

Pacific Northwest Aquatic Monitoring Partnership

**Business Practices
Revised October 2009**

Note: This document is appended to the PNAMP Charter, providing additional detail on operation and administration.

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I. Role of the network of Executive partners

- a. Participants represent signatories to the PNAMP Charter.
- b. Provide distributed point(s) of contact for the Steering Committee on policy issues and products associated with PNAMP interests and tasks.
- c. Conduct meetings in accordance with their respective operational needs. The Steering Committee will meet with **Executive** partners as appropriate at times and places identified by each entity.

II. Role and structure of the Steering Committee

- a. Each signatory to the PNAMP Charter will appoint an individual to serve as a member of the Steering Committee, and will identify an alternate if available. Members of the Steering Committee have decision-making authority on behalf of their respective organizations for all PNAMP matters consistent with their respective mandates, except funding decisions which are governed by separate agreements.
- b. Leads of standing technical workgroups will be members of the Steering Committee.
- c. The Steering Committee provides the science-policy interface between the **Executive** partners and technical workgroups, guides work of technical workgroups, obtains resources needed to accomplish tasks, and directs the activities of the Coordinator.
- d. The Steering Committee will use the consensus decision-making process as per section IV.
- e. The Coordinator is the internal and external point of contact for PNAMP, and
 - i. Conducts regularly scheduled meetings, and organizes ad hoc meetings as needed.
 - ii. Develops meeting agendas, meeting notes, keeps track of PNAMP documents and records, compiles and edits draft PNAMP documents, facilitates completion of work plans, tracks budgets, and manages PNAMP internal and external communications.
- f. The Steering Committee will prioritize PNAMP tasks, subject to and consistent with the consensus decision-making process in section (IV)(e) below.

III. Roles and structure of technical workgroups

- a. As identified by the Steering Committee, workgroups will be used to accomplish PNAMP tasks.
 - i. Standing workgroups are watershed condition monitoring, effectiveness monitoring, fish population monitoring, and data coordination.
 - ii. *Ad hoc* workgroups will be convened on an as needed basis.

- b. The Steering Committee will identify leadership (lead and/or co-leads) of workgroups.
- c. Workgroups will develop work plans and products, will operate under the guidance of the Steering Committee, and will be assisted as needed by the Coordinator.
- d. Participants on workgroups (including key scientists) will have expertise appropriate to the involved tasks.
- e. To the extent possible, workgroups will use the consensus decision-making process developed for the Steering Committee (see section (IV)).

IV. Steering Committee consensus decision-making process

- a. Decisions at regular meetings are made by consensus.
 - i. Consensus will be defined as accomplished when there is no further strenuous dissent. The Coordinator will facilitate discussion, call for objections and confirm each decision reached by consensus.
 - ii. For members unable to attend a regular meeting and for decisions made outside of regular meetings, consent email will be sent to all members with 5 business days allowed for any objections. **The Coordinator will follow up one more time in writing with each member that did not respond to the first written communication.**
 - 1. Any member must object in writing/email to an item on a properly circulated consent email. A written objection to consensus on a consent email request must contain the reasons for the objection. An objection received by the Coordinator regarding an item for which consent approval is requested shall be considered an objection to consensus.
 - 2. Consensus places a heavy responsibility on the dissenter to participate fully in the deliberative process and work with others to find an alternative approach acceptable to all.
 - 3. If after two written notifications a member still does not respond, their vote will be counted as a 'non-response'.
 - iii. At the request of any Member, the Coordinator may place an item for which consensus was not achieved on the regular business agenda for a subsequent Steering Committee meeting.
 - iv. A Member must be physically present (includes participation via telephone) or represented at a Steering Committee meeting to object to consensus on a business agenda item if the item previously was removed from the consent agenda or a consent mail request but was placed on the regular business agenda for a subsequent Steering Committee meeting.
- b. Following coordination on all issues, consensus positions will be sought pursuant to section (IV)(a) before Members actions are communicated (verbally or in writing) as a PNAMP product. When consensus is not attained, the PNAMP product will clearly represent the fact that consensus was attempted and will set forth the differing positions of the Members.

- c. Any Member may abstain or be absent from the consensus process without it becoming a dissenting opinion.
- d. A Member who chooses not to participate in the consensus process, either by not objecting or responding to a consensus decision in writing under section (IV)(a)(ii), or in person under subsection (IV)(a)(iv), shall be deemed to have abstained from the decision-making process.
- e. As new ideas or proposals to re-prioritize existing tasks arise, person(s) sponsoring the new concept will provide information to all members of the Steering Committee including: task description, explanation of benefit/or "fit" to PNAMP mission; proposed participants; timeline; and expected outcome/products.

V. General participation

- a. Interested parties not signatory to the Charter are encouraged to participate in PNAMP, through involvement in appropriate workgroups, and in the broader deliberations of PNAMP.
 - b. Proposals submitted for funding to support PNAMP tasks or commit PNAMP resources, as identified by workgroups, subcommittees, individual Steering Committee members, or the Coordinator shall be reviewed by the full Steering Committee prior to submission.

VI. Communications

- a. Internal – The Coordinator and workgroup leads will use electronic means to facilitate informal routine communications to the extent possible; other methods will be explored as dictated by need.
- b. External – The Steering Committee and Coordinator will provide external communications via electronic means (email documents and notices) including development and use of internet access to PNAMP products and information, and will develop letterhead and “signature” authority on behalf of PNAMP for written communications.

VII. Modification

- a. Business practices will be reviewed by the Steering Committee on at least an annual basis and modified as needed.

Appendix A. PNAMP Recommendation Process (including Protocol Review)

Goal: To produce defensible recommendations to facilitate coordination of aquatic resource monitoring in the Pacific Northwest. PNAMP recommendations may be related to programmatic concepts to attain coordinated monitoring or be specific protocols for monitoring activities. The following steps describe the process to adopt a generic recommendation. Some additional information specific to protocol recommendations follow.

Recommendation Process Steps (process to be facilitated by the PNAMP Coordination Team; see also Figure 1 and Table 1 below):

- 1a. New concept (or protocol) is brought to PNAMP for potential recommendation. Concept is introduced to the Steering Committee, which endorses work, if necessary, on this concept. Work is conducted by technical workgroup or task-specific subcommittee. Workgroup leaders seek input and concurrence from workgroup participants to develop this concept (or protocol). When the product is complete, the workgroup or subcommittee concurs that an endorsement and adoption of this concept (or protocol) by PNAMP partners is important to regional coordination of monitoring.
- 1b. Concept (or protocol) developed outside PNAMP is brought to PNAMP for endorsement. Workgroup leaders seek input and concurrence from workgroup participants that an endorsement and adoption of this concept (or protocol) by PNAMP partners is important to regional coordination of monitoring. A subcommittee may be formed to facilitate this review if existing workgroups are not able to lead the review.
2. If deemed warranted by the review process, workgroup/subcommittee leaders will bring the request for endorsement and adoption by PNAMP partners to the Steering Committee.
3. PNAMP Steering Committee will consider the request and **make a decision** on behalf of the Executive Network whether to recommend endorsement and adoption by PNAMP partners. The Steering Committee will use the consensus based decision making rule defined in the PNAMP Charter. Steering Committee members are responsible for conducting review as necessary for their respective agencies, with assistance as needed from the Coordinator. Steering Committee members are responsible to inform the Coordinator of estimated time necessary to facilitate said internal review.
4. If the decision is “no”, the Steering Committee will provide feedback to the proponents as to why (needs further development, conflicts with policy, timing is an issue, etc). The reconciliation process (feedback loop) will be documented. If decision is “yes”, the Coordinator will draft a letter to communicate to the PNAMP Executive Network the topic of recommendation and why it is important to PNAMP partners, including any requests or suggestions for implementation (as needed).
5. The PNAMP Coordinator, working with the Steering Committee members, will use the letter and individual communiqués as necessary to relay the PNAMP

recommendation to respective executives of PNAMP partners as appropriate. Outreach may be conducted for completed recommendations consistent with the Communication Plan to facilitate implementation as needed.

The goal of No. 5 above is to facilitate implementation of PNAMP recommendations and adoption by most, if not all, agencies or entities conducting aquatic monitoring throughout the Pacific Northwest

Comments specific to Protocol Recommendations: (approved August 1, 2007)

PNAMP has agreed to adopt the definitions and elements of a *Protocol* as defined in “Guidelines for long-term monitoring” (Oakley, K. L., L.P. Thomas, and S.G. Fancy. 2003). Protocols developed by PNAMP will be in this format and PNAMP encourages partners to adopt these guidelines.

PNAMP endorses the use of a tool such as Protocol Manager (under development by U.S. Bureau of Reclamation) to catalogue protocols. PNAMP seeks to have all PNAMP protocol recommendations made available to the public via a tool such as Protocol Manager.

PNAMP will develop a format (template) for training manuals. Training manuals (in this format) will be created for protocols recommended by PNAMP. Partners will be encouraged to adopt this training manual format.

PNAMP will work with others to facilitate outreach, education and training activities and encourage partners to engage in these opportunities. PNAMP will take advantage of existing education and training programs and consider the development of a regional RME certification program in the future, possibly in conjunction with existing professional organizations such as the American Fisheries Society.

PNAMP will strive to engage a broad range of collaborators to develop and review recommendations. We will attempt to identify who (which entities) would be implementing the protocols in the field and determine whether the primary protocol implementers are participating in PNAMP or not. For those implementers not actively participating in PNAMP, the Coordinator will facilitate outreach to involve them in developing the protocol recommendations that relate to them.

The review process will be fully transparent and documented, in particular, how the review team determines: when a protocol is complete, which protocol is “better”, which protocol is right for certain circumstances, and how a decision to recommend protocol comparison field tests was made. A Recommendation Review Checklist (Appendix A) will be completed by the Review Team to document the review process, participants, and review criteria used to develop the recommendation. This Review Checklist will accompany the recommendation when delivered to the Steering Committee for consideration.

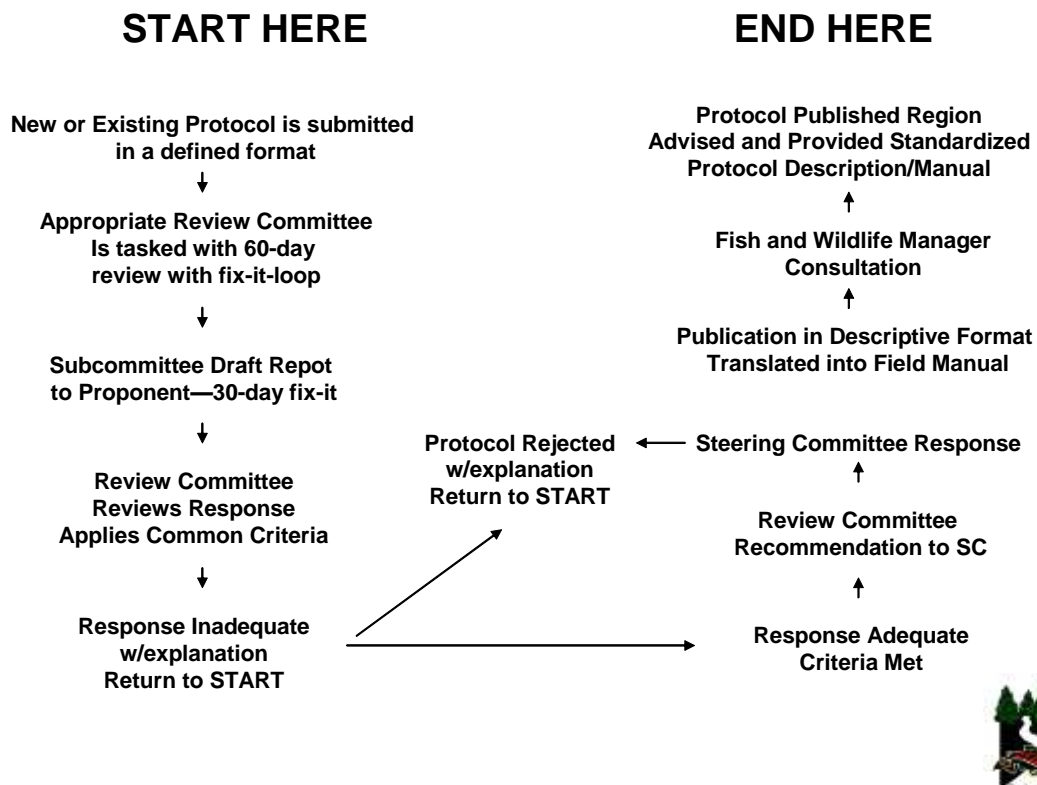
Review Criteria must be documented and should include the concepts below. The details of criteria used may vary somewhat depending on the topic of the recommendation.

Possible review criteria:

- Have the protocols been formally published in a peer-reviewed publication?
- To what degree have these protocols reviewed? E.g., Expert panels, technical experts and/or practitioners, journal publication, historical use and review?
- Are the protocols complete and well-documented?
- Are uncertainties and assumptions well-documented (are there limitations to this document)?
- Do the protocols provide the necessary information for typical data analyses?
- Are the protocols flexible enough to be modified when ecotypes dictate?
- Are the protocols in a form that will lead to comparable data analysis and management?

Review criteria used by the Fish Protocol Monitoring Workgroup to review protocols for the Salmon Field Protocols Handbook are very thorough and could be used by other review teams (provided in Appendix B).

Figure 1. Diagram of review process:



PNAMP strives to provide recommendations to assist regional executives and monitoring program leads, including coordinated programmatic approaches that integrate the strategic components of status/trend, effectiveness, and implementation monitoring efforts. These recommendations will provide guidance for common methodologies, compatible protocols, and partnership agreements needed for regional monitoring programs to achieve the shared coordination objectives of the PNAMP membership agencies.

PNAMP hopes to accomplish these recommendations by providing a forum to identify, develop and recommend a standardized set of metrics and compatible protocols for sampling designs and data collection, and coordinate and recommend standardized sampling protocols and field data collection procedures between different types of monitoring and focus areas within these types (for example, fish population monitoring, estuary monitoring, etc). Protocol development, testing, comparisons, and education for consistent implementation would be a significant contribution to towards development of an effective efficient monitoring strategy for the region.

Admittedly, this is a large task but by focusing on regional needs and working with partners who are best able to tackle certain aspects of the process, PNAMP could significantly advance our coordination goals. Development and review of recommendations must be methodical and thorough to be defensible and ultimately adopted by regional monitoring practitioners. Where necessary, research must be supported to develop best practices and develop “cross walks” between existing practices and new recommendations. An implementation process that includes training and testing of skills (leading to certification) could be very valuable. Relationships with universities, research agencies, and professional societies must be cultivated to facilitate this approach. Policy level support must include contractual language to encourage practitioners to implement recommended methods or document why other choices were made.

Table 1. The following table was developed to describe the larger design of the PNAMP approach to develop recommendations and to define the PNAMP role within this larger context.

	Developing Recommendation	Adoption/ Implementation	Outreach/ Education/ Training
PNAMP	<ul style="list-style-type: none"> • Strategic planning (Steering Committee) • Consensus on standards, methods, applications (Technical Participants) 	<ul style="list-style-type: none"> • Adopt (Executive Network) 	<ul style="list-style-type: none"> • Share recommendations via workshops, annual Practitioners' Workshop, professional societies • Publication: use existing peer review venues
Individual Agency/Entity	<ul style="list-style-type: none"> • Determine monitoring objectives • Institutionalize recommendations 	<ul style="list-style-type: none"> • Agency level directives • Institute contractual requirements 	<ul style="list-style-type: none"> • Use existing Forums • Plans, reports
Universities, research agencies, professional societies, others (ISRP, IMST)	<ul style="list-style-type: none"> • Research 	<ul style="list-style-type: none"> • Training/ Certification of implementers 	<ul style="list-style-type: none"> • Continuous examination/testing of protocols • Publications

Appendix A. Review Checklist to document review process; will accompany recommendation from Review Team to Steering Committee. This is the form that proponents would use to “propose” recommendation/endorsement by PNAMP.

The purpose of this document is to provide documentation of the review process. The intent is for the Review Team to provide the information requested below, which will accompany the recommendation as it is delivered to the Steering Committee. This is simply a form that proponents would use to “propose” recommendation/endorsement by PNAMP.

1. Topic and Title What is topic and title of the **Protocol** under consideration?

2. Proponent/authors Who are the primary proponents/authors?

3. Format and Definitions used in Protocol where possible, PNAMP endorses the use of definitions and format described in *Guidelines for Long Term Monitoring* (Oakley et al. 2003)

- Does this protocol follow guidelines as above?
- If not, please provide reference for alternative definitions and format:

4. Review Team

Identify Review Team participants:

- Are entities who would be implementing the protocol in the field represented by the Review Team?
- If not, please list entities who should be contacted for outreach to involve them in developing this protocol recommendation.

5. Review Criteria (used by Review Team)

Please provide specific criteria used in the review or development of this recommendation.

Some concepts to consider include:

- Have the protocols been formally published in a peer-reviewed publication?
- To what degree have these protocols been reviewed? E.g., Expert panels, technical experts and/or practitioners, journal publication, historical use and review?
- Are the protocols complete and well-documented?
- Are uncertainties and assumptions well-documented (are there limitations to this document)?
- Do the protocols provide the necessary information for typical analyses?
- Are the protocols flexible enough to be modified when ecotypes dictate?
- Are the protocols in a form that will lead to comparable data analysis and management?

6. Training Manual Format: Protocol Review Team or Proponent is responsible for translating the Protocol from descriptive format to Method Training Manual format.

- Is (when will) the Method Training Manual format (be) complete?

7. Outreach for Completed Protocol Recommendation in order to achieve Implementation
PNAMP (Coordinator/SC/WG Leads) will lead outreach for Protocol recommendations. Please provide any information you feel will be helpful in conducting outreach when recommendation is final:

- Inform Executive Network of recommendation: Coordinator to draft explanatory letter to accompany recommendation and post on website; SC to distribute to Executive Network

- Are you aware of critical dates for outreach to the Executive Network?

- Inform PNAMP technical participants of recommendation: Coordinator to draft explanatory letter to accompany recommendation and post on PNAMP website; WG leaders to distribute to WG participants

- Are you aware of critical dates for outreach to technical participants?

- Inform technical experts (Protocol implementers) not engaged in PNAMP of recommendation

- Are you aware of entities that may implement the Protocol but have not been engaged in Review Team?

- Training for use of recommended Protocols

- Are you aware of existing opportunities for possible training activities (e.g. upcoming meetings, workshops, etc that might be interested in hosting training session).

Appendix B. Review criteria for fish population monitoring protocols.

Please review the document with respect to the following topics. Rate the document for how well it addresses the identified issue or question, and briefly describe how to improve the sections that need improvement.

Review Topic

I. Background and Objectives

1. Background – Brief history, resources being addressed, Version of protocol.

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

2. Rationale – justification of selecting a given resource to inventory or monitor (Why monitor this fish species?)

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

3. Objectives – list of measurable tasks, and stated use of protocol results (What is the objective of the monitoring, aka the monitoring question?)

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

4. Effectiveness – Does the protocol address the stated objectives, and would it supply adequate information to make decisions?

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

II. Sampling Design

1. Site selection - criteria for site selection; define the boundaries or “population” being sampled; procedures for selecting sampling locations – what habitats or environmental conditions is the method suited for?; stratification, spatial design

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

2. Would the sampling sites be “spatially representative?”

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

3. Can the data be “rolled up” to a larger scale or extrapolated to other areas (e.g. can the structure of the data base and/or the data proper easily contribute to a regional or global data system?)

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

- 4. What characteristics would limit extrapolation of data to other areas? Sampling Frequency and Replication - recommended number and location of sampling sites; recommended frequency and timing of sampling; level of change that can be detected for the amount/type of sampling being instituted.**

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

III. Field/Office Methods

- 1. Setup - field season preparations and equipment setup (including permitting/compliance procedures)**

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

- 2. Events Sequence - sequence of events during field season**

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

- 3. Measurement Details - details of taking measurements, with examples of field forms**

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

- 4. Does the text clearly describe the method to be used at a professional level?**

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

- 5. Can the described method be consistently applied? Sample Processing - post-collection processing of samples (e.g., lab analysis, preparing voucher specimens)**

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

IV. Data Handling, Analysis and Reporting

- 1. Metadata procedures – descriptions of data fields and sizes; sample collection information; site description; quality assurance procedures**

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

- 2. Database Design – overview of database design and structure illustrating relationships between tables, data management**

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

3. Data Entry – data entry procedures; QA/QC; verification and editing of data

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

4. Data Summaries – data summaries and procedures for conducting statistical analysis

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

5. Level of precision – relative to required precision for management decisions

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

6. Accuracy vs. potential sources of bias inherent in use of method; is the method scientifically rigorous?

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

7. Statistical Power- e.g. figures showing the power to detect various effect sizes over a 10-year period.

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

8. Can the method detect “meaningful” levels of change? (E.g. relevant to decision making?)

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

9. Confidence – what confidence interval is reasonable to use with this method?

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

10. Report Format - recommended report format with examples of summary tables and figures

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

11. Trend Analysis - recommended methods for trend analysis

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

12. Archival Procedures - data archival procedures

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

V. Personnel Requirements and Training

1. Responsibilities - roles and responsibilities of crew members

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

2. Qualifications needed- of crew

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

3. Training - availability, locations, timing and procedures, Safety issues

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

4. Cost of Training, ability to ensure consistent application of method.

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

VI. Operational Requirements

1. Workload and field schedule

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

2. Equipment Needs – list of equipment, materials, and facilities needed

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

3. Budget considerations/year at what scale?

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

4. Precision/Cost – Does the document describe the relative cost for increasing the level of precision?

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

5. Potential to leverage other funding sources through integration (IMW, BiOP, and other applications)

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

VII. Level of Integration across programs

1. Currently used on a broad scale?

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

2. Level of change that would be needed to implement in existing programs?

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

3. Potential to leverage funds?

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

VIII. References – Are the references complete? Are there any references that should be added?

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

XI. Photographs/Figures

1. Are the photos and figures helpful and do they convey the application of the protocol? *Please add any photos you think would be helpful.*

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

Comments specific to Protocol Recommendations:

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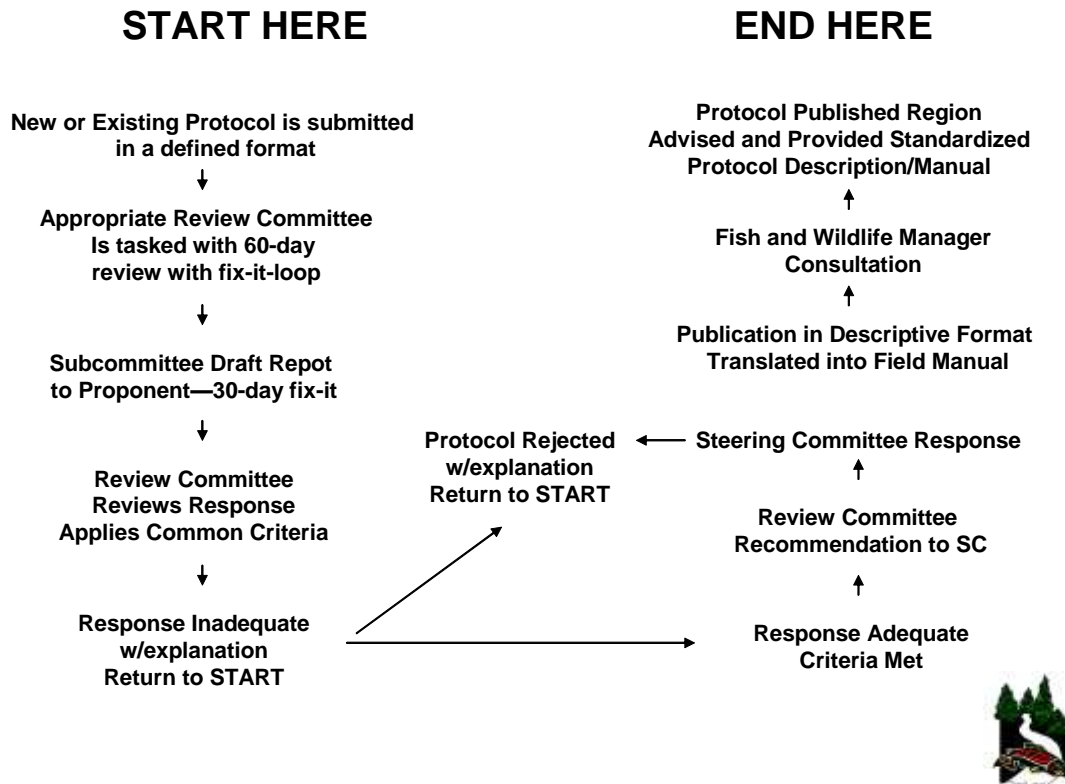
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Universities, research agencies, professional societies, others (ISRP, IMST)	<ul style="list-style-type: none"> • Research 	<ul style="list-style-type: none"> • Training/ Certification of implementers 	<ul style="list-style-type: none"> • Continuous examination/testing of protocols • Publications

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- Does this protocol follow guidelines as above?
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8. Review Team

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- Are you aware of critical dates for outreach to technical participants?

- Inform technical experts (Protocol implementers) not engaged in PNAMP of recommendation

- Are you aware of entities that may implement the Protocol but have not been engaged in Review Team?

- Training for use of recommended Protocols

- Are you aware of existing opportunities for possible training activities (e.g. upcoming meetings, workshops, etc that might be interested in hosting training session).

Appendix B. Review criteria for fish population monitoring protocols.

Please review the document with respect to the following topics. Rate the document for how well it addresses the identified issue or question, and briefly describe how to improve the sections that need improvement.

Review Topic

I. Background and Objectives

5. Background – Brief history, resources being addressed, Version of protocol.

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

6. Rationale – justification of selecting a given resource to inventory or monitor (Why monitor this fish species?)

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

7. Objectives – list of measurable tasks, and stated use of protocol results (What is the objective of the monitoring, aka the monitoring question?)

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

8. Effectiveness – Does the protocol address the stated objectives, and would it supply adequate information to make decisions?

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

II. Sampling Design

5. Site selection - criteria for site selection; define the boundaries or “population” being sampled; procedures for selecting sampling locations – what habitats or environmental conditions is the method suited for?; stratification, spatial design

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

6. Would the sampling sites be “spatially representative?”

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

7. Can the data be “rolled up” to a larger scale or extrapolated to other areas (e.g. can the structure of the data base and/or the data proper easily contribute to a regional or global data system?)

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

- 8. What characteristics would limit extrapolation of data to other areas? Sampling Frequency and Replication - recommended number and location of sampling sites; recommended frequency and timing of sampling; level of change that can be detected for the amount/type of sampling being instituted.**

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

III. Field/Office Methods

- 3. Setup - field season preparations and equipment setup (including permitting/compliance procedures)**

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

- 4. Events Sequence - sequence of events during field season**

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

- 6. Measurement Details - details of taking measurements, with examples of field forms**

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

- 7. Does the text clearly describe the method to be used at a professional level?**

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

- 8. Can the described method be consistently applied? Sample Processing - post-collection processing of samples (e.g., lab analysis, preparing voucher specimens)**

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

IV. Data Handling, Analysis and Reporting

- 1. Metadata procedures – descriptions of data fields and sizes; sample collection information; site description; quality assurance procedures**

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

- 13. Database Design – overview of database design and structure illustrating relationships between tables, data management**

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

14. Data Entry – data entry procedures; QA/QC; verification and editing of data

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

15. Data Summaries – data summaries and procedures for conducting statistical analysis

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

16. Level of precision – relative to required precision for management decisions

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

17. Accuracy vs. potential sources of bias inherent in use of method; is the method scientifically rigorous?

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

18. Statistical Power- e.g. figures showing the power to detect various effect sizes over a 10-year period.

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

19. Can the method detect “meaningful” levels of change? (E.g. relevant to decision making?)

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

20. Confidence – what confidence interval is reasonable to use with this method?

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

21. Report Format - recommended report format with examples of summary tables and figures

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

22. Trend Analysis - recommended methods for trend analysis

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

23. Archival Procedures - data archival procedures

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

V. Personnel Requirements and Training

5. Responsibilities - roles and responsibilities of crew members

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

6. Qualifications needed- of crew

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

7. Training - availability, locations, timing and procedures, Safety issues

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

8. Cost of Training, ability to ensure consistent application of method.

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

VI. Operational Requirements

3. Workload and field schedule

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

4. Equipment Needs – list of equipment, materials, and facilities needed

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

6. Budget considerations/year at what scale?

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

7. Precision/Cost – Does the document describe the relative cost for increasing the level of precision?

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

8. Potential to leverage other funding sources through integration (IMW, BiOP, and other applications)

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

VII. Level of Integration across programs

4. Currently used on a broad scale?

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

5. Level of change that would be needed to implement in existing programs?

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

6. Potential to leverage funds?

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

VIII. References – Are the references complete? Are there any references that should be added?

Rating (1-10) 10 is perfect

Description of Strategy for Improvement

XI. Photographs/Figures

2. Are the photos and figures helpful and do they convey the application of the protocol? *Please add any photos you think would be helpful.*

Rating (1-10) 10 is perfect

Description of Strategy for Improvement