

Notified Salmon Issues

The following tables categorise issues raised by speakers and participants at the 2017 Salmon Symposium. It also incorporates recommendations from a variety of other sources –

- DW – Dave Willis
- Sym – Symposium participant
- Caw – Cawthron Institute
- Niwa – National Institute for Water and Atmosphere proposals for national research
- MUn – Martin Unwin (NIWA)
- SMP – Draft Salmon Management Plan

The tables are set up in the following topics

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A. Fishery Management

A.1 Regulations

			Being actioned or complete	On agenda	Notes
1	DW	Decrease harvest rate on Rakaia and Waimakariri during periods of decreased productivity	Yes	Yes	Being actioned through development of adaptive management strategy (AMS)
2	DW	Shift harvest pressure from wild to hatchery fish	No		Reduced salmon enhancement due to concerns about effects on local resilience
3	Sym	Restrict angling upriver to preserve wild fish numbers	No		Won't be necessary if we have other tools like adaptive management strategy
4	Sym	Look at daily and season limit bags, single barbless hooks to reduce harvest	Yes & No	Yes & No	Season Bag limit being investigated. Daily bag limit implemented through regulations change. Barbless hooks to difficult for the average angler.
5	Sym	Place limits on fishing around hatcheries to protect returns to hatcheries			Won't be necessary if we have other tools like AMS
6	Sym	What is the Impact of kahawai anglers on salmon fishing success and enjoyment.	No		Not under the control of F & G
7	Sym	Promote catch and release and correct procedures for release, do fish bleeding from the mouth survive?	Yes		Needs to be part of angler education
8	Sym	Open the western zone	No		Won't be necessary if we have other tools like adaptive management strategy
9	Sym	Open April	No		Won't be necessary if we have other tools like adaptive management strategy
10	Sym	What would be the impact on season harvest of a fishless days regime	No		Adaptive management strategy & season bag limit should address this
11	Sym	What are the actual impacts on harvest and spawning of headwater restrictions	No		Won't be necessary if we have other tools like AMS
12	Sym	More enforcement of regulations, more honorary rangers, more enforcement of season closures	No	Yes	Would be part of season bag enforcement
13	Sym	Develop and promote angler ethics using overseas examples	Yes		Code of conduct in regulations

A.2 Spawning streams

			Being actioned?	On agenda	Notes
1	Sym	How can spawning gravels be maintained in optimum condition	Yes		Being actioned through RMA advocacy and landowner education
2	Sym	Identify spawning streams at risk from high sediment levels and advocate for management to reduce and protect streams that have low sediment from inappropriate management	Yes		Being actioned through RMA advocacy and landowner education
3	Sym	Monitor and manage weed growth, willow encroachment, algal growth in spawning streams to improve conditions for fry rearing	Yes		Being actioned through high country monitoring program with ECan.
4	Sym	Create new spawning and rearing areas e.g spawning races	Yes		Bring actioned in CSI Fish & Game
5	Sym	Is it practical to trap fry from spawning streams, rear and release	No		Possible but not practical
6	Sym	Is development of lowland spawning streams and enhancement option	Yes		Some projects being considered

A.3 Mainstems

1	DW	How can freshwater and downstream migration survival be improved	Yes	Yes	Bring actioned through fish screen & water quantity advocacy
2	Sym	Document extent of shag predation on salmon smolt and if significant advocate for control, consider return of bounty	No		Not appropriate for F & G to be advocating for this
3	Sym	Is it viable to trap and transfer smolt from above to below irrigation offtakes to improve survival	No		Very expensive

A.4 Governance

1	Sym	Acknowledge results of genetics research and how this may help managing salmon	Yes		New enhancement strategies being implemented
2	Sym	Closer relationships between NC and CSI councils, incl liaising on regulations and a united Salmon Management Plan	Yes		Increased focus on development the relationship and working together
3	Sym	Reactivate the salmon committee	Yes		Actioned
4	Sym	Is a salmon stamp for funding salmon work achievable and would it be acceptable	Yes	Yes	On agenda for next salmon committee meeting
5	Sym	One licence for all people fishing in freshwater	No		Not desirable or achievable for F&G
6	Sym	To increase public support, F&G to lift the status of salmon, identify the plight and status of salmon	No		Function of national public relations strategy
7	Sym	More focus on fishing experience not fishing success	N/A		Not part of terms of reference for NSRSC
8	Sym	Implement a more robust youth programme across all regions	N/A		Not part of terms of reference for NSRSC
9	Sym	Greater advocacy for gaining access and improving the quality of access	N/A		Not part of terms of reference for NSRSC

			Being actioned?	On agenda	Notes
10	Sym	Develop computer game based on catching trout and salmon	N/A		Not part of terms of reference for NSRSC
11	Sym	Have all stakeholders supporting and actively advocating for salmon and salmon fishing	No		Function of national public relations strategy
12	Sym	Put more money into salmon enhancement and research	Yes & No		Less of a focus on salmon enhancement. More of a focus on the resilience of the wild fishery. Research needs currently being developed for funding bid.
13	Sym	Seek direct funding from Government to enable a higher level of management including funding of hatcheries	No		No plan at this stage to seek more government funding for hatcheries
14	Sym	Review the salmon management plan and implement as a statutory plan. Set standards for the habitat of salmon that will have status under the RMA	Yes	Yes	Salmon management plan will be reviewed
15	Sym	Salmon Committee to work with farmers	N/A		Regional staff working with farmers. Not sole of NZSRSC
16	MUn	Implication on conservation status of stocking – no longer self-sustaining fisheries	Yes		Salmon enhancement program currently under review and more focus on wild fishery

B. Habitat Management and RMA etc

B.1 Spawning Streams

1	DW	Preservation and protection of the spawning and rearing areas – advocate for District and Regional plans to have higher order protection and include measures of macroinvertebrate health, pH and temperature	Yes		Being actioned through RMA advocacy and landowner education
2	Sym	Advocate for fencing and adequate riparian margins for all Schedule 17 waters	Yes		Being actioned through RMA advocacy and landowner education
3	Sym	Educate those who could impact spawning stream health	Yes		Being actioned through RMA advocacy and landowner education
4	Sym	Advocate for minimum water quality and quantity standards and make sure they are enforced	Yes		Being actioned through RMA advocacy and landowner education
5	Sym	Develop management plans for each spawning stream	Yes	Yes	Some work has been done on this. On agenda for future NZSRSC meeting
6	Sym	Identify threats to spawning streams – flooding, erosion, development. Develop plans address	Yes	Yes	Some work has been done on this. On agenda for future NZSRSC meeting
7	Sym	Landowner liaison and education– spawning streams	Yes		Landowner meetings occur regularly with regional staff

B.2 Flows and mainstem habitat

			Being actioned?	On agenda	Notes
1	Sym	Advocate for screening of water takes	Yes		Under action regionally and fish screen policy being developed by the NZSRSC
2	Sym	Advocate for protection of natural flow regimes	Yes		Being actioned through national and regional RMA advocacy
3	Sym	Fish exclusion from intakes, including native fish, ECan must enforce compliance, screens designed for local conditions	Yes		Under action regionally and fish screen policy being developed by the NZSRSC
4	Sym	Better minimum flows for the Hakataramea River	Yes		Being actioned through regional RMA advocacy
5	Sym	Environmental flows must provide for natural variation	Yes		Being actioned through national and regional RMA advocacy
6	Sym	Advocate for inclusion of flows in statutory plans that provide safe passage for salmon	Yes		Under action regionally and fish screen policy being developed by the NZSRSC
7	Sym	Advocate for all consents to take water to be notified and 25 year duration too long	Yes & No		This advocacy occurs on a case by case basis regionally.
8	Sym	Allocation and minimum flow regimes need to be reviewed to recognise climate change	yes		Being actioned through national and regional RMA advocacy
9	Sym	Review legal processes for considering applications and reviewing consents and consider improved processes	No		Not practical for F & G or the NZSRSC to progress.
10	Sym	Review Ecan role and CWMS	No		No action being taken.
11	Sym	Request RDR stop salmon losses into scheme and ADC stop losses into stock water races	Yes		Being actioned through regional RMA advocacy
12	Sym	Emphasise proactive prevention rather than reactive mitigation when managing habitats	Yes		NC F & G advocating this through ECan and national policy
13	Sym	Identify requirements on landowners for establishing and managing riparian margins to match the value of the environment and incentives are provided for farmers to comply funded from a levy on all water users	No		Not practical for F & G or the NZSRSC to progress.
14	Sym	Seek restoration funded by Government and developers whose policies have been to detriment of fishery	No		No action being taken.

B.3 Water Quality

1	Sym	Implement a campaign to educate urban and rural to salmon fishery issues particularly water quality and quantity	No	Yes	A public meeting is being considered at the next Committee meeting
2	Sym	Identify water quality criteria in relation to health of egg, fry and smolt	Yes & No	Yes	Some of this has been done but there are gaps. Research needs for this being considered at next Committee meeting

3	Sym	Pollution is measured and limits set for tribs and rivers, flow limits set	Yes & No		Some of this is being carried out by ECan and more proposed through NPS-FW
4	Sym	Measure contaminants and water quality in lagoons that may become brackish	No		An ECan issue
5	Sym	Seek inclusion in the Coastal Policy Statement of policy relating to health of salmon	No	Yes	On agenda for next Committee meeting
6	Sym	Record nitrate levels (should be <9mg/l), temperature (should be <19 degrees) and measure river flow at the river mouth as the minimum flow site	No		An ECan issue
7	Sym	Seek that National Environmental Standards are set at levels that protect the environment and allow safe recreation	Yes		Regional RMA staff recently submitted on this issues from the NES/NPS-FW
8	Sym	Develop a case for reduced spraying of drains, streams and rivers	No	Yes	On agenda for next Committee meeting
9	Sym	Recommend Independent water quality boards for Canterbury	Yes		Regional RMA staff advocating for independent overview as part of RMA review
10	Sym	Find evidence to support water abstraction to cease when river water temperatures reach 19 degrees	No		
11	Sym	Develop evidence that silt extracted from irrigation races is to be retained on land and not discharged to rivers	No		

C. Hatchery Management and stocking

C.1 Monitoring

1	DW	Clearly identify specific objectives for all hatchery programmes	Yes		Currently being considered by regional staff
2	Sym	Mark all hatchery releases, multiple releases to cover variable survival and monitor survival rates	Yes		Being considered with development of the Hatchery Best Practice Policy
3	Sym	Develop techniques to identify optimum release times and fish size	yes		Being considered with development of the Hatchery Best Practice Policy
4	Sym	Improve recording of salmon releases to sea	Yes		Being considered with development of the Hatchery Best Practice Policy
5	Caw	Hatchery releases to demonstrate they result in benefits to anglers	Yes		Being considered as part of new hatchery strategy
6	Caw	Hatchery releases to demonstrate they do not put wild salmon at risk	Yes		Being considered as part of new hatchery strategy
7	Caw	Develop internal F&G peer review/audit process for all hatchery release proposals/programmes	Yes		Being considered as part of new hatchery strategy
8	Caw	Review ova planting programmes	Yes		Being considered as part of new hatchery strategy

C.2 Best Practice

			Being actioned?	On agenda	Notes
1	DW	Design hatchery programmes to maximise fishery and conservation benefits	Yes		Being considered as part of new hatchery strategy
2	DW	Use release strategies that provide the highest return on investment and that mirror natural salmon life histories	Yes		Being considered as part of new hatchery strategy
3	DW	Consider discontinuing releases of surplus fish farm salmon into natural salmon-bearing rivers	Yes		In action.
4	Sym	Develop standards and best practice for hatchery operations	Yes		Hatchery Best Practice Policy currently being developed
5	DW	Use hatcheries as a tool to engage community and foster a stewardship ethic	Yes		
6	Sym	F&G to recognise importance of hatcheries and ways they can support dwindling wild stocks	Yes & No		Benefits being considered as part of new hatchery strategy
7	Sym	Consider ways other than hatchery for stocking the Waitaki	yes		Options being considered br regional F&G
8	Sym	Investigate potential for sea pens or pens in estuarine waters for imprinting. Increasing survival	No		Not currently being considered due to funding limitations
9	Sym	What are the correct ages and weight for age targets for hatchery releases	yes		Being considered as part of new hatchery strategy
10	Caw	In poor run years don't harvest female salmon from headwaters to supply hatcheries	yes		Being considered as part of new hatchery strategy
11	Caw	Salvaged wild fish should be relocated to prime spawning grounds	Yes & No		Fish to be moved upriver to be able to select their breeding ground
12	Caw	Educate all F&G personnel incl licence holders on potential risks of hatchery release programmes	Yes		Being considered as part of new hatchery strategy
13	Caw	Consider hatchery releases in open river systems as a last resort for "at risk" populations.	Yes		Being considered as part of new hatchery strategy
14	SMP	Seek advice on stocking programmes from expertise available in NZ and internationally	Yes		Being considered as part of new hatchery strategy
15	Sym	Do McKinnons Ck hatchery results support the concept of a put and take fishery close to the sea	yes		Monitoring confirms positive harvest outcome
16	Sym	More biosecurity focus on fish transfers	Yes		Hatchery Best Practice Policy currently being developed
17	SMP	Put and take fishery developed to reduce impact on wild stocks	yes		Being considered as part of new hatchery strategy

C.3 Funding

			Being actioned?	On agenda	Notes
1	Sym	Encourage volunteer staffing of hatcheries to assist	Yes		Has always been encouraged
2	Sym	Look for sponsorship for hatcheries	Yes	Yes	On agenda for next NSRSC meeting
3	SMP	Priority to stocking programmes that reduce costs through stakeholder/sponsorship contributions	Yes	Yes	On agenda for next NSRSC meeting
4	MUn	Acknowledge hatcheries are a long term commitment	no	Yes	Salmon enhancement program currently under review and more focus on wild fishery
5	MUn	Acknowledge that hatcheries are a treatment not a cure and may divert attention/resources from finding a cure	Yes		Being considered as part of new hatchery strategy

D. Stock Assessment

1	DW	Maintain extensive surveys, expand if possible	yes		Being actioned through development of adaptive management strategy (AMS)
2	DW	Maintain and improve fishery monitoring programme	yes		Being actioned through development of adaptive management strategy (AMS)
3	Sym	Unify the harvest surveys for NC and CSI and consider applying Sth Island wide	Yes		Completed
4	Sym	Identify smolt health and survival at staged downriver sites and at transition to sea to identify possible bottlenecks in survival and propose solutions	No		
5	Sym	Identify spawning v fry production relationship to indicate optimum current fry production and identify and address limitations on fry production	Yes		Being actioned through development of adaptive management strategy (AMS) and a species management plan
6	Sym	Identify fry outmigration from spawning streams v smolt outmigration through river mouth and identify and address limitations on fry to smolt survival	yes		Being actioned through development of adaptive management strategy (AMS) and a species management plan
7	Sym	Seek involvement of salmon anglers in collecting information	Yes		Salmon head collection in 2019/2020

E. Research

E.1 Marine

E.1.1 Bycatch

1	Sym	Scope, cost and fund increased monitoring of salmon through trawlers including: bycatch and location; access to salmon for sampling; changes of efficiency of trawler catch through technology improvements; and correlation with catch of other spp	Yes & No		Trawler bycatch has been monitored extensively in the past and by catch reports are still submitted by commercial operators.
2	Sym	Monitor trawler catches and changes to these over years, including impact of squid fishing and catch of salmon by joint ventures	Yes & No		Refer above. No intension of monitoring squid fishing.

E.1.2 Diet

			Being actioned?	On agenda	Notes
1	Sym	Collect information on diet of salmon at sea especially density of krill and sprats impact on salmon	No		Would be nice to have but no identifiable action could result
2	Sym	What are the factors affecting food of salmon at sea	No		Would be nice to have but no identifiable action could result
3	Sym	What impact does krill harvest in the Antarctic have on salmon survival and health at sea	No		Would be nice to have but no identifiable action could result
4	Sym	Are adult salmon returning in poor condition and with changed behaviour – easily spooked, tentative take, compared to years ago.	No		More likely that low numbers are affecting perception
5	niwa	What is the diet of salmon at sea and are current food supplies limiting growth and abundance (1992)	No		Would be nice to have but no identifiable action could result

E.1.3 Oceanography

1	Sym	Improve understanding of the effect of ocean current, El Nino on salmon populations	Yes		Presentation from NIWA was given at a past Salmon Committee meeting
2	Sym	Understand presence and effects of thermoclines at sea on salmon populations	Yes		Presentation from NIWA was given at a past Salmon Committee meeting
3	Sym	Investigate the effects of nutrient run off from land based activities, especially direct/indirect effects on salmon	Yes		Joint project between CSI/NC and ECan into effects of this on salmon spawning streams.
4	Sym	Record incidents of algal blooms at sea and effects on salmon	No		Not currently being considered due to other priorities and funding limitations
5	Sym	Better understand ocean temperatures, acidification and salinity	Yes		Presentation from NIWA was given at a past Salmon Committee meeting
6	Sym	Have there been changes to ocean floor caused by natural and human activity such as trawlers	No		Would be desirable to know but not practical given funding limitations
7	Sym	Identify options for optimising survival of salmon to and from the sea including river mouth management	Yes		Ongoing fish screen advocacy
8	Sym	Accept that agencies such as Cawthron and NIWA can help, and their advice and other outside agencies is sought	Yes		Report on hatcheries from Cawthron.
9	Sym	Do seismic surveys destroy plankton that may form part of the food chain for salmon	no		
10	Sym	Can the relationship of red cod and barracouta populations to salmon be used to predict salmon abundance	Yes		Looking into feeding this into the adaptive management model.

11	Sym	Identify the impact of estuarine and coastal conditions as they relate to smolt survival	No		Would be desirable to know but not practical given funding limitations
12	niwa	Are fluctuations in salmon abundance related to oceanographic conditions including abundance of indicator organisms (1992)	No		Future research when opportunity and funding available
13	Sym	How can post-graduate study of salmon at sea be encouraged	No		Topic for salmon management plan

E.1.4 Behaviour

			Being actioned?	On agenda	Notes
1	Sym	Track salmon at sea, where do they go and what is their behaviour	No		Would be desirable to know but not practical given funding limitations
2	Sym	Study behaviour of salmon at sea including variability in distribution and timing	No		Would be desirable to know but not practical given funding limitations
3	niwa	Distribution of adult and juvenile salmon at sea (1992)	No		Would be desirable to know but not practical given funding limitations
4	niwa	Determine main factors affecting successful seawater adaptation to sea water (1992)	No		Would be desirable to know but not practical given funding limitations

E.1.5 Predation

1	Sym	Predation by seals recognised, especially Moeraki, Clutha, Catlins, Waitaki mouth, Kaikoura, Otago Harbour – perhaps post-graduate study	No		Seals are a protected species in NZ so no action could be taken if study showed
2	Sym	What is the Impact of kahawai on salmon populations	No		Not a research priority at this time
3	Sym	Develop catalogue of predators at sea and relative impacts			Not a research priority at this time
4	Sym	Review quota for warmer water fish eg kingfish, if numbers of these are increasing	No		Not relevant to salmon fishery
5	niwa	What is the significance of predation on smolt near river mouths and/or predation on adults, to overall survival at sea(1992)	No		Not a research priority at this time

E.2 Freshwater

1	Sym	Support research into didymo and other nasty algae with objective to find solutions	No		Not likely to be a factor affecting salmon survival
2	Sym	What predation is taking place in rivers	No		Not a research priority at this time
3	Sym	Develop criteria for fish passage, track fish	Yes		There is existing criteria for fish passage and effective fish screens are a priority. The NSRSC has developed a draft policy
4	Sym	What is land-locked salmon contribution to sea-run populations	yes		Current research on L Heron stocks

			Being actioned?	On agenda	Notes
5	Sym	Develop real-time monitoring of run size, angler catch etc	Yes		Adaptive Management system in development
6	Sym	Accept that agencies such as Cawthron and NIWA can help, and their advice and other outside agencies is sought	Yes		Reports have been commissioned on hatcheries from Cawthron & advice sought on other topics from other agencies.
7	Sym	Aspects of climate that are critical to salmon egg incubation, are measured to indicate effect of climate change	No		Not core business for Fish & Game
8	Caw	Develop habitat suitability curves for spawning chinook salmon (2000)	No		Future research when opportunity and funding available
9	niwa	What are the characteristics of juvenile salmon migration in the Rangitata River (proposed in 2000 & 2001)	Yes		Complete
10	niwa	Identify key climate change considerations on freshwater fish (2000 & 2001)	No		Would be desirable to know but not practical given funding limitations. Potential future project
11	niwa	What are the important aspects of juvenile salmon marine ecology (2001)	No		Would be desirable to know but not practical given funding limitations
12	Caw	Improve spawning run assessment e.g. DIDSON (2008)	Yes		In action
13	niwa	Monitor hatchery releases – release information and return rates (1992)	Yes		In action
14	niwa	Monitor angler catch (1992)	Yes		In action
15	niwa	Develop salmon population dynamics model (1992)	Yes		In action via development of adaptive management model for salmon
16	Sym	Improve fisheries management techniques	Yes		In action via development of adaptive management model for salmon
17	Sym	Does fin clipping harm or affect fish behaviour	No		International best practice technique
18	Sym	Establish central site for collation of salmon at sea information	Yes		To be put on a future agenda for discussion
19	niwa	Develop scale reading capability (2003)	Yes		Needs further improvement
20	Sym	Does catch rate vary depending on size of the run	Yes		Complete. Answer is no.
21	Sym	How many fish are lost down irrigation schemes	Yes		RDR estimate completed 98/99 and monitored annually

E.3 Genetics

			Being actioned?	On agenda	Notes
1	Sym	Do our fish suffer from lack of genetic diversity - inbreeding	no		Not identified in previous genetics work on NZ salmon as an issue
2	Sym	Identify genetics of salmon at sea, track genetic variations (river of origin?) and what this means, are recommended restrictions on mixing of river stocks justified	Yes		NIWA completed 1992
3	Caw	Don't release commercially farmed salmon into rivers with wild sea run populations unless proven these fish cannot interbreed with wild fish	Yes		Not possible without authorisation. Letter sent to all regions to talk to commercial hatcheries to explain harmful effects of this practise.
4	Caw	Commercial farmed salmon to be used in put and take fisheries isolated from wild fisheries, or destroyed	Yes		Refer above.
5	Caw	Stop transferring salmon ova and or juveniles between catchments with existing wild fisheries	Yes		This practice has been assed and new protocol are being developed.
6	DW	Conduct further research into genetic population structure of wild and farmed salmon populations in order to better understand effects of domesticated salmon on natural populations	Yes		Study complete