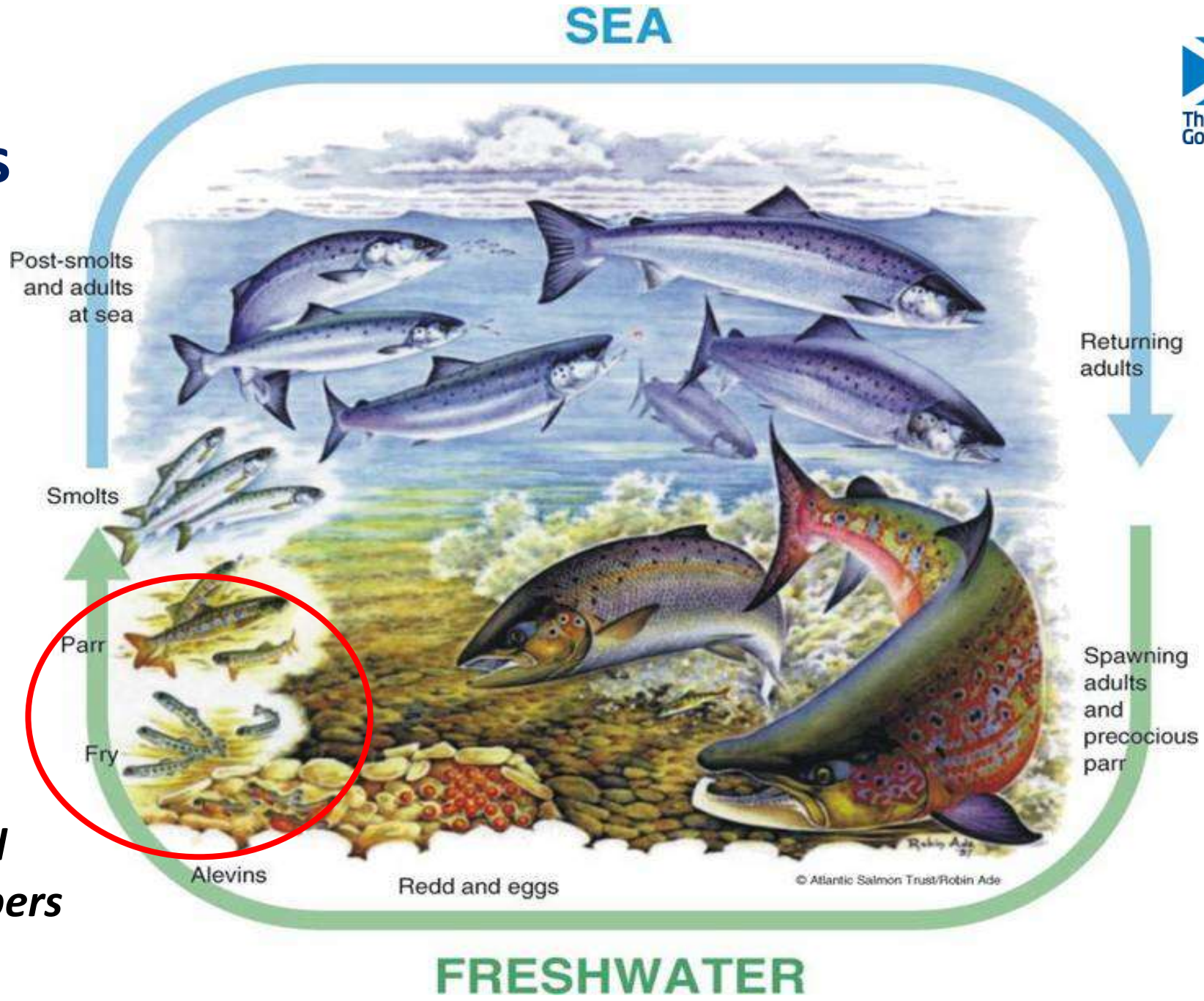
Juvenile fish surveys

- to look for **salmon fry** and **salmon parr**

Where can we still find healthy numbers of salmon?



Method:

Electro-fishing:

- an electric field is passed through the water
- fish swim towards the anode where they become immobilised
- fish are transferred to a bucket where they quickly recover . . .

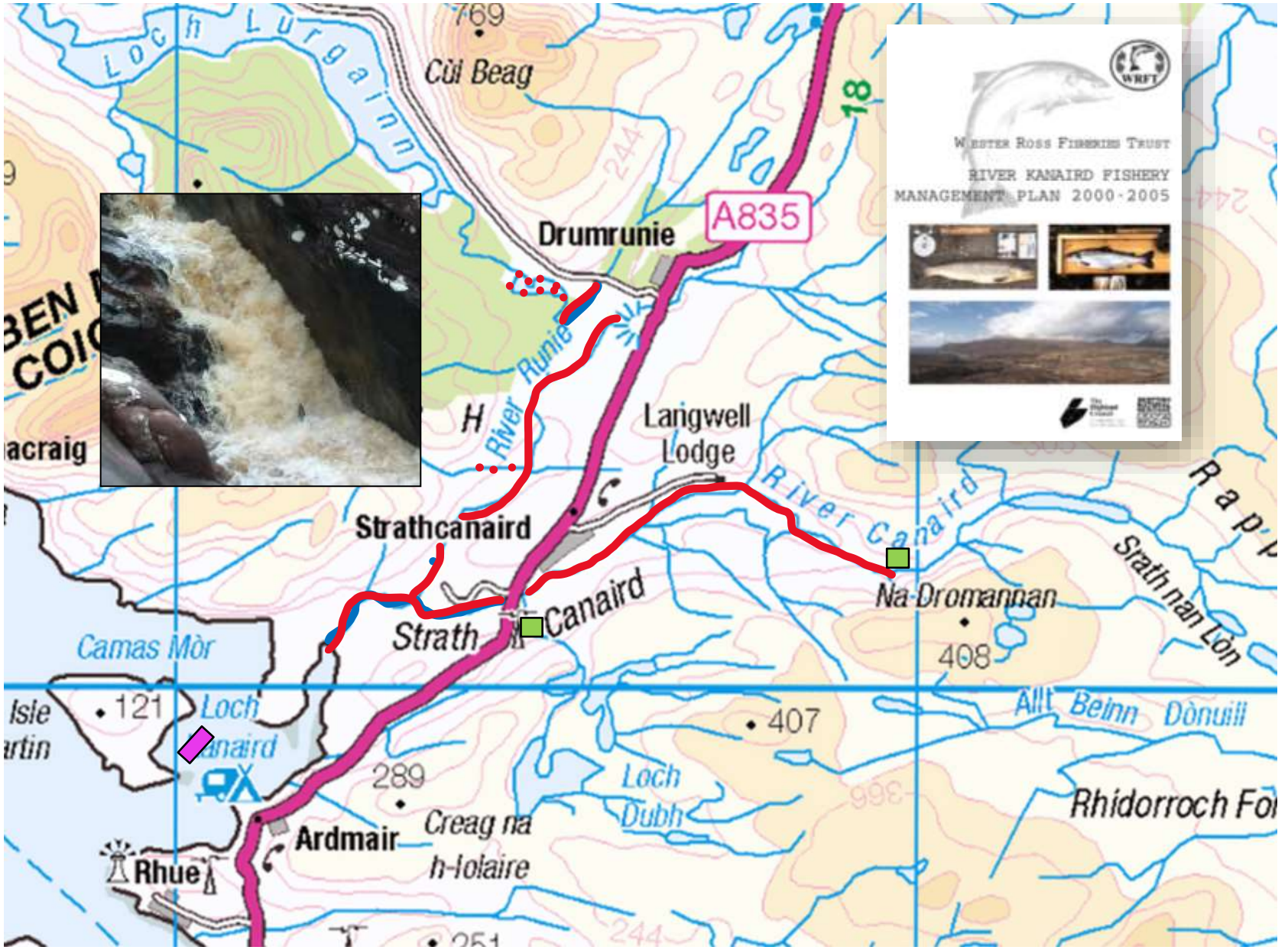
photo by John Macpherson, River Kerry, sometime back in ~2006!

then we lightly sedate and measure each fish before releasing them back into the river . . .

By the River Kerry, with SNH student volunteers, September 2016

River Kanaird system

- Runie falls – see the salmon jumping!
- Hydropower schemes
- Estuary is good place for sea trout
- Ardmair salmon farm nearby



River Kanaird,

August 2021

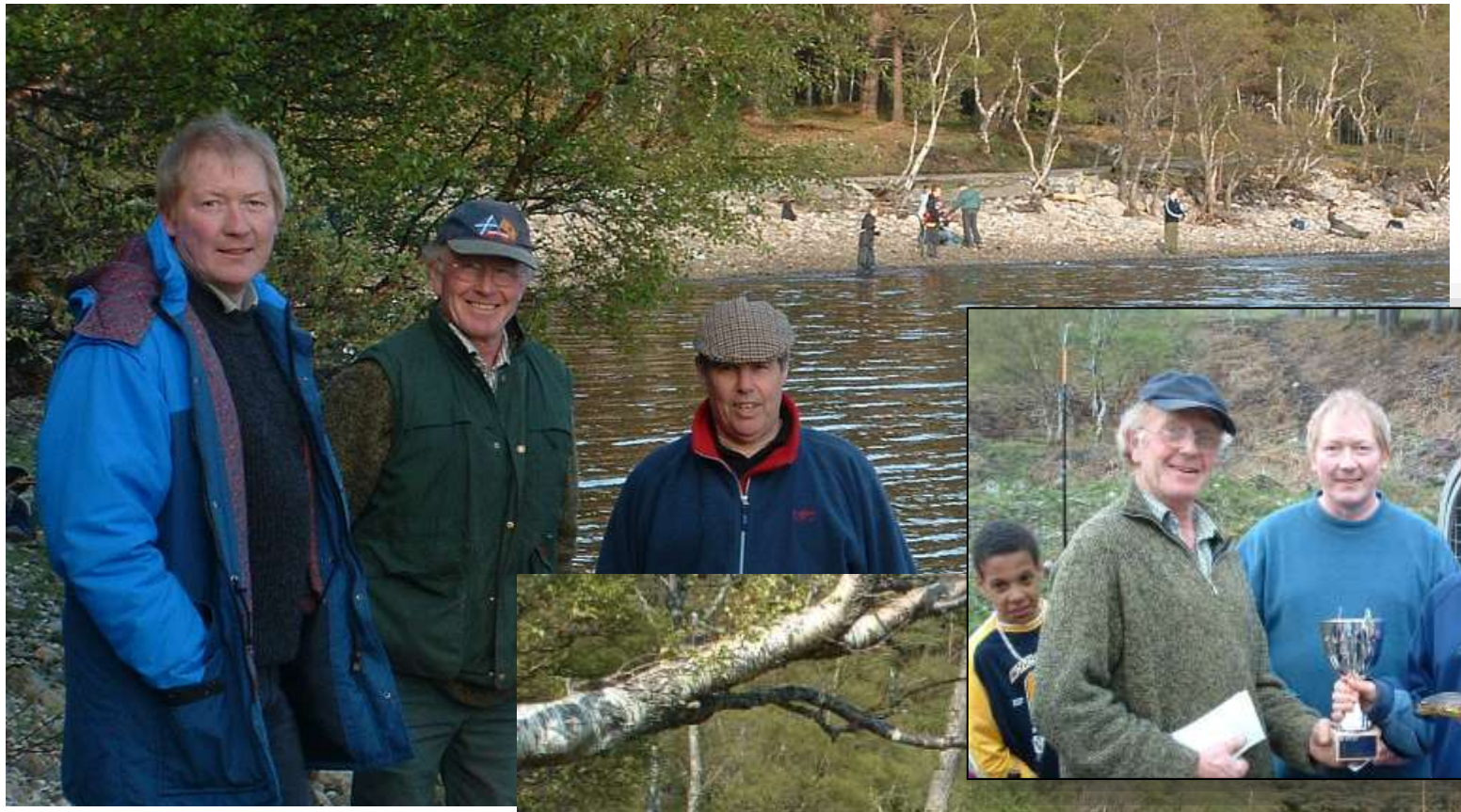
Plenty of salmon fry and plenty of parr in the main river.

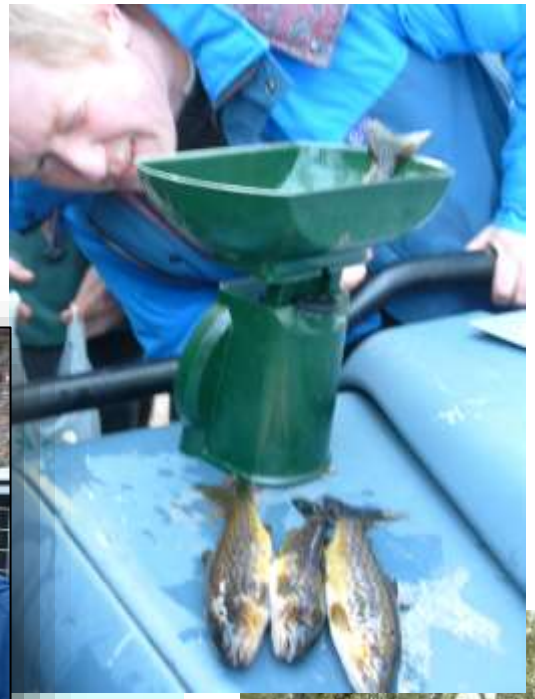
River Runie (Kanaird tributary)

September 2016

Ullapool River

- Ness falls – salmon get over but few sea trout
- Rhidorroch River salmon spawning stream . . .
- Loch Achall children's fishing expeditions for brown trout





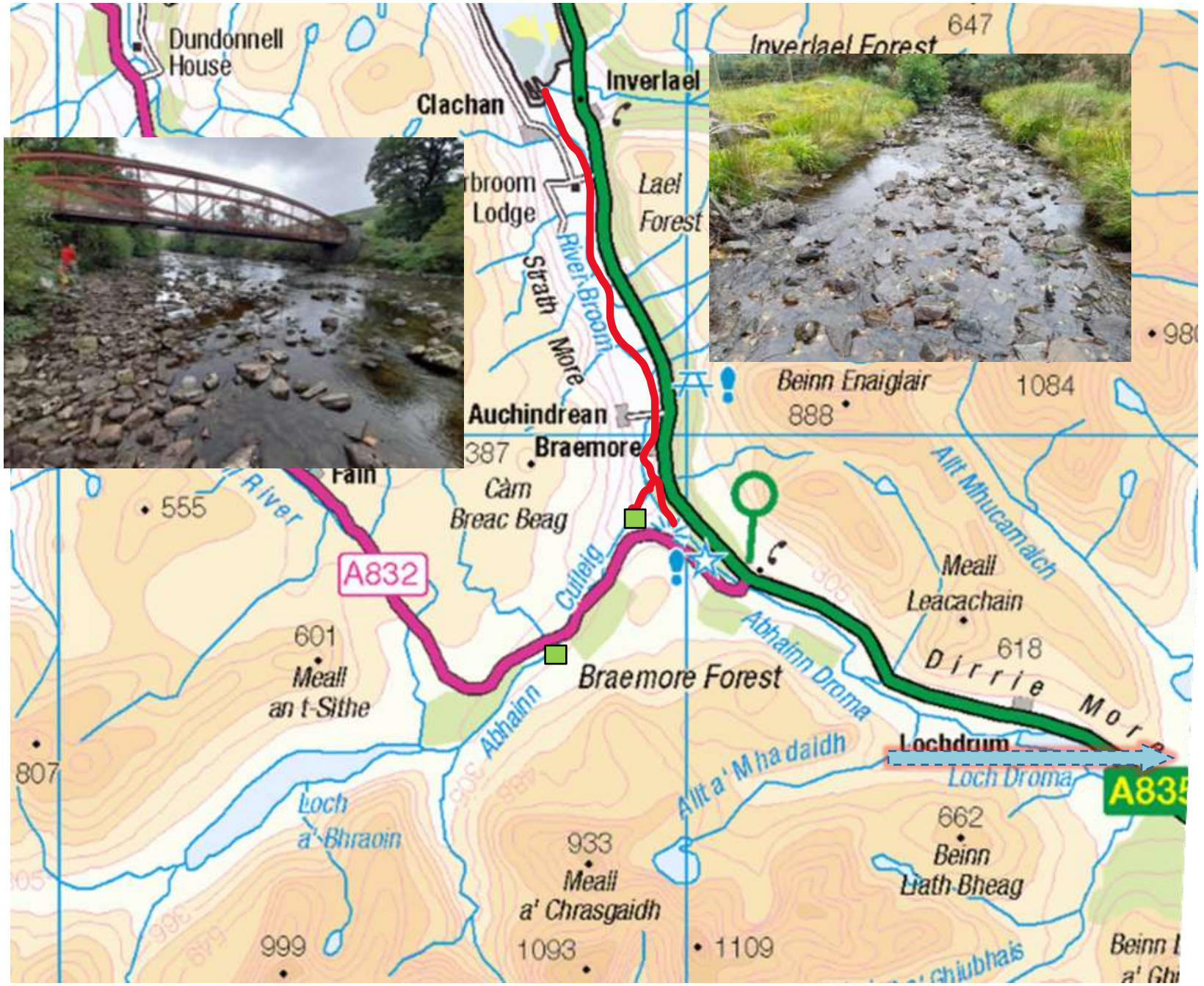
Ullapool children's fishing expedition

Loch Achall

May 2005, 2006 . . . .

River Broom

- Sir John Fowler realigned the river in the early 1900's
- Hydro-power schemes Droma & Cuileig
- Still good habitat for juvenile salmon



big Gruinard River

- Biggest area of good quality river habitat for juvenile salmon production
- Juvenile salmon grow slowly because not so much food . . .
- Different salmon populations below and above Loch na Sealga

Juvenile fish survey, Gleann na Muice, November 2014. photo by Ben Rushbrooke

Gruinard River

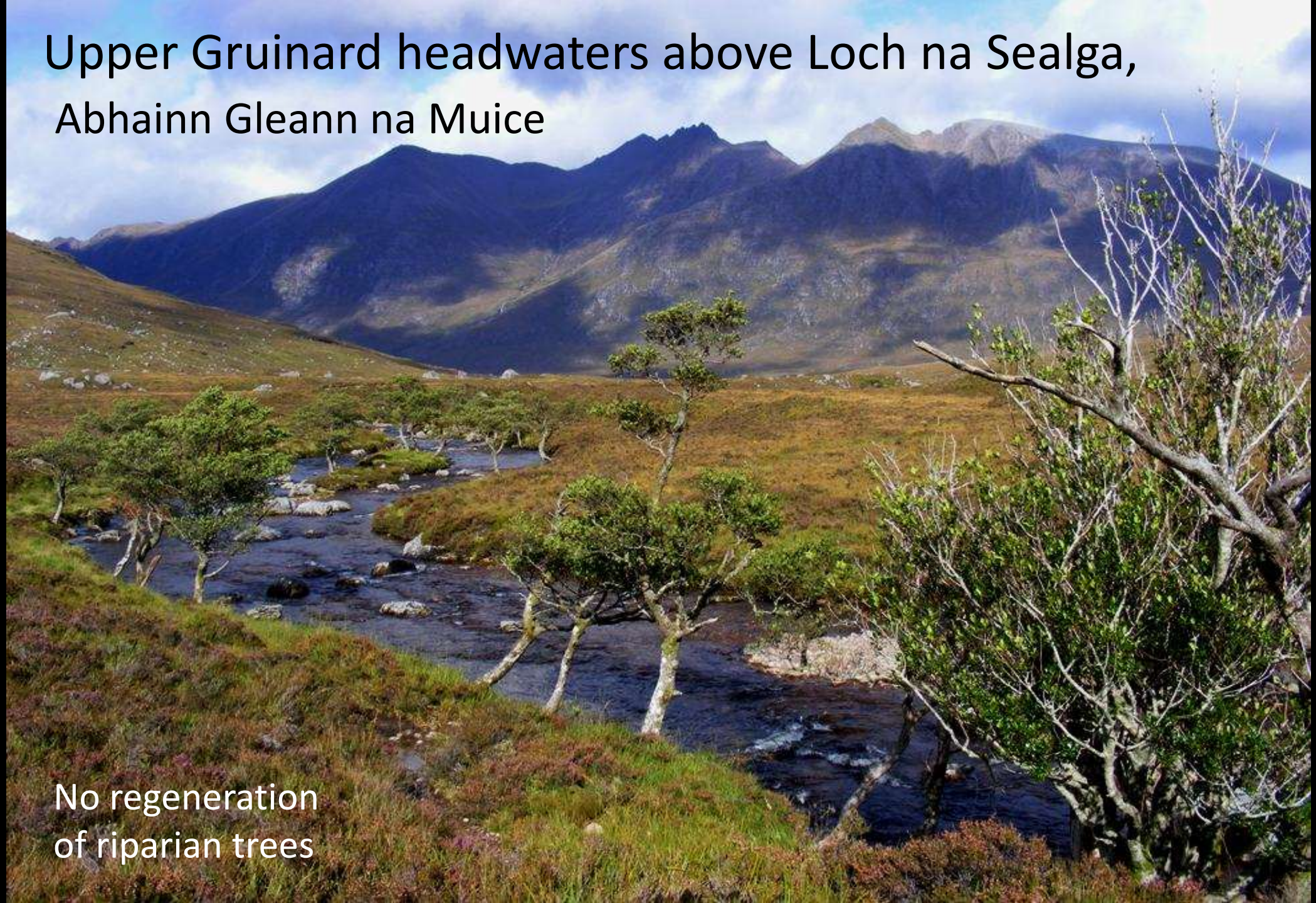
Main river very stable, superb physical habitat

Highest wild salmon in Wester Ross?

Allt Loch Ghuibsachain, 210m above sea level

Catch 10 November 2010

9 September 2015


Upper Gruinard headwaters above Loch na Sealga,
Abhainn Gleann na Muice
No regeneration
of riparian trees

Abhainn Gleann na Muice, 19 August 2021

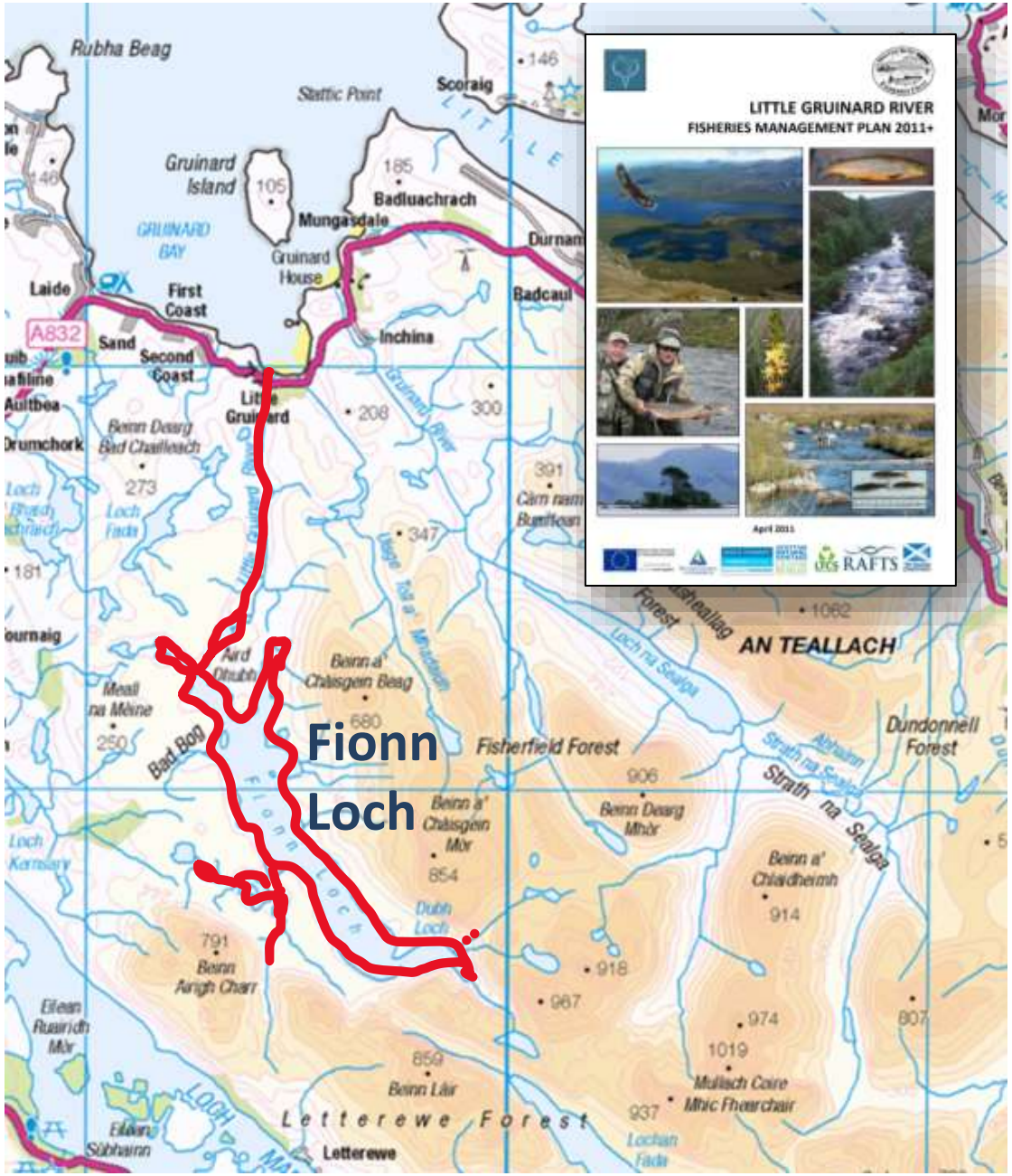
- Low densities of salmon fry and parr
- **River bank degradation**

One of many dead / dying riparian alder trees and root systems . . !

Little Gruinard River [SAC]

- Special Area of Conservation [SAC] for Atlantic Salmon
- Some salmon go all the way up main river into and beyond the Fionn Loch
- Few sea trout – do they struggle to get up the waterfalls?

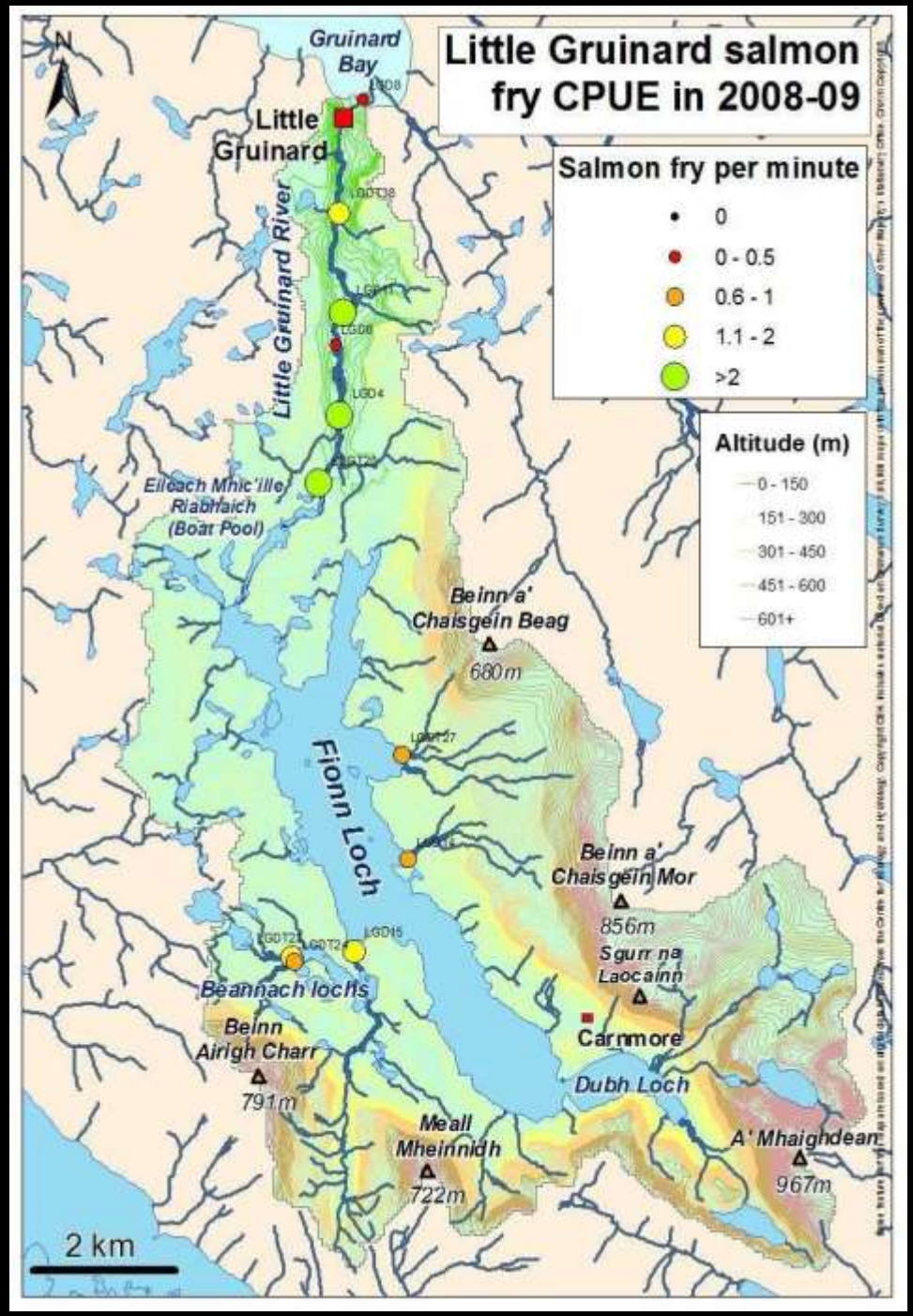
Geoffrey Billier by the boulder waterfalls near Little Gruinard, 2014



Juvenile salmon survey

Plenty of salmon fry and parr in the main river . . .

. . . but many of them are very small . . .



Little Gruinard River [SAC for Atlantic salmon]

6th August 2021 (the river was exceptionally low)

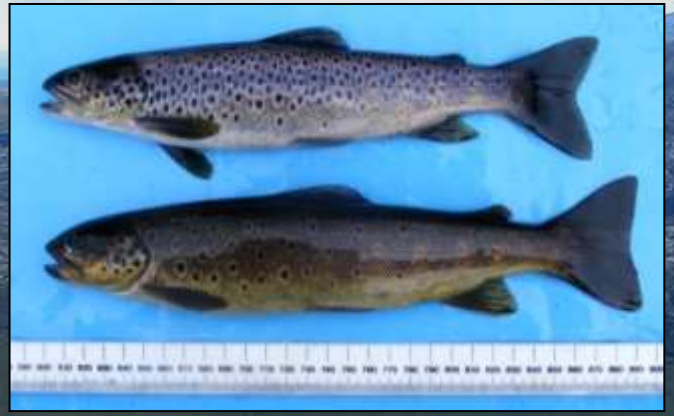
Near **First Flats**
•small fry and small parr

Top of river at **loch outflow**
• very big fast growing 1+ parr because of good feeding

Top Flats
•ancestral redds (salmon spawning places) exposed
• lots of very small fry

The Fionn Loch

Trout caught by Ala Mackenzie, 2004



Fionn Loch brown trout, Sept 2017

A special place for conserving wild fish genetic diversity . . .

Piscivorous trout and prey:
juvenile char, salmon & trout
Fionn Loch, Sept 2017

Fionn Loch from Beinn Airigh charr

Little Gruinard River headwaters survey above Fionn Loch

10 August 2021

- Salmon fry and parr in main burns at moderate to good densities

- Midgiest survey day of the year . . .

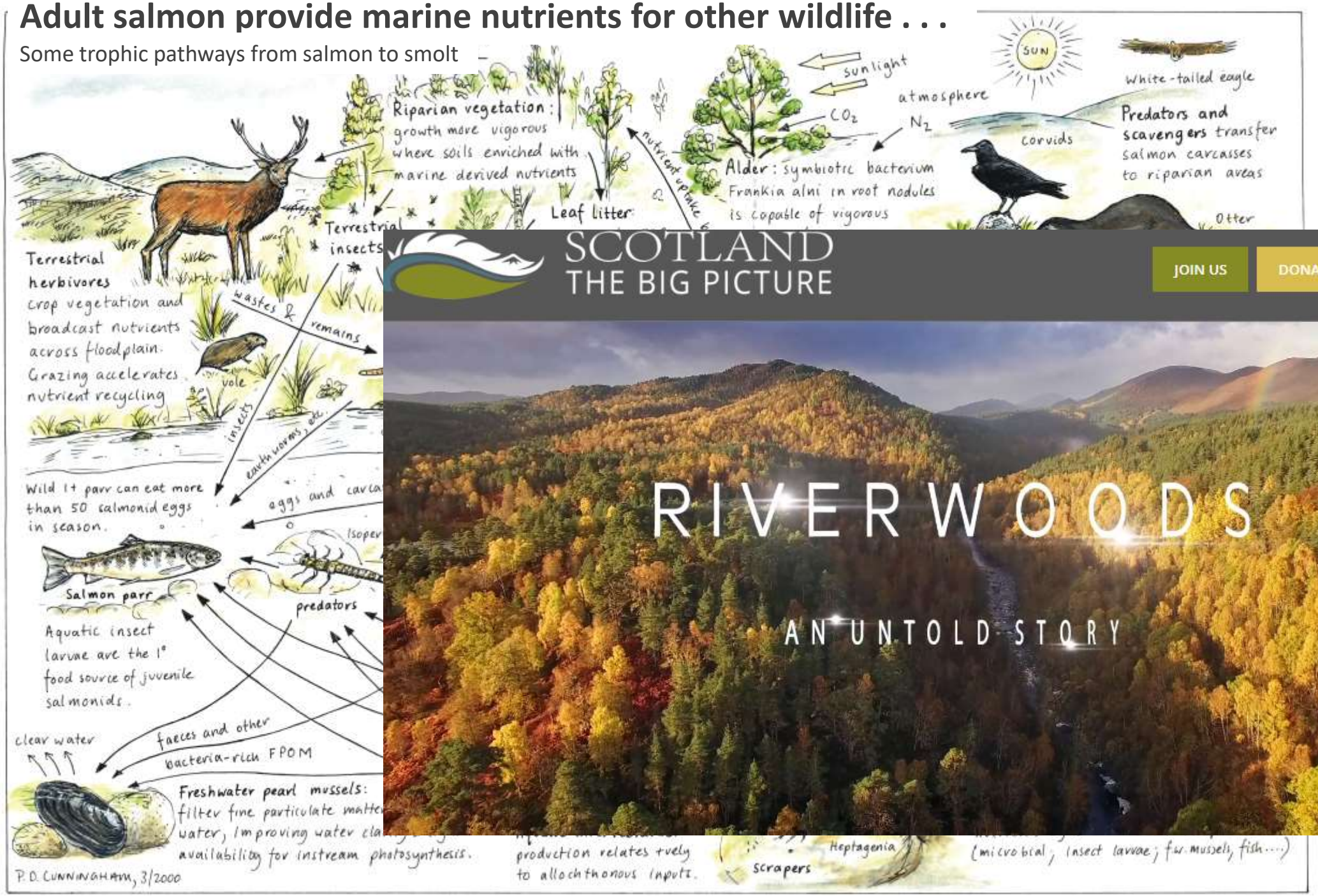
  Colin got a **fist-full of midges** from inside waders!

Most Atlantic salmon return to freshwater only once to spawn . . .

Salmon jaw and primroses,
as found, May 2010

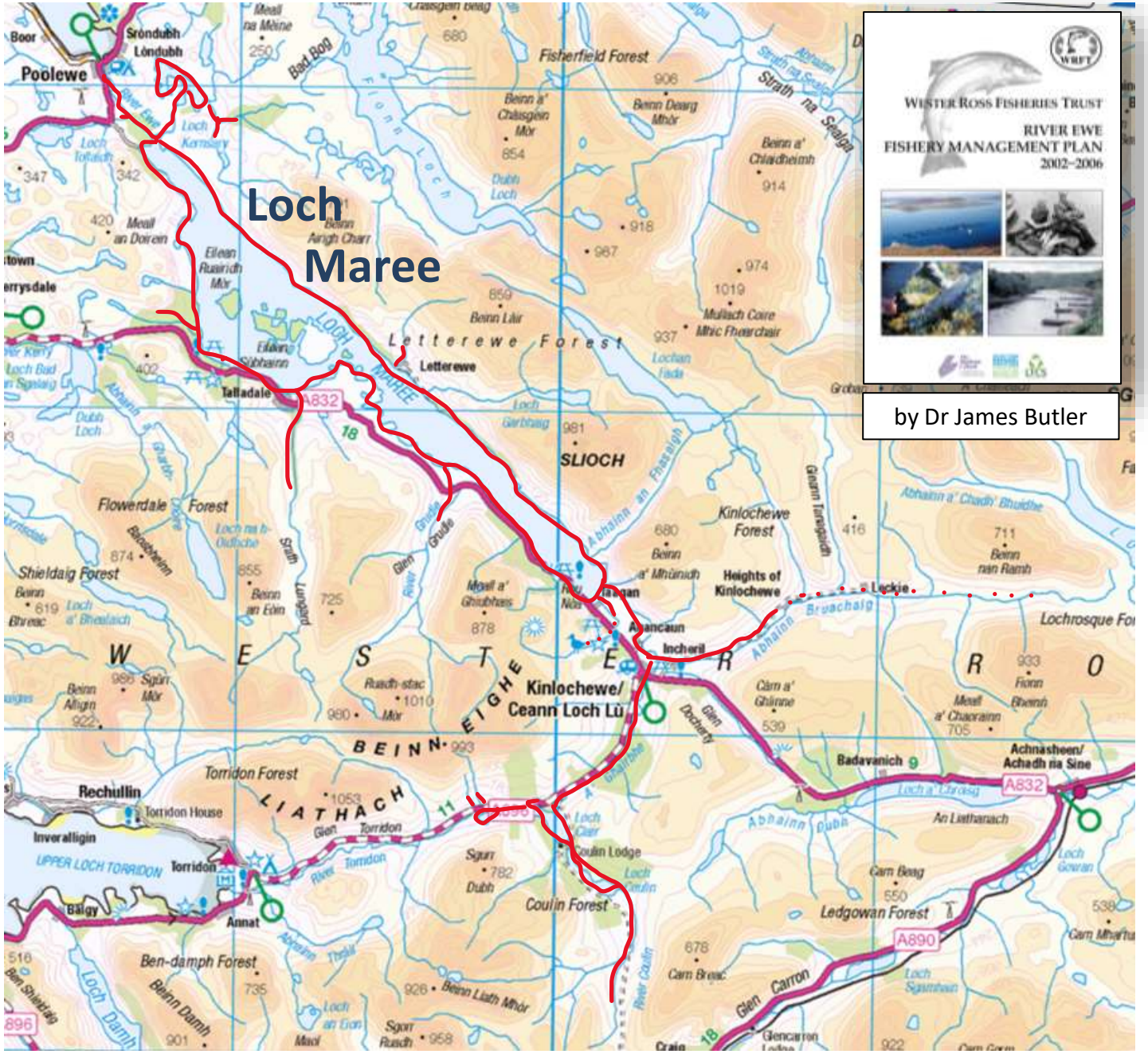
Adult salmon provide marine nutrients for other wildlife . . .

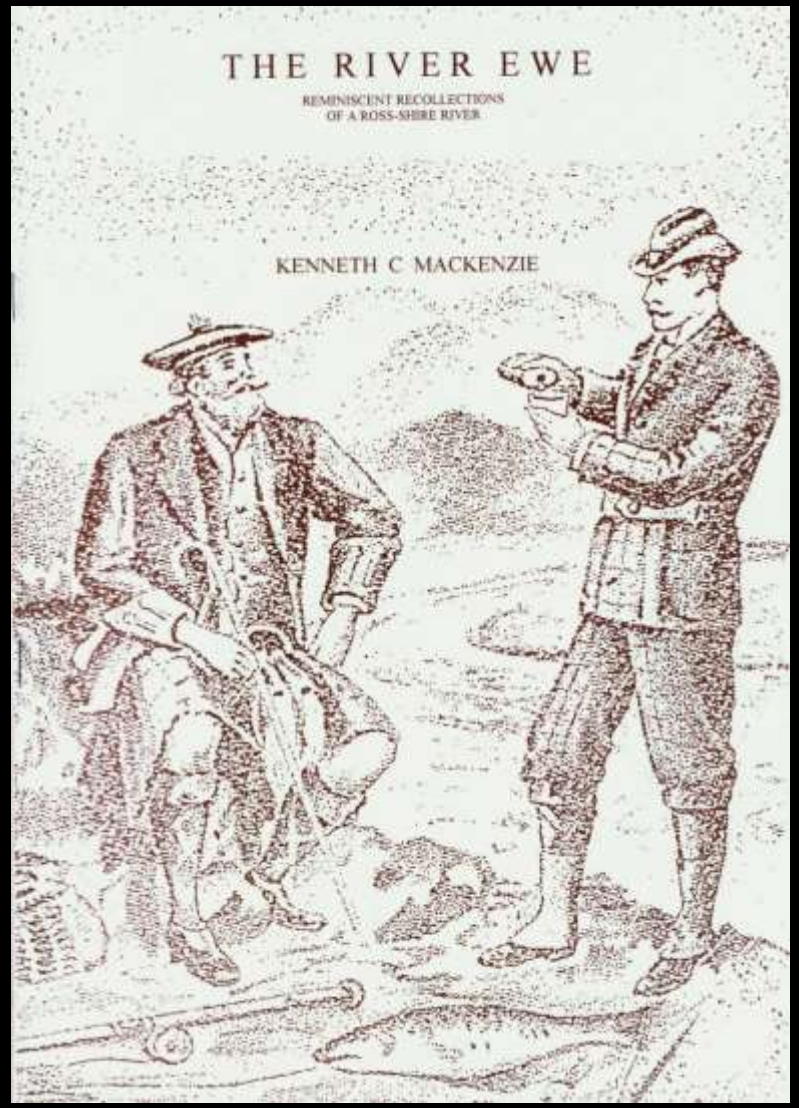
Some trophic pathways from salmon to smolt



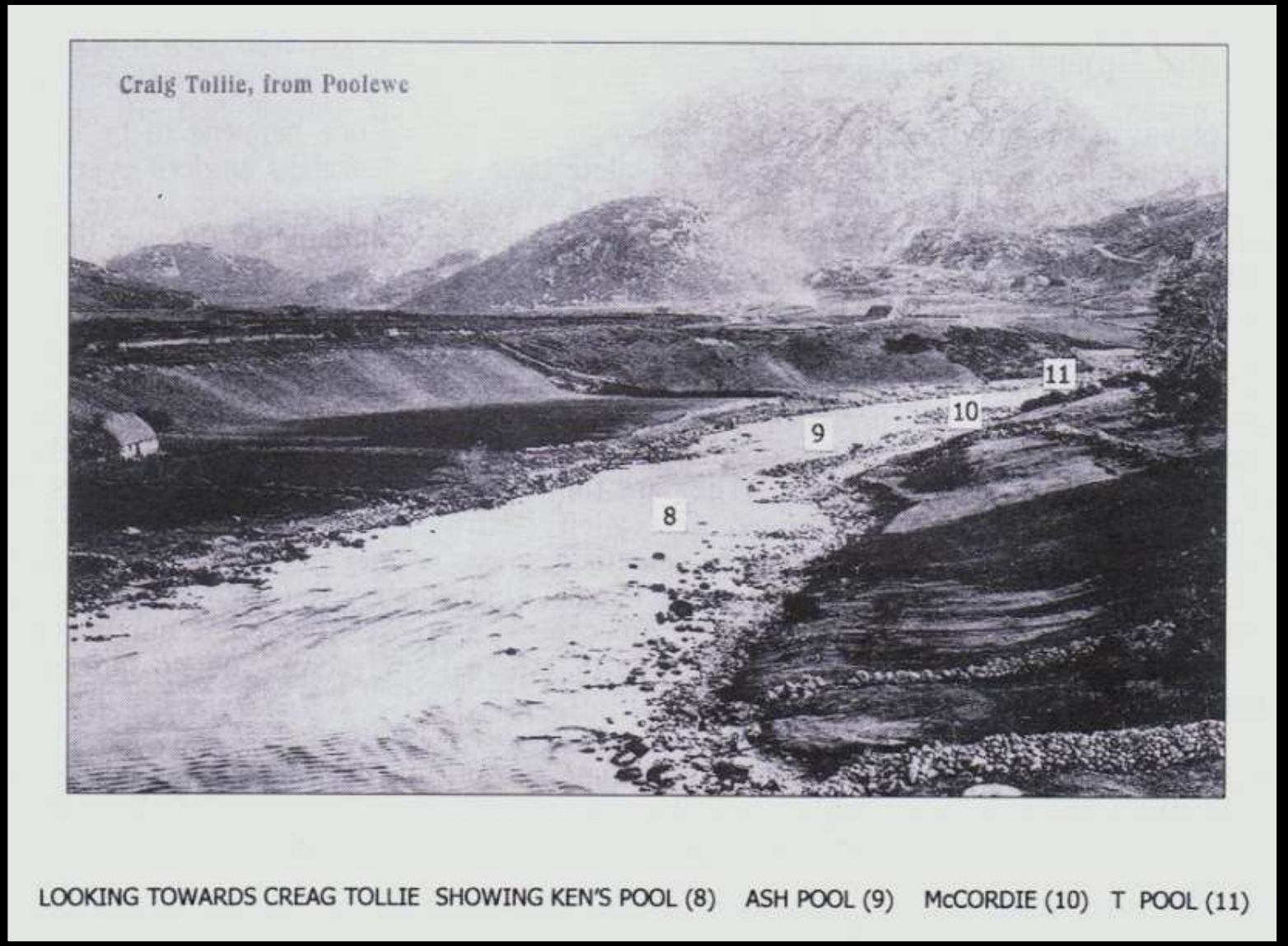
River Ewe – Loch Maree system

- A special place for angling and for wildlife conservation
- Famous for both salmon and sea trout fisheries
- Possibly the biggest and oldest salmon in Scotland . . .
- Information about fisheries in Dr James Butler's River Ewe Fisheries Management Plan





The River Ewe is famous for stories of big salmon . . .



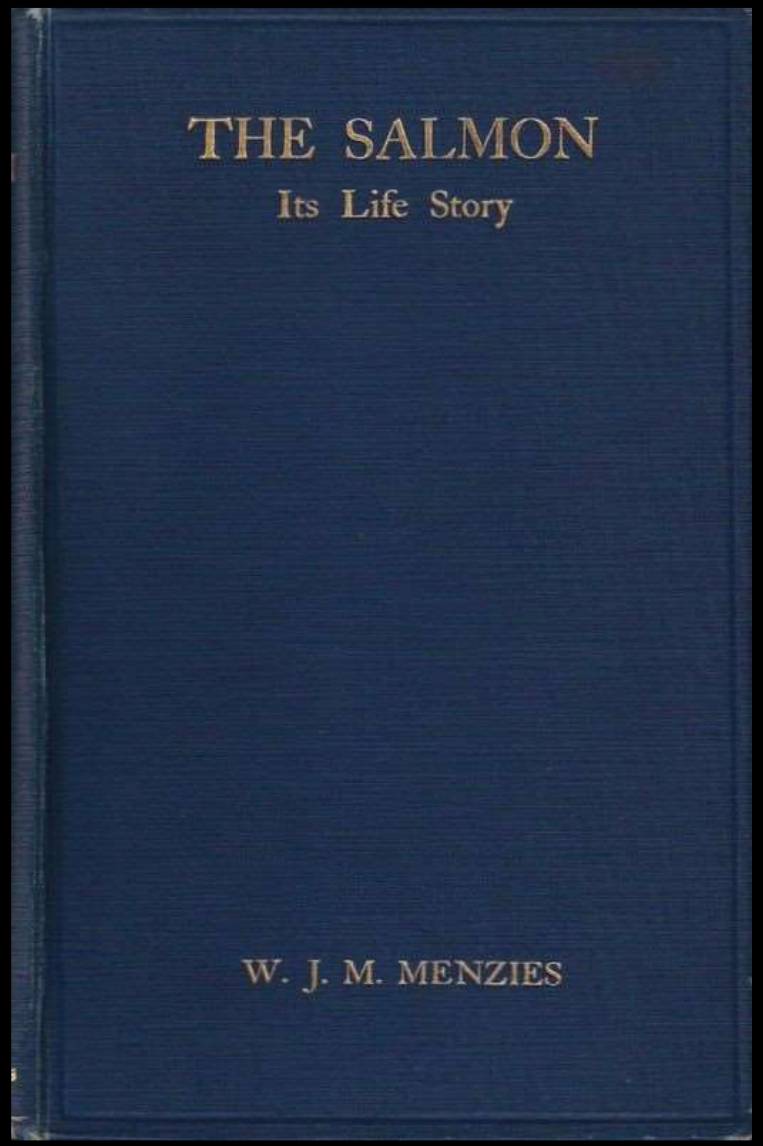
This fish . . .

(of estimated weight 35lb before an otter had eaten part of it. . .)

. . . was found by the side of the River Ewe in January 2003

Europe's oldest wild salmon?

Caught in Loch Maree in May 1924.



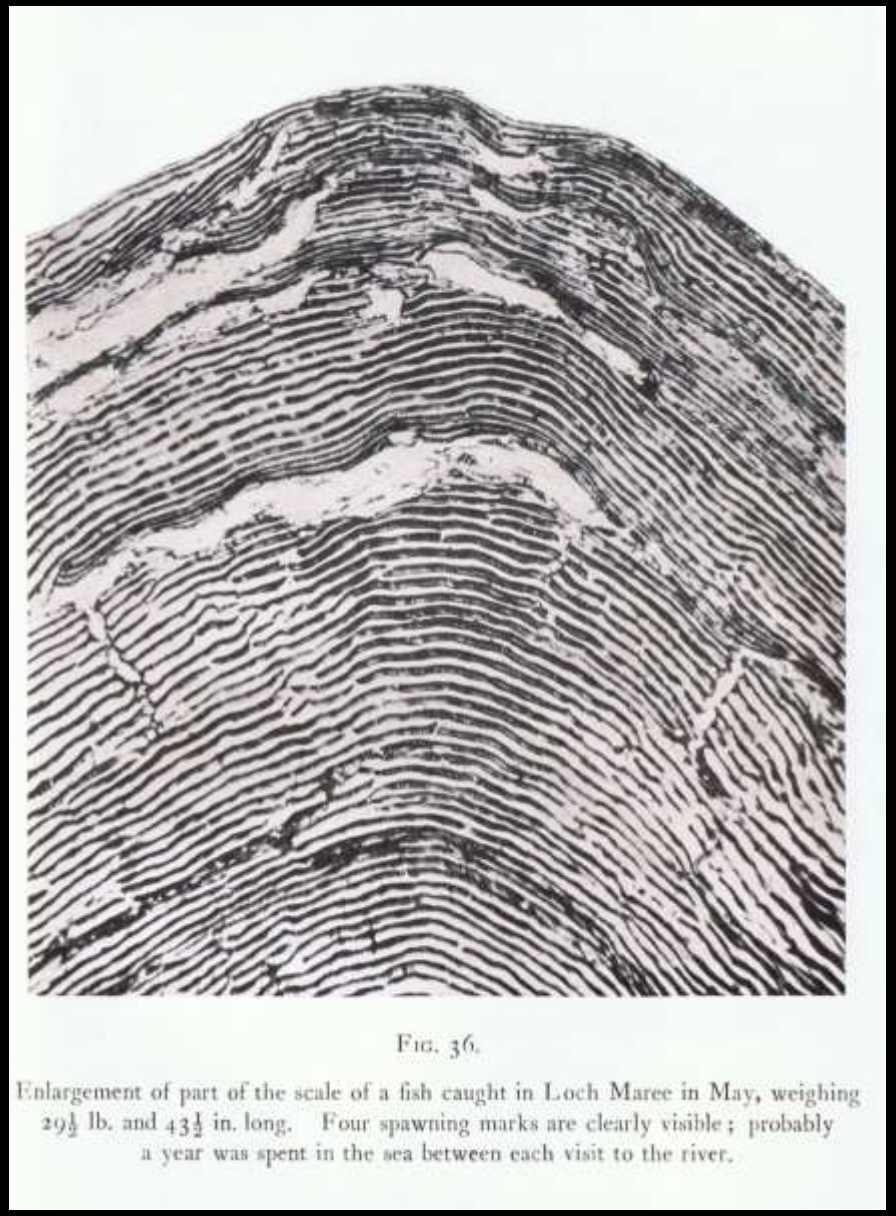


FIG. 36.

Enlargement of part of the scale of a fish caught in Loch Maree in May, weighing 29½ lb. and 43½ in. long. Four spawning marks are clearly visible; probably a year was spent in the sea between each visit to the river.

weight 29.5 lb

returning to freshwater to spawn for a 5th time.

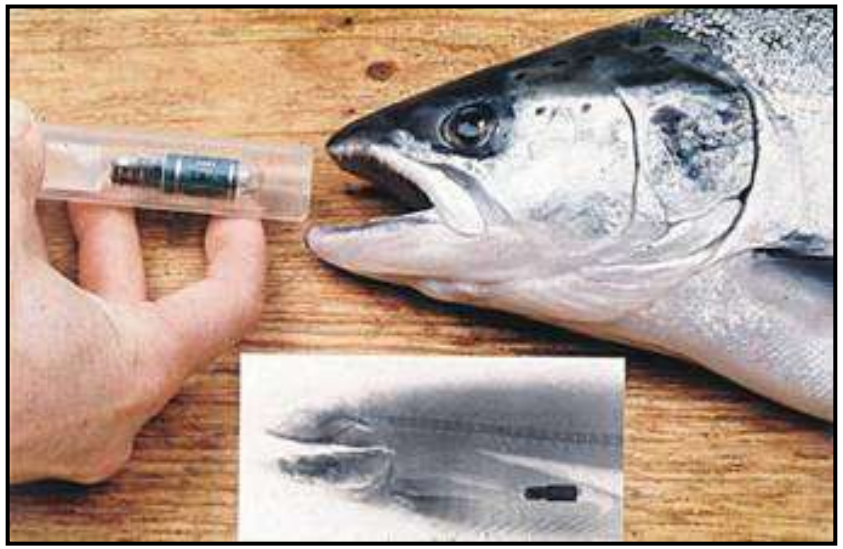
Estimated age **13 years old**

Where do the salmon that enter the River Ewe go to spawn?

2001 radio-tracking study of 25 rod caught, radio-tagged and released salmon

. . .

Radio Tracking



Releasing tagged salmon

Tracking tagged salmon

River Ewe wild salmon radio tracking project 2001

*

***'Guy'** (male salmon 61cm, age 2.1+)*

Caught, tagged and released here in September, 2001

*(*61cm male salmon from Gruinard River 3rd September 2022!)*

Macordie Pool, River Ewe

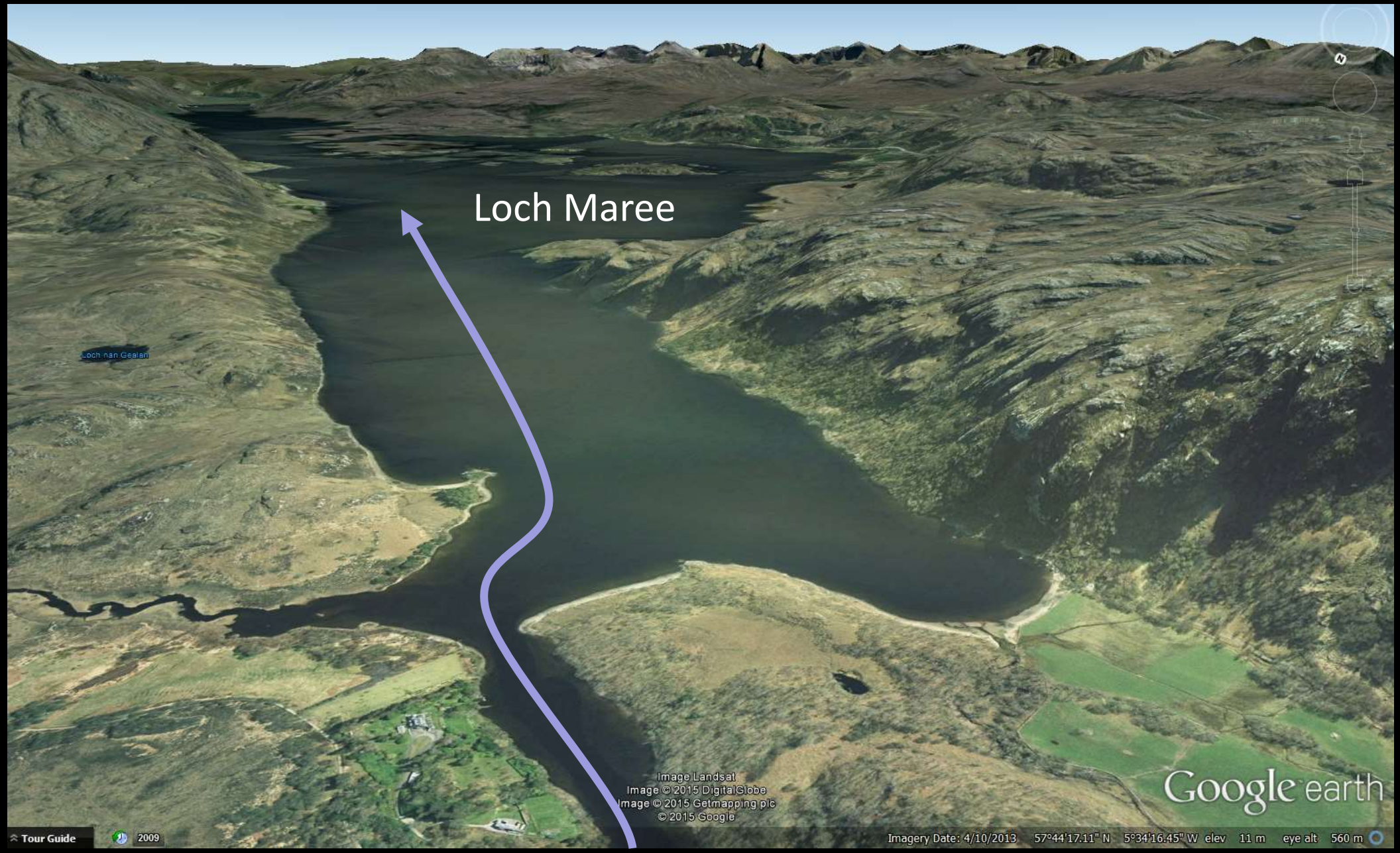

Loch Maree
Loch nan Gealan
Image Landsat
Image © 2015 DigitalGlobe
Image © 2015 Getmapping plc
© 2015 Google
Google earth
Tour Guide
2009
Imagery Date: 4/10/2013 57°44'17.11" N 5°34'16.45" W elev 11 m eye alt 560 m


Image Landsat
Image © 2015 DigitalGlobe
Image © 2015 GeoImaging Ltd
© 2015 Google
Google earth
Tour Guide
2011
Imagery Date: 4/18/2014 57°37'19.98" N 5°18'59.39" W elev 14 m eye alt 560 m

Kinlochewe River above Loch Maree

Guy's radio tag found here

flow

Bottleneck: at low water adult salmon were unable to pass over ford because the river was **too shallow**!

male salmon **Guy** was assumed to have been taken by an otter here around 30th November 2001

Anancaun (*'ford of heads'*), Kinlochewe River


Large male salmon in Kinlochewe River
Large salmon are more vulnerable in shallow rivers.
From video by Andy Jackson

Wild salmon are an important food source for other wildlife

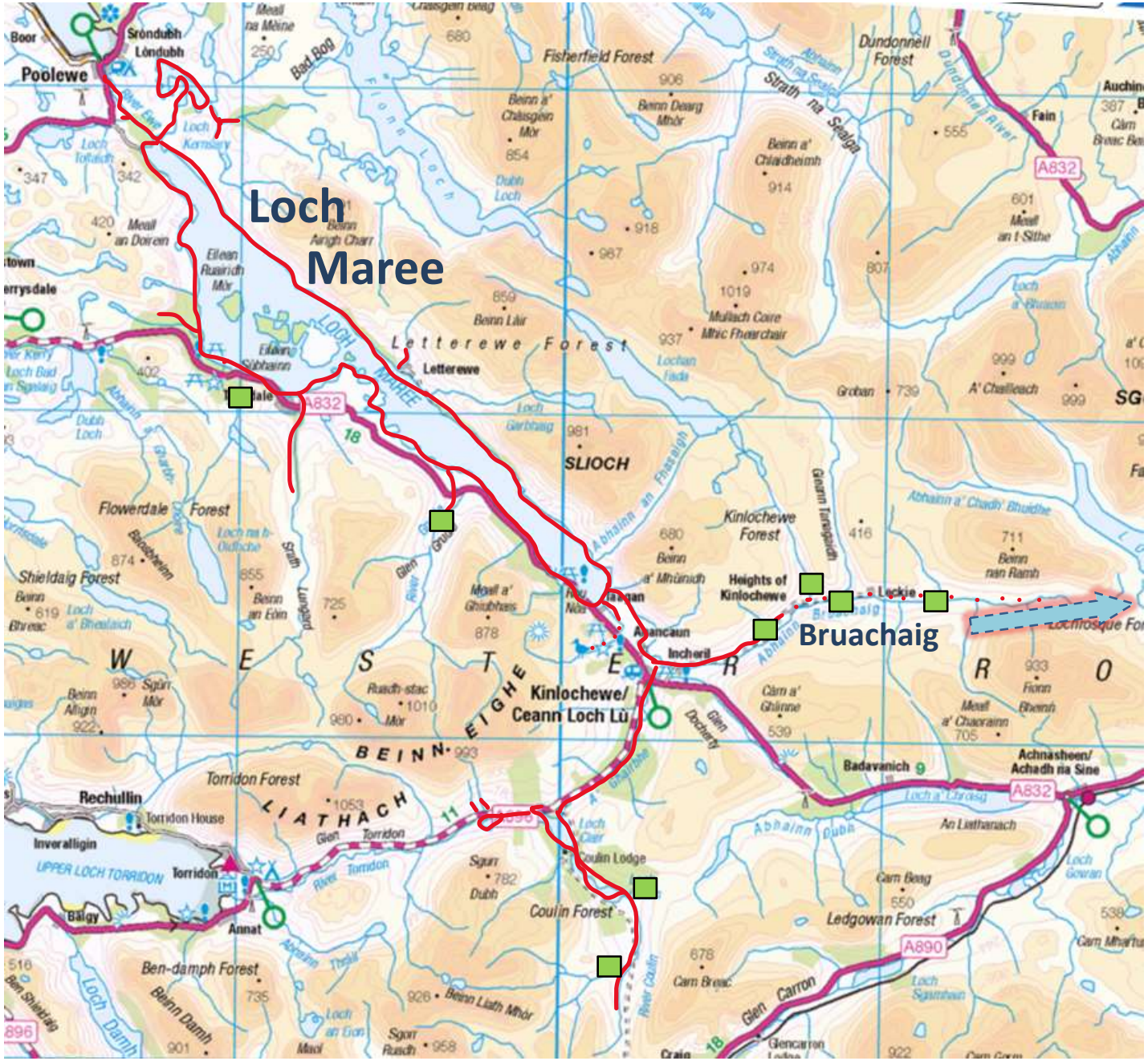
Otter kill

(Andrew Harwood)

River Ewe – Loch Maree system

- Famous for both salmon and sea trout
- Possibly the biggest and oldest salmon in Scotland . . .
- Hydro schemes

Bruachaig falls hydro scheme powerhouse



River Ewe system

Bruachaig River above falls hydro, 16th September 2021

- Hydro Power scheme fish monitoring contract sites
- **No salmon fry** (so no spawning in previous 2020)
- **low densities of big parr** (no spawning in 2019)
- **Huge salmon parr** (196mm) found at top site close to second powerhouse!
- Big parr progeny of **salmon spawned above falls in 2017 or 2018** (aged by scale reading)

By coincidence

Six major salmon rivers flow into the Wester Ross MPA!

Also several smaller rivers with wild salmon . . .

https://marinescotland.atkinsgeospatial.com/nmpi/

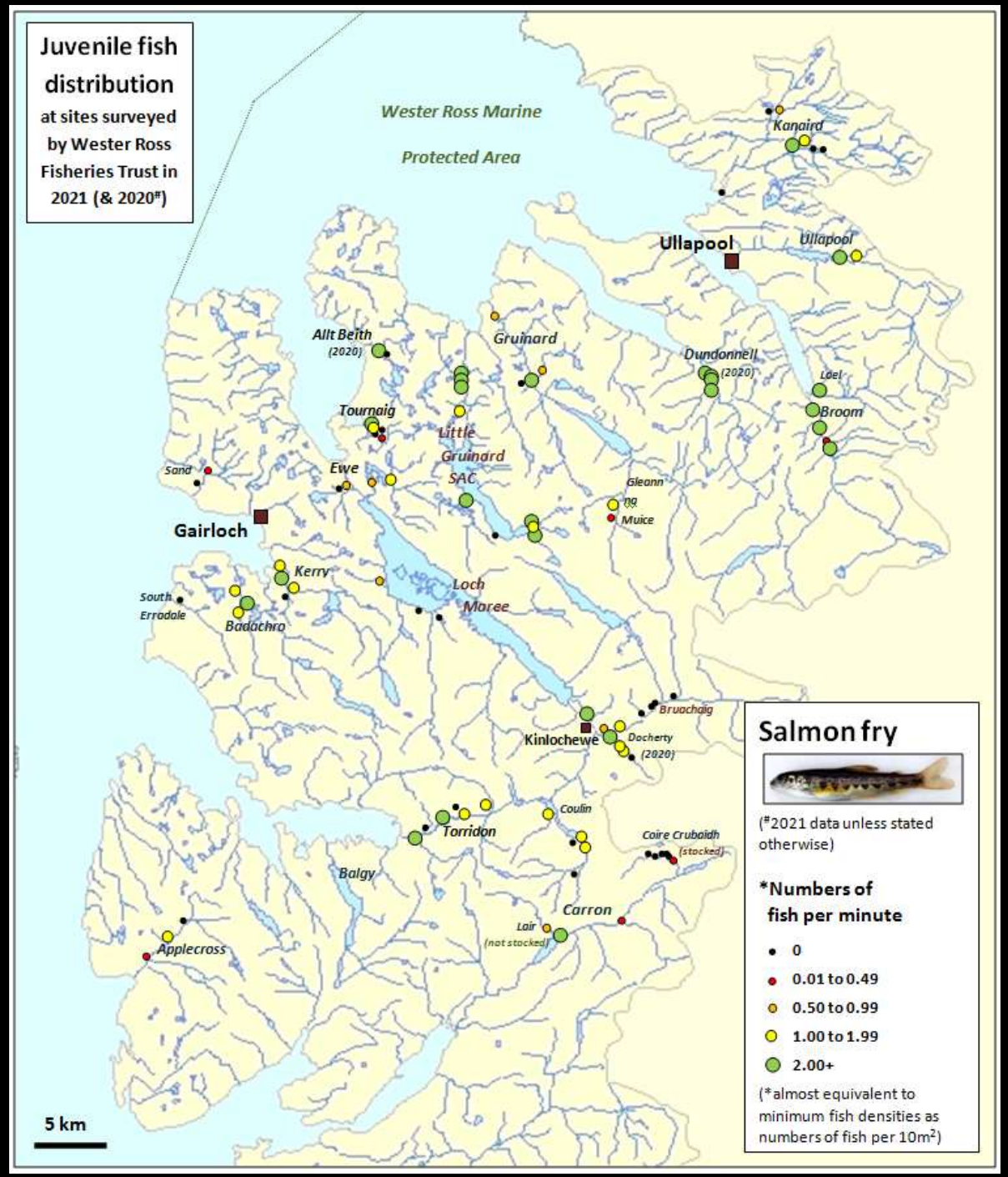
Allt Beith (Aultbea River), 26th August 2017

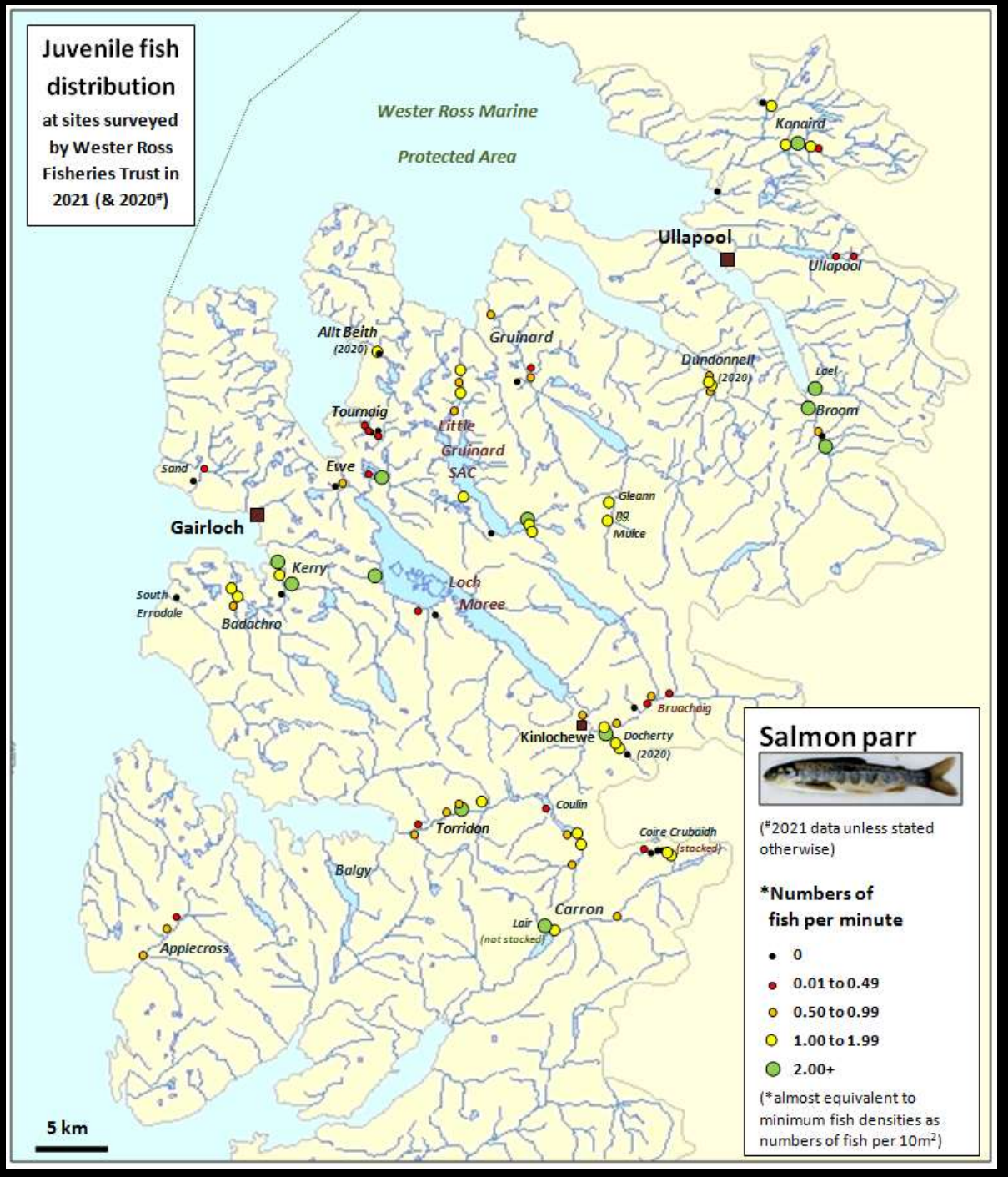
Biggest salmon parr (just below dam)

Colin Simpson recording fish data

Allt Beith juvenile fish survey August 2022

Colin Simpson,
Fee MacKenzie,
Chloe & Anthony Hall


Juvenile fish distribution
at sites surveyed by Wester Ross Fisheries Trust in 2021 (& 2020#)
Wester Ross Marine
Protected Area
Kanaird
Ullapool
Ullapool
Allt Beith (2020)
Gruinard
Dundonnell (2020)
Loel
Broom
Tournaig
Little Gruinard SAC
Sand
Ewe
Gleann na Muice
Gairloch
Kerry
Loch Maree
South Erradale
Badachro
Bruachaig
Kinlochewe
Docherty (2020)
Coulin
Torridon
Coire Crubaidh (stocked)
Balgy
Carron
Lair (not stocked)
Applecross
5 km
Salmon fry
(#2021 data unless stated otherwise)
*Numbers of fish per minute
0
0.01 to 0.49
0.50 to 0.99
1.00 to 1.99
2.00+
(*almost equivalent to minimum fish densities as numbers of fish per 10m²)


Juvenile fish distribution
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Broom
Tournaig
Little Gruinard SAC
Sand
Ewe
Gleann na Muice
Gairloch
Kerry
Loch Maree
South Erradale
Badachro
Bruachaig
Kinlochewe
Docherty (2020)
Coulin
Torridon
Coire Crubaidh (stocked)
Balgy
Carron
Lair (not stocked)
Applecross
5 km
Salmon parr
(#2021 data unless stated otherwise)
*Numbers of fish per minute
0
0.01 to 0.49
0.50 to 0.99
1.00 to 1.99
2.00+
(*almost equivalent to minimum fish densities as numbers of fish per 10m²)

Compiled by Peter Cunningham, Wester Ross Fisheries Trust Biologist, info@wrft.org.uk

River system	Estimated potential smolt output[1]	Conser-vation grade 2022[2]	Genetic status 2021[3].
Kanaird	10500	2	mod
Ullapool	9700	2	good
Lael	1500		
Broom	6900	1	
Dundonnell	3100	3	mod
Gruinard	19700	1	good
Little Gruinard	14600	3	
(SAC)			
Allt Beith	800		
Tournaig	600		
Ewe	49800	1	
			good
			good
			mod
Sguod	500		
Sand	500		
Kerry	4000	3	good
Badachro	3600	3	
Torridon	8300	3	good
Balgy	5400	3	poor
Cuaig	1600		
Applecross	4200	3	
(Carron)	(25000)		

Sources / notes: 1. Potential smolt output estimates from

Conservation grade & genetic status of wild salmon populations

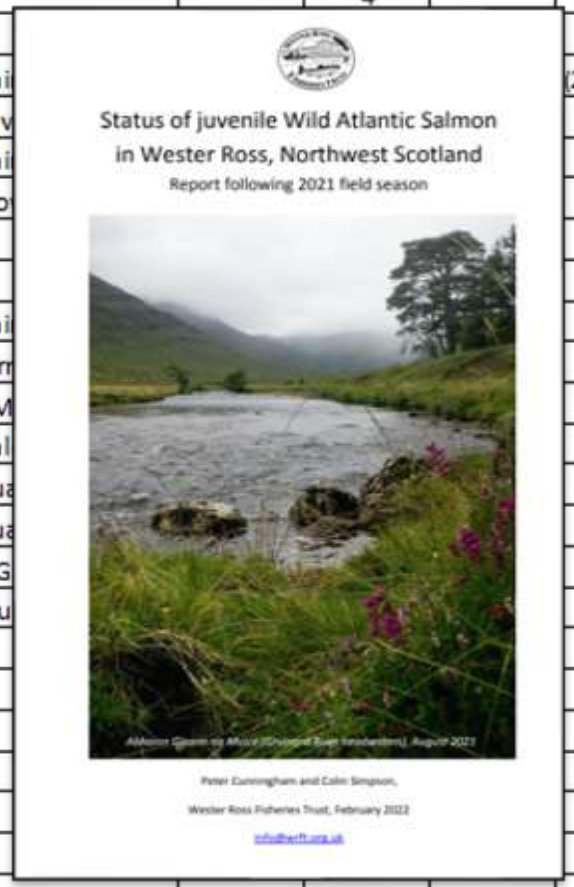
Photo by Ben Rushbrooke

Escaped farm salmon (top) & wild salmon (bottom)

Compiled by Peter Cunningham, Wester Ross Fisheries Trust Biologist, info@wrft.org.uk

Status of wild juvenile salmon populations

River system	Estimated potential smolt output[1]	Conser-vation grade 2022[2]	Genetic status 2021[3]	River system	Sub-catchment	Juvenile fish survey - number of electro-fishing sites surveyed by WRFT in 2021				Status[4]	Comments & Actions needed
Kanaird	10500	2	mod	Kanaird						mod	Langwell falls!
				Kanaird						good?	
Ullapool	9700	2	good	Ullapool							
				Ullapool	Kindochy	2				mod	Catchment sediment management
Lael	1500			Lael			1				
Broom	6900	1		Broom			4			good	
Dundonnell	3100	3	mod	Dundonnell							2020 survey fry high; 2019 survey fry low
Gruinard	19700	1	good	Gruinard	mai				(2 SEPA sites)	good?	Impoverished (not enough food . . .)
				Gruinard	ab'v					mod	Riparian habitat! Impoversished
Little Gruinard	14600	3		Little Gruinard	mai					good?	Impoverished (not enough food . . .)
(SAC)				Little Gruinard	abo					good?	
Allt Beith	800			Allt Beith							2020 survey good parr densities
Tournaig	600			Tournaig						poor	Low water
Ewe	49800	1		Ewe	mai						Fish eating birds . . .
				Ewe	Ker					good	
			good	Ewe	L. M					mod	
			good	Ewe	Kinl					good?	Kinlochewe septic tank?
				Ewe	Brua					poor	Bruachaig falls!
				Ewe	Brua					good?	
			mod	Ewe	A'G						Spawning activity, Nov 2021
				Ewe	Cou					good?	Impoverished (not enough food . . .)
Sguod	500			Sguod							
Sand	500			Sand					2	poor	Sea lice!
Kerry	4000	3	good	Kerry						good?	Sea lice!
Badachro	3600	3		Badachro						good?	Sea lice!
Torridon	8300	3	good	Torridon						mod	Sea lice!
Balgy	5400	3	poor	Balgy							
Cuaig	1600			Cuaig							
Applecross	4200	3		Applecross		1	2			poor	Sea lice! Catchment sediment management
(Carron)	(25000)			(Carron)		2	2	5		?	Heavily stocked obscuring wild population



Sources / notes: 1. Potential smolt output estimates from habitat based calculations in WRFT Fisheries Management Plans etc.

By coincidence

Six major salmon rivers flow into the Wester Ross MPA!

Most of the big river systems and many smaller streams are also important for sea trout

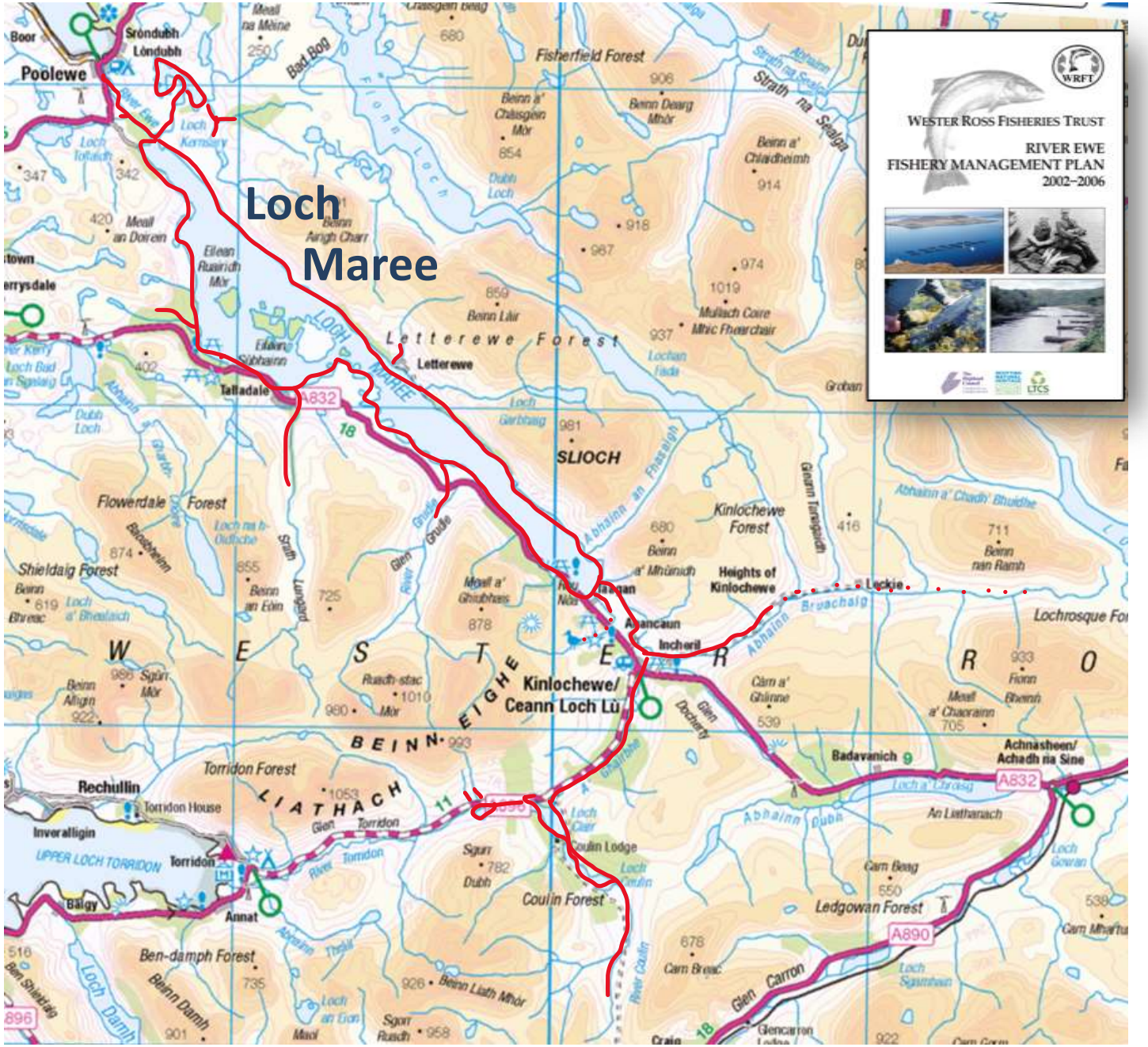
Brown trout *(Salmo trutta)*

A sea trout is a brown trout which goes to sea . . .


Loch Maree

River Ewe – Loch Maree system

- Loch Maree sea trout fishery was the most productive in north west Scotland
- Oldest sea trout and former British record rod caught sea trout . . .



Loch Maree

sea trout fishery

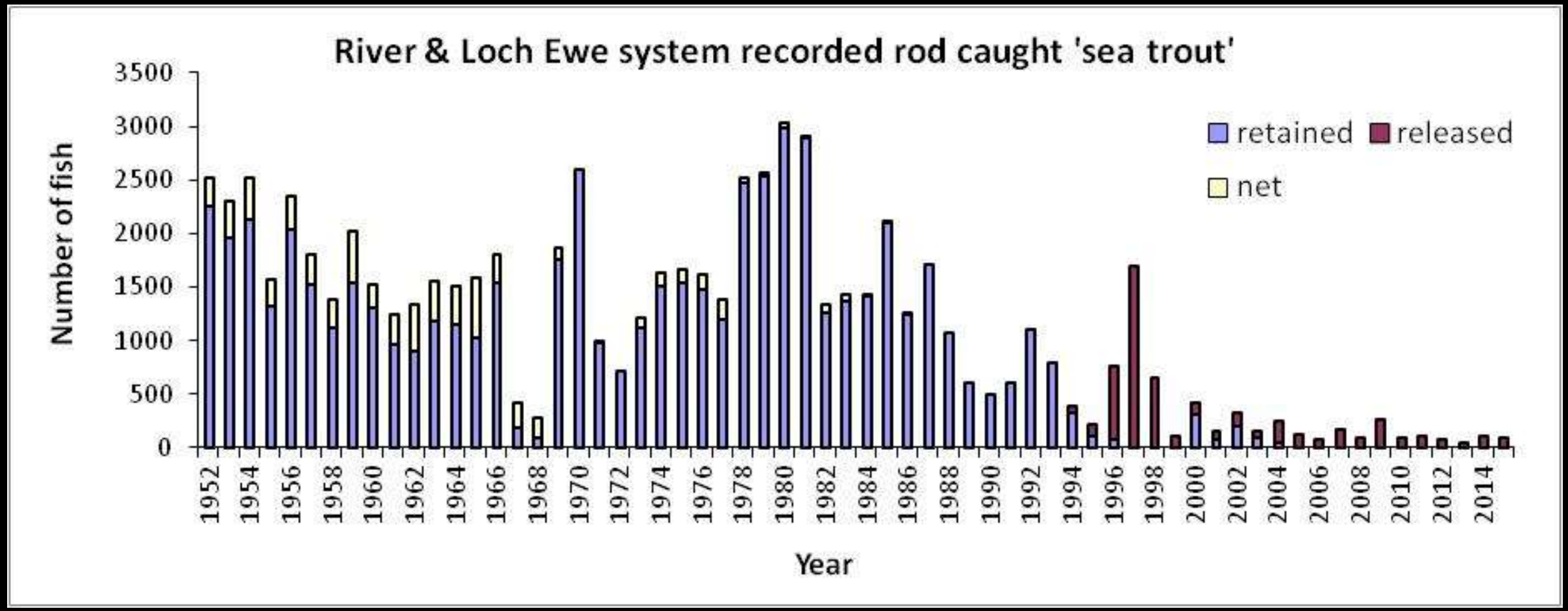
Until around the late 1990s 10+ angling boats fished out of the Loch Maree Hotel, each with a ghillie to look after the boat and guests.

5+ boats fished other parts of the loch.

The art of dapping was developed on Loch Maree. . .

Former British record rod caught sea trout of 19.5lb, caught in 1952

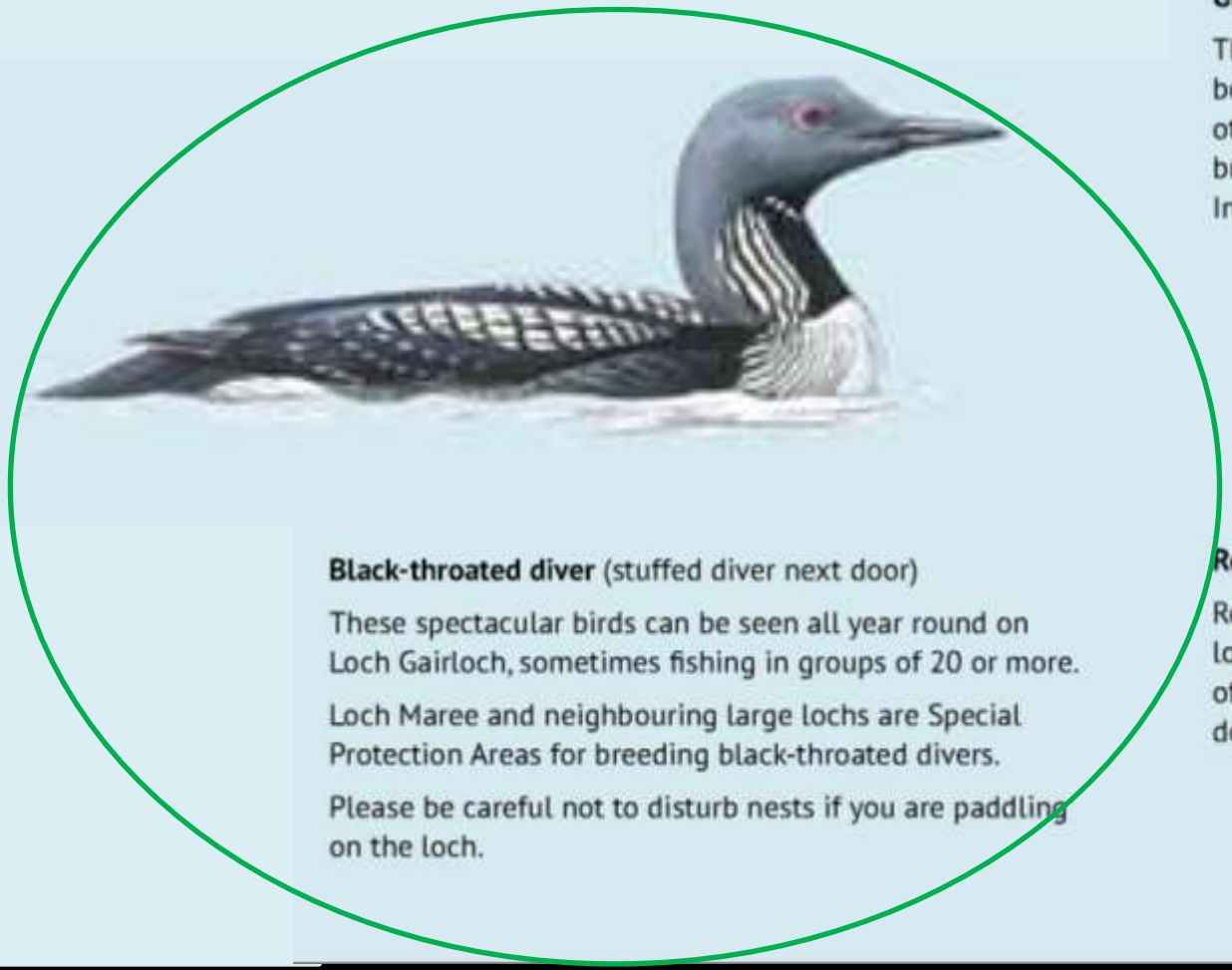
The Loch Maree sea trout fishery collapsed in the 1990s



Loch Maree

The coastal waters of Wester Ross are important for three species of divers

Loch Maree is a **Special Protection Area** for breeding **Black-throated divers**



Black-throated diver (stuffed diver next door)

These spectacular birds can be seen all year round on Loch Gairloch, sometimes fishing in groups of 20 or more.

Loch Maree and neighbouring large lochs are Special Protection Areas for breeding black-throated divers.

Please be careful not to disturb nests if you are paddling on the loch.

Great Northern diver (= Common loon of North America)

The biggest diver to be seen on Loch Gairloch. Fifty or more may be seen (and sometimes heard) in April from Melvaig and some other local places. Great Northern divers migrate in May to breeding lakes of Iceland, Greenland and northern Canada. In Canada, people celebrate their arrival in springtime.

Red-throated diver

Red-throated divers breed on some of the smaller, undisturbed lochans in the hills around Gairloch. During the summer they can often be seen and heard 'quacking' above the museum as they fly down to Loch Gairloch to fish for sandeels to feed their chicks.

Image credits

Black-throated diver, Gavia arctica – Mike Langman (rspb-images.com)
Red-throated diver, Gavia stellata – Mike Langman (rspb-images.com)
Great Northern diver, Gavia immer, juvenile in winter plumage – Mike Langman (rspb-images.com)
Great Northern diver, Gavia immer, adult in summer plumage – Mike Langman (rspb-images.com)

Sea trout monitoring

•to find out about sea trout growth rates, parasite burdens and survival

Boor Bay
31st August 2011

Sampling site at Boor Bay, Loch Ewe

Sampling site in Little Loch Broom

Photo Little Loch Broom Marine Life Group

Gairloch sweep netting team 7th July 2016

Flowerdale (Gairloch) September 2016

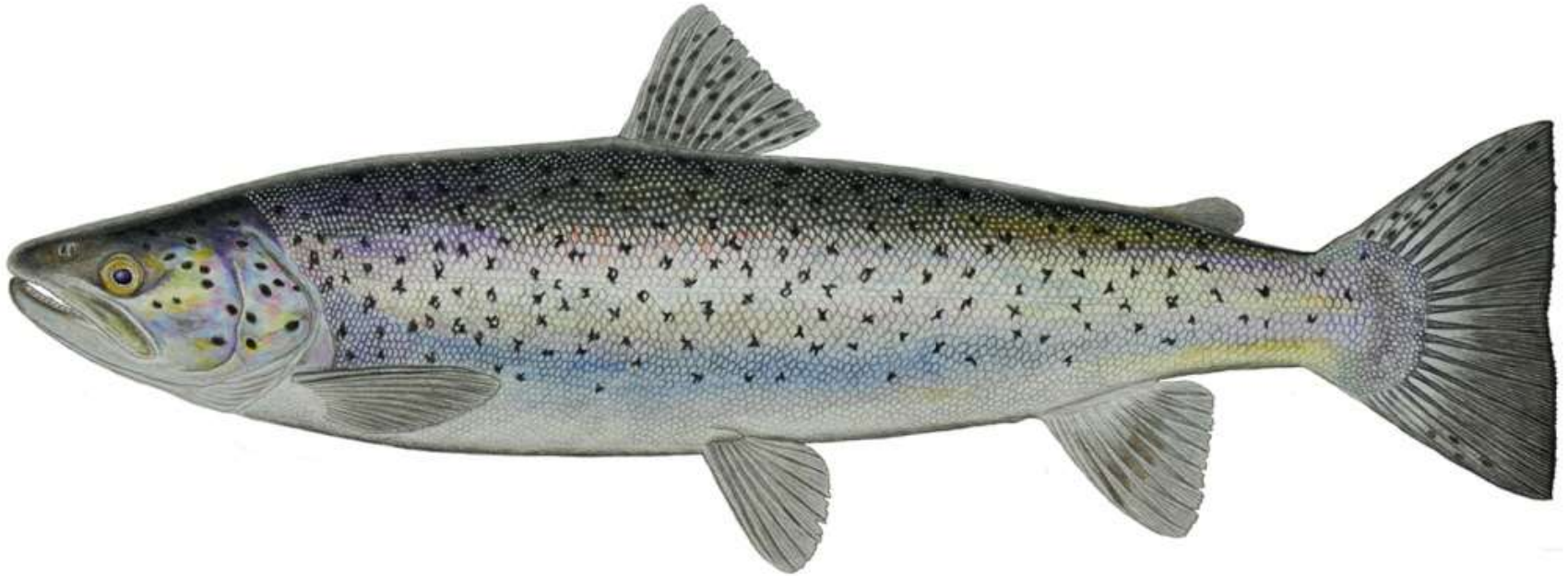
21 sea trout. Max. 35 lice per fish, mostly <10 lice per fish

Flowerdale (Gairloch) 2016

Same fish caught on two occasions!

Sea Trout (salmo trutta)

Captured in Flowerdale, Gairloch,
Scotland
Anadromous Atlantic strain,
Length: 530 mm
Date: July 7, 2016



Source material: Peter Cunningham (Wester Ross Fisheries Trust), Bill Anderson, Lennie Campbell (harbour master), Dr Steve Kett, Dr Andy Vicks, Chris Gudgeon, pupils and teachers from Perth Academy

https://www.flickr.com/photos/fishasart/

Recaptured Gairloch sea trout . . .

1. Individual fish can be identified from unique spot patterns.

2. Some fish were caught in the same place in March, June and September.

350mm, 416g,
March 2011

392mm, 622g,
June2011

425mm, 828g,
Sept 2011

495mm, 1318g,
15th October 2012

Biggest sea trout in sweep to date

580mm, taken in WRFT sweep net in Loch Gairloch on 7th June 2010

Sea trout can grow quickly in coastal seas

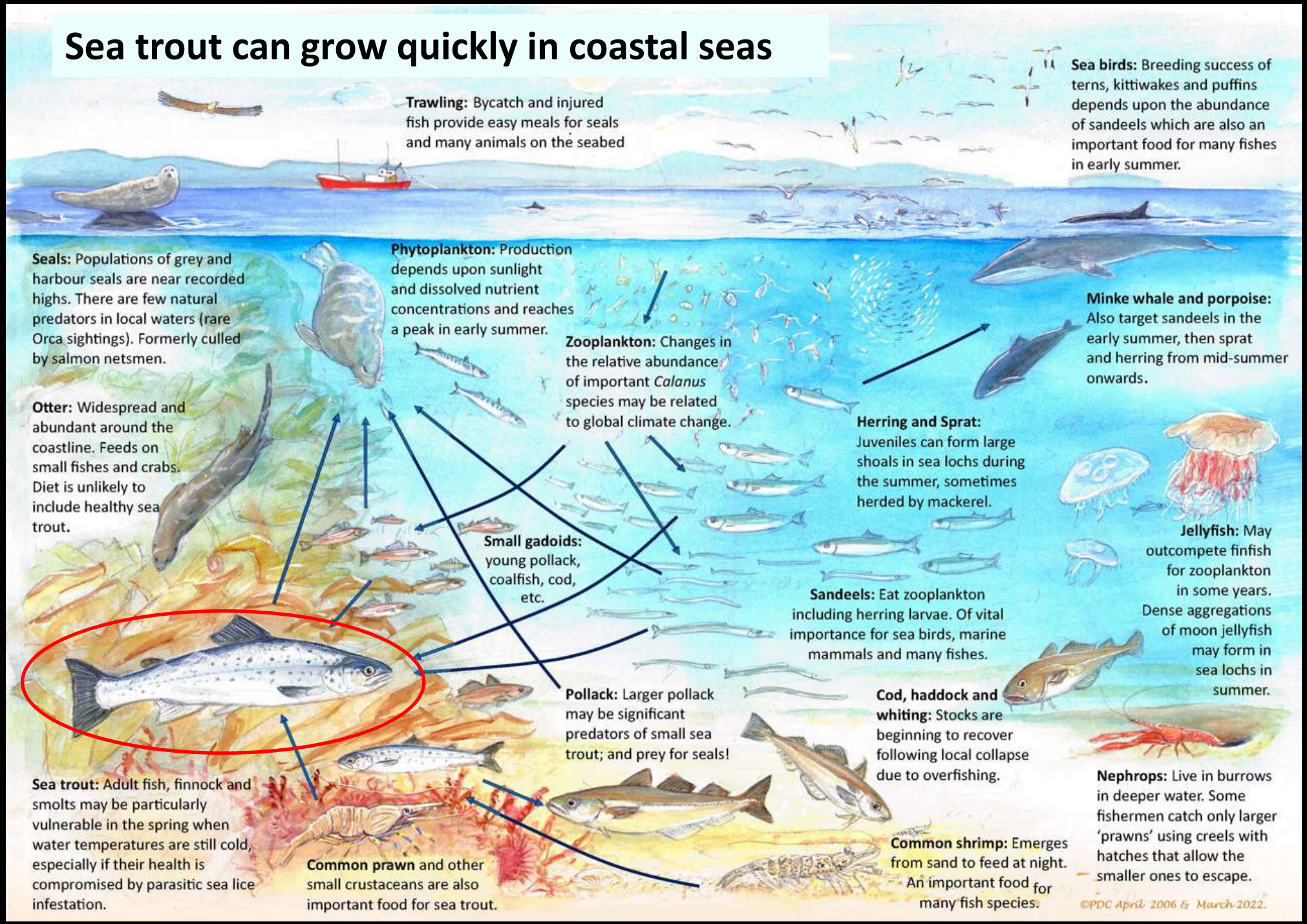


Photo by James Butler

. . . .including sandeels . . .

Sandeel ‘glut’, Gairloch, early July 2009

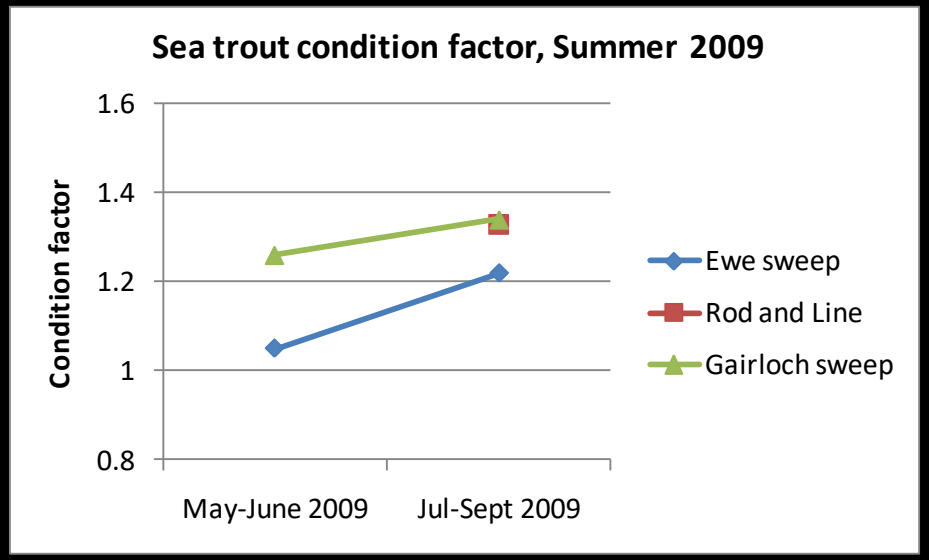
Sea trout growth and condition . . .

Fattest sea trout seen so far: sea trout of 380mm, 800g (condition factor 1.46) taken in the sweep net at Boor Bay on 15th July 2009

(photo Ben Rushbrooke)

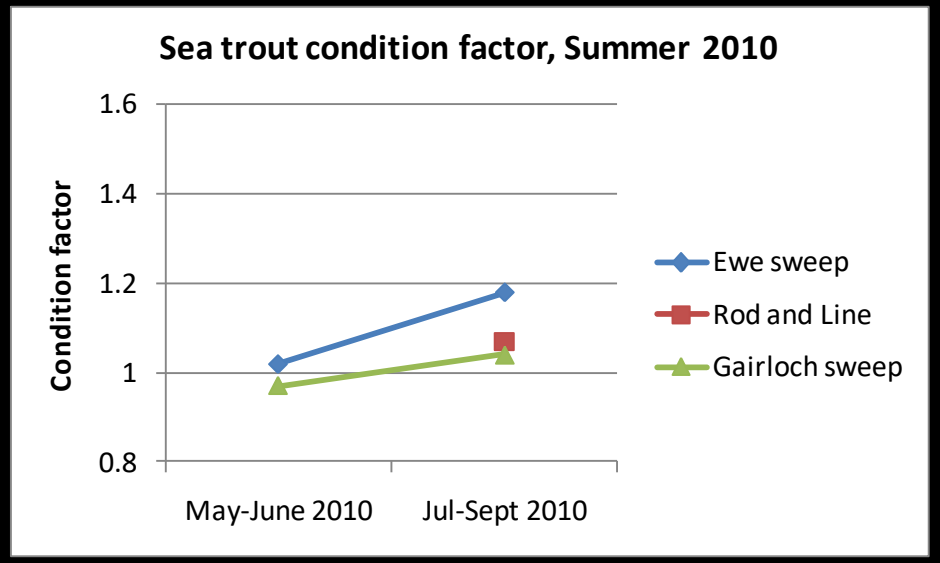
The sea trout we caught in 2009 were fatter than in 2010 & 2011

2009



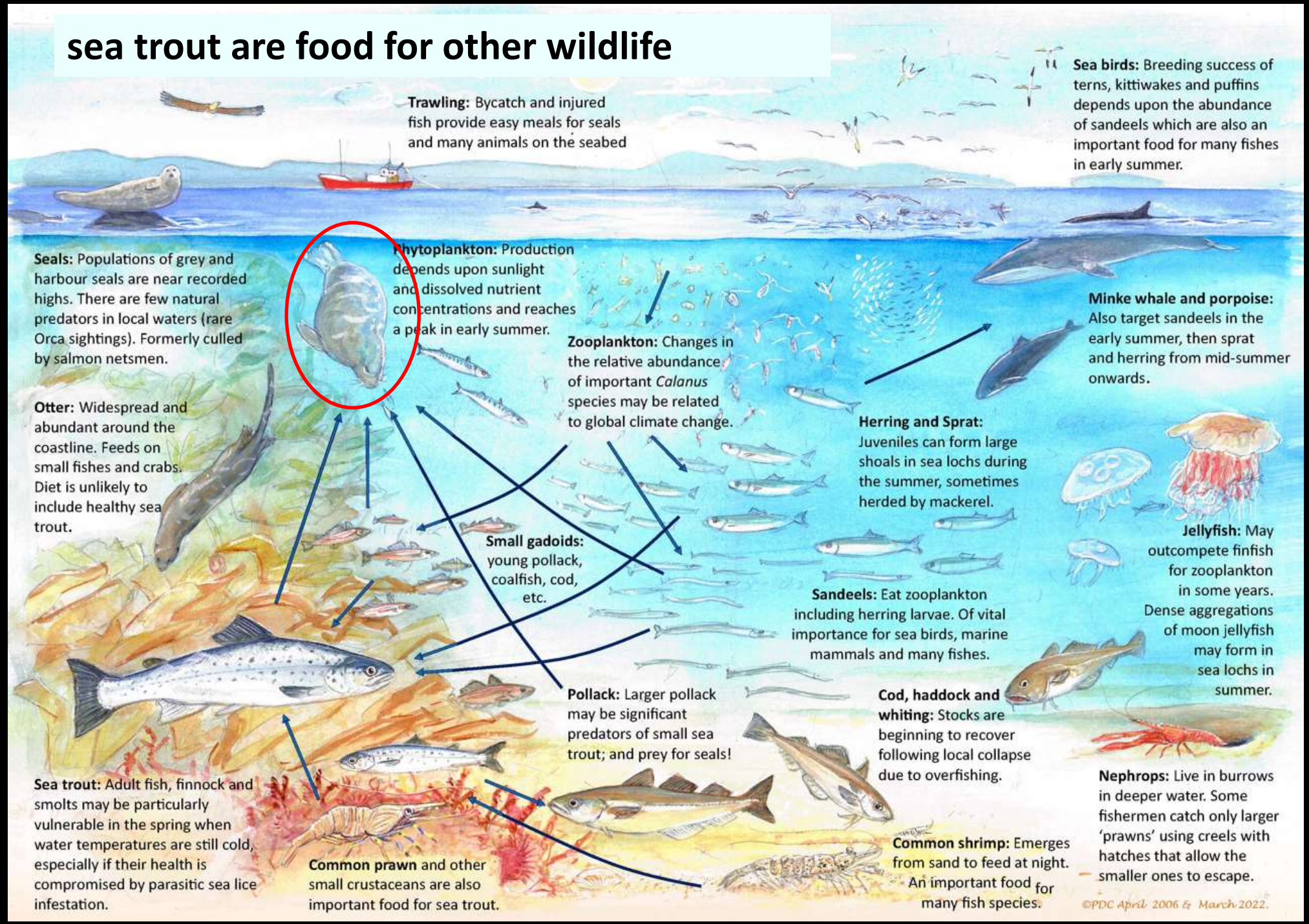
Sea trout from Kerry Bay, Loch Gairloch, 29th June 2009.

2010



Sea trout from Flowerdale Bay, Loch Gairloch, 29th June 2010

sea trout are food for other wildlife



Seals eat many kinds of fish including salmon and sea trout

Harbour seal numbers have increased in the Wester Ross MPA since 1990

Ocra may visit more often?

nature.scot/doc/naturescot-research-report-1256-aerial-surveys-seals-scotland-during-harbour-seal-moult-2016-2019...

Gmail YouTube Maps

NatureScot Scotland's Nature Agency
NàdarAlba Buidheann Nàdair na h-Alba

Search NatureScot

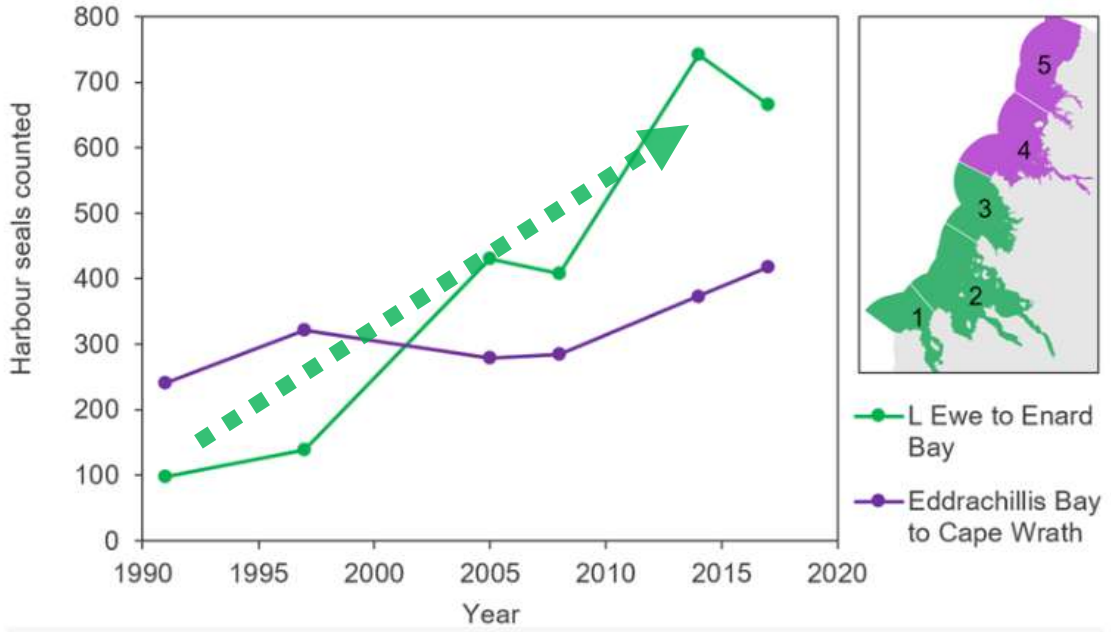


Figure 19. Regional trends in harbour seal counts within the West Scotland – North Seal Management Unit subdivision.

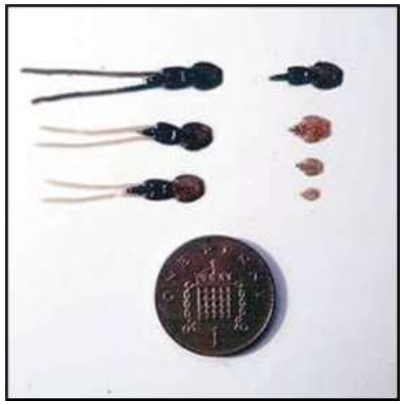
Click for a full description

Line graph showing harbour seal counts within West Scotland - North SMA over the period 1991 - 2017. Counts are shown for two subdivisions within the SMA: L Ewe to Enard Bay (green); Eddrachillis Bay to Cape Wrath (purple). Counts have increased in both of these subdivisions.

The salmon louse (*Lepeophtheirus salmonis*) is a naturally occurring parasite of salmon and sea trout

- Several studies have shown that sea lice numbers on wild sea trout are usually highest within 30km of salmon farms in the 2nd year of their production cycle.

- The problem is ‘cumulative’. The more farms there are in an area, the higher the likelihood of farms infecting each other and wild fish with higher numbers of lice.



Salmon lice on a small sea trout from the River Ewe, 15th May 2007

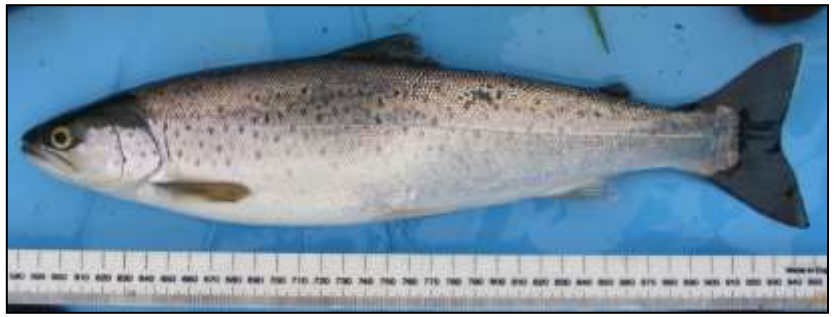
Sea lice are counted on sea trout

Loch Ewe, 4th June 2015

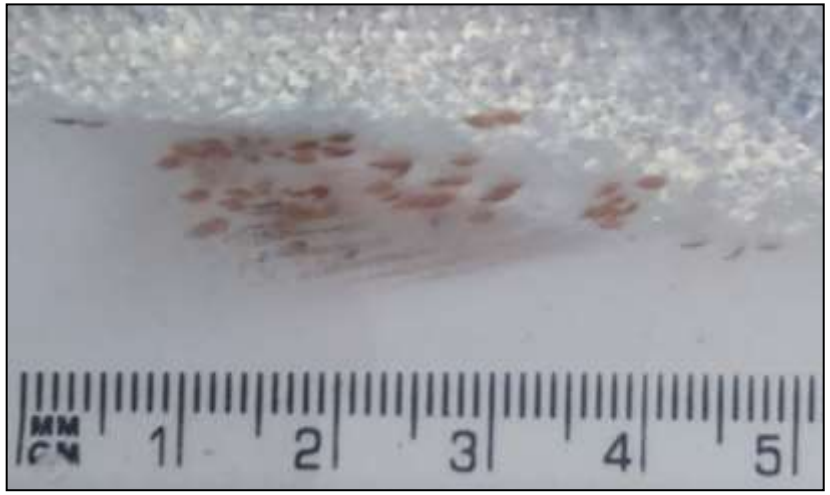
(~55km from nearest Torridon salmon farm)

Total catch: 41 sea trout including 36 post-smolts (<250mm) mostly with <5 lice per fish

This 362mm sea trout with just 10 lice



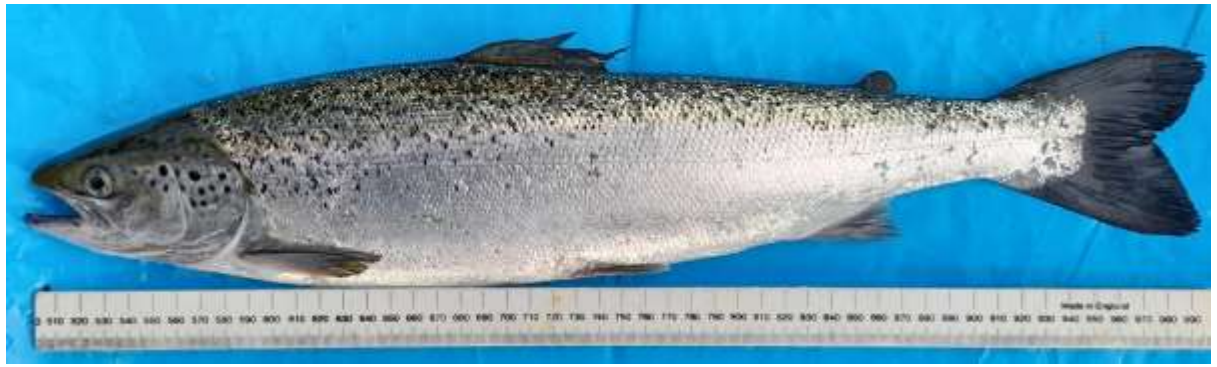
. . . and also a 295mm sea trout with 412 lice.



Sea trout sampling at River Kanaird estuary, 2022

Thank you to all helpers!

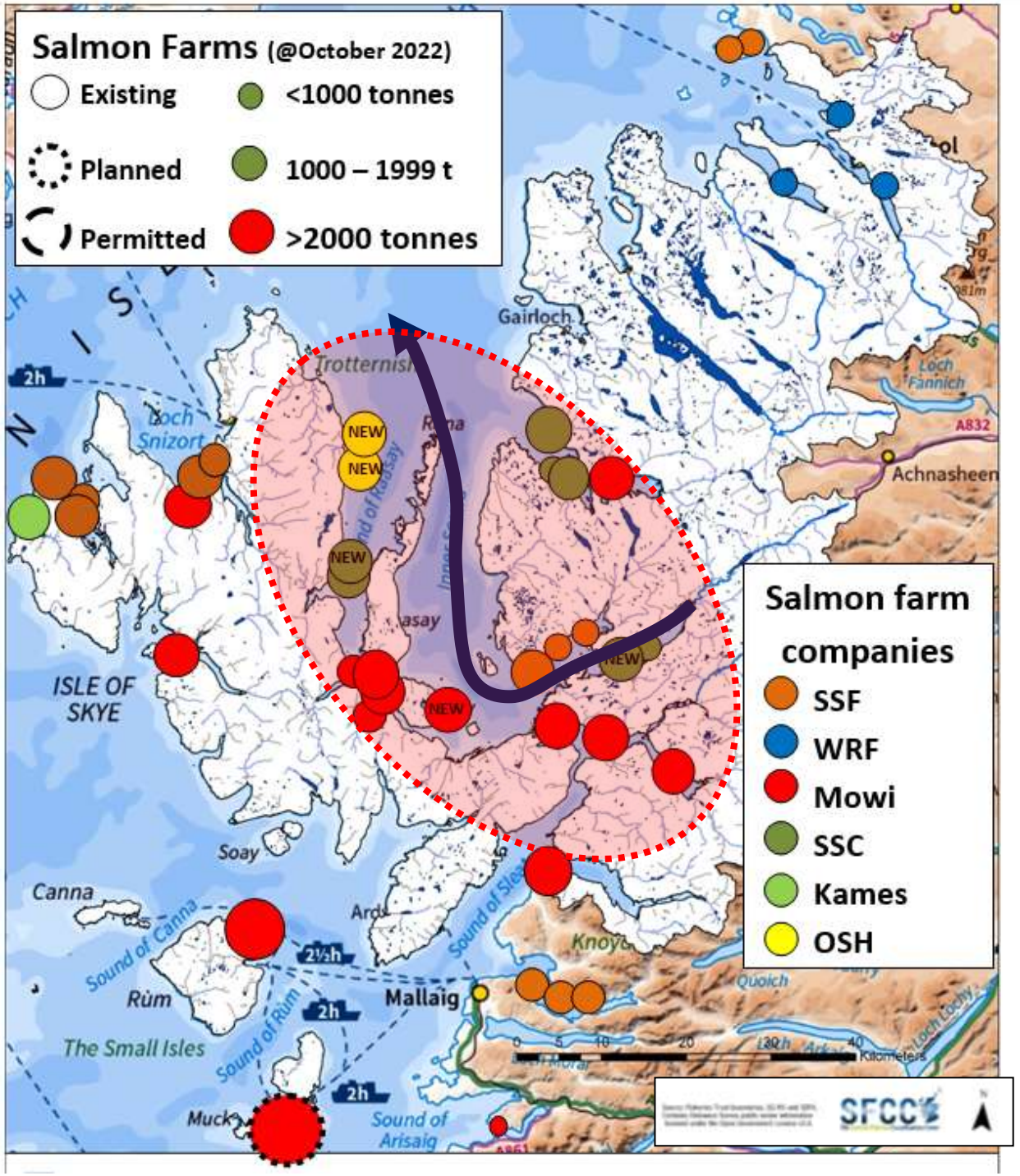
Escaped farm salmon



Wild salmon post-smolts are also infected by sea lice

Young salmon from the River Carron have to pass many active salmon farms as they head out into the Minch.

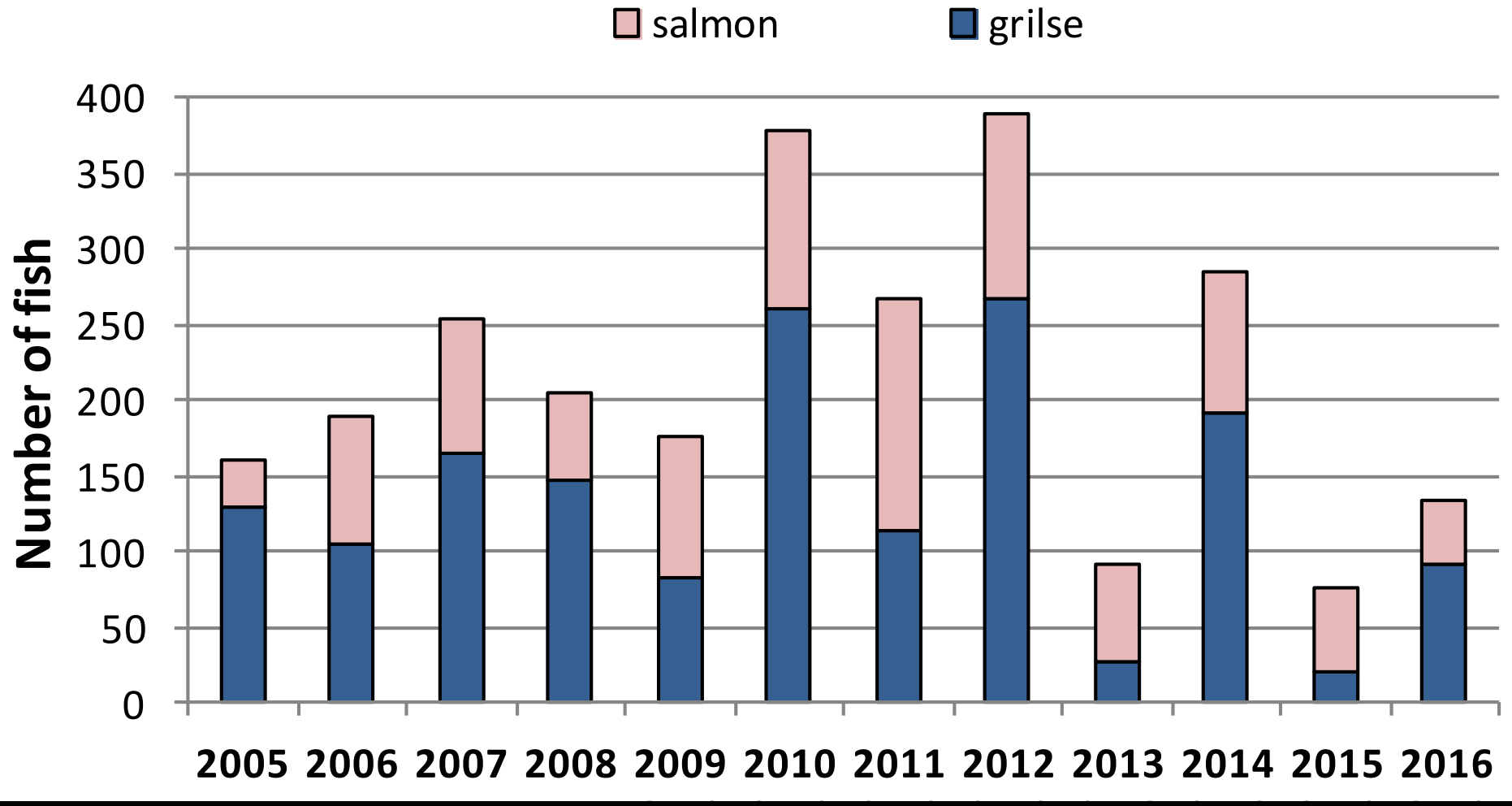
These fish can be exposed to very high numbers of sea lice.



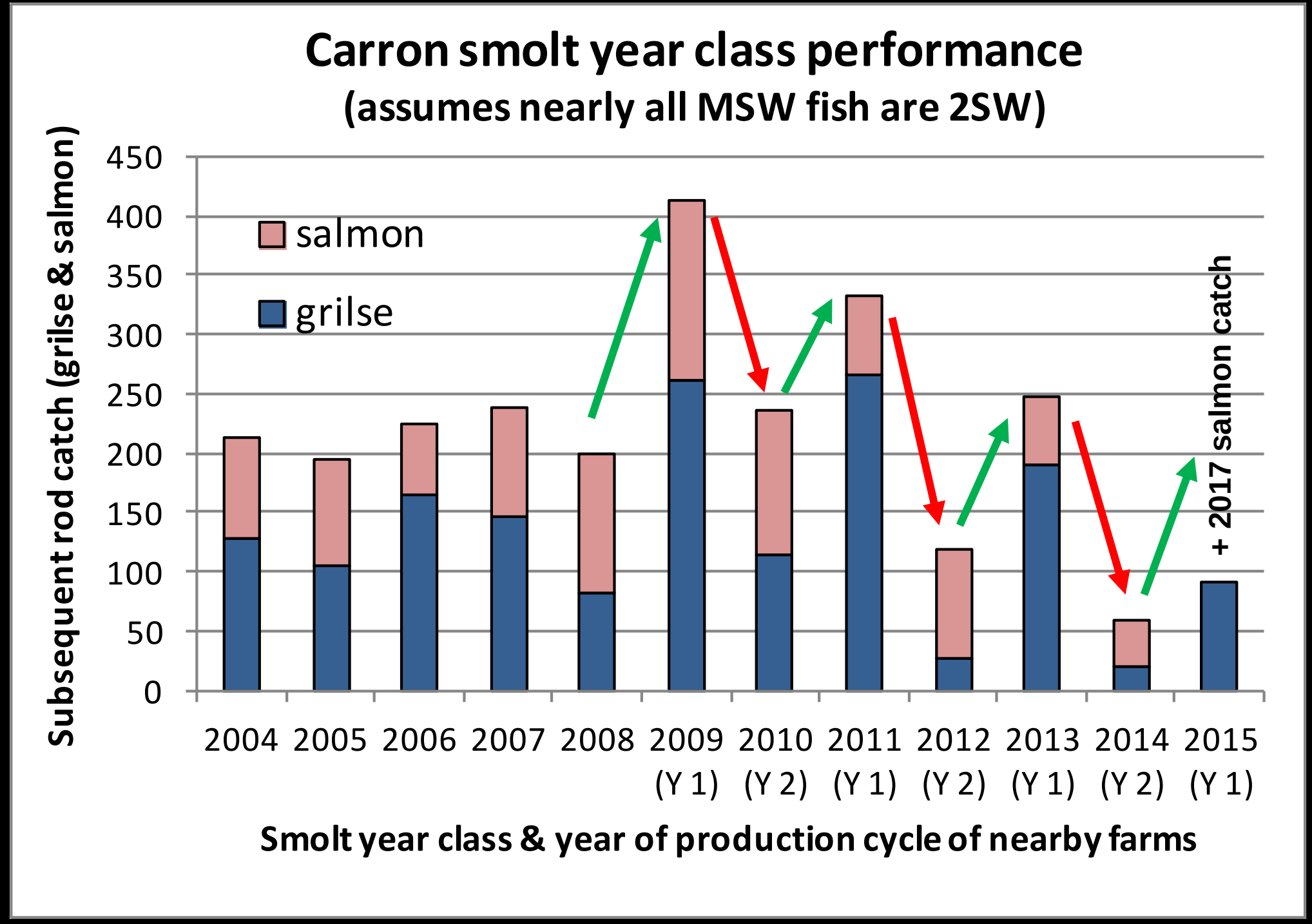

Sea trout from the River Carron (Wester Ross) estuary in May 2012
Over 500 lice on this fish

River Carron catches [catch and release data]

(figures from Marine Scotland, 2016 from Bob Kindness).

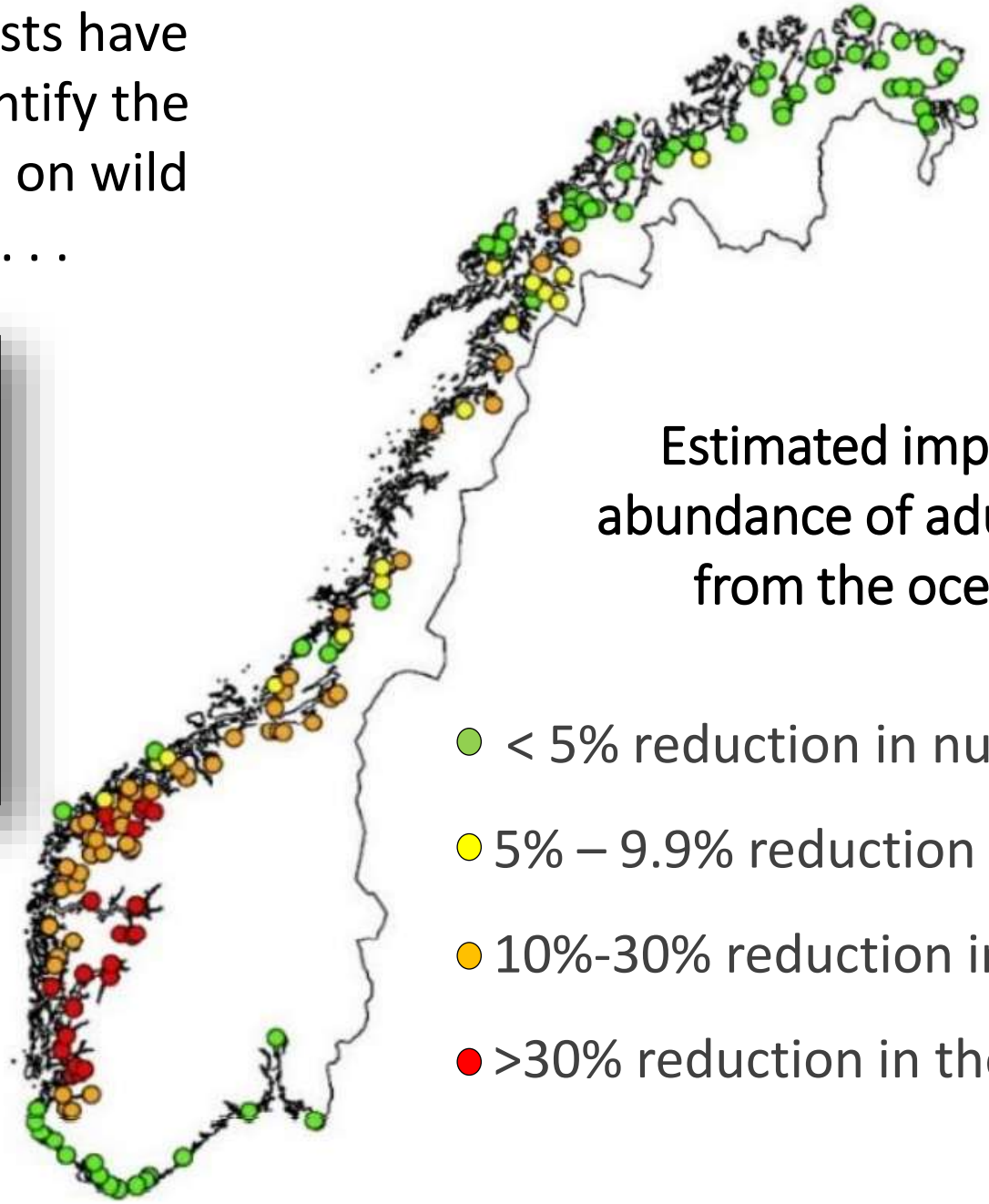


Can anyone see a pattern here . . . ?


Carron smolt year class performance
(assumes nearly all MSW fish are 2SW)
Subsequent rod catch (grilse & salmon)
450
400
350
300
250
200
150
100
50
0
salmon
grilse
+ 2017 salmon catch
2004
2005
2006
2007
2008
2009 (Y 1)
2010 (Y 2)
2011 (Y 1)
2012 (Y 2)
2013 (Y 1)
2014 (Y 2)
2015 (Y 1)
Smolt year class & year of production cycle of nearby farms

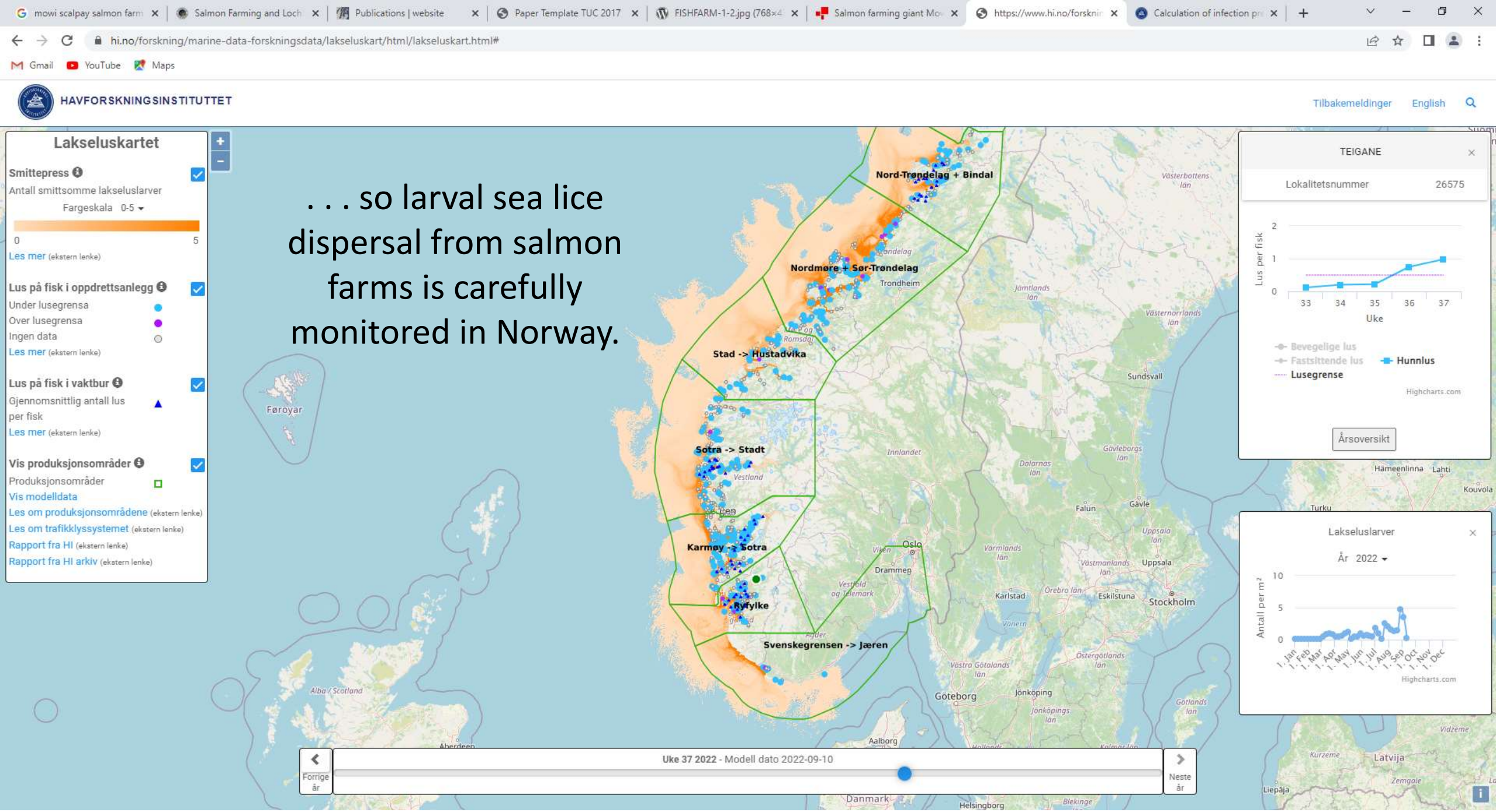

Sea trout from the River Carron (Wester Ross) estuary in May 2012
2012 was 2nd year of production cycle along post-smolt migration path
How many sea lice would a migrating post-smolt salmon have been infected by?
(it only takes 12 sea lice to kill a post-smolt salmon)
Over 500 lice on this fish

In Norway scientists have been able to quantify the impact of sea lice on wild salmon numbers . . .

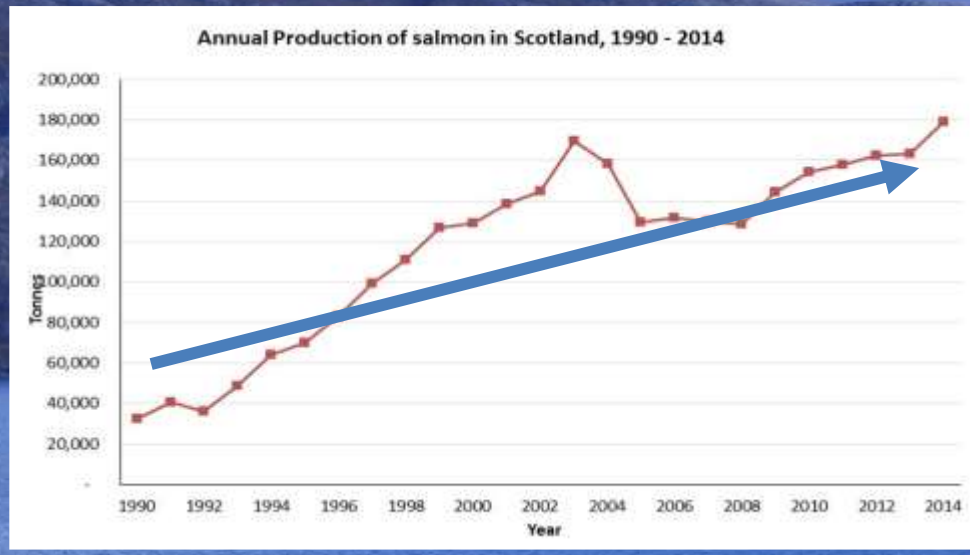


Estimated impacts of salmon lice on the abundance of adult Atlantic salmon returning from the ocean for spawning in 2019

- < 5% reduction in numbers of returning spawners
- 5% – 9.9% reduction in numbers of returning spawners
- 10%-30% reduction in the number of returning spawners
- >30% reduction in the number of returning spawners


. . . so larval sea lice dispersal from salmon farms is carefully monitored in Norway.
Lakseluskartet
Smittepress
Antall smittsomme lakseluslarver
Fargeskala 0-5
0
5
Les mer (ekstern lenke)
Lus på fisk i oppdrettsanlegg
Under lusegrensa
Over lusegrensa
Ingen data
Les mer (ekstern lenke)
Lus på fisk i vaktbur
Gjennomsnittlig antall lus per fisk
Les mer (ekstern lenke)
Vis produksjonsområder
Produksjonsområder
Vis modelldata
Les om produksjonsområdene (ekstern lenke)
Les om trafikklyssystemet (ekstern lenke)
Rapport fra HI (ekstern lenke)
Rapport fra HI arkiv (ekstern lenke)
Nord-Trøndelag + Bindal
Nordmøre + Sør-Trøndelag
Stad -> Hustadvika
Sotra -> Stadt
Karmøy -> Sotra
Ryfylke
Svenskegrensen -> Jæren
TEIGANE
Lokalitetsnummer 26575
Lus per fisk
Uke
Bevegelige lus
Fastsittende lus
Hunnlus
Lusegrense
Highcharts.com
Årsoversikt
Lakseluslarver
År 2022
Antall per m²
Highcharts.com
Uke 37 2022 - Modell dato 2022-09-10
Forrige år
Neste år
http://www.imr.no/lakseluskart/html/lakseluskart.html

Numbers of farmed salmon in Scotland have increased greatly in the past 30 years providing many more hosts for parasitic sea lice . . .



but sea lice numbers have not been controlled to protect wild fish

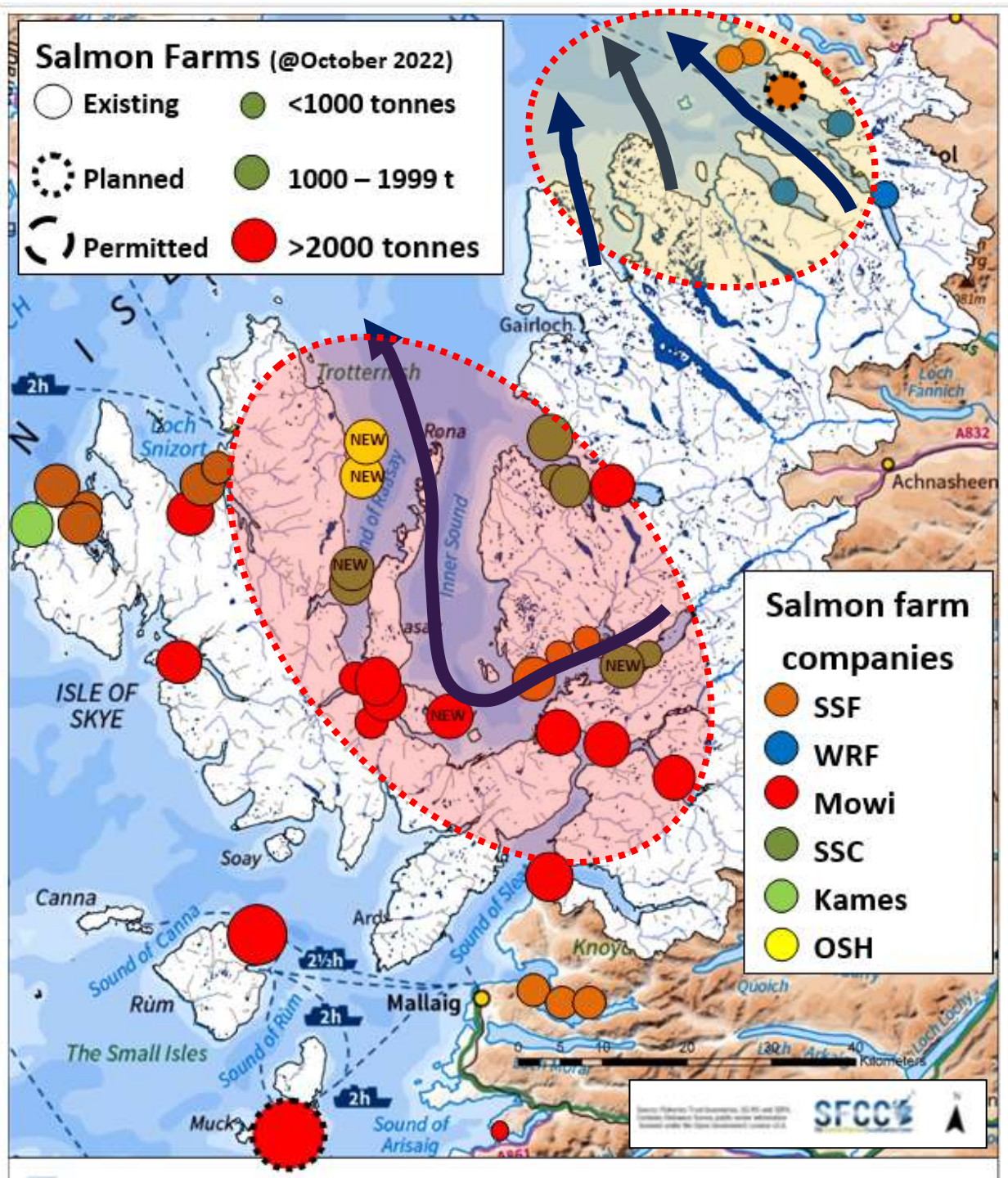
Aird salmon farm,
Loch Torridon October 2016

Wild salmon post-smolts are also infected by sea lice

Young salmon from the River Carron have to pass many active salmon farms as they head out into the Minch. These fish can be exposed to very high numbers of sea lice.

Currently, young salmon from the Rivers in the Wester Ross MPA have few active salmon farms to pass.

Can wild salmon from rivers in the Wester Ross MPA be given more protection than those from rivers further south?

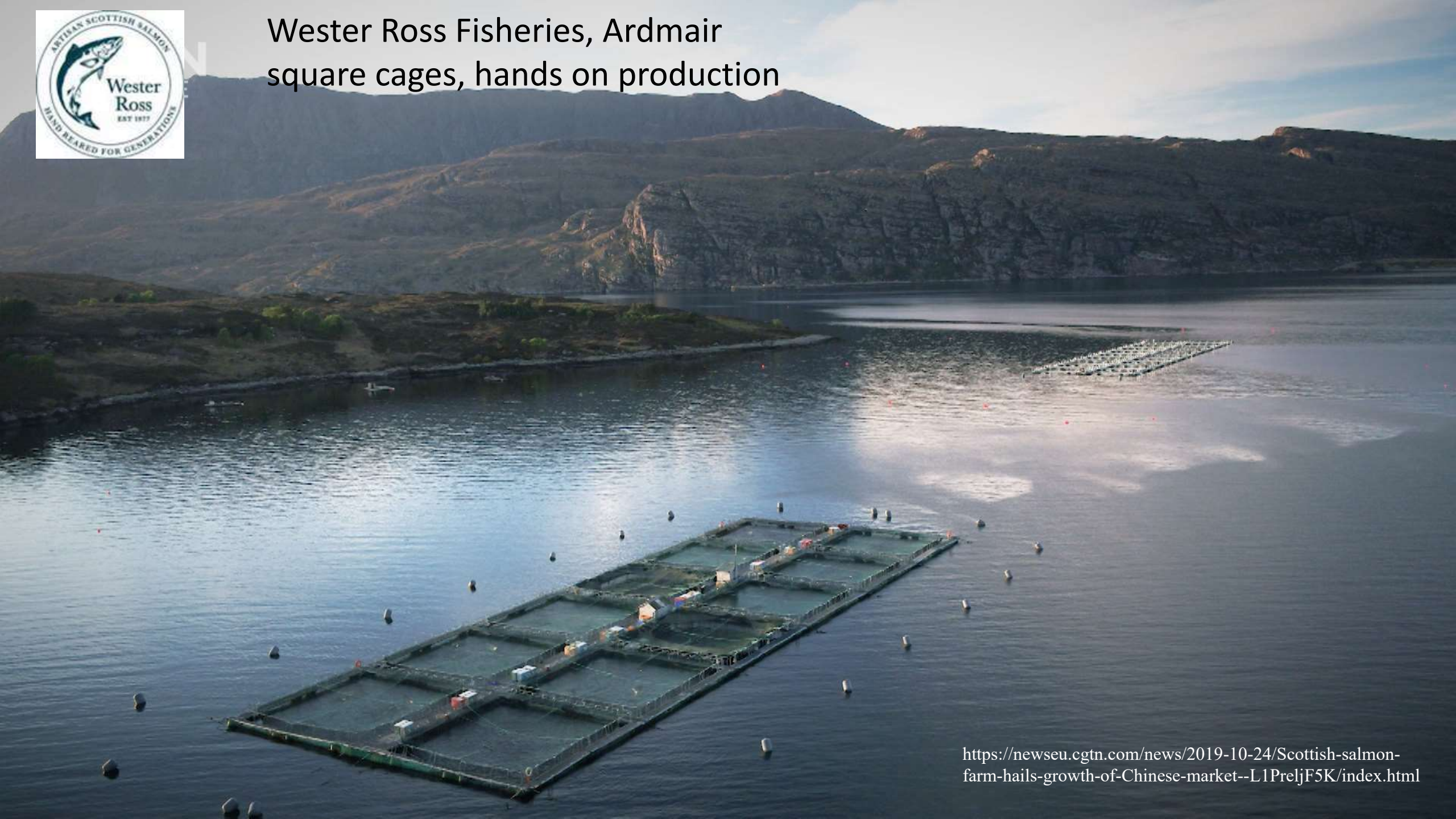



MOWI
big round cages, mechanised
MOWI wants to increase farm salmon biomass even at salmon farms close to the mainland (e.g. Loch Hourn)
FRIENDS OF LOCH HOURN

MOWI farms have not been able to maintain low levels of sea lice on their existing farms.

Company	Where?	Site name	Size of farm (tonnes) [consented biomass]	Average adult female lice per fish (2021 week 13 to 2022 week 25)	consented biomass x average adult lice	Notes	
MOWI	mainland	Torridon	2500	0.0032	**8.0**	stocked 2021 week 49	
MOWI	mainland	Loch Alsh	2520	0.3937	**992.1**		
MOWI	mainland	Ardintoul	2500	0.2376	**594.0**		
MOWI	mainland	Loch Duich	2500	0.5577	**1394.3**		
MOWI	mainland	Creag an t. S	2500	0.4939	**1234.8**		
MOWI	Skye	Scalpay	2500	1.2774	**3193.5**		
MOWI	Skye	Caraidh	1800	1.0533	**1895.9**		
MOWI	Skye	Maol Ban	2250	1.284	**2889.0**		
MOWI	Skye	Sconser Quarry	2520	1.241	**3127.3**		
MOWI	Skye	Sconser	1500	0.6454	**968.1**		
MOWI	Skye	Loch Greshornish	2195	0.3361	**737.7**		
MOWI	Skye	Loch Harport	2000	1.4755	**2951.0**		
MOWI	small isles	Rum	2500	0.5213	**1303.3**		
MOWI	small isles	Muck	3500	1.2233	**4281.6**		
MOWI averages			**2377.5**	**0.767**	**1826.5**		

Wester Ross Fisheries, Ardmair square cages, hands on production



https://newseu.cgtn.com/news/2019-10-24/Scottish-salmon-farm-hails-growth-of-Chinese-market--L1PreljF5K/index.html

In contrast to MOWI, Wester Ross Fisheries have achieved low levels of sea lice on their farms in recent production cycles

Company	Where?	Site name	Size of farm (tonnes) [consented biomass]	Average adult female lice per fish (2021 week 13 to 2022 week 25)	consented biomass x average adult lice
WRF	mainland	Ardmair	810	0.0458	**37.1**
WRF	mainland	Corry	1050	0.0008	**0.8**
WRF	mainland	Ardessie A	196.5	0.0098	**1.9**
WRF	mainland	Ardessie B	400	0.008	**3.2**
Wester Ross Fisheries averages			**614.1**	**0.016**	**10.8**

Company	Where?	Site name	Size of farm (tonnes) [consented biomass]	Average adult female lice per fish (2021 week 13 to 2022 week 25)	consented biomass x average adult lice	Notes
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MOWI	Skye	Loch Greshornish	2195	0.3361	**737.7**	
MOWI	Skye	Loch Harport	2000	1.4755	**2951.0**	
MOWI	small isles	Rum	2500	0.5213	**1303.3**	
MOWI	small isles	Muck	3500	1.2233	**4281.6**	
MOWI averages			**2377.5**	**0.767**	**1826.5**	

From April 2021 to July 2022, an average MOWI salmon farm had over **100 times** more adult female sea lice than an average Wester Ross Fisheries salmon farm.

SEPA will regulate sea lice on new salmon farms in Scotland to protect wild fish in future. Are their proposals adequate?

The comments below are from consultation response by Coastal Communities Network.

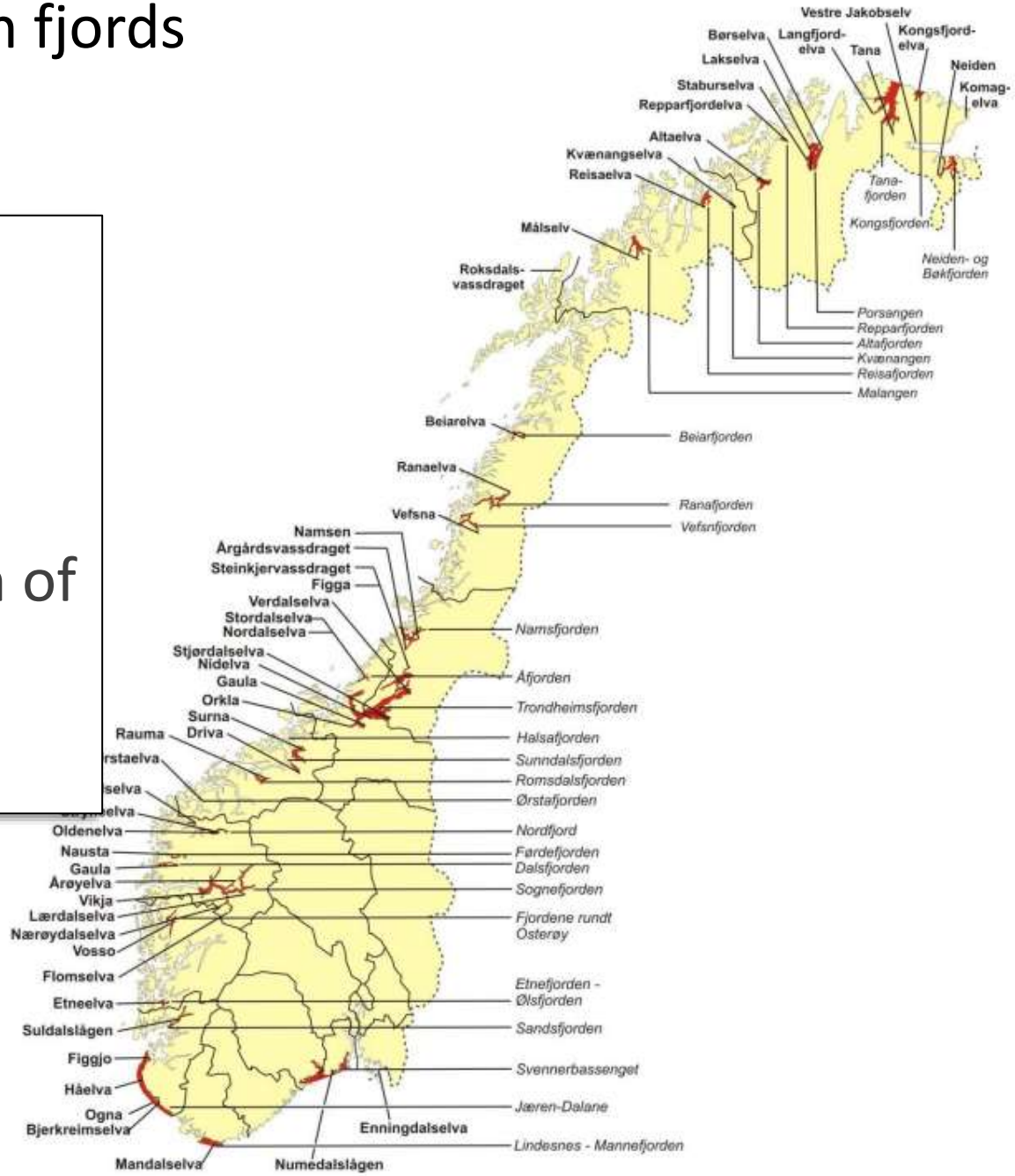
It is extremely unlikely that smolts leaving each of the separately-defined Loch Ewe, Gruinard Bay, Little Loch Broom and Annat Bay/Loch Kanaird waterbodies will not swim past some of the adjacent zones, and the farms at the Summer Isles (Fig 10). The gaps between these waterbodies should be closed and the whole bay, including the Summer Isles designated as one zone.

National salmon river and National salmon fjords

2.1.2
In 2003 the Norwegian Parliament established a system of national salmon rivers and national salmon fjords where the wild Atlantic salmon is granted special protection. A number of sea areas had already been designated as safegu
a numb
regime
is to pr
mainta
to new
In the
establi
standar
The sa
at stren

2.1.3
In the
nationa
the second phase a number of additional rivers should be designated. In 2007 15 additional rivers and 8 additional fjord areas were included in the scheme. In total the scheme now comprises 52 national salmon rivers and 29 national salmon fjords (figure 2). The national salmon rivers and fjords are aimed at giving special protection to about 3/4 of the total Norwegian wild salmon production.

‘In the national salmon fjords no additional salmon aquaculture plants will be established and existing installations will be subject to more stringent standards for the prevention of escapes and controlling their sea lice and other diseases.’



https://nasco.int/wp-content/uploads/2020/02/HabitatFAR_Norway.pdf

fms.scot/over-half-of-the-salmon-farms-off-the-west-coast-of-scotland-are-sited-in-the-most-sensitive-areas-for-wild-salmon/

YouTube Maps

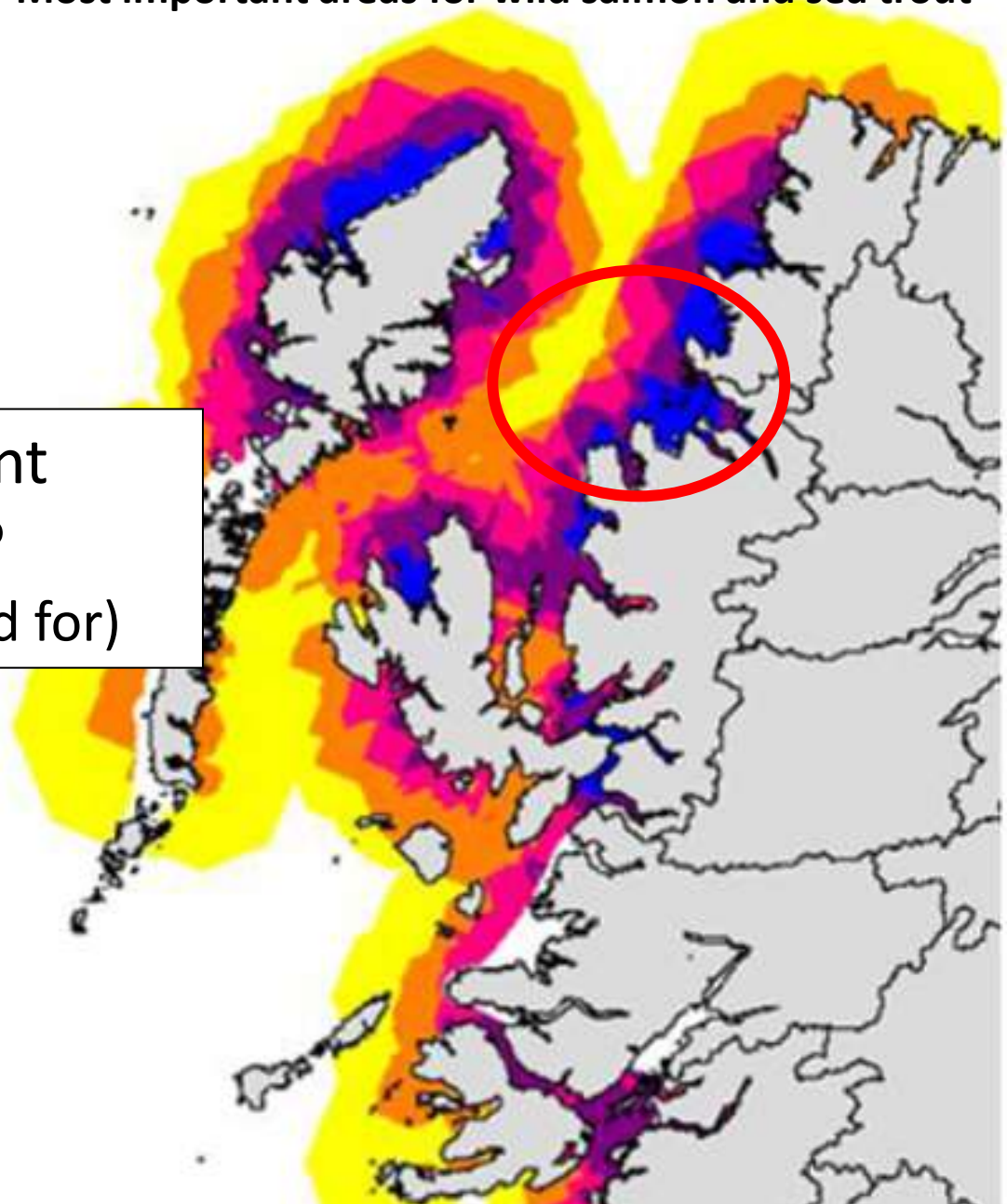
Marine Scotland Science, SEPA and Nature Scot were invited to this meeting to tell us about their research work and policies for MPAs and for protecting wild salmon

Has the Scottish Government forgotten about this map?
(which they commissioned and paid for)

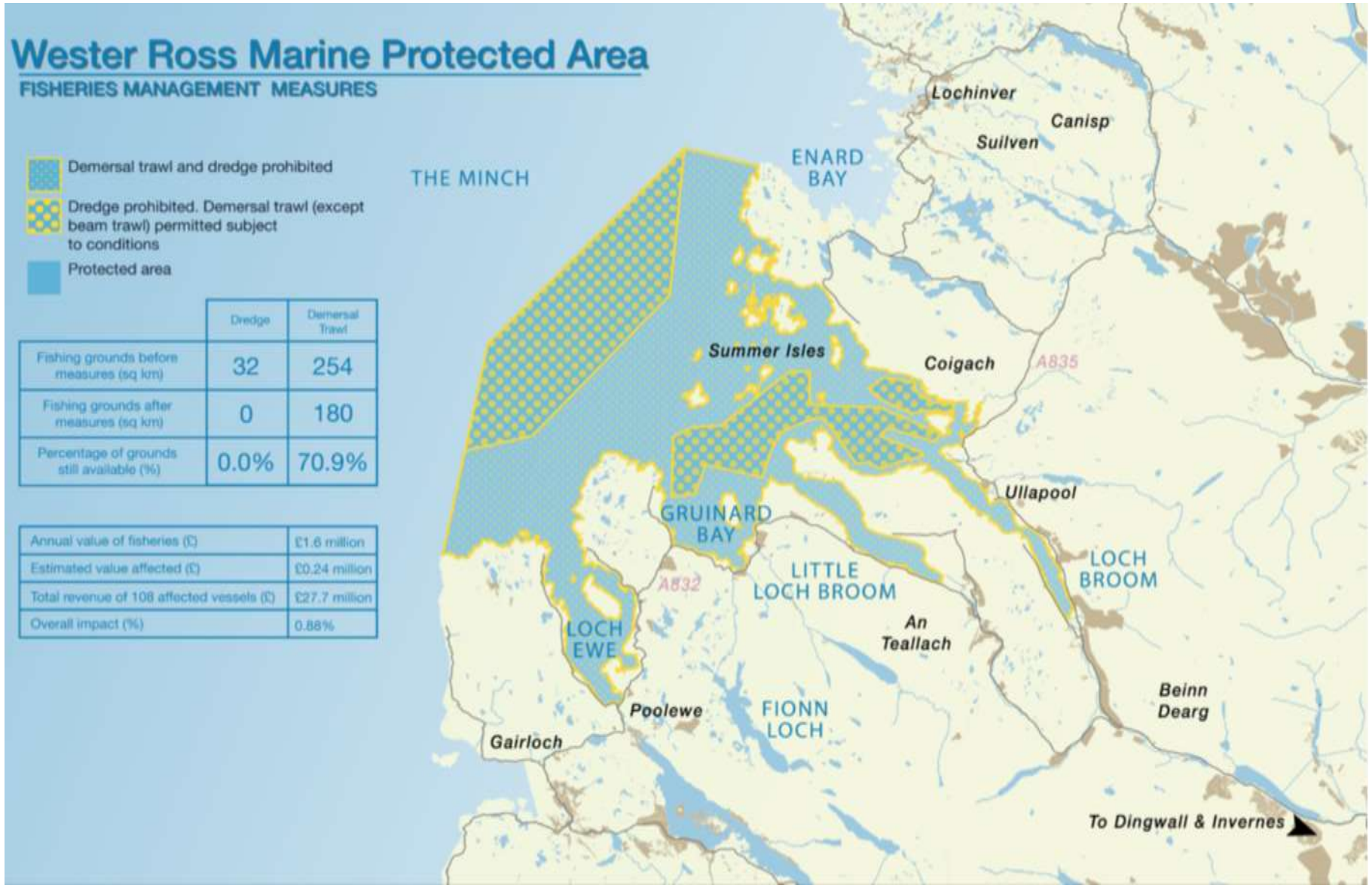
The Rivers and Fisheries Trusts of Scotland (RAFTS) has now published a detailed map of the west Highlands and Islands which suggests that more than half (57%) of the salmon farms in the area are located in the most important areas for wild salmon and sea trout.

As part of the Managing Interactions Aquaculture Project (MIAP), RAFTS has developed the map, based on a wide range of relevant criteria and risk assessments. The aim is the identification of those areas that are particularly sensitive to wild salmon and sea trout and which the aquaculture industry should avoid if damage to wild stocks is to be avoided or, at the very, least minimised.

Most important areas for wild salmon and sea trout



So what is the future for the wild salmon and sea trout which return to the rivers that flow into the Wester Ross Marine Protected Area



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