# 2022 Mass Marking and Marked-Selective Fisheries Discussion Paper: A Summary Report on What We Heard

# Contents

1.	Context	1
2.	What We've Heard from Summer 2022 Engagement Sessions	2
	Major Themes	2
	Other Feedback	3
3.	What We've Heard from the Discussion Paper Request for Feedback	3
	MM and MSF implementation:	4
	Funding allocation and resourcing:	7
	Timeline considerations:	7
	Technical Workshops:	7
4.	Next Steps	7

#### 1. Context

The pressures and threats to Pacific Salmon populations are diverse and require significant action on many fronts. These actions have been outlined under the four pillars of the Pacific Salmon Strategy Initiative (PSSI); Conservation and Stewardship, Salmon Enhancement, Harvest Transformation, and Integration and Collaboration.

Hatchery mass marking (MM) and mark-selective fisheries (MSF) are tools that can be deployed to help address conservation and sustainable use challenges faced by Pacific Salmon. The PSSI provides an opportunity to develop and implement these tools as part of an integrated management approach.

The five principles underpinning PSSI engagement and implementation are: Indigenous reconciliation; Innovative solutions; Prioritization; Enhanced transparency, data and trust; Partnerships and collaboration. Consideration of MM and MSF will consider all these principles, particularly Indigenous reconciliation, in which the Department is seeking to strengthen positive relationships and collaboration with First Nations to help achieve solutions and shared objectives (e.g., harvest access).

The purpose of this report is to provide a summary of what we heard in response to Fisheries and Oceans Canada's (DFO) request for feedback on the discussion paper, *Implementing Hatchery Mass Marking and Mark-Selective Fisheries for Chinook Salmon*. The discussion paper was circulated to First Nations, Indigenous organizations, the Province of BC, the Sport Fishing Advisory Board (SFAB), the Salmonid Enhancement and Habitat Advisory Board (SEHAB), the Commercial Salmon Advisory Board (CSAB), and the Marine Conservation Caucus (MCC) in the summer of 2022. These groups were invited to submit feedback on the paper between June 27 and Oct 7, 2022. Additionally, DFO held virtual meetings to introduce and discuss the discussion paper with First Nations, Indigenous organizations, the SFAB, SEHAB, and the MCC in summer of 2022.

DFO committed to reporting back on these engagement sessions and feedback for transparency, to outline the comments and input received, and to inform areas where additional technical analysis is required. The feedback received will be used to inform the implementation of MM and MSF in conjunction with consultations that occur during the process to develop integrated fisheries management plans and Salmonid Enhancement Program production planning.

The discussion paper invited feedback on five questions:

# • Question 1

DFO is implementing a more precautionary approach to resource management to support the conservation and rebuilding of salmon stocks. This paradigm shift is supported by new resources from PSSI to implement the tools needed to effect change. To what extent would you support the use of MM and MSF as additional management tools for Pacific Salmon, specifically in terms of:

- Improved management of hatchery production
- Provision of sustainable harvest opportunities
- Overall conservation and management of populations

If you can, please speak to both local and broader regional considerations. Please outline the reasons for your response.

#### Question 2

Has the Department accurately identified the potential benefits and challenges associated with the implementation of hatchery mass marking and mark-selective fisheries as a means of simultaneously addressing objectives associated with Chinook salmon conservation, hatchery-wild stock genetic management, sustainable use of the resource and meeting our obligations to First Nations?

# • Question 3

Are there additional considerations that should be included in the implementation of MM/MSF consistent with the Departmental objectives and PSSI direction?

#### Question 4

Are there other challenges or concerns with MM and MSFs that have not been covered in the discussion paper and that should be considered?

#### Question 5

DFO intends to consider implementation issues with dedicated technical work to address concerns and develop mitigations for these concerns. Would you support/participate in technical workshops to consider these issues? Do you have technical expertise that can contribute to this work in identifying issues and developing mitigation approaches?

# 2. What We've Heard from Summer 2022 Engagement Sessions

Concurrent with the discussion paper distribution, DFO staff held virtual meetings to introduce and discuss the MM and MSF discussion paper with First Nations, Indigenous organizations, Sport Fishing Advisory Board (SFAB), Salmonid Enhancement and Habitat Advisory Board (SEHAB), and the Marine Conservation Caucus (MCC) in Summer of 2022. The Province of British Columbia provided comments in writing. No input was received from the Commercial Salmon Advisory Board (CSAB). The outline below is a summary of what was heard during the sessions.

#### **Major Themes**

- Concerns raised that MM/MSF is going ahead regardless of the feedback received and/or timelines for MM/MSF are too ambitious and do not allow adequate time for consultation, engagement, and research. (First Nations, MCC)
- Concern raised about the lack of research and science showing the benefit of MM/MSF on salmon rebuilding and reducing genetic risks to wild salmon populations. Unclear how MM/MSF will provide a conservation benefit to salmon populations. Suggestions to provide clearer objectives relating to the goals, impacts/effects, implementation plan, and expected outcomes of MM/MSF. (First Nations, MCC)
- Requests for additional information on funding related to implementation of MM/MSF and how it will be allocated. (First Nations, MCC)
- Groups are pleased to see that DFO is implementing PSSI for enhancement and rebuilding. (SEHAB)
- Group wishes to participate in the development of catch-monitoring for MSF and has the
  existing SFAB catch monitoring group readied to support as needed. (SFAB)

- Groups such as SFAB, SEHAB, BC, and some First Nations groups indicated support for MM/MSF and the anticipated benefits of harvest opportunity or improved hatchery management, while other First Nations were concerned that MSF would not benefit their fisheries. Both the MCC and First Nations raised concerns that MM and MSF could adversely impact wild stocks.
- Technical workshops need to include a diverse range of interested parties to ensure a comprehensive range of perspectives and knowledge is being incorporated into the programs. (First Nations, MCC, SEHAB, SFAB)
- Concerns raised about Fishing Related Incidental Mortalities (FRIM), how monitoring will be implemented, and how external groups will be involved in this. (First Nations, MCC, SFAB, SEHAB)

#### Other Feedback

- Suggestion to use less invasive marking techniques, such as thermal marking (i.e., adjusting
  water temperatures in the hatchery to 'mark' otoliths), due to concerns that fin clipping will
  cause mortality. (First Nations)
- DFO reminded that the recreational sector has not requested increases to current hatchery production. (SFAB)
- Suggestion to provide more details on wild and hatchery origin Chinook and target mark rates.
   (First Nations)
- Recreational sector affirmed support for catch monitoring and logbooks. (SFAB)
- Suggestions for the need to have proper stock assessment and catch monitoring tools to assist
  with improved fisheries management. Comments that MM/MSF will require more monitoring
  than what is currently happening. (First Nations, MCC)
- Suggestions to run closed loop simulations and then increase monitoring to help address and evaluate the issues raised in the discussion paper. (First Nations)
- Concerns that MM/MSF will undermine the valuable information obtained from the CWT program and questions about what should be done with coded wire tag (CWT) fish to maintain the integrity of CWT information. (First Nations, MCC, SEHAB)
- Proper communication to all groups (i.e., First Nations, commercial and recreational fisheries, and public) about the objectives and intentions of MM/MSF will be important for the program to succeed (all respondents).
- Suggestion for DFO to include First Nations in the development of the initial technical work, while other First Nations asked DFO to share a concrete plan for input. (First Nations)

# 3. What We've Heard from the Discussion Paper Request for Feedback

With the distribution of the discussion paper and subsequent summer meetings to introduce the paper, DFO invited First Nations, Indigenous organizations, SFAB, SEHAB, CSAB, MCC, and the Province of BC to submit feedback between June 27 and Oct 7, 2022. Those parties that responded provided a range of diverse perspectives and considerations on MM/MSF to DFO. A summary of this feedback is outlined in the following section.

Please note that this summary is intended to be an abbreviated summary of all of the key issues identified by respondents. This summary is not intended to reflect DFO endorsement of the accuracy of the points raised or whether or not the Department supports the point.

#### MM and MSF implementation:

- Concerns that MM/MSF are not supported by peer-reviewed, published, scientific evidence as useful tools for wild Chinook conservation (First Nations, MCC).
- Potential infringement of Aboriginal Rights, citing UNDRIP (United Nations Declaration on the Rights of Indigenous Peoples) and DRIPA (Declaration on the Rights of Indigenous Peoples Act).
   Consent and support should be sought out from First Nations in the areas where MM and/or MSF is being considered. (First Nations)
- Parties have emphasized that First Nations priority rights are supported and should not be infringed upon. (MCC, SEHAB, SFAB)
- Suggestions to hold rights-based discussion (including clarification of access, harvest, allocation, and ownership of hatchery fish) on local and regional scales with First Nations, prior to MM/MSF implementation. (First Nations)
- Acknowledge the value of Indigenous Knowledge in the overall MM/MSF framework. (First Nations)
- Planning, evaluation framework, and implementation plans of MM/MSF should be co-developed with First Nations. (First Nations)
- Development of quantitative decision rules, with management triggers, to guide on-the-ground management of both enhancement targets, fisheries and FRIM limits in MSF are required. (MCC)
- Support for using MM/MSF to improve existing hatchery practices in managing PNI
   (Proportionate Natural Influence and assist in resolving domestication issues in brood stock management. (SFAB)
- Some groups concur with MM and Parentage Based Tagging (PBT) methods to mitigate hatchery-wild interbreeding and using MSF to remove MM fish help to manage inbreeding risks. (First Nations)
- Replacement of ambiguous terminology such as 'Priority Stocks' and 'Acceptable Limits' with clear, quantifiable values. (MCC)
- A review of CWT exploitation rate(s) to assess whether indicator stocks are useful proxies for wild Chinook stocks. (MCC)
- Outline the strengths and weaknesses of alternative methods to the CWT Program; including identification of data gaps and use of data in stock assessment modelling. (First Nations)
- Suggestion for the management program to address CWT Chinook exploitation and mortality measurements that may be affected by differential mortality in MSF (MCC).
- Request for an analysis on socio-economic, cultural impacts, and cost-benefit of MM/MSF, including an examination of which sectors would benefit most from these programs. (First Nations)
- Economic cost-benefit analysis of other conservation measures (e.g., restoring and protecting habitat) for wild salmon rebuilding versus MM/MSF initiative. (MCC)
- Additional Pacific Salmon Treaty negotiations may be required to ensure obligations are met.
   (First Nations, MCC)
- Some parties have expressed concerns over wild and hatchery fish interbreeding conservation and maintaining genetic diversity of wild Chinook stocks is the priority. (First Nations, MCC)

- DFO should outline other management options for protecting and conserving wild Chinook stocks apart from MM/MSF. MM and MSF should not be the preferred method. (First Nations, MCC)
- Some groups raised concerns of the efficacy of Chinook fishing restrictions to support conservation and rebuilding of wild stocks. (First Nations)
- Suggestion that funds should be directed towards habitation restoration for wild Chinook rebuilding, instead of hatchery production and MM/MSF opportunities. (MCC)

## Mass Marking:

- Some First Nations groups support the implementation of MM without MSF, as conservation and rebuilding benefits of enhancement does not need to use MSF concurrently. (First Nations)
- Some First Nations groups suggest there should be a review of hatchery performances and a
  cost-benefit analysis (cost of production versus fish return). Facilities with poor performance
  (survival and return of Chinook) should be re-evaluated and consider how resources can support
  rebuilding SBC Chinook stocks. (First Nations)
- Concern raised that the Department's approach is too conservative, and all Chinook and Coho production should be MM (BC)

#### Mark-Selective Fisheries:

- Some groups do not support implementation of MSF in 2023. (Many First Nations, MCC)
- Other groups support DFO planning for MM/MSF implementation as soon as possible. (SFAB, BC)
- Some groups do not support a maximum size limit on marked hatchery fish, citing concerns that
  marked hatchery fish are raised to be caught and consumed. The harvest of marked fish prior to
  entering their natal stream will help manage the PNI in that stream and facilitate recovery of
  CWT information. (SFAB)
- There are many unknowns, uncertainties, and assumptions about MSF. Clear conservation benefits and the full understanding of effects on MSF on unmarked fish must be addressed. (First Nations, MCC)
- Concern that MSF harvest of marked fish designed for recovery supplementation (for Fraser Chinook, SRKW recovery, Big Bar Response Enhancement, rebuilding of Hucuktlis Lake Chinook, and the proposed new enhancement programs in Bute Inlet) could compromise rebuilding efforts. (First Nations)
- Some First Nations groups suggested the use of closed loop simulation for MSF to evaluate trade-offs between conservation and the distribution and scale of harvest opportunities. (First Nations)
- MSF should only proceed as terminal fisheries with independent monitoring and regulations to protect co-migrating Chinook stocks of concern. (First Nations)
- Some support for the development of precautionary small pilot projects in known stock terminal areas, provided that there is no expansion of existing hatchery production. (Some First Nations, MCC)
- The minimizing of impacts on wild salmon is crucial should hatchery production continue. In this case, MM/MSF should be selectively implemented only in places where sufficient quality and

- quantity of information exists and will be more likely to be effective in terminal areas where mixed-stock, mixed-maturation fisheries do not occur. (MCC)
- Some First Nations groups have indicated that MSF should only be considered in times and areas
  with high mark rates, low FRIM, low harvest effort, and with clear strategies/methods to control
  fishing effort and minimize FRIM. This avoids potential long-term impacts associated with
  compressing effort and catch on to specific stocks in concentrated areas and times. (First
  Nations, MCC)
- Some groups have suggested to spread out the fishing effort on Chinook over a greater area and longer time period to reduce FRIM. (SFAB)
- Some have suggested lowering catch limits for Chinook over a longer time period of fishing be investigated to decrease FRIM. (First Nations, MCC)
- Some parties strongly oppose MSF in mixed-stock areas, as FRIM would affect a large number of wild Chinook populations. Associated concerns that stock assessment and monitoring would become overly complex since both unmarked and marked fish would be required to be tracked. (First Nations, MCC)
- Concerns over insufficient data on FRIM impacts to make science-based MSF decisions. Some
  have also expressed that increased fishing effort can impact wild stocks negatively. Concern
  that monitoring data are insufficient in many areas. (First Nations, MCC)
- Suggestion to eliminate retention of unmarked Chinook in MSF, unlike several current pilot MSFs where some retention of wild fish is still permitted. (First Nations)
- Several groups noted that First Nations have priority access for FSC (Food, Social, and Ceremonial) and rights-based fisheries after conservation objectives are achieved and that priority access should explicitly account for fishery mortalities observed in other fisheries sectors. (First Nations, MCC, SEHAB)
- First Nations priority access for FSC and rights-based fisheries after conservation objectives are achieved is acknowledged (SFAB)
- MSF should be a tool to support rebuilding programs and genetic management but scaled back when local wild salmon populations increase. Concerns over MSF benefits in wild stock conservation. (First Nations)
- DFO should review existing Canadian and US Chinook and Coho MSFs and incorporate 'lessons-learned' into current MM/MSF planning considerations. (MCC)
- Some groups have suggested/supported transition to mandatory reporting for recreational guides and lodges. (First Nations, SFAB)
- The Department is encouraged to consider the motivation behind types of fishing activity before
  estimating or responding to increases in fishing effort with the implementation of MSF. Moving
  from non-retention to retention measures may shift angler behaviour towards fishing for target
  species and leaving the water when limits are achieved (or switching species) rather than
  maximizing encounters for a fishing experience when retention is prohibited. Monitoring is
  required to evaluate encounter trends. (SFAB)
- Use of MSF as a management tool in low-risk areas to create increased harvest opportunities is supported (BC)

## Funding allocation and resourcing:

- Concerns over long-term funding, as PSSI funding announced is for only a five-year period.
   Concern raised over how essential programs will be maintained once PSSI funding sunsets. (First Nations, MCC)
- Concerns about the overall allocation of PSSI funds by DFO and potential impacts on opportunities for external groups to access resources.
- Concerns that DFO is struggling with capacity and MM/MSF implementation could oversubscribe staff further. Question raised about resources being allocated sufficiently. (First Nations)
- Concerns that the funding of MM, MSF, and FRIM research will result in elimination/reduction of other stock assessment programs, habitat restoration or recovery planning. (MCC)
- Request to ensure adequate funding to ensure baseline studies are completed and progress is fully monitored and reported on before MM/MSF is implemented. (First Nations)

#### Timeline considerations:

- Implementation timeline seems unrealistic. Many issues and questions remained unaddressed.
   (First Nations, MCC)
- Concerns over rushed timelines in the development and actualization of implementation plans, hindering thoughtful development processes with adequate First Nations participation. (First Nations)
- Other groups have urged DFO to immediately consider MM and MSF implementation. (SFAB)

# Technical Workshops:

- All First Nations and stakeholder groups that submitted feedback on the MM/MSF discussion paper have indicated their interest in participating in the technical workshop discussions. Some First Nations have requested DFO funding to support participation.
- Some groups raised questions over technical workshop funding, peer-review process, workshop chairs/facilitation, reporting and outcome(s). (First Nations, MCC)
- Suggestion for transparency in the workshop process, where the outcome is shared with First Nations Fisheries Managers and leadership. (First Nations)

#### 4. Next Steps

Technical workshops to address key issues and support implementation planning in key areas commenced in Winter 2022. The feedback received on the Discussion Paper and during engagement sessions is included in this Engagement Summary Report. Input received during technical workshops, written discussion paper feedback, and at engagement sessions will inform initial implementation plan development.

As the Department transitions towards longer-term implementation planning for MM and MSF, additional pilot MSF opportunities during this transition period will be developed and considered for implementation in Spring 2023. The draft implementation plans will be consulted on in January/February 2023 and feedback received will inform interim decision making.

Longer-term work includes developing clearly defined frameworks and implementation plans for MM and MSF that guide assessment requirements, evaluation of impacts on wild Chinook and clear objectives/priorities for the MM of hatchery Chinook production lines. Longer-term plans will apply these frameworks to inform decisions around the implementation of hatchery Chinook MM and MSF broadly in Southern BC.