



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Salmonid Enhancement Program

SEP Production Planning:

A Framework

Salmonid Enhancement Program
Fisheries and Oceans Canada
Pacific Region

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Table of Contents

1	Introduction.....	3
2	Scope of Production Planning.....	4
3	Program Design.....	4
4	Planning Parameters	5
4.1	Production Objectives for Enhancement.....	5
4.2	Priorities within the Production Planning Process.....	7
4.3	Biological Designations for Enhanced Populations	8
5	Production Planning Process	10
5.1	Key Milestones Descriptions	12
6	Production Planning Responsibilities and Accountabilities	14
7	Future and Long-Term Production Planning.....	15
	Appendix 1: Salmonid Enhancement Program Logic Model.....	16
	Appendix 2: Major SEP and Community Economic Development Project Hatcheries and Spawning Channels in British Columbia	17
	Appendix 3: RACI Table (Who's Responsible, Accountable and Informed in the Process)	18

1 Introduction

The purpose of this document is to provide a framework for a regionally consistent approach to salmon production planning for the Salmonid Enhancement Program (SEP). This version updates the original 2012 document¹ by incorporating changes in organizational governance and departmental performance measurements, the latter resulting in a new program logic model (Appendix 1). It also includes information on the means by which recent scientific advice on gene flow between wild and hatchery salmon will be incorporated into the production planning process.

Production planning in its simplest form is the business of deciding how many fish are to be produced from each enhancement facility. To that end, salmon from SEP facilities are produced to meet particular objectives; and the decisions that are required about those objectives and how they are to be met follow a defined process. This document will clarify the planning process and the framework within which the more complex aspects of how and why fish production decisions are made, and by whom.

The document is designed primarily for planners and practitioners from participating sectors in the Fisheries and Oceans Canada (DFO) Regional Headquarters and Area offices, and for communication with program partners and the public. It highlights how fish production planning links departmental and program priorities, the scope of SEP fish production planning and how decisions are influenced and made. It connects and aligns with other relevant departmental processes (i.e. *Canada's Policy for Conservation of Wild Pacific Salmon* (WSP)) and addresses how production plans are an element of licences issued under the Pacific Aquaculture Regulations (PAR). Finally, the overview gives consideration to longer-term planning, such as possible implementation of multi-year Integrated Fisheries Management Plans (IFMPs) and production plans.

This document is one of a number of integrated planning tools that SEP has or will prepare to guide future management and decision-making (Figure 1). Companion documents are framework guides for SEP biological assessment² and biological risk management³. These products provide a cohesive program-level strategic management framework. The biological assessment framework documents the methods that SEP uses to assess adult production and the effects of hatchery salmon on wild salmon. Results of such assessments inform production planning and appropriate production levels and enhancement strategies. The risk management framework includes documentation of program risk management activities and serves as an operational guide, as well as a decision-making, communication and engagement tool. This framework follows the basic steps of risk identification, risk analysis/mitigation, and risk management, with program activities and resultant pathways of effects clearly defined. The framework also references operational guidelines⁴, such as those that prescribe brood stock collection and spawning practices intended to safeguard genetic integrity of wild populations.

¹ DFO. 2012. *SEP Production Planning: A Framework*. Salmonid Enhancement Program, Fisheries and Oceans Canada, Pacific Region.

² DFO. 2017 (draft). *SEP Biological Assessment Framework*. Salmonid Enhancement Program, Fisheries and Oceans Canada, Pacific Region.

³ DFO. 2013. *A Biological Risk Management Framework for Enhancing Salmon in the Pacific Region*. Salmonid Enhancement Program, Fisheries and Oceans Canada, Pacific Region.

⁴ DFO. 2016. *A Compilation of Operational and Planning Guidelines for the Salmonid Enhancement Program*.

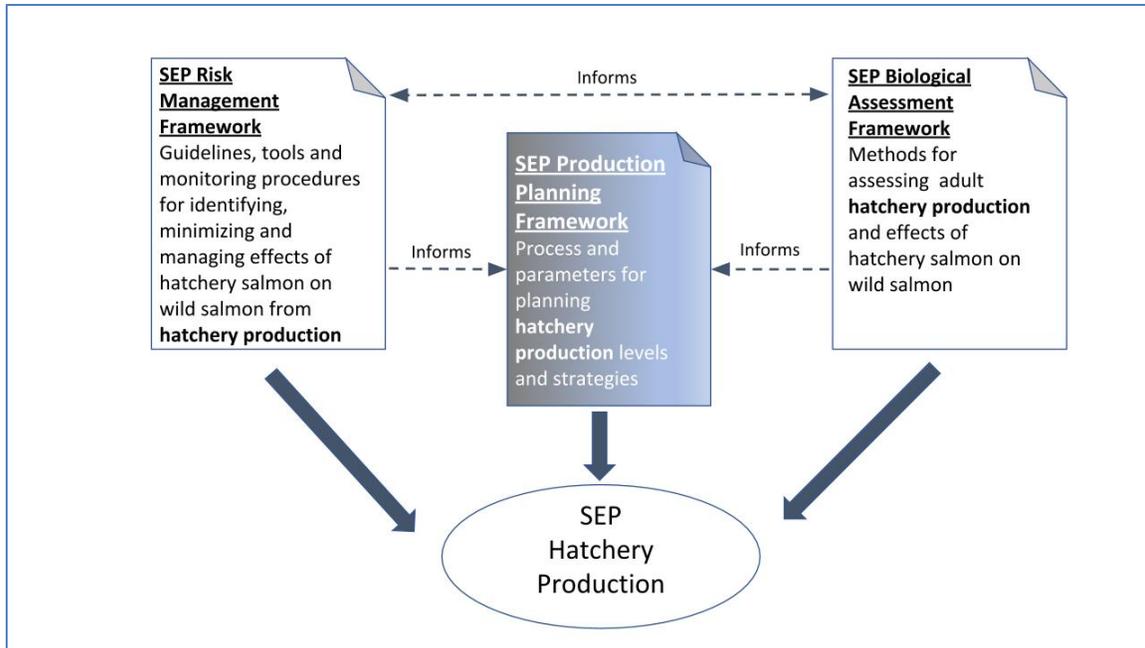


Figure 1. SEP Integrated Framework Documents

2 Scope of Production Planning

This framework applies to SEP managed or supported hatcheries, incubation projects, and managed spawning channels (where spawn timing and density are controlled) that cultivate fish and for which SEP holds the Pacific Aquaculture (PAR) licence in the Pacific Region. It does not address SEP habitat restoration or lake enrichment projects; nor does it consider Steelhead and Cutthroat trout produced at SEP facilities, as their management is a provincial responsibility. The framework does not speak to non-SEP funded facilities that culture and release Pacific salmon.

Salmon production from fish cultivation facilities has recently averaged some 283 million juvenile salmon, with small numbers of trout, each year. There are greater than 700 production lines with combinations consisting of different salmon species and a range of different release strategies (i.e. un-fed fry, fed-fry, smolts, sea-pens, etc.) each with differing juvenile-to-adult survival rates. Adult production is 4 million adult salmon each year.

Chinook, Chum, Coho, Pink, and Sockeye salmon are produced under DFO authorities at facilities throughout the Pacific Region (see Appendix 2 for a map of SEP facilities). Steelhead and Cutthroat trout are produced at some DFO facilities in partnership with the province of British Columbia, which is responsible for the production planning for these species.

All SEP facilities undertaking “the cultivation of fish” are required to hold a licence issued under the PAR, including classroom educational projects. PAR licences for all SEP enhancement facilities reference the production plan, as developed within the formal planning process described in this document. As a condition of the PAR licence, the production plans are a regulatory requirement, heightening the importance of its content and the process through which it is developed.

3 Program Design

SEP operates enhancement facilities, restores habitat, and undertakes projects that include public participation by local communities and First Nations in fisheries and watershed

stewardship activities. Enhanced salmon enable economic, social and cultural harvest opportunities for commercial, recreational and First Nations harvesters, support vulnerable stock rebuilding and contribute to Canada's stock assessment commitments under the Pacific Salmon Treaty (PST) with the United States. Projects with community partners include stewardship activities and the development of integrated local and area watershed plans. SEP also supports school education and public awareness projects.

The program resides within the Ecosystem Management Branch (EMB) and is delivered through three program components:

- **Operations** - DFO major facilities –reporting to regional headquarters, these facilities produce fish to provide harvest opportunities, rebuild stocks, and support stock assessment through hatcheries and spawning channels;
- **The Community Involvement Program (CIP)** – includes the Community Economic Development Program (CEDP) and the Public Involvement Program (PIP), reporting through the Area Directors. CIP projects are operated by local community groups and First Nations and include projects that focus on fish production as well as others that focus on education, outreach and stewardship initiatives.
- **The Resource Restoration Unit (RRU)** – supports habitat improvement and restoration, as well as watershed planning and partnerships related to habitat initiatives. RRU also reports through the Area Directors.

4 Planning Parameters

4.1 *Production Objectives for Enhancement*

The Program is guided by a logic model (Appendix 1), which is a component of the government-wide performance measurement framework designed to measure program outcomes or results. The logic model depicts the outcomes that the program works to achieve in support of broader government outcomes; it identifies the inputs, activities and outputs that are linked to attain such outcomes. The logic model provides a program-planning framework for setting priorities and objectives. As part of this model, SEP has defined four program outcomes:

- **Enhanced salmon support harvest** – this outcome addresses the direct economic, social, and cultural benefits generated from harvest opportunities.
- **Enhanced salmon support stock recovery, rebuilding and assessment** – the recovery and rebuilding of vulnerable populations addresses conservation objectives and can address harvest objectives in cases where vulnerable populations may constrain fisheries. Assessment supports regional stock assessments that enable stock and harvest management and creates data sources for Fisheries Management and Stock Assessment Division.
- **Restored habitat and community stewardship support salmon sustainability** – Increased habitat productivity increases salmon abundance and ecosystem resiliency, which in turn supports sustainability. First Nations, local communities and external parties participate in watershed stewardship activities and cooperative fisheries.
- **Partnership and volunteerism support salmon rebuilding and stewardship** – this outcome includes Community Involvement Program arrangements, as well as initiatives such as watershed planning.

Five specific fish production objectives flow from the logic model. Each production line (a release group defined by the project, species, run, stock, brood year, release stage and release location) considered through the production planning process **must** address at least one of the Program production objectives that follow.

Harvest: Enhancement for fisheries that are reliant on enhanced production, and would disappear or become severely constrained in the absence of enhancement. This includes harvest opportunities for First Nations, recreational, or commercial fisheries. When the objective is to provide a targeted-fishery opportunity, production targets may be set to consider both natural spawning and harvest requirements.

Rebuilding: Enhancement of a stock that is below apparent carrying capacity. This includes rebuilding depleted populations and mitigating for habitat loss.

Conservation: Enhancement of a stock highly at risk of extirpation or extinction in order to prevent extinction and preserve the genetic diversity of the population. This objective is also suitable for populations with low abundance when the habitat is unable to support a self-sustaining population or a vulnerable stock that DFO has identified as a regional priority (e.g. through development of an approved conservation/recovery strategy, or through categorization by DFO as a stock of concern). This includes re-establishing locally extinct populations.

Assessment: Fish production for the purpose of achieving SEP assessment objectives⁵, including supporting Pacific region assessment priorities, such as the Pacific Salmon Treaty. Fish produced for assessment are typically part of a larger production group that also addresses another objective such as harvest. In a few instances however, fish are produced solely for marking for Pacific region assessment purposes.

Stewardship and Education: Fish produced for stewardship or educational purposes at levels that are considered to have a low risk of impacts to natural production or other populations.

Dual production objectives may be identified for a single production line. Typically, the combinations will be “assessment” combined with one of the other objectives e.g. assessment/harvest. Such a combination is appropriate where there is a specific component of the production line that is marked for assessment, with the balance supporting the other objective i.e. harvest. If the assessment were to be discontinued, the remaining production would continue with only the harvest objective.

A dual objective involving assessment is *not* appropriate when the assessment is that which would be done routinely to assess the performance of the production line e.g. assessment/rebuilding, where the assessment refers to evaluating the progress towards rebuilding. Such assessment should be undertaken as a matter of course but would not be identified as an objective of production. In this case, the objective would be only “rebuilding”. Where assessment is the primary reason for the program and production is set accordingly, rebuilding may occur as an ancillary benefit of the production for assessment. However, as the rebuilding was not the specific objective, a dual objective is not warranted and the objective would be only “assessment”.

Accurate identification of the production objective(s) is important since the type of objective also determines the assessment and fish health management requirements for a project. The

⁵ As identified in the SEP Biological Assessment Framework (DFO 2017): program performance measurement, program efficiency and optimization, effects of enhanced salmon on wild salmon populations, international treaty support and domestic fisheries planning support.

objectives for fish production reflect the full array of approaches that may be applied to supporting the long-term departmental vision. However, the production plan in any given year will reflect an emphasis on objectives that address current priorities, which may shift over time. Coordinating and applying fiscal resources to the highest priorities in meeting departmental objectives is key to successful production planning. Funding enhancement initiatives or re-tooling for changing priorities usually requires a wide range of very limited fiscal sources from within the department and also depends on numerous partnering arrangements from which SEP has long benefited.

Production from SEP facilities is assessed to measure program performance and support performance indicators. At the same time however, fish production to support regional stock assessment objectives is a key priority. The program therefore provides significant support to the Stock Assessment Division in meeting Fisheries Management and Canada/US Pacific Salmon Treaty requirements. All assessments of survival and exploitation rates for Chinook and most Coho are reliant on the information provided by hatchery coded-wire tagging programs. These are essential components for stock assessment and harvest management, both domestic and international.

4.2 Priorities within the Production Planning Process

Priorities for production reflect current DFO departmental priorities and commitments (DFO Departmental Plan⁶). The production lines in the production plan represent regional activities undertaken in support of departmental priorities. For example, SEP produces Cultus and Sakinaw Sockeye as part of recovery plans^{7&8} that address both a ministerial commitment and conditions set by the Marine Stewardship Council (MSC) for the certification of Sockeye fisheries. This is a regional activity that supports the departmental priority, Eco-certification, which in turn contributes to the Departmental outcome of Economically Prosperous Maritime Sectors and Fisheries.

The following represent regional application of current Departmental priorities. More than one priority can be embedded within one enhancement objective. For example, Chinook salmon produced to support harvest opportunities are also marked to meet PST commitments.

- **Provision of harvest opportunities**

Production to support harvest opportunities in First Nations and economically prosperous recreational and commercial fisheries will be considered for enhancement. Production for harvest purposes must be cost effective and will be considered a higher priority if the production also addresses other priorities on this list.

⁶ Available at: <http://www.dfo-mpo.gc.ca/rpp/2017-18/dp-eng.html>

⁷ DFO. 2004 (draft). *National Recovery Strategy for the Sockeye Salmon *Oncorhynchus Nerka* (Cultus Population) in British Columbia*. Cultus Sockeye Recovery Team.

⁸ DFO. 2004 (draft). *National Recovery Strategy for the Sockeye Salmon (*Oncorhynchus Nerka*) Sakinaw Lake Population in British Columbia*. Sakinaw Sockeye Recovery Team.

- **Existing Pacific Salmon Treaty (PST) commitments**
PST commitments include stock assessment for international harvest management of Chinook and Coho salmon, and fish production commitments (i.e. Yukon/ Transboundary rivers Sockeye production).
- **Marine Stewardship Council conditions**
Production required to meet conditions placed on certifications by the MSC will be a priority for enhancement (e.g. Cultus and Sakinaw Sockeye enhancement as per respective departmental conservation plans).
- **Recovery of vulnerable populations**
Priorities for enhancement will be given to salmon populations where enhancement has been identified as part of the recovery plan for COSEWIC-listed populations and where there are ministerial commitments, or that are regional priority populations or conservation units (CU). These populations will be identified through regional business planning or through review by regional SEP, Stock Assessment Division and Fisheries Management. The list may vary from year to year. Production to rebuild populations or CUs that may be depleted but that are not at risk of extirpation will be considered, but is of lower priority.

Over time, the focus among these priorities may shift from one to another as the department responds to changing conditions and emerging issues. For example: production priorities may be influenced by new or changing international agreements, First Nations treaty negotiations, settlements and interim agreements, and current fisheries and habitat policies.

Relative priorities may also change from year to year due to events such as recruitment failure in a certain population or loss of important habitat. Southern BC Chinook production and assessment and increased Coho marking are current examples. Over the longer term, global events such as climate change may also alter production-planning priorities. It is, however, expected that the majority of shifted and emergent priorities will fit within these objectives and criteria.

SEP priorities may be used to evaluate existing and new production lines for making business decisions. Because SEP does not have the resources to fully fund all high-priority production lines, those groups that address multiple priorities will be given preferential consideration in business planning decisions.

In making investment decisions, SEP links these objectives with those for infrastructure management. Enhancement objectives generally drive SEP infrastructure requirements; however, it is possible that a particular stock may rank very high in the enhancement objectives, but facility logistics and costs may be prohibitive.

4.3 *Biological Designations for Enhanced Populations*

In order to better align SEP hatchery programs with WSP principles, the hatchery planning process will be updated to incorporate recent advances in scientific understanding of salmon population structure and the effects of gene flow between wild and hatchery salmon populations. Particularly germane to planning hatchery production is the principle that states “conservation of wild Pacific salmon and their habitats is the highest priority in resource management decision making”. To that end, SEP is working to relate the level of hatchery influence in a salmon population to the level of risk that hatchery fish can pose to the natural adaptive and productive characteristics of the hatchery-influenced population and the surrounding wild populations.

The most widely applied metric to assess the genetic risks of hatchery production on natural populations is the “proportionate natural influence” (PNI) an index of gene flow between the natural and hatchery environments, developed and applied through the American HSRG process (HSRG 2009⁹, HSRG 2015¹⁰). In brief, the PNI gauges the relative influence of natural and hatchery selection through calculation of a value between 0 and 1 based on the proportions of natural-origin parents in the hatchery broodstock and hatchery-origin fish on the spawning grounds. A *PNI* value >0.5 indicates a gene flow favouring the adaptive influence of the natural environment, and a *PNI* value of <0.5 indicates a gene flow where the adaptive influence of the hatchery environment is dominant.

Scientific advice on application of the PNI tool in the context of the WSP has been provided in an advisory document from the Canadian Science Advisory Secretariat (CSAS), (DFO, 2018¹¹). This document sets out guidance on genetically based targets for enhanced contribution to Canadian Pacific Chinook populations and provides a system for designating the degree of influence of integrated hatchery programs on individual salmon populations, based on constituent proportions of natural and hatchery origin fish.

The population biological designations with associated descriptions and PNI metrics (DFO, 2018) are as follows:

- ***Wild*** – Designated wild populations that do not have hatchery programs; strays from out-of-basin hatchery production is limited to <3% per year.
- ***Wild-stray influenced*** – populations that receive strays from hatcheries outside the watershed (basin?) at rates that exceed limits specified for *wild* designation. A very large fraction of fish are wild
- ***Integrated-wild*** – populations with an integrated hatchery program managed to achieve conservation and genetic goals while contributing to production. Hatchery production is managed to keep WSP defined wild fish >50%
- ***Integrated transition*** – populations retaining PNI > 0.5, indicating a gene flow from the natural-origin component to the hatchery component, but only 25-50% of the spawners in the natural environment are considered wild under WSP. PNI > 0.5 ensures natural-origin influence predominate but wild fish are in the minority
- ***Integrated-hatchery*** – populations where hatchery fish dominate both broodstock and the natural spawning components. Net gene flow is from hatchery environment and most fish are hatchery origin, < 25% of fish are wild.

SEP will over time incorporate the designations developed in the CSAS document into the production planning process. This will be done by assigning a population biological designation to each production line to establish the enhancement status of all salmon populations influenced by hatchery activities. The biological designation for the population will be considered jointly with the production objective to enable management of the population in a way that can best achieve the socio-economic objectives as well meeting

⁹ Hatchery Scientific Review Group. 2009. *Report to Congress on Columbia River Basin Hatchery Reform*. Available: <http://hatcheryreform.us/wp-content/uploads/2016/05/HSRG-2009-Report-to-Congress.pdf>

¹⁰ Hatchery Scientific Review Group, 2015. *Annual Report to Congress on the Science of Hatcheries, 2015*. A report on the application of up-to-date science in the management of salmon and steelhead hatcheries in the Pacific Northwest.

¹¹ DFO. 2018. Review of genetically based targets for enhanced contributions to Canadian Pacific Chinook Salmon populations. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2018/001.

biological goals. In practice, the population biological objectives will serve as both a goal and an assessment of current status.

SEP will preemptively apply this guidance to Chum, Coho, Pink and Sockeye salmon produced by the program until a more particular approach for these species is established as guidelines developed for Chinook Salmon are considered highly appropriate for Coho and Sockeye Salmon and suitable, although conservative for Pink and Chum Salmon.

Previous operational guidelines for brood stock collection and spawning practices focused on regulating the proportion of enhanced fish that spawn within the naturally spawning population and the proportion of fish that could be removed from the population for brood stock. These proportions were specific to the hatchery production objectives. Application of the PNI metric associated with the biological population designation will modify these operational guidelines

Hatchery planning will continue to work to maintain the conservation of wild salmon as a high priority while allowing for objectives that support sustainable use of hatchery fish, based on transparent and open decision making. However, the recommended PNIs for different hatchery biological objectives now reflect the assumed variability in risk tolerance that is acceptable in hatchery production planning. It is recognized that integrated planning processes may choose to explicitly designate certain populations as *Production* in order to allow for higher levels of production to support harvest opportunities, or to allow for significant enhancement in extreme conservation situations to sustain stock abundance in periods of very low natural productivity. A structured decision making framework can be used to allow these decisions to be made in an explicit and transparent manner, while avoiding situations where levels of risk to wild populations do not align with the desired benefits of hatchery production.

5 Production Planning Process

The planning process operates within the consultative framework of the integrated harvest planning process that is used to develop the IFMP¹². Production plans for Major Operations, CEDP and PIP projects are referenced in the IFMP. Production plans for smaller SEP facilities with social, stewardship and education as primary objectives, such as small PIP projects, are not included in the IFMP but continue to be a condition of the PAR licence for each project.

The SEP production-planning horizon currently operates through an annual planning cycle, while at the same time looking toward the longer-term. Because SEP objectives reflect regional DFO objectives, planning for SEP fish production necessarily involves and engages several sectors within the department and a range of external partners and advisory bodies. Timing of the annual planning cycle is critical as it is linked to the departmental business planning process and the development of the annual salmon IFMP, both of which are in turn driven by the biological timing of the fish.

Production targets are developed through an integrated planning process that involves establishing juvenile release targets and strategies that will produce the number of adults desired to meet specific objectives while considering species interactions, effects on existing stocks, harvest, habitat capacity, project capacity and overall CU objectives. Operationally, SEP production plans for a given facility are set for individual populations or stocks and

¹² IFMPs can be found at <http://www.pac.dfo-mpo.gc.ca/fm-gp/ifmp-eng.html>

production lines, with each carrying a specific identified production objective or, in some instances, a primary and secondary objective.

The annual cycle produces a single regional production plan¹³ comprised of donor stocks, egg-take and juvenile salmon release targets, release sites, stages at release for each SEP facility. Production targets are maximum amounts and are documented as such in each facility PAR licence. Priorities are reviewed annually based on the national and regional priorities using a consistent approach across the program

Production planning meetings use standardized templates and processes (agenda, attendees, action items, decisions, distribution of notes for review) as much as possible. Template and process development will be subject to continuous improvement and updating over time. Production planning meetings move forward from previous decisions using documented in-season decision rules where possible (e.g. adjust targets or strategies based on in-season escapement information).

The enhancement production planning process begins in September with a review of the previous year and the setting of regional priorities based on national and sector priorities, then cascades through a series of internal and external meetings that lead to a June release of the North and South Coast salmon IFMPs with finalized SEP production plans.

Overall, the annual cycle is defined by eight key milestones as illustrated in Figure 2 and expanded upon in the discussion following.

¹³ A link to the annual production plans is available in each year of the IFMPs.

Production planning annual cycle with key milestones and activities

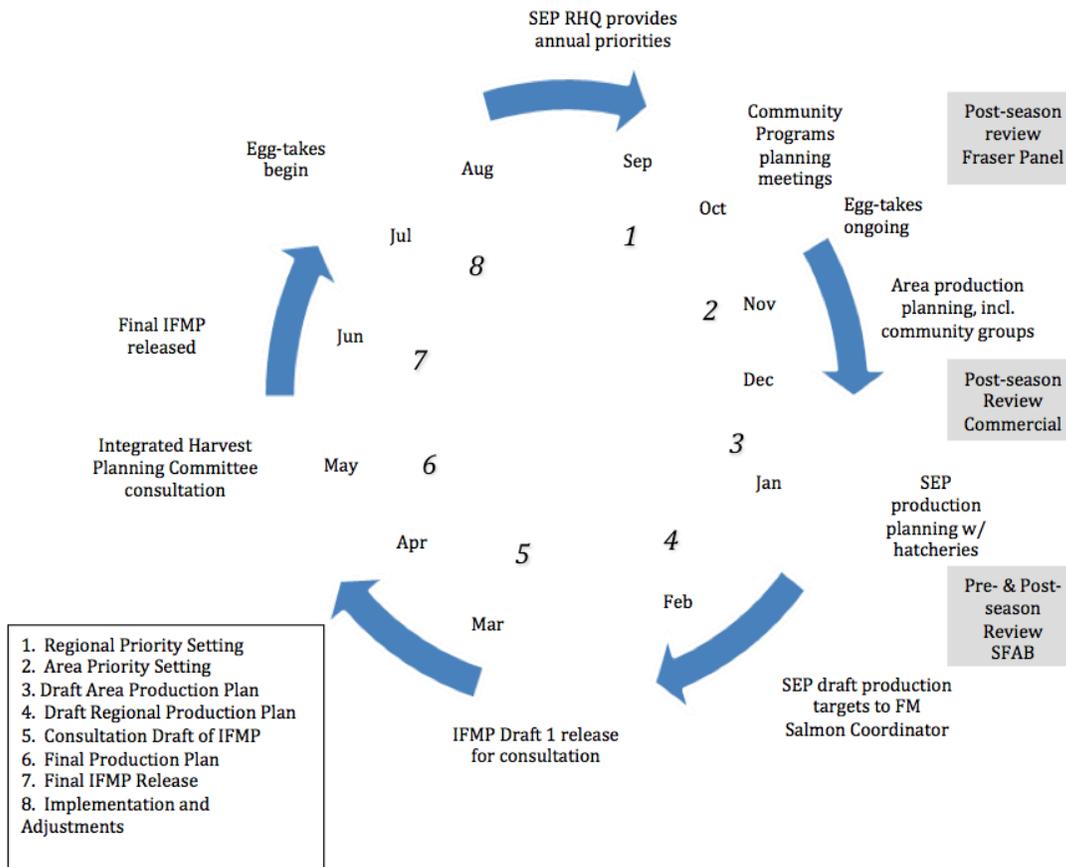


Figure 2. Production planning annual cycle with key milestones and activities.

5.1 Key Milestones Descriptions

The following describes step-by-step the development of annual production plans, while the next section identifies responsibilities and accountabilities. The steps and responsibilities are also tabled in Appendix 3 in what is commonly known as a “RACI” format, which identifies which positions in the organization are: accountable (approves – decision maker); responsible (leader); responsible (does the work); participates (attends meetings); consulted (asked about it); and, informed (told about it).

1. Regional Priority Setting

Regional priorities should emerge from regional business planning and are informed by departmental priorities. Operationally, they are developed annually by regional SEP managers in consultation with Fisheries Management and Stock Assessment Division. These initiate and frame the planning process and guide development of Area-based priorities and production planning. Their development is informed by post-season fishing and SEP production reviews.

The specific regional priorities, including a list of which stocks or populations are a priority for the planning year, are developed within the broader fish production objectives. These priorities do not usually change significantly from year to year, but may be altered in response to events such as new stock vulnerability status or listing designations. In some cases major habitat disruptions may create a need for prioritizing a stock for enhancement.

2. Area Priority Setting

Area-based priorities, while consistent with regional priorities, take into account input from external groups as reflected by Area Fisheries Management, Aboriginal Fisheries Program and Stock Assessment Division staff. They at the same time consider other planning processes, and objectives and priorities of other sectors. Area-based priorities often pertain to local populations of which Area staff have particular knowledge. Significant shifts in priority from one year to the next must be supported by rationale.

3. Draft Area Production Plan

For Major Operations, regional Section Heads and SEP Planning and Assessment (SPA) staff lead a series of meetings with DFO sectors and consultation with external advisors, and include an Area production planning meeting attended by responsible and supporting SEP, Fisheries Management, Treaty & Aboriginal Policy Division and Stock Assessment Division staff. Based on these meetings, a draft Area production plan is assembled taking into account regional and Area-based priorities and the results of post-season fishing and production reviews.

For CIP, Area production planning proceeds as follows:

- a) SPA biologists supply CIP Section Heads /CAs/Regional CIP staff with copies of the previous year's production plan. This is a template that is populated with all existing production lines and is used to document planned changes.
- b) Community Advisors (CA) review the previous year's production plan with their Section Head in light of the ongoing and changing production from their community facilities and identify what will be different for the upcoming year. These are changes that are brought to the CA's attention from their groups.. CAs and Section Heads review planned production changes, discuss how they fit in with the CA's workplan and support capacity, and then apply the following strategy:
 - If it is a proposed minor change that CIP/RRU staff feel comfortable supporting, the change is included in the plan (e.g. expanding a classroom incubator program, changing an egg target for a PIP from 5,000 pink eggs to 10,000 pink eggs).
 - If it is a proposed minor change that CIP/RRU staff do not support, the change is excluded from draft plan.
 - If it is a proposed change that the Area CIP/RRU staff support but desire regional input on (e.g. a new proposed production line of 50,000 Chinook on a previously unenhanced stock), the proposed change is included in the plan and highlighted.
 - If it is a proposed change that CIP/RRU staff do not support (e.g. a new hatchery proposed by a group that has had difficulties in the past, or a transplant proposed across CUs with no clear objective), but CIP/RRU staff desire regional support on the decision, the change is identified on the planning summary provided to RHQ.

Rationale for proposed changes and objectives are documented in the comments box on the production plan (e.g. biological, community interest, etc.) and any new lines of production, deleted lines or lines that have changed are highlighted, with associated documentation.

4. Draft Regional Production Plan

Regional SEP staff review draft area production plans for consistency with regional priorities, guidelines and objectives and then compile them into a draft Regional production plan that is provided to Fisheries Management.

For CIP, SPA staff review entire plan and enter all information into the regional SEP database and production plan. Any questions or concerns not already addressed with earlier communication will be raised with Section Heads. Key items and issues from draft CIP production plans will be identified by SPA biologists (as well as by CIP Section Heads) and included on agendas for integrated production planning meetings with Major Operations, Stock Assessment, and Fisheries Management. The entire draft plan will be distributed to Stock Assessment and Fisheries Management ahead of integrated meeting for their review.

SPA also leads key SEP RHQ and Area staff in an internal review of the draft production plan for coherency with priorities/guidelines, review of key highlights and identification of change themes and overarching issues.

Fisheries Management prepares the plan for inclusion into the consultation draft of the IFMP. The consultation draft of the IFMP, including the SEP production plan, is reviewed internally by cross branch bodies such as the Salmon Working Group and Stock Assessment Coordinating Committee and by external advisors through the Integrated Harvest Planning Committee (IHPC) and sector and area advisory bodies.

5. Consultation on SEP Production Targets as Part of Draft IFMP Consultation

Fisheries Management leads the IHPC consultation with external advisors and collects feedback. SEP presents key production change items to the main IHPC meetings and fields questions as part of broader fishery planning consultation.

6. Final Production Plan

Taking consultation feedback into account, adjustments may be made to form the final regional production plan for inclusion in the final IFMP. Final production plan targets are signed off by Regional Director of the Ecosystem Management Branch (EMB) and the Area Directors; individual facility production plans are a Condition of Licence for each Facility PAR licence.

7. Final IFMP Release

After ministerial sign-off, the final IFMP is publicly released.

8. Implementation and Adjustments

The regional production plan is incorporated into the SEP business plan, and SEP facilities prepare to take eggs for the fall program. In-season production target changes may be accepted with justification and rationale when following the process for making in-season changes.

6 Production Planning Responsibilities and Accountabilities

Accountabilities for decisions and responsibilities for delivering products are shared between significant numbers of individuals in the development of the annual SEP salmon production plan. There are also those who simply participate and provide advice or need to be informed of developments and outcomes. For purposes of this discussion, accountability resides with a single individual while responsibility for delivery may reside with several individuals.

SEP Region and Area responsibilities and accountabilities for program levels are shown in for each milestone in Appendix 3. SEP, Science Stock Assessment and Fisheries Management staff share responsibilities and accountabilities for the overall process within each milestone with specific tasks, also indicated in Appendix 3. Detailed responsibilities and accountabilities and names of those who participate and need to be consulted or informed are available in Appendix 3.

The Oceans and SEP Director is accountable for the SEP budget and is consequently the manager responsible for the overall production plan and its implementation and will sign off as such. The SEP Regional Manager Enhancement Operations and Area Directors are responsible for implementation of the plan in their respective areas of responsibility. The SEP Section Heads are responsible for implementation of the plan through Hatchery Managers and Community Advisors in their respective Areas. Using the most current stock assessment information to inform levels of production, the SEP SPA group coordinates the production planning process and prepares the production plan for Fisheries Management to include in the IFMP. Fisheries Management is responsible for the external consultation process through IFMP development.

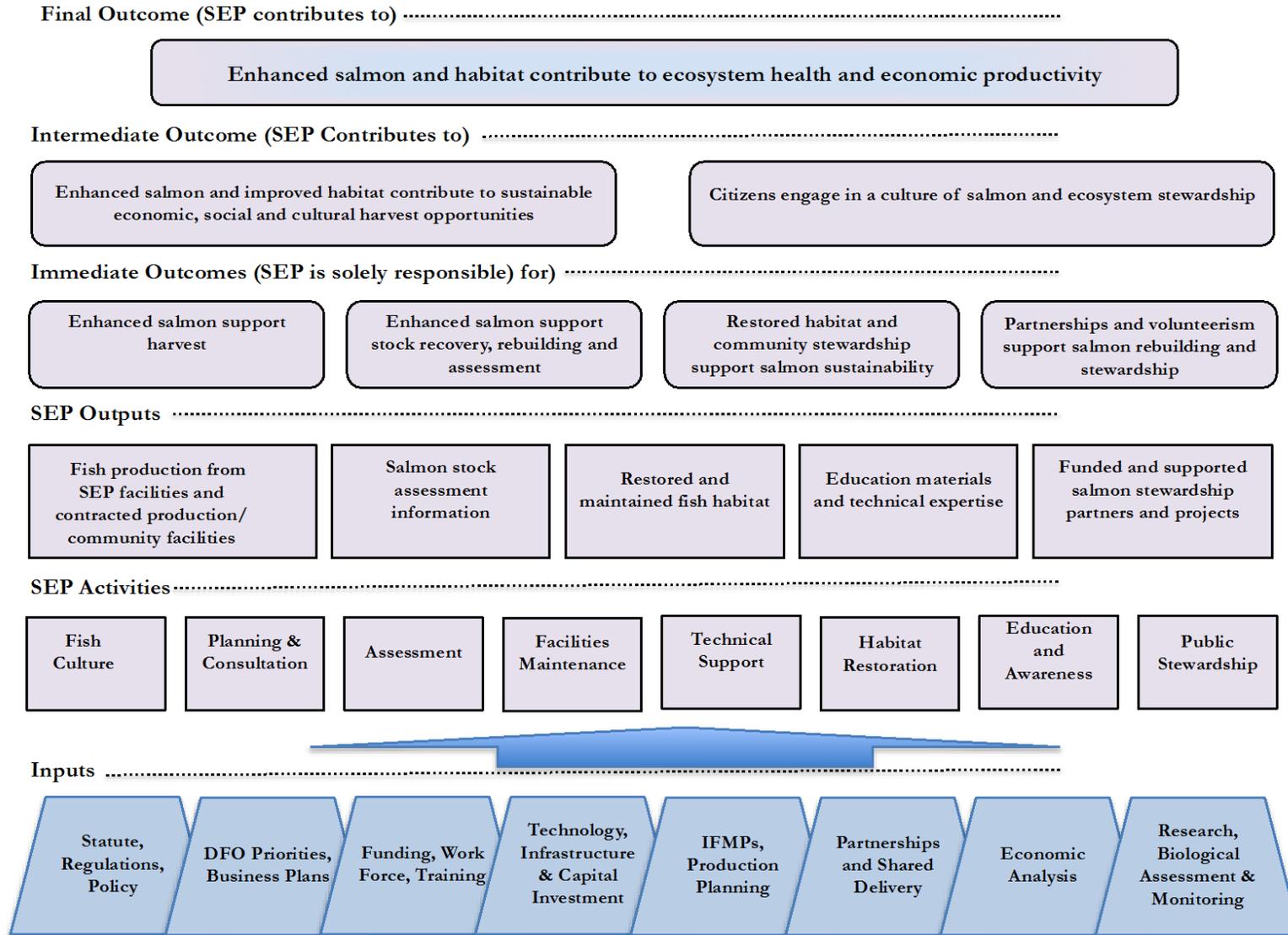
7 Future and Long-Term Production Planning

Production plans will be reviewed annually through the planning process using the objectives and criteria outlined in this document. Decisions to embark on new enhancement initiatives will be based on the same objectives and priorities, while taking into account a range of physical factors, including the most effective enhancement strategy for a particular salmon population, stock assessment information, and the existing or technically feasible and affordable infrastructure. Longer-term production planning will also take an extended view of overall program priorities and resource inputs/budgets while contemplating macro external drivers such as the effects of global environmental change, policy shifts and First Nations treaty settlements.

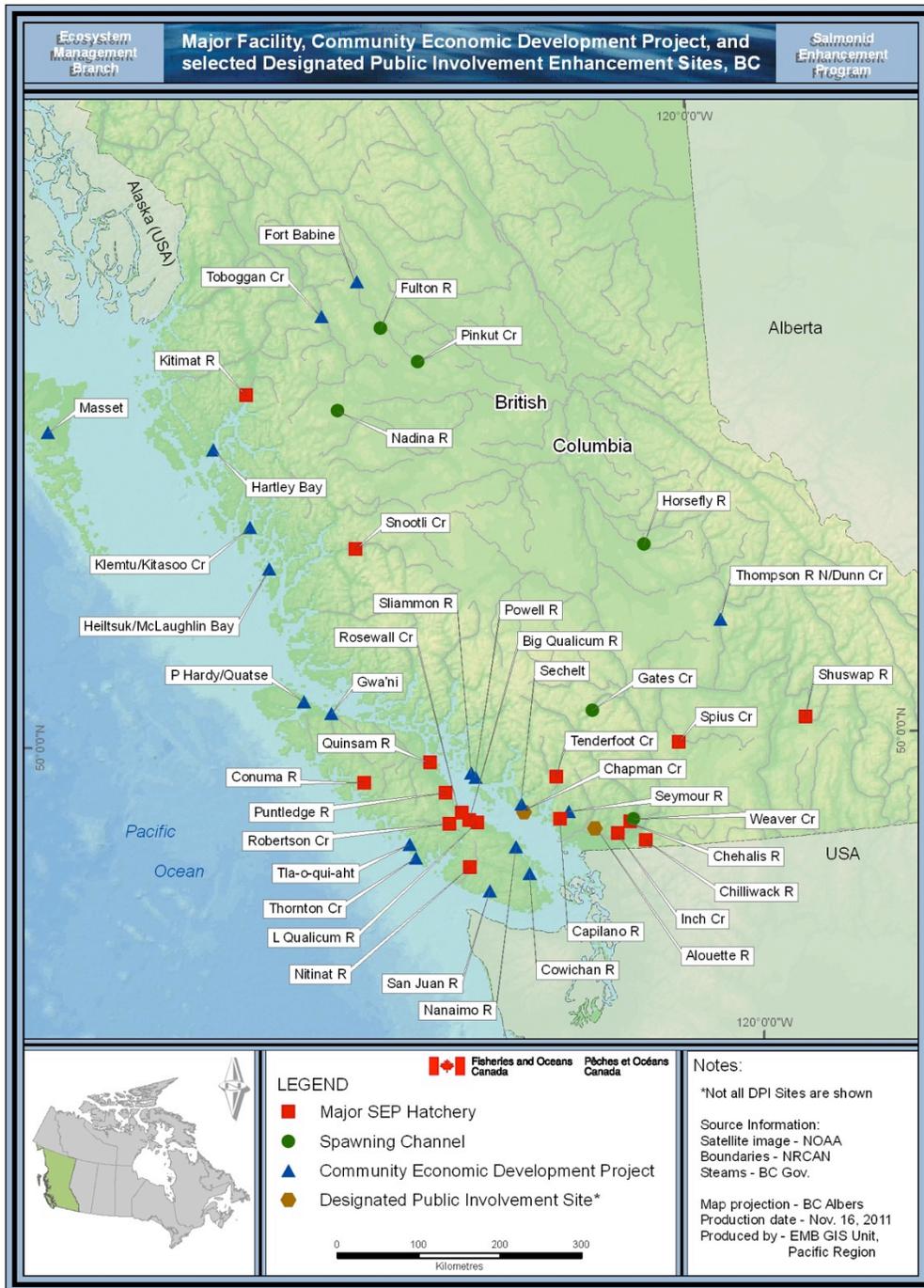
In future, the department may adopt multi-year IFMPs and SEP may move toward setting multi-year production targets, based on multi-year stock assessments and science advice for major fisheries. These initiatives are intended to provide a more stable, long-term footing for the recreational and commercial fishing sectors. They will also create efficiencies for production planning and alleviate some pressures created by timing-critical events that currently exist in the annual planning process.

Although efficiencies and effectiveness of the planning process may change over time, the type of product – egg-take and juvenile production targets for each species or stock in each facility – is expected to remain the same.

Appendix 1: Salmonid Enhancement Program Logic Model



Appendix 2: Major SEP and Community Economic Development Project Hatcheries and Spawning Channels in British Columbia



Appendix 3: RACI Table (Who's Responsible, Accountable and Informed in the Process)

	Regional Director General	EMB Regional Director	Oceans and SEP Director	FM Regional Director	Regional Manager Operations	Regional Manager Enhancement	SEP Planning and RRU Manager	SEP Planning and Assessment Biologist	CIP/RRU Biologist	Enhancement Operations Support Biologist	Core SUA	Core FM	DFO Area Directors	SEP Section Heads (Operations & CIP)	Area FM	Area SUA	C & P and Resource Management	Aboriginal Fisheries	Community Advisors	Hatchery Managers
A - Accountable (approves - decision maker) RL - Responsible (leader) R - Responsible (does the work) P - Participates (attends meetings) C - Consulted (asked about it) I - Informed (told about it)																				
Core												Area								
1. Regional Priority Setting																				
Provides regional priorities for process	R	A	R	R	R	RL						R	R	P	P					
2. Area Priority Setting																				
Provide Area-specific priorities for process					P	P	P							A	RL		R	R	R	R
3. Draft Area Production Plan																				
CIP planned changes identified for year with rationale								P	P						A		P		RL	
CIP Area production plans completed for inclusion in Area production planning meeting						P		P	P	P	P			A	RL	P	P	P	P	
Major Operations area production planning meetings						A	RL	P	P	P					P		P	P	R	R
4. Draft Regional Production Plan																				
Compile draft regional production plan							A	RL												
Internal review of draft production plan for coherency with priorities/guidelines, review of key highlights and identification of change themes and overarching issues (SEP - RHQ and Area)					P	P	A	RL	P	P					P					
Resulting production plan revisions							A	RL												
Compile production data and text for IFMP							A	RL												
Compile draft IFMP, include production plan				A								RL								
5. Consultation on SEP Production Plan as Part of Draft IFMP Consultation																				
Draft production plan included in the IFMP sent to internal stakeholders for information					A								RL							
External IFMP consultation					A								RL							
Revise production plan for inclusion in final IFMP							A	RL												
6. Final Production Plan																				
Regional signoff on IFMP production plan				A				RL												
7. Final IFMP Release																				
Final IFMP preparation					A								RL							
Final IFMP signoff	A				RL															
IFMP submission to minister					A								RL							
8. Implementation and Adjustment			A			RL	R	C	C	C	C	I	I	RL ¹	R ²		I		R	R

¹ This position is accountable for CIP delivery and shares accountability with the Regional Manager of Operations, who is responsible for Operations delivery.

² Section heads in both Operations and CIP are responsible for delivery. The CIP manager reports to the the SEP director while the CIP section heads report to the Area Directors.

