

Alberta Fish and Game Association

January 26, 2018

Draft - Component 2 Direction Response: Northern Pike and Walleye Management Framework

Reader is cautioned that this document may not represent the official position of the Alberta Fish and Game Association. The intention is to create discussion and dialogue so that the Alberta Fish and Game Association can respond to issues related to proposed changes and initiatives related to fishery management in Alberta to be implemented in 2018/2019.

Background

This **Component 2 Draft Fishery Management Direction Response** builds on the first component that dealt primarily with the North-Central Native Trout Recovery Plan. There are however, many overlapping themes and suggested actions. The first component focused on our cold-water species (trout, char, arctic grayling and mountain whitefish). This second component has a primary focus on northern pike and walleye management as well other cool-water species including, burbot, yellow perch and lake whitefish.

It is important to put into context the current approach to fishery management in Alberta. Managers have adopted a risk based management approach that considers population dynamics, anthropogenic effects and habitat limitations. The benchmarks, while science based, are not consistent with those used in other jurisdictions. This is because risk becomes the driving metric in models and frameworks that are used to determine angling regulations rather than aquatic ecosystem dynamics. Alberta has pushed the bar in terms of developing conservation based angling regulations, supporting assessment tools, benchmark setting and science. The phrase “precautionary principles” has become ingrained in language and culture. The real question is how precautionary are we prepared to go? Is it time to shutdown sportfishing in Alberta?

The critical issues of habitat and the environment under an increasing human footprint on the landscape remain. Alberta fishery managers have a singular focus of manipulating angling regulations which also included the closure of the commercial fishery. The excuse given for this narrow focus is that that issues beyond angling regulations cannot be effectively dealt with unless there is the support of other ministries within the Government of Alberta and local government involvement. This support, which is necessary for the goals and objectives of the department to be met, apparently does not exist. This necessitates a radical rethink of priorities, programs, policy, plans and the business model within Alberta Environment and Parks.

The reality today is that fishery managers are either unwilling or unable to use all the tools available to effectively manage our fisheries and the habitat base. This is demonstrated over the last thirty years by the increasing number of species that are now considered at risk, threatened, or endangered in the province; reduced geographic range of species; fewer anglers; application of the most restrictive angling regulations in North America and the continual loss of angling opportunity across the province.

THIS DOCUMENT IS FOR DISCUSSION PURPOSES ONLY AND MAY NOT REPRESENT THE OFFICIAL POSITION OF THE ALBERTA FISH AND GAME ASSOCIATION

There are many tools available to fishery managers including stocking, predator control, habitat protection, restoration and enhancement. Fishery managers have largely chosen to allow ecosystems to function within their current productive capacity despite both natural and anthropogenic limitations. There was a time when fishery managers in Alberta were prepared to use all the tools at their disposal. The classic example is our provincial hatcheries where state of the art walleye rearing facilities sit idle.

Fishery managers in Alberta are neither right nor wrong with pursuing the current direction. They have however, shifted away from a consultation driven approach to developing fishery management strategies that gain the support and buy in of the angling community and other stakeholders. This has led to a situation where internal ideology and perspective within the fishery management section of Alberta Environment and Parks is expressed in plans and policy. As a senior fishery manager recently told me, *"we are paid by the Government of Alberta to manage Alberta's fishery resource as we believe is in the best interests of Albertans!"* Unfortunately, this philosophy is siloing the department within the Government of Alberta and leading to both discontent and nonsupport from stakeholders and the public. The effect is that the appropriate environmental, economic and social balance including license is not obtained with the current direction.

The Alberta Fish and Game Association and other angling organizations have historically participated in the development of strategies or management plans with the Government of Alberta in relation to our fisheries resource. As the department drifted away from this consultative approach, the input and concerns of anglers have been ignored. The current consultative process is better defined as public information and marketing.

The Alberta Fish and Game Association has used what avenues are available to express concerns from its members and many in the larger angling community to the current direction and outcome of fishery management in Alberta. These have included dialogue, meetings, presentations, letters and resolutions directed to the government of Alberta. The concerns have also been expressed in the outdoor media. This effort to convey concerns and alternative paths by volunteers within the angling community appears not to have been given the needed consideration and has become lost within the department.

Initiative Two

Northern Pike and Walleye Management Framework

The framework attempts to categorizes northern pike and walleye populations based on single specie risk based metrics and bench marks to determine fishery management objective that leads to standardized angling regulations.

<https://talkaep.alberta.ca/3948/documents/7801>

<https://talkaep.alberta.ca/3948/documents/7800>

<https://talkaep.alberta.ca/3948/documents/7799>

Additionally, there are proposed angling regulation changes for 2018 for over 70 waterbodies based on the framework. Largely they would lead to more restrictive angling regulations, particularly for northern pike which would see catch and release regulations implemented for this species. No indication is given of future changes to angling regulations for 2019 and onward for waterbodies not currently assessed within the framework metrics.

THIS DOCUMENT IS FOR DISCUSSION PURPOSES ONLY AND MAY NOT REPRESENT THE OFFICIAL POSITION OF THE ALBERTA FISH AND GAME ASSOCIATION

https://talkaep.alberta.ca/northern-pike-and-walleye-management-frameworks?tool=survey_tool#tool_tab

<https://mywildalberta.ca/fishing/regulations/fisheries-management-changes.aspx>

This response will not comment on these changes, but it does provide insight as to the resulting management framework impact on angling regulations and opportunity as it is rolled out over the coming years.

Concerns of the Alberta Fish and Game Association to the Northern Pike and Walleye Management Framework:

In preparing this response for the Alberta Fish and Game Association the primary driver was input from the membership, executive and the larger angling community. To comment effectively required research. The Alberta Environment and Parks, My Wild Alberta, Alberta Conservation Association and Talk Alberta Environment and Parks websites were all accessed for information pertinent to the management framework and plans. Two major textbooks, *Northern Pike Ecology, Conservation, and Management History*, 2012 by **Rodney B. Pierce** and *Biology, Management, and Culture of Walleye and Sauger*, 2011, **editor Bruce Barton** were the foundation for the science review. Over 150 scientific research papers were reviewed, both from within Alberta and the larger scientific community outside of Alberta. The range of research was vast. A partial list of researchers include: from Alberta, Drs. Michael Sullivan, Steven Spencer, Andrew Paul, Fiona Johnston, Stephanie Morgensen, John Post and fishery scientist John Tchir; outside Alberta, Drs. Chris Wilson, Peter Colby, George Morgan, Bruce Tufts and those associated with the Escanaba Lake Research Station (Wisconsin Department of Natural Resources) and Cornell Biological Field Station Oneida Lake (Cornell University). The research originating from the two stations is noteworthy as they are multi-factorial longitudinal studies spanning many decades. To ensure that the historical context was considered, *Synopsis of Biological Data on the Walleye*, 1979, prepared by **Peter Colby, Richard McNicol and Richard Ryder** was reviewed.

The framework expands on the current risk adverse approach to fishery management in Alberta without addressing existing concerns and questions from the Alberta Fish and Game Association and others in the angling community. The ongoing narrative, perspective, narrow focus, lack of alternative approaches, benchmarks, metrics, overall consequences and consultative process are among the issues that must be addressed before support for such a direction could be given.

It is paramount that any approach to fishery management must consider the following principles:

- Sustainable fish populations**
- Habitat protection**
- Angling opportunity**
- Distribution of angling pressure**
- Understandable angling regulations including objectives**

The *Northern Pike and Walleye Management Framework* categorizes and digitizes waterbodies based on risk metrics to apply standardized angling regulations. From a conceptual standpoint this is a reasonable objective. Practically however, it has complicated, simplified, confused, localized, centralized, expanded risk, sterilized and digitized the fishery management decision making process.

THIS DOCUMENT IS FOR DISCUSSION PURPOSES ONLY AND MAY NOT REPRESENT THE OFFICIAL POSITION OF THE ALBERTA FISH AND GAME ASSOCIATION

Lost are the interpretive, observational, evaluative, comparative skills of biologists and application of local or traditional knowledge that addresses outcomes and consequences at a landscape level.

The low level of risk managers are willing to accept is demonstrated by sportfishing regulatory frameworks. One could question whether there is further need for fishery managers with a narrow focus on monitoring, allocation and angling regulations when angling regulations have largely removed harvest opportunity from the equation. Risk metrics and benchmarks that managers are currently applying are translating into closures, catch and release or de facto catch and release angling regulations without addressing the multi-factorial issues that impact aquatic ecosystems and the fish populations they support. While model based science is an important tool, it alone can not drive management decisions. Any framework or plan must lead to a comprehensive approach to fishery management that is outcome driven which expands management beyond angling regulations and addresses issues related to habitat, climate change and expanding human footprint.

While not wanting to become trapped in the narrative that fishery managers have used to describe the status of fisheries, there is the reality that Alberta, like many other jurisdictions in North America has a limited habitat base. A key objective must be to ensure that when making fishery management decisions, that the prudent use of this limited habitat base is maintained. The management paradigm in place is translating into lost angling opportunity. The direction that is envisioned does not change risk on a landscape basis in the short or long term. It only shifts risk. The consequence is lost angling opportunity and additional fish populations being put at higher risk.

One could suggest that moving to largely catch and release angling regulations does not impact angling opportunity. What it does change is why anglers pursue the sport and the perception of angling by the general population. Defining angling as a solely recreational pastime comes with its consequences.

National health agencies are recommending that its citizens eat at least two servings of fish per week. Some are even suggesting four or five weekly servings should be recommended. Why should sportfishing not be a means for Albertans and Canadians to gather fish for the table? Is going to the supermarket to buy fish that is sourced from unsustainable commercial fisheries or aquaculture with related risks, a more environmentally responsible and ethical means?

The first component of this response by the Alberta Fish and Game Association response did advocate for catch and release angling regulations for wild trout, char, arctic grayling and mountain whitefish in Alberta. This however was in response to conservation concerns, habitat limitations and regulatory requirements to recover species at risk. At the same time, opportunity to allow for the sustainable harvest of such species was supported through adoptions of special management and regulations at a waterbody level.

The management of cool-water species in Alberta such as northern pike and walleye do create challenges. They however are not generally on the scale or landscape basis as those impacting our cold-water species. While overlying themes are similar, there are some significant differences which should translate into different approaches.

While cool-water fish species population declines attributed to angling did occur in the past, this took place under a much different regulatory framework. High daily harvest limits, no size restrictions and greater numbers of anglers was the norm. Overlying this was a commercial fishing industry, both for domestic consumption but also to support the raising of animals such as mink and foxes. Fish

THIS DOCUMENT IS FOR DISCUSSION PURPOSES ONLY AND MAY NOT REPRESENT THE OFFICIAL POSITION OF THE ALBERTA FISH AND GAME ASSOCIATION

populations did collapse under such pressure, but this occurred over a generational period. Under current angling regulations, while hypothetical ideal population status and metrics may not be possible, collapses due to angling alone would be unlikely.

Alberta anglers have demonstrated that they will support highly restrictive angling regulations. The *Northern Pike and Walleye Management Framework* further expands the risk approach to achieve fishery management objectives using angling regulations as the primary tool. It does not consider the impact at a landscape level on angling opportunity, angling pressure or address habitat issues. Fishery managers appear unwilling or unable to use all the tools that are available that are commonly used in other jurisdictions. In addition, the consequences and implication of adopting the framework are difficult for both the biologist or angler to envision.

Alberta anglers are accepting of highly restrictive sport fishing regulations. We also want comprehensive plans that deal with all the issues that are impacting our fishery resource and aquatic ecosystems. Such plans must be tied to actions not words. The siloes within the Government of Alberta must fall. Trade-offs the Government of Alberta is willing to make for social, economic or environmental reasons must be clearly outlined and transparently disclosed. We expect fishery managers to use all the tools available to them including fish stocking and habitat enhancement where appropriate. Multi-jurisdictional consensus based science must be the foundation for establishing realistic benchmarks and metrics with stakeholder agreement. While we support angling regulation simplification and standardization, this must not lead to a sterilized digitized decision-making process. Sufficient alternative regulation options must remain. Collaborative and ongoing engagement with stakeholders by fishery managers must be the cornerstone.

Our understanding is that there is support for the *Northern Pike and Walleye Management Framework* based on the online surveys. Alberta Environment Park should be cautioned that owing to survey design, content and understanding, this conclusion may not represent that of the broader angling community. With that said, the framework does establish a starting point for further discussions.

The Alberta Fish and Game Association sent a letter to the Minister of Environment and Parks, the Honorable Shannon Phillips in early January 2018. It stated:

“We are asking the government of Alberta to put on hold planned changes to angling regulations for 2018 related to these plans. The AFGA is prepared to work with the Government Alberta and other stakeholders to develop the necessary comprehensive plans which must include appropriate resources, manpower and funding that lead to long term aquatic ecosystem function and health that is the foundation of sustainable fishery management.”

Response Structure

This response is structured to first identify issues and concerns that have not been adequately addressed by the Alberta Government that relate to the framework and fishery management in general. These concerns are not new. The second part will suggest alternative approaches and how the management framework needs to be changed from the perspective of the Alberta Fish and Game Association.

Concerns

The Narrative

Fishery managers have communicated a negative message as to the status of Alberta fisheries. They indicate that fish populations are at lower densities and more catchable in Alberta. In addition, productivity is less due to our northerly geographic location, severe habitat limitations, and lack of species diversity. High angler numbers lead to high angling pressure. While there is “truth” in these words, the message is not entirely accurate. In addition, angling regulations currently in place have largely addressed such concerns.

This is especially relevant as many jurisdictions across North America have less fish habitat, more anglers and multiple limiting factors. Yet, they have been able to provide far more angling opportunity for their residents and visitors. Support for agencies managing the resource is high in these jurisdictions, albeit with some conflicts.

Much of the narrative or communication is based on “risk”. Risk metrics are just one tool that assists fishery managers in addressing and understanding issues related to the sustainability of fish populations. The degree of risk that fishery managers are willing to accept is based on the benchmarks and metric that are set in models. While scientifically based, they are still subjective and perception driven. This is true even when based on International Union for Conservation of Nature (IUCN) criteria.

Conservation based angling regulations are largely in place for both walleye and northern pike. The issue that should be front and center is what should be the fishery management objective for each water body (desired state)? To achieve such objectives, what are the tools that we need to use? Tools include angling regulations, education, habitat programs, stocking, enforcement and appropriate land/water use policies.

This narrative of “risk” has equated into the perception by anglers and the public that most walleye and northern pike populations in Alberta are collapsed. Comparisons with other jurisdictions and literature using science and consensus based benchmarks appears to indicate that northern pike and walleye population status and health are good in Alberta generally. By not communicating that the status of our cool-water fisheries are healthy and being managed appropriately is impacting the image of Alberta both provincially, nationally and internationally as a poor environmental steward.

Reviewing abiotic and biotic factors affecting northern pike and walleye populations indicates that generally Alberta represents the optimal range for the species. This is both in terms of productivity and environmental factors such as climate. Calculations for Alberta show that despite a northerly latitude, degree days are higher in the province than further east at the same latitude due to influence of geography. This becomes more relevant in the face of climate change. While cold-water species will be impacted negatively, the warming trend means even the most northerly populations of cool-water species in the province should be positively impacted. This is an example of the consequences of climate change and the varying impacts it will have on the biological community.

Messaging must change. Communication is a vehicle that tells a story, but its aim must not be to support a perspective. Generalizations often create inaccuracies, miss elements and create biases. The result is the whole story is not told. The current communication approach can be summed as marketing.

THIS DOCUMENT IS FOR DISCUSSION PURPOSES ONLY AND MAY NOT REPRESENT THE OFFICIAL POSITION OF THE ALBERTA FISH AND GAME ASSOCIATION

The starting point must be by addressing the status and health of fish populations in terms of clear benchmarks used in the broader fishery community. Science should reflect consensus based positions that reflect the overall knowledge base derived from research from across the range of the species. Risk is only a metric. When using precautionary principles to set benchmarks, it must be clearly articulated that the most conservative position is being taken, not the consensus based middle. The necessary actions that must be taken to reduce risk must be clearly communicated. These actions go beyond angling regulations. When actions cannot be implemented due to cost or tradeoffs for economic, social and environmental reasons, these must be transparently disclosed including the reasons. Positive messaging and collaborative engagement across all stakeholders must become the norm if broader support for needed direction is to be gained.

Fish Density Calculations

Alberta has historically used multiple monitoring techniques and standardized monitoring protocols. Review of other jurisdictions in North America shows that multiple standardized sampling protocols are employed including creel surveys, test angling, index netting, mark recapture surveys, electrofishing assessments for spawning, forage and recruitment, seine netting for forage evaluations/young of the year and trap netting for spawning assessment. New technology that relies on pheromone and DNA detection hold promise. Many of the techniques used in other jurisdictions are non-lethal sampling protocols.

What has changed is that Alberta has largely moved to a single monitoring methodology based on Fall Walleye Index Netting (FWIN) developed by Dr. George Morgan. Fall Index Netting (FIN) is used to evaluate both northern pike and walleye populations in the province. The gear used consist of multi-mesh gill net panels which are similar to those used in the past. Stringent protocols based on water temperature, time, net distribution, depth and sample size are in place.

The AFGA has concerns. The use of a single sampling methodology to assess population status is not consistent with best practices. Sampling bias and precision vary regardless of methodology due to multiple factors including timing, site, and weather. FWIN surveys have been shown to be useful to determine relative abundance and change over time in individual walleye populations but have not demonstrated consistent results with other fish species. In addition, while direct comparisons with other waterbodies are commonly made, there are statistical variability so the comparison are only relative. Most jurisdictions using FWIN also use other sampling protocols to monitor walleye populations.

FIN surveys in Alberta are based on FWIN protocols. AEP communications indicate reference populations have been used for calibration purposes. Fish stock assessments derived from FIN for both walleye and northern pike have supposedly been calibrated to reflect fish density (fish per hectare). Research related to this calibration which involves mark recapture surveys involving multiple sampling protocols has not been provided. We are aware of several mark recapture studies related to northern pike and walleye abundance in Alberta but whether these were used as part of the calibration process is unknown. Independent third-party reviews in other jurisdictions using FWIN protocols have noted the need for mark recapture surveys to verify the statistical results even at a waterbody level.

The AFGA has concerns regarding the validity of FIN as a standardized sampling protocol for northern pike abundance. In addition, current methodology used, which is designed to generate greater

THIS DOCUMENT IS FOR DISCUSSION PURPOSES ONLY AND MAY NOT REPRESENT THE OFFICIAL POSITION OF THE ALBERTA FISH AND GAME ASSOCIATION

statistical accuracy is also more lethal as sample sizes are larger than that used in other jurisdictions. Lethal sampling protocols are additive to natural or angling related mortality.

“Standardized sampling protocols cannot substitute for an understanding of fish biology, population dynamics, and gear selectivity. A rigorous education in fisheries science that includes sampling theory and fish ecology is a prerequisite for implementing standard fish sampling protocols and analyzing the associated data. All models are wrong, but some models are useful—a truism to live by for fisheries managers. Therefore, a new motto is suggested: all models are wrong; validate and proceed cautiously. (Amanda Rosenberger, University of Alaska–Fairbanks, School of Fisheries and Ocean Sciences, Fisheries Division)”

This statement is particularly relevant when reviewing interpretation of data from both inside and outside of Alberta. Relative adult walleye abundance represented by FWIN surveys outside of Alberta are generally considered stable or healthy when the catch per net/per standard unit of effort for mature walleye is 5 or above and overall FWIN is 10 or above. Additional or variations of the statistical format are also used such as walleye per net over 48 cm to provide comparisons particularly related to the mature female cohort in the population.

Most FIN assessments from Alberta show relative adult population assessments for walleye to exceed the benchmark of 5. As FWIN or FIN only relates to relative walleye abundance, how does this equate to actual walleye density?

Actual adult walleye density is usually expressed as the number of walleye per hectare greater than or equal to 35 cm fork length. Literature from both inside and outside Alberta would suggest that a benchmark of 5 adult walleye per hectare is a metric which represents a stable walleye population. Recently a publication from the Government of Alberta, *Alberta Fisheries Management – Fishery Productivity* has moved the benchmark to 8 walleye per hectare.

Recently released population estimates for walleye at several of Alberta’s more popular fisheries indicate densities between 14 and 21 walleyes per hectare. This begs the question: Do Alberta lakes support a greater density of walleye than elsewhere? Are such populations at their carrying capacity based on productivity and habitat limitations? To date the answer has been provided is that walleye density in lakes in Alberta are lower than elsewhere in North America, they are just more catchable.

Confusion is further created as FIN assessment for adult walleye in Alberta must reach 20 before being considered at low risk based on FSI metrics. Risk however is only an evaluation tool and must not be confused with the actual status of a fish population. Attempting to standardize angling regulations using a risk assessment model is over simplifying a complex decision-making process.

The Alberta Fish and Game Association does not have confidence that using the FIN assessment protocol for northern pike has been rigorously evaluated through appropriate research and calibration.

Fish Sustainability Index

The Alberta Fish and Game Association believes the Fish Sustainability Index (FSI) is a valuable tool. We recognize it is based on International Union of Conservation for Nature (IUCN) criteria. The rule sets have been shared. What has not occurred is broader discussion with stakeholders on how the FSI and its components should be used and weighted particularly in the context of setting angling regulations.

THIS DOCUMENT IS FOR DISCUSSION PURPOSES ONLY AND MAY NOT REPRESENT THE OFFICIAL POSITION OF THE ALBERTA FISH AND GAME ASSOCIATION

This is particularly relevant when regional and local factors such as angling pressure, relative angling opportunity, human disturbance footprint, local and traditional knowledge must be reflected in management direction and actions.

The [Limitations and Caveats of Alberta's Fish Sustainability Index \(FSI\)](#) speak directly to this concern.

“When FSI information is used in the appropriate context, and its limitations understood, it can be a powerful broad-scale summary and management tool for Alberta’s fisheries.”

A [Generic Rule Set for Applying the Alberta Fish Sustainability Index – Second Edition](#) provides further context:

“In each of the three sections of the load form described above there is also an area where metrics relating to monitoring and vigilance (date of most recent field work) are evaluated. This addresses how likely the assessment is erroneous due to incorrect, inaccurate, or lacking data. The three monitoring metrics considered are monitoring quality, monitoring quantity, and monitoring timeliness. The majority of FSI ranks are all qualitative, subjective, and relatively straightforward to assign.”

“By assessing each individual metric with these ranks, it allows for biologists to easily see which areas of their FSI are weakest and provides them with direction in terms of where to focus future data collection.”

Information related to FSI can be found by going to <http://aep.alberta.ca/fish-wildlife/fisheries-management/fish-sustainability-index/default.aspx>.

The FSI primarily looks at single species, though other interrelationships are assessed including genetic integrity and changes to predator, prey and competitor metrics. What the FSI does not do is to determine what is the appropriate relationship (abundance) between species when establishing fisheries management objectives (FMO) at a waterbody level. Just because a single species is at high risk within a waterbody should not mean catch and release angling regulations should be applied. If however, the driver is for more or less of a particular species based on consultation, then appropriate angling regulations need to be implemented to achieve the desired state.

Conservation objectives under current regulations have largely been met even though a population is considered at high risk. Conservation, fisheries management objectives and risk all play a role in the decision-making process but must not be confused as they imply different parameters.

Actual walleye and northern pike density and population structure are needed to determine sustainable harvest. Stable fish populations exist at varying densities depending on aquatic ecosystem dynamics. The AFGA recognizes that angling regulations will vary between waterbodies to maintain stable fish populations. While standardized approaches and angling regulation simplification are supported by the AFGA, the question that must be asked is “How simple or standard should we go?”

A major concern with the Northern Pike and Walleye Management Framework is that it has essentially digitized and sterilized what should be multi-factorial decision making process by using the Fish Sustainability Index (FSI) out of context.

Multi-jurisdictional consensus based science must be the foundation for establishing realistic benchmarks and metrics with stakeholder agreement. This applies to the FSI scores and other modeling tools. The current categorisation is subjective even when based on IUCN criteria when overlying

THIS DOCUMENT IS FOR DISCUSSION PURPOSES ONLY AND MAY NOT REPRESENT THE OFFICIAL POSITION OF THE ALBERTA FISH AND GAME ASSOCIATION

precautionary principles are also in play. As a starting point, there must be stakeholder agreement that the appropriate abundance metrics are in place must be the starting point.

Angling Pressure

Angling pressure should be a major consideration in the decision-making process. Reduced angling pressure at lakes appears to have been dismissed as a consideration in determining appropriate angling regulations. The rationale appeared to be a standardized approach that only looks at fish population abundance and modeled risk metric is more scientifically supportable. This is particularly troubling as a major driver for catch and release angling regulations or SHLs (tags) is high angling pressure on lakes near major metropolitan centers even when at low risk. The reverse should also be true. The potential variability in angling pressure due to the open access for Alberta fisheries is seen as a major risk despite historical record and existing restrictive regulations. Standardization and the application of precautionary risk principles becomes the cornerstone at a provincial level which does not account for local or regional differences.

Driving time and road network in relations to major and minor population centers is used to determine FSI ranking. For example, “*accessible by 2WD, within an hour of Lethbridge, Grand Prairie, Red Deer, Fort McMurray, or Medicine Hat*” is described as high risk. Does this equate to actual angling pressure at a waterbody level?

The Alberta Fish and Game Association is requesting the department to graphically display all historical angling survey data (creel survey) for each waterbody, river or stream based on angler hours per hectare or kilometer per year plotted against the commercial and sportfishing regulations that were in place. Metrics that define actual angling pressure in terms of high, medium and low need to be developed with stakeholder input. Distributing angling pressure, making the optimal use of our fisheries and using actual angling pressure needs to be major consideration of managers when determining appropriate angling regulations.

The generalized narrative from the department is that Alberta waterbodies are under high and increasing pressure. Actual review shows a different picture at a local or regional level. We do acknowledge high pressure at popular locations, particularly when within a 150 km radius of major metropolitan centers like Edmonton or Calgary. Review outside this radius show a different picture with actual angler hour per hectare per year often in the range of 3 to 7 angling hours per hectare per year on popular waterbodies in these regions. Waterbodies in other jurisdictions commonly exceed 15 angler hours/ hectare/ year.

Minimum Size Limits

The Alberta Fish and Game Association is concerned about the continuing reliance on minimum size limits by fishery managers. Growing research indicates that harvest only directed at mature fish in the population has both genetic consequences and may lead to population structures dominated by small fish. Some of this research is from Alberta and is often referenced as the hockey stick phenomena.

The reason given for reliance on minimum size limits is that it works in the Alberta context because it is simply, understandable and has high compliance. There are consequences however with using this approach. Composite data for growth of northern pike and walleye in our climatic zones shows we are disproportionately harvesting mature female fish as we move to higher minimum size limits higher. Using

THIS DOCUMENT IS FOR DISCUSSION PURPOSES ONLY AND MAY NOT REPRESENT THE OFFICIAL POSITION OF THE ALBERTA FISH AND GAME ASSOCIATION

the 50 cm minimum size limit for walleye, which appears to be the default regulation favored by Alberta biologists, the population ratio has already shifted to 40 % male and 60 % female for walleye at the 50 cm minimum. A 60 cm minimum size limit as proposed in the framework for quality walleye fisheries would direct 100 percent of the harvest onto female walleye. The current northern pike minimum size limit of 63 cm fortunately sees a 70 % male and 30 % female ratio. Regulation proposals included in the framework for northern pike currently being suggested by Alberta managers would see this number move to a 70 cm or higher minimum which is where the male/female ratio begins to favor female fish in the population. The current 50 cm walleye minimum size and 63 cm northern pike minimum size already provide multiple years of spawning protection. The framework provides additional years of spawning protection but also approaches the expected natural life span for the majority of the fish in the population.

Many other jurisdictions are moving to restrict the harvest of mature fish but at the same time allow harvest of smaller adults. Such a strategy is also used during fish population recovery phase of management. To some degree Alberta has moved in this direction by the application of special harvest license (tags) and through the adoption of single fish limits. Sustainable harvest is lowered when harvest is solely directed at large mature fish as they are the least abundant cohort in sustainably managed fisheries.

Narrow harvest slots for walleye which likely could also apply to other species such as lake trout and northern pike would direct harvest equally to males/females. Such regulations would in most cases have a one (1) fish limit as well. Biologically some waterbodies could support greater harvest, but this could be done with other means including SHLs (tags) outside/inside the harvest slot. It is also important to recognize that one (1) fish limits for walleye, northern pike and lake trout appear to be socially acceptable to Albertans. One (1) fish limits in themselves are extremely precautionary when compared to all other jurisdiction in North America including those with more anglers, limited fish habitat and similar limiting factors/risks. The Alberta Fish and Game Association believes that there needs to be a shift from minimum size limits to more selective harvest through the use of narrow harvest slots.

Precautionary Principles

From Wikipedia, *“precautionary principle (or precautionary approach) generally defines actions on issues considered to be uncertain, for instance applied in assessing [risk management](#).^[1] The principle is used by policy makers to justify discretionary decisions in situations where there is the possibility of harm from making a certain decision (e.g. taking a particular course of action) when extensive scientific knowledge on the matter is lacking. The principle implies that there is a [social responsibility](#) to protect the public from exposure to harm, when scientific investigation has found a plausible risk. These protections can be relaxed only if further scientific findings emerge that provide sound evidence that no harm will result.”*

The real question is how precautionary do we need to go particularly when there is wealth of multi-jurisdictional consensus based science on fish population dynamics related to walleye and northern pike? Precautionary principles in Alberta have come to mean that the most conservative value should be assigned when determining benchmarks or metrics. For example, a 10 percent indirect mortality rate catch and release angling using artificial lures for trout is being suggested as the benchmark. Research would indicate that on average the number is far lower. When we apply multiple conservative benchmarks, they have a compounding effect. This is leading to very little available fish for sustainable harvest. Some examples of this compounding effect are as follows:

THIS DOCUMENT IS FOR DISCUSSION PURPOSES ONLY AND MAY NOT REPRESENT THE OFFICIAL POSITION OF THE ALBERTA FISH AND GAME ASSOCIATION

- Resiliency – population must be high to as possible in case of disease or habitat limitation such as lack of oxygen (summer/winter kill)
- Genetic purity – Fish populations are considered at risk unless they display high genetic purity as defined at a waterbody level. The classic example is westslope cutthroat trout which under the recovery plan in Alberta need to demonstrate a 99 percent purity in relation to their stream of origin. In the United States the metric is variable, but 85 percent purity is often referenced as defining a native population. Walleye similarly are defined in the FSI in term of there genetic purity. Those populations that have had historical stockings are considered at high risk. Many Alberta waterbodies have had historical stockings of walleye over the last century. Genetic purity is better referenced as a measure of biodiversity. Whether serious negative effects have occurred from such stockings needs much further discussion with stakeholders. The Alberta Fish and Game Association believes that stocking is an important management tool not only for the recovery of fish populations but as a method to create and maintain angling opportunity. The Alberta Fish and Game Association is not advocating stocking of walleye over existing populations that have been shown that sustainable fisheries can be maintained through natural recruitment. We are however advocating supplemental stocking in habitat limited systems on a put and take basis likely with a minimum size limit in place such as one (1) walleye over 40 cm.
- Illegal harvest – Varying numbers are being used to determine the percentage of harvest taken through illegal means (poaching). How these numbers are derived is unknown. Are they based on enforcement statistics or other survey methodology? Three to five percent of the harvest is often attributed to illegal activity. This is a serious issue both in terms of the impact on sustainable harvest and enforcement effectiveness. Other jurisdictions use lower percentages than in Alberta for their calculations.
- Catch and Release Indirect Hooking Mortality – The percentage of the harvest that is reported to be dying due to hooking mortality is being recorded as a greater percentage than in other jurisdictions. Five and six percent appears to be the numbers commonly used in Alberta. When this is applied against catch rates, most of the sustainable harvest can in effect be allocated to indirect mortality. Why does Alberta apply a higher percentage than in other jurisdictions and what is the research to back the assumption?
- Optimal sustainable harvest – for walleye population there appears to be extensive cross-jurisdictional research that suggests 20 percent of the annual incremental growth can be allocated for harvest in most walleye populations that are stable. Alberta applies a much lower percentage. Compensatory effects from harvest are also considered risk factors in Alberta. Such effects are fundamental for there to be sustainable harvest of fish that approach the productive potential of a waterbody. The establishment of optimal sustainable harvest metrics in Alberta appears to be tied with achieving an overall vision by fishery managers as to the state of Alberta fisheries at a landscape level. The goal appears to be quality fisheries with minimal harvest rather than optimal sustainable yield. Despite the framework suggesting a Province-Wide Recreational Fisheries Management Objective (RFMO) of Sustainable Harvest, when the sportfishing regulations and risk metrics are applied the outcome is a different objective. There must be much broader discussion on this issue with stakeholder understanding on the implications and consequences for there to be support for such direction.
- Vulnerability to Harvest - Stephanie Mogensen, John Post and Micheal Sullivan published in 2014 an article titled, *Vulnerability to harvest by anglers differs across climate, productivity, and*

THIS DOCUMENT IS FOR DISCUSSION PURPOSES ONLY AND MAY NOT REPRESENT THE OFFICIAL POSITION OF THE ALBERTA FISH AND GAME ASSOCIATION

diversity clines. The conclusion reached was walleye in Alberta are four times more likely to be catchable and northern pike are 10 more catchable. There are many other studies that suggest forage fish abundance, walleye density, lake morphology and other factors are the reasons for varying catch rates. Regardless, there appears based on this single study a recognition that walleye and northern pike may be more catchable across a significant part of their current range in Canada and the United States. In addition, the increased catchability is still exhibited at low density. More studies must be done to confirm the relationships.

What does this mean? From a fishery management perspective this would imply increased risk. The reality is such risk has already been factored in with current restrictive harvest angling regulations. However, indirect mortality related to catch and release angling would become an even greater factor under this paradigm. Anglers and managers should be considering what other options are available to reduce catchability. Possible scenarios include education to reduce indirect mortality, no bait or gear restrictions (single barbless hook) aimed at increasing survivability. Some form of angling closures during peak bites when depth, high temperatures and angling pressure become major factor have also been suggested.

Concerns with the Northern Pike and Walleye Management Framework

Many of our concerns have been identified in the preceding part of this response as they apply both to the framework but fishery management in general. We would have preferred not to see the framework for the first time in what appears to be a final version. However, we accept that cannot reverse the past. We view the framework as a starting point in collaborative engagement process to discuss alternative options and incorporate missing elements. The first step is to separate and delink the elements within the framework.

There are concepts within the framework such as passive and active management that the Alberta Fish and Game Association can support. The first layer should be to decide on which waterbodies are going to be actively or passively managed. This must occur through a collaborative engagement process. We would expect that about 100 waterbodies or watercourses would fall under the active management category.

Three sub-categories should be developed indicating management direction and applied against the passive and active management categorization. Suggested categories are Conservation, Specific and Habitat Limited. For example, a range of waterbodies would be identified under the habitat limited category. Many reservoirs, lakes subject to low dissolved oxygen conditions, high alkalinity waterbodies, pothole and urban fisheries would fall under this category.

Passively managed systems would generally have conservation based regulations put in place that accept risk but are not tied to a specific Recreational Fishery Management Objectives (RFMO) such as quality fishery. The vast majority of waterbodies in Alberta would be managed in this fashion. The regulations proposed for such passive management in the framework are either too restrictive or liberal. The consequence will be shift in angling pressure, angling opportunity loss and risk transfer. With limited waterbodies in Alberta, landscape effects are more pronounced if the appropriate balance in the

THIS DOCUMENT IS FOR DISCUSSION PURPOSES ONLY AND MAY NOT REPRESENT THE OFFICIAL POSITION OF THE ALBERTA FISH AND GAME ASSOCIATION

regulatory regime is not achieved. For waterbodies in this category to switch to a different RFMO would be by local area residents requesting a change with a supporting consultation process.

Active managed waterbodies would include the most important sport fisheries in the province at a provincial, regional and local level. Specific management direction using a variety of regulatory options and other tools to achieve the desired RFMO developed through a consultative process would be applied. The regulatory options in the framework are not sufficient to address such specific management direction. The focus would be on sustainable harvest, quality or special/unique fisheries. Much of the resources within AEP would be expended on the managing these lakes and river systems and the supporting consultative process.

Habitat limited represents a subset of Alberta waterbodies where sustainable fishery management objectives can not be met without additional actions. Put and take trout fisheries are a prime example. Those subject to summer or winterkill would also fall under this category. Southern Alberta reservoirs due to their increasing age and primary use for water storage and flood control create significant management challenges. The management approach needs to be re-evaluated on these reservoirs as it is leading to lost opportunity and angling pressure shift. Habitat enhancement programs, change in water management and supplemental stocking as is used in other jurisdictions must be part of a new direction.

Words such as old growth, liberal harvest, preservation and experimental need to be removed from the framework in this layer. Reference to FSI and specific regulatory options also need to be removed.

The decision-making process must change and be based on the overall aquatic ecosystem dynamics and landscape effects. Separating out single species or using a notification process does not lead to the achievement of a RFMO which is part of a collaborative and consultative process. The decision-making process involves using tools such as the FSI, identifying issues related to habitat, incorporating actual angling pressure data, overlying angling opportunity in the area, considering risk shifts and incorporating local and traditional knowledge.

The last layer is the sportfishing regulations. The regulation options presented in the framework further expand risk based metrics. A landscape view of their application across all lakes, river and streams must be part of deliberations to ensure that angling pressure and opportunity are being distributed if they were adopted. The public has indicated that they want to see alternative regulatory options. Such options will be discussed later in this response.

The following build on or repeat themes that were presented in Component One of this response. The focus is however in relation to the management of cool water species such as northern pike, walleye, lake whitefish, burbot and yellow perch.

1. **Current Fishery Zones would be realigned and renamed:** The Zone 2 Parkland-Prairie would be expanded to include the Northern Boreal Watershed Unit 1. Northern Boreal Watershed Unit 3 and Northern Boreal Watershed Unit 4 would now represent Zone 3- Northern Boreal. By doing so the intention is to create a broad, common and comprehensive approach to fishery management and habitat in the zones. The primary focus in Zone 2 would be on cool-water species, put and take fisheries and habitat limitations as a result of largely developed landscape.

THIS DOCUMENT IS FOR DISCUSSION PURPOSES ONLY AND MAY NOT REPRESENT THE OFFICIAL POSITION OF THE ALBERTA FISH AND GAME ASSOCIATION

The zone includes the major population centers in Alberta. Zone 3 would concentrate on both cool-water and cold-water species as it encompasses Canadian Shield and boreal regions. The zone generally has less angling pressure and much of it is still remote. Cool-water fisheries located in the redefined Zone 1 would be managed based on landscape issues that would shift them into the appropriate Zone 2 or Zone 3 focus to ensure commonality of approach. Watershed units as currently defined would exist only for internal administrative or logistic reasons. They would be replaced from a regulatory perspective as actual watersheds at a scale necessary for management purposes (e.g. Beaver River watershed, Calling Lake). Reference within angling regulations at a watershed or waterbody level would only be required if unique, intensive or specific fishery management approaches are used. The intention is to support the following outcomes:

- a. Common fishery management approach throughout the zone
- b. Angling regulation simplification
- c. Dispersion of angling pressure
- d. Electronic angling regulations
- e. Alignment of land-use planning, Water Conservation Strategy, Wetland Policy and the Fish and Wildlife Policy with habitat requirements throughout the zones

2. Protecting, enhancing and restoring habitat is the critical issue in ensuring the long-term sustainability of fisheries:

Both the regions have large areas of developed land for agricultural, industrial or urban purposes. Development pressure is intense in the Edmonton to Lethbridge corridor. There is also an expanding human footprint on what were remote areas both because of timber harvest and hydrocarbon development. The greatest impacts are related to this expanding human footprint are the eastern side of the province due to heavy oil extraction. There is a net habitat deficit from past development. Lakeshore development and changes within the related watershed are contributing to critical habitat issues. The integration of land use planning, the Water Conservation Strategy, Water Policy, Wetland Policy and the under revision Fish and Wildlife Policy would be a step forward.

This however does not address the immediate need for regulatory tools and conditions that are applicable across the broad landscape that lead to aquatic ecosystem health. Such tools must be able to be applied on both public and private lands. Maintaining and improving aquatic ecosystem function at the watershed level must be the priority of any plan. This will only occur through an integrated and comprehensive approach involving governments at all levels and land owners. While we recognize that some of the necessary policies are in place, the necessary widespread implementation does not appear to be occurring. (See Component One of this response for details and required actions)

3. Environmental education, communication and awareness must be part of any ongoing plan:

This must occur within the contemporary education system, within government at all levels and between branches, with stakeholders and the public. Among these would be the following:

- a. Mandated environmental education courses (similar to current safety course requirements) for companies and individuals working on public lands or infrastructure projects.
- b. Mandated angler education (perhaps analogous with the current Conservation and Hunter Education Program requirements).

THIS DOCUMENT IS FOR DISCUSSION PURPOSES ONLY AND MAY NOT REPRESENT THE OFFICIAL POSITION OF THE ALBERTA FISH AND GAME ASSOCIATION

4. **Angling regulations for cool-water species:** The Northern Pike and Walleye Management framework does identify regulatory options. They include closures, catch and release only and special harvest licenses and minimum size length regulations. The size limits being suggested are more risk adverse than in the past. Largely this is to fit within a standardized and simplified regulation platform based on perceived risk. They however do not consider local factors adequately such as angling pressure. Further they will not take full advantage of our limited habitat base or distribute angling pressure.

The Alberta Fish and Game Association is proposing the following alternative regulations and framework. Based on consultations and research it is our belief that conservation objectives can be met through such a framework. Additionally, angling opportunity, standardization, angling regulation simplification and reducing risk objectives can be met. Most waterbodies in Alberta would have General conservation based angling regulations.

Passive Management or General

- a. One fish limits supported by either minimum size limits or narrow harvest slots for predator species (lake trout, northern pike, walleye, sauger and burbot) depending on waterbody fishery dynamics.
 - i. Walleye/Sauger - 1 over 50 cm or second option 1 between 43cm and 48cm
 - ii. Northern Pike - 1 over 63 cm or second option 1 between 63 cm and 75 cm
 - iii. Burbot – 1 no size limit
 - iv. Lake trout – 1 -harvest slot or minimum size - lake specific
- b. Other species
 - i. Lake whitefish limit 5.
 - ii. Yellow perch limit 15 but only 5 over 30 cm
 - iii. Stocked trout limit 5
- c. Year round angling (Closures based by species or critical spawning sites)
 - i. Northern pike and walleye/sauger 0 retention March 15 to May 31
 - ii. Lake trout 0 retention September 15 to November 30
 - iii. Short term seasonal angling closures on a site-specific basis for critical conditions such as spawning

Active management or Waterbody Specific

- a. Passive management or general regulation options may be applied for angling regulation simplification purposes or to offset angling pressure shifts. Year-round angling would be encouraged by using species closures. Many of the habitat limited designation would fall within this active management category. The intention is to have a much larger tool set available for fishery managers. To achieve RFMO within this category, managers will need to think outside the box. Beyond angling regulations, other tools including predator control (cormorants), supplemental stocking, gear restrictions, bait restrictions, enhanced enforcement and habitat programs would be expected to be implemented based on each waterbody's dynamics.
- b. Angling regulation options would include closures, catch and release, special harvest license (SHL) and an expanded angling regulation option list. Adaptive management taking advantage of year class strengths would be applied to provide additional

THIS DOCUMENT IS FOR DISCUSSION PURPOSES ONLY AND MAY NOT REPRESENT THE OFFICIAL POSITION OF THE ALBERTA FISH AND GAME ASSOCIATION

6. **Enhanced Fisheries Stamp:** The Alberta Fish and Game Association is proposing the purchase of a mandatory Enhanced Fishery Stamp be included as a component of a sportfishing licence. The cost is suggested to be ten (10) dollars. The funding derived would provide additional support for the provincial fish hatchery system and related programs. Reviving the walleye stocking program and alternative specie propagation should be the immediate priority for such funds. All anglers benefit, even if not fishing in enhanced waterbodies as the program reduces angling pressure at self-sustaining fisheries through out the province.

Conclusion

The Alberta Fish and Game Association is asking the angling community and the Government of Alberta to consider this alternative approach and direction. We are not asking for anything that is not already in place in other jurisdictions.