

CHAPTER 5 – (DRAFT)

Guidelines

This chapter describes the processes for how the FMP will be implemented, revised and how the public will be engaged in these processes.

Asset Management Guidelines

“Assets,” as they are discussed in this section, are confined to the tangible resources and infrastructure (e.g., parcels of land, forest products, forest roads and related improvements, trails, campground facilities) on the state forest lands.

Maintaining or enhancing value for assets described in this plan is fundamental to long-term sustainability of resource values described in administrative rule (e.g., timber, revenue, recreation, native fish, and wildlife). These guidelines align with Oregon statutes and rules, Board of Forestry policy, and ODF policy.

Implementation of the Western Oregon State Forest Management Plan will be consistent with these guidelines to ensure that the asset value of the forest is maintained or enhanced. These guidelines are influenced by the Implementation Priorities under which the Division is operating. Guidelines include:

- Conserve forest lands by maintaining the state forest land base.
- Maintain a land exchange and acquisition program that pursues acquisitions and exchanges to consolidate state forest lands for management efficiencies, economic values, or enhanced stewardship practices.
- Implement marketing strategies that increase the forest product value.
- Prioritize and undertake investments in stand management activities that increase timber quality/quantity and/or enhance ecosystem services.
- Maintain, develop, and protect investments in forest infrastructure (e.g., roads, bridges, and facilities).

- Maintain existing assets that support recreation, education, and interpretation activities.
- Maintain investments in information systems (e.g., forest inventory, GIS systems, timber harvest tracking) that support planning and implementation processes and contribute to adaptive management processes.
- Prioritize and undertake investments in research and monitoring projects consistent with the Adaptive Management Guidelines.
- Maintain a budgeting and financial management system that assures revenues are sufficient to cover implementation costs.
- Implement and maintain timber accountability strategies and systems that ensure the state and other beneficiaries receive anticipated revenue from forest products.

Implementation Priorities

Funding levels for plan implementation vary with cyclical economic trends. FMP implementation is primarily funded through timber harvest revenues. Over the long term, it is likely that revenues will support the management activities necessary to meet the Greatest Permanent Value mandate and FMP goals. However, there may be periods where revenues limit funding. Annual budget instructions for developing fiscal budgets reflect the Forest Development Fund (FDF) balance and the projected FDF balance. The highest level of implementation and investment occurs when the FDF balance exceeds the prudent balance established in Division policy (see Fund Balance Policy) and the balance is forecasted to be relatively steady or increasing. While the lowest level occurs when the FDF balance is less than the prudent balance established by the Division and the balance is forecasted to decrease (Table xx). For this reason, the following priorities are established for conducting activities:

Table xx. Forest management investment levels based on the revenue forecast and Forest Development Fund balance. Level 1 is the highest level of investment, while level 4 is the lowest.

Forest Development Fund	Increasing 3-year Revenue Forecast	Decreasing 3-year Revenue Forecast
Greater than prudent balance	Level 1: Expand existing investments and fund new strategic investments	Level 2: Maintain or expand existing investments and explore additional strategic investments
Prudent balance	Level 2: Modest funding for new strategic investments	Level 3: Continue reinvesting in deferred maintenance and consider small set of new strategic investment
Less than prudent balance	Level 3: Begin reinvesting in deferred maintenance, young stand management, highest priority research and monitoring	Level 4: Maintenance to achieve core business and meet legal obligations, no new investments and scale back existing services

Descriptions are provided for management activities and the amount of investment for each level in the following list. The intent of the descriptions is to provide examples and a general sense for the priorities for the activities of the Division given the state of the Forest Development Fund. However, not every activity listed below will be undertaken in every case. For example, while land purchases and exchanges are listed under Level 1, these activities won't be undertaken if there are not parcels the Division is seeking to dispose or acquire.

- Level 1: Full Implementation:
 - Management Focus: Full implementation. Examples may include create complex habitat in HCAs, conduct forest restoration.
 - Investments: New strategic Investments. Examples may include forest, habitat, and stream restoration; robust research and monitoring; expand REI; and land purchases and exchanges
- Level 2: Reinvestment
 - Management Focus: Increase pre-commercial and commercial thinning, with a modest amount of forest restoration activities.
 - Investments: Examples may include complete deferred maintenance, high priority research and monitoring, strategic investments, and pursuing high priority land exchanges or acquisitions.
- Level 3: Maintenance and Deferred Maintenance
 - Management Focus: Meet contractual and legal obligations. Examples may include focus on high-revenue low-cost sales, reduce investments in policy initiatives, maintain REI services and infrastructure at existing level or scale back, ensure funding and resources needed for litigation, and highest priority young stand management activities.

- Investments: Cautious reinvestment in deferred maintenance. Examples may include young-stand management, contractually obligated research and monitoring, forest inventory, research and monitoring, REI, and policy revisions and development.
- Level 4: Core business
 - Management Focus: Meet contractual and legal obligations. Examples may include focus on high-revenue low-cost sales, reduce investments in policy initiatives, maintain REI services and infrastructure at existing level or scale back, ensure funding and resources needed for litigation, and highest priority young stand management activities.
 - Investments: Examples may include maintain forest inventory program, contractually obligated research and monitoring, and road infrastructure.

Implementation Guidelines

The Western Oregon State Forest Management Plan, approved by the BOF, identifies the resource management goals and strategies that are intended to achieve an appropriate blend among the resources, and achieve GPV, through integration of forest management activities in an ecological approach and an adaptive framework across western Oregon state forests. An adaptive management approach to integration can further provide and support a framework to This plan does not focus on a single objective, but considers several key social, environmental, and economic goals at different scales. Land managers are tasked with considering all of the goals and strategies, identifying and addressing trade-offs, and meeting GPV when implementing the FMP on the ground. The process for implementing the forest management plan and for identifying and resolving the trade-offs relies on a set of tools and processes listed below.

Forest Management Plan implementation is supported by the following elements:

- The HCP enables ODF to comply with the federal Endangered Species Act for certain covered species while conducting land management activities on State Forests west of the Cascade crest. During the development of the HCP, land managers, and partners identified and provided feedback on a multitude of trade-offs. The HCP biological goals and objectives document these decisions and will be implemented through Implementation Plans and Operations Plans.
- Performance Measures are developed with direct input from the Board of Forestry and contain specific metrics and targets that are used to track the progress toward FMP goals.
- Operational policies describe the process for implementing specific strategies, including detailed tactical process steps, roles and responsibilities, and key references to methodologies and manuals, to include best management practices. Operational standards describe quantitative measures tied to laws and regulations and FMP and HCP goals and strategies, such as minimum leave trees for species of concern. These policies and standards provide the framework for forest managers to develop implementation and operations plans and to work through on-the-ground trade-off discussions. Operational policies are developed within the Division at the direction of the State Forests Division Chief.

- Modeling is used as a decision-support tool to evaluate trade-offs and objective levels at various spatial and temporal scales and the costs and outputs associated with each scenario. Modeling aids forest managers to evaluate effects and make decisions to allocate resources across uses.
- Implementation plans (IPs) quantify shorter time scale (for example 8-12 years) objectives for each resource at the district or multiple district-level and describe the management approaches and the types and amounts of activities designed to achieve the FMP and HCP goals, objectives, and carry out their management strategies. IPs provide linkages between the FMP, HCP, operational policies, and on-the-ground activities that are described in operations plans. Trade-off considerations are assessed and considered at the landscape level and will be incorporated into the IPs to provide guidance for the types and amounts of activities that will be included in the operations plans.
- As codified in OAR 629-035-0050, the Forest Land Management Classification System (FLMCS) is a method of describing the management emphasis of parcels of state forest land. The FLMCS is recorded as a Geographic Information System (GIS) layer. The management emphasis identifies the extent to which a parcel of land can be managed for a variety of forest resources. It also identifies when a particular forest resource may need a more focused approach in its management, or possibly an exclusive priority in its management. This information is used in the development of IPs and during operational planning.
- Operations plans (OPs) describe individual projects that will be pursued to achieve expected FMP and HCP outcomes, over the near-term (for example 1 to 2-year time horizon), that align with fiscal budgets and IPs. OPs should prioritize activities and investments in the forests (e.g. inventory, young stand management, recreation development) based on implementation levels as described in the Asset Management Guidelines above.
- The Adaptive Management Plan describes the adaptive management process that will be used to track outcomes, evaluate trade-offs, determine if the strategies are meeting the goals of the FMP and HCP, determine if assumptions used in developing the strategies need to be updated and to inform management decisions.

Implementation Responsibilities

The State Forests Division Chief and Area Directors provide guidance for implementing the FMP and HCP through operational policy and IPs. They review IPs, which are approved and signed by the State Forester. District Foresters implement the FMP and HCP on their districts through the oversight of OPs. The tasks and responsibilities for IP and OP development is described in Table xx.

Table XX. Identifies roles and responsibilities of decision-makers in the implementation, operations, and revision approval process.

Task	Responsible Party
Provide Guidance for implementing the FMP &HCP through policy and review of Implementation Plans	Division Chief & Area Directors
Provide Guidance for implementing the FMP & HCP through policy and review of Operations Plans	Deputy Chiefs of Planning & Policy
Approves IPs & Major Revisions	State Forester

Adaptive Management, Research, Monitoring, and Structured Decision-Making Guidelines

Meeting the goals of the Forest Management Plan (FMP) in a changing environment to ensure Greatest Permanent Value requires adaptive management within an integrative decision-making framework. For this plan, adaptive management means “the process of implementing plans in a scientifically based, systematically structured approach that tests and monitors assumptions and predictions in management plans and uses the resulting information to improve the plans or management practices used to implement them” (OAR 629-035-0000(2)). These guidelines describe how adaptive management is used to inform decisions, determine if the strategies are meeting the goals of the FMP, and ascertain if assumptions used in developing the strategies need to be updated.

The land manager’s dedication to learning, applying, and acknowledging uncertainty is key to maintaining the social, economic, and ecological benefits of forests (Bormann et al. 2017). While the intuitive language of adaptive management has widespread use in natural resource management, it is often difficult in practice to use learning to change course or even to know if an alternative will improve management. A common shortcoming of adaptive management is that more monitoring or greater scientific understanding in isolation may not translate into improved management in the context of uncertainty of outcomes, diverse values of stakeholders, and decision makers being confronted by multiple objectives (Gregory et al. 2012). Applying adaptive management requires tailoring it to fit the forest management agency’s mandate and the social process within the institution for making decisions with input from stakeholders and partners (Minkova and Arnold 2020). Adaptive management, monitoring, and research are the potential tools that support an integrative decision-making framework that guides the use of new information within the agency.

The guidelines for adaptive management, monitoring, research, and decision-making are presented in this section. The accompanying Adaptive Management Plan (AMP) provides details about monitoring, timelines, priorities, staffing, and stakeholder engagement, all of which guide decision-making. The AMP may be changed as we learn how to improve the process to work more effectively.

Integrative Decision-Making Framework

ODF will improve its management by applying decision analysis, a process used to simplify decisions by breaking them down into key parts to work through in sequence (Hemming et al. 2022). The ProACT

acronym (Problem, Objectives, Alternatives, Consequences, and Trade-offs) is one popular ordering of the components that go into making a decision (Hammond et al. 2002). These steps for decision analysis have been adapted to many disciplines, and structured decision-making (SDM) is the predominant process in natural resource management for making complex, multi-objective decisions that emphasizes group deliberation, estimating outcomes of alternative actions, and clarifying choices upon which the decision maker can act (Figure 1, Gregory et al. 2012). One benefit of SDM is that it scales to the decision's complexity, proving useful for a single person or small group brainstorming management alternatives, for a facilitated stakeholder-driven process at the level of an Implementation Plan, or for the Board of Forestry evaluating the FMP success through Performance Measures.

The decision-making framework assesses management questions and tradeoffs across multiple objectives for different forest resources, addresses adaptive management needs described both in the FMP and other policy documents, and updates the learning process following advances in forest management and decision science.

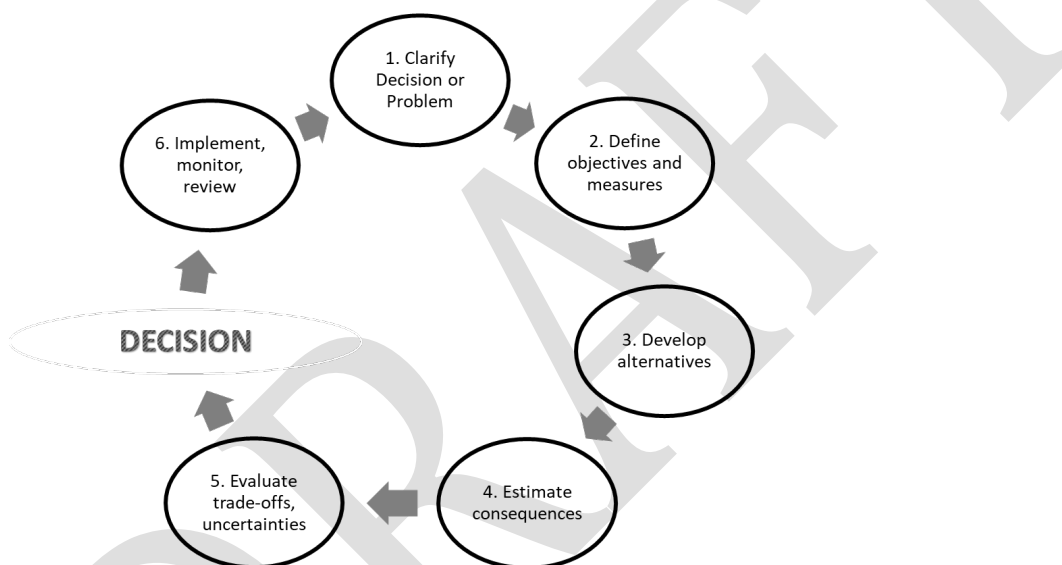


Figure x. Structured Decision-Making Pathway. Adapted from Figure 1.1 in Gregory et al. (2012). The PROACT acronym, from decision analysis more generally, follows Steps 1 through 5.

The SDM process (Figure x), whether being conducted with ODF staff or including stakeholders, begins with defining the decision, determining its scope, describing its context in management objectives, and identifying decision maker(s). The second step defines objectives and measures, specifying what considerations matter and how to quantify their outcomes. In the third step, participants creatively develop management alternatives that will affect objectives to different degrees. In the fourth step, a technical working group estimates consequences or predicts the effects of each alternative on the objectives. The proposed consequences and their associated uncertainty inform a trade-off analysis. In the fifth step, the participants provide the decision maker with refined alternatives and ultimately a decision. The decision is then implemented, its outcomes monitored, and the performance reviewed to inform the next iteration of the decision-making process.

Adaptive Management

The goal of adaptive management is to improve management by learning from prior actions. It serves to balance the efficiency of timely implementation with the confidence of informed decision-making. Adaptive management works well within structured decision-making, i.e., when decisions need to be made repeatedly and monitoring between checkpoints can be used to modify subsequent decisions (Gregory et al. 2012).

Adaptive management is one of several information-gathering tools that may be used in the integrative decision-making framework. It works best when management has a high impact on the resource objective, but the consequences of using management alternatives are uncertain (Williams et al. 2009). In this case, the effort dedicated to learning from different management treatments reaps benefits that outweigh the potential delay in meeting the resource objective. In a situation where the uncertainty about the effects of management is low, adaptive management is not as useful. Monitoring a natural resource still may inform decisions; however, learning more about how the system works would not change the management approach.

Adaptive management can vary in effort and experimental design, but the key component is learning from alternative management interventions (Williams et al. 2009). Generally, *active* adaptive management is for cases with high uncertainty and a need for learning about the cause-and-effect relationship of management on the resource objective. Active adaptive management uses a statistically valid experimental design to allocate alternative management approaches, increasing the effectiveness of learning while diverging from “management as usual.” In *passive* adaptive management, monitoring data are purposefully collected from alternative management approaches with hypotheses in mind about the effects of management on a resource. In this case, the experiment does not necessarily include controls, replication, or a randomization of management prescriptions, so it is more difficult to establish cause and effect (Williams 2011).

The process of SDM includes identification of critical uncertainties that could sway decisions. In the instance where these uncertainties look like they would influence future management choices, instituting monitoring to reduce these uncertainties and then repeating the process effectively creates an adaptive management cycle. However, if the management alternatives can be structured to avoid the need for adaptive management (i.e., the uncertainties become less relevant) or the levels of uncertainties are not critical for decision-making, then adaptive management can be avoided (Gregory et al. 2012). In other words, SDM addresses a wider variety of decision-making situations than adaptive management, which becomes a tool within decision analysis (Hemming et al. 2022).

Monitoring

There are a variety of monitoring approaches State Forests use depending on the objectives. Compliance monitoring, or implementation monitoring, involves gathering information to determine if rules, regulations, or requirements are being followed. Effectiveness monitoring assesses whether implementation of management actions have the intended outcomes, such as tracking whether forest treatments increase occupied habitat of a species of concern. Effectiveness monitoring may require status monitoring and/or trend monitoring to judge management success. Status monitoring involves determining the state of a resource (e.g., a spotted owl population, snag density) at a point in time. Trend monitoring is an extension of status monitoring, where change in status is examined over time.

Trend monitoring can be used to assess whether thresholds are being breached (e.g., a population of invasive thistles increased beyond a target density) at any instance or whether there appears to be a pattern of change across time (e.g., tree vole populations are increasing).

Integrative decision-making processes such as SDM include a monitoring component to evaluate the effects of the decision and the state of the resource. The outcomes of monitoring inform the next decision-making round. The ideal monitoring approach may change with time. As resource objectives, monitoring technology, and understanding about the system change over time, similarly, the accompanying monitoring efforts need to adjust so that they continue to provide reliable information. Adaptive monitoring, is specifically designed to address uncertainty identified in the integrative decision-making process, efficiently provides reliable information, and promotes learning about the system at hand (Lindenmayer and Likens 2009). A statistically valid estimate can be obtained in many ways, which allows for the monitoring approach to change over time as learning takes place and the process becomes more efficient.

Adaptive monitoring involves a snapshot estimate (status monitoring) of a resource state and comparing that estimate with the postulated state of the resource to determine if a problem exists (Nichols and Williams 2006). Before monitoring begins, hypotheses are developed on how the larger system affects the resource. The differences among the hypotheses capture uncertainty about how the system functions. The hypotheses can also affect where and how frequently data will be collected. This thoughtful approach helps ensure that monitoring provides useful information: both an estimate of the resource condition and a test of which hypothesis is best supported. The resource estimate allows the condition of the resource to be evaluated in the absence of temporal data demonstrating a trend, thereby helping to determine whether a management intervention or more target monitoring is needed.

Research

Research in the context of the FMP revolves around generating and using the best scientific information available to guide management actions. New research performed by the agency would be developed using adaptive management within a decision framework, rather than research focused on theory. The agency supports and relies on several research cooperative partnerships to advance scientific understanding in strategic areas important for achieving management objectives. ODF offers planning support and special use permitting for research performed on State Forests by scientists outside of the agency when it aligns with management objectives.

The integrated decision-making framework provides the process for incorporating new information to ensure that the FMP is using the best available science. Published research may change the validity of the assumptions that were used to develop the FMP strategies. New information fits into the SDM cycle when assessing the management alternatives, consequences, trade-offs, and uncertainty. Revisiting prior steps in the decision-making framework is expected when new information is incorporated. The process for evaluating research findings and their relevance to implementing the FMP will be included in the AMP.

Adaptive Management Plan

The purpose of the AMP is to integrate learning and improve management in response to a changing environment by providing reliable estimates of State Forests' resource conditions, actionable guidance

for management, and the means for integrating that information into the State Forests' decision-making process.

The AMP will be adopted outside of the FMP to provide an expanded and current roadmap for the process and results, supporting the implementation of the FMP and improvement of management over time. The vision for the AMP is that it will be transparent and accountable, understood, effective, inclusive, efficient and timely, responsive, valued, and reliable.

- *Transparent and accountable.* Stakeholders, the public, and ODF can easily access current work plans and planning documents to see the topics addressed in the AMP and anticipated timelines for delivering results.
- *Understood.* Stakeholders and members of the public interested in State Forests know about the AMP and understand its mission and purpose.
- *Effective.* The Division manages its lands to successfully achieve Greatest Permanent Value and can change management practices in response to integrated decision-making.
- *Inclusive.* The AMP integrates stakeholders and ODF staff at all levels into its processes and incorporates their feedback.
- *Efficient and timely.* The AMP focuses on informing planning and management via targeted monitoring and proceeds at a reasonable pace.
- *Responsive.* When the Division detects issues through monitoring, it works to address management problems creatively, transparently, and effectively.
- *Valued.* Stakeholders and the Division recognize the social and technical benefit the AMP provides to State Forests and all Oregonians.
- *Reliable.* The AMP assists in addressing regulatory information needs.

Connections between the AMP and Other Division Plans

The AMP serves as a hub for information gathering and decision support across other policy and planning documents that include adaptive management (Figure x). With support from the AMP, decisions will be made by individuals or groups at the relevant planning level. For example, if monitoring shows the need for a fundamental change in FMP strategies, the decision would be made by the Board of Forestry after a formal public involvement process and codified through the Oregon Administrative Rule. A smaller change, for instance in operational policy or management standards, could be made by the State Forests Division Chief after engaging stakeholders through the integrated decision-making process and possibly using monitoring and adaptive management to revisit the decision over time. Figure x illustrates the policy and planning flowchart and how these guidelines interact with the Division's decision-making, with more detailed guidance provided in the AMP.

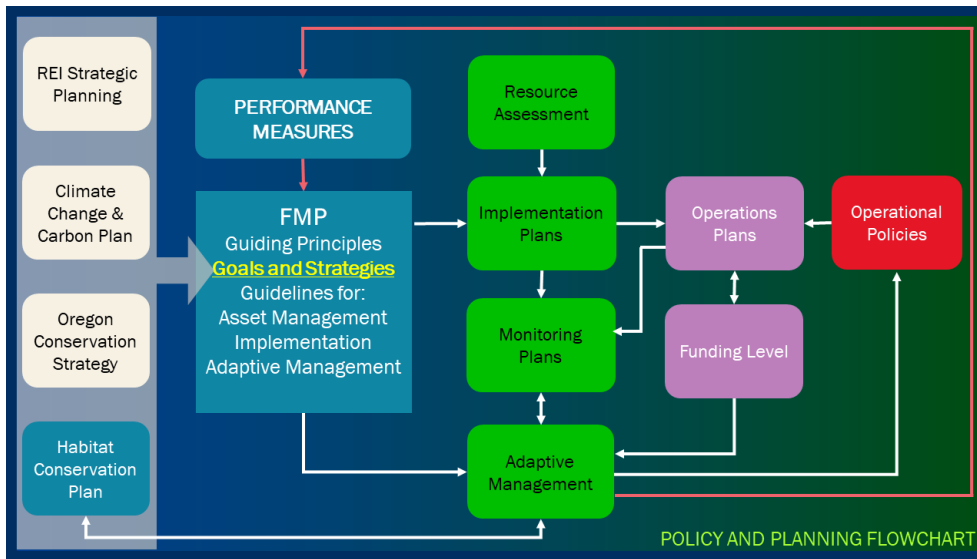


Figure x: Links between the AMP and Other Policy and Planning Guidance within State Forests (need to add an arrow to the Implementation Plans and Resource Assessment, too)

Forest Management Plan

The FMP goals and strategies provide the direction for the adaptive management program. Strategies describe how the State Forests will manage the forest resources in the planning area to achieve the goals articulated in the AMP. The AMP will develop, monitor, and communicate Measurable Outcomes to gauge the status of resources and the impact of FMP strategies. Measurable Outcomes and the desired targets will be developed by subject matter experts within the Division, with input from stakeholders, to provide metrics that are relevant to management and well-integrated into existing reporting, business, and forest inventory programs. If a Measurable Outcome falls outside of its targeted range, the AMP will facilitate integrated decision-making to reevaluate the assumptions of the FMP strategies and develop alternative solutions that may involve multiple interconnected forest resources and their Measurable Outcomes.

The AMP will give further guidance on how Measurable Outcomes will be quantified, monitored, and evaluated, how their acceptable targets or ranges will be developed, and how staff will communicate with stakeholders throughout the process.

Performance Measures

The Performance Measures will synthesize the impact that State Forests have on social, economic, and environmental wellbeing in a meaningful, transparent, and intuitive way. Performance measures will be developed with direct input from the Board of Forestry to contain specific metrics and targets that will demonstrate progress toward FMP goals. Although closely tied to the guiding principles, resource goals, and strategies in the FMP, these Performance Measures are intended for the Board of Forestry to take a broader view to evaluate the Division's management and direction. Performance Measures will be broader than the Measurable Outcomes monitored for individual resources and will provide the essential "dashboard" for the Board of Forestry and others to track progress and to maintain accountability for management commitments.

The Board will determine targets and acceptable ranges for Performance Measures after receiving FMP scenario modeling results that provide alternative outcomes including, but not limited to, the flow of timber and revenue over time, the development of forest structure across the landscape and coarse filter habitat for native species not covered by the draft HCP, and carbon sequestration and storage on state forest lands and in harvested wood products.

Habitat Conservation Plan

Implementation of the HCP requires a detailed program of monitoring and adaptive management to ensure compliance and verify progress toward achieving the biological goals and objectives of the HCP. The AMP will serve as the structure for the adaptive management program required by the HCP to assess data gaps and scientific uncertainty that could affect how species are managed and monitored over time. The AMP will integrate the requirements, for both compliance and effectiveness monitoring, contained in the HCP with the monitoring of Measurable Outcomes for the FMP implementation to ensure efficient use of resources.

The HCP provides an adaptive management process for learning from and adapting to the required monitoring. The HCP administrator at ODF will serve as the key coordinator to initiate the process when triggers for action are identified from either over- or under-accomplishment of biological goals and objectives or when alternative conservation practices are available. The HCP adaptive management process fits well within the integrated decision-making framework described previously with additional regulatory considerations and involvement with the federal permitting agencies.

Resource Assessment

The resource assessment that informs Implementation Plan (IP) modeling and harvest targets, among other resource plans, will affect monitoring needs in the AMP. Performance Measures, Measurable Outcomes, and HCP monitoring requirements will be co-developed alongside forest resource assessments and will benefit from technological improvements in forest inventory. Because inventory is one of the largest monitoring investments, decisions about its upgrades would benefit from the integrated decision-making framework to consider multiple objectives, alternatives, and consequences. Inventory will have downstream effects on monitoring projects and reporting needs in the AMP.

Resource assessment and adaptive management both depend on reliable data management systems for efficient information centralization, storage, retrieval, documentation, and reporting. The AMP will contain a data management plan that discusses the need for system integration and use across State Forests' offices and by field staff.

Implementation Plans

The AMP is key to successful implementation; it evaluates implementation results and provides feedback on IPs and Operations Plans (OPs). The Implementation Plan is revised every decade and sets the harvest and management objectives for the management unit level. These objectives are met by planning and field staff who determine where and when on the landscape actions occur. The SDM process will assist Division decision makers in selecting a management approach for the IP that considers impacts on several interconnected Measurable Outcomes.

The IP revision timeline intentionally matches the 10-year comprehensive review of HCP implementation and monitoring. The IP is the key opportunity for adaptive management changes based on monitoring performed during the previous decade and for deciding which monitoring investments to make in the coming decade. The AMP workflow will complement the needs for IP revisions, by analyzing and updating monitoring results in a timely manner to inform decisions on resource allocation to different management alternatives.

Operational Policies

While the FMP sets certain management standards, primarily associated with resource protection, there are many instances where different management options exist to achieve FMP goals and IP objectives. Operational policies guide decisions within this range of options by defining specific procedures and best management practices that allow for management flexibility while ensuring sound management and resource protection. The AMP will describe how operational policies may enter an SDM process for revision, which could be based on staff ideas from the field on how to manage more effectively, compliance monitoring for the HCP, or technological changes. The integrated decision-making framework is not just for large monitoring projects; any management improvement based on learning at the operational level is important to test and deploy more broadly if the Division is to adapt effectively.

Monitoring Plans

The AMP will contain a broad suite of monitoring projects to design and implement. The AMP will set priorities to develop open workplans based on the following criteria comparing potential projects.

- Regulatory requirements.
- Potential impact on GPV.
- Likelihood of influencing future management decisions.
- Degree of uncertainty or knowledge gap.
- Capacity or feasibility of getting answers in reasonable time and at a reasonable cost.
- Efficient integration with ongoing or planned monitoring.
- Potential for research partnerships.

Monitoring plans will be developed by resource and management unit, based on the projects selected to meet the Division's priorities. These plans will be the operational plans stemming from the AMP and included in the relevant IP and OP to share specific research methods, sites, resources, and metrics used during the monitoring studies. Each monitoring project will have a final report that will include the decision-making processes, methods, results, analyses, interpretations, and outcomes relevant to management.

References

- Bormann, B. T., B. K. Williams, and T. Minkova. 2017. Learning to Learn: The Best Available Science of Adaptive Management. Pages 102–115 *in* D. H. Olson and B. Van Horne, editors. *People, Forests, and Change*. Island Press/Center for Resource Economics, Washington, DC.
- Gregory, R., L. Failing, M. Harstone, G. Long, T. McDaniels, and D. Ohlson. 2012. *Structured decision making: a practical guide to environmental management choices*. John Wiley & Sons.
- Hammond, J. S., R. L. Keeney, and H. Raiffa. 2002. *Smart Choices: A Practical Guide to Making Better Life Decisions*. Broadway Books.
- Hemming, V., A. E. Camaclang, M. S. Adams, M. Burgman, K. Carbeck, J. Carwardine, I. Chadès, L. Chalifour, S. J. Converse, L. N. K. Davidson, G. E. Garrard, R. Finn, J. R. Fleri, J. Huard, H. J. Mayfield, E. M. Madden, I. Naujokaitis-Lewis, H. P. Possingham, L. Rumpff, M. C. Runge, D. Stewart, V. J. D. Tulloch, T. Walshe, and T. G. Martin. 2022. An introduction to decision science for conservation. *Conservation Biology* 36:e13868.
- Lindenmayer, D. B., and G. E. Likens. 2009. Adaptive monitoring: a new paradigm for long-term research and monitoring. *Trends in Ecology & Evolution* 24:482–486.
- Minkova, T. V., and J. S. Arnold. 2020. A Structured Framework for Adaptive Management: Bridging Theory and Practice in the Olympic Experimental State Forest. *Forest Science* 66:478–489.
- Nichols, J., and B. Williams. 2006. Monitoring for conservation. *Trends in Ecology & Evolution* 21:668–673.
- Williams, B. K. 2011. Passive and active adaptive management: Approaches and an example. *Journal of Environmental Management* 92:1371–1378.
- Williams, B. K., R. C. Szaro, and C. D. Shapiro. 2009. *Adaptive management: the US Department of the Interior technical guide*. US Department of the Interior.

Revision Guidelines

In an ever-changing environment, revisions to plans and processes may be necessary in order to implement adaptive management and to incorporate new information.

Forest Management Plan

The BOF shall review the management focus of the FMP no less than every ten years in light of current social, economic, scientific, and silvicultural considerations. (OAR 629-035-0020) It may require ten years or more to develop relevant monitoring information to establish trends. As new information becomes available, it will be evaluated in the context of the guiding principles, goals, and strategies of the FMP. If implementation of the FMP is not achieving desired results, as indicated by performance measures, the department will make revisions to operational policies. If the lack of performance can't be corrected through revised operational policies, or if research or

monitoring information shows the need for a fundamental change in FMP strategies, the BOF and State Forester will weigh the scientific, operational, and public information in a transparent and formal public process to determine if changes are needed to the FMP. The changes would then be codified through Oregon Administrative Rule.

Habitat Conservation Plan

Chapter 8 of the HCP describes its modification process. HCP or permit modifications are expected to be rare and informed by the adaptive management process as outlined in the HCP.

Operational Policies

Changes to operational policy will occur as needed, in response to monitoring data that indicate one or more measurable outcomes are not being met. Monitoring data, along with other best available science, will be used to provide an understanding of the root causes of the deficiency.

Implementation Plans

As new information becomes available, a revised IP may be developed before the end of the specified IP timeframe in response to changing conditions or development of new or better implementation strategies identified through adaptive management. Revisions made at the IP level may include the types, or amounts of management opportunities and spatial arrangement that will be pursued during the timeframe of an IP.

FLMCS

Revisions may be needed to the FLMCS when there is a change to the management emphasis on a parcel of land for instance the development of a new campground, a new wild and scenic river designation, or the removal of a research area after completion of a project. Definitions of minor and major revisions can be found in OAR 629-035-0060.

Public Engagement Guidelines

The goals for public involvement in forest land planning are outlined in OAR 629-035-00 and include providing information, seeking insight, building understanding, and providing public comment opportunities.

<Questions for SFAC>

- What are the types of opportunities you would like to see for public engagement in Implementation Plan development or revisions?
- What are the types of opportunities you would like to see for public involvement in Operations Plan development?
- What are other types/topics of engagement we should be considering?