

RECOMMENDATIONS FROM CLMP 2005 SEC. 9.0 (PAGE 93/94) AND TABLE 39 APPENDIX C

UPDATED - STATUS OF SHORT AND LONG TERM ACTION ITEMS – 2007/08

RECOMMENDED SHORT TERM ACTION ITEMS

The recommended short term actions which are detailed within the Implementation Strategy Manual were placed under broad categories to reflect the type of work that the action would entail. For example: some actions have a public education component while another action is field research oriented. Implementation of these actions set out in the Implementation Strategy Manual (ISM) commenced in 2005 with the majority of action items being ongoing from year to year.

Category – Core operation initiatives:

Action #	Description	Comments
5.1A	Secure core funding to keep the Community Stewardship Resource Centre (CSRC) open (project nucleus)	Ongoing – Core = RDKB Parks function, BC Gaming, Donations, Memberships also project specific various partnerships. Potential 2 year core grant from Stewardship Works (due Mar 6)
5.1B	Build and maintain a constituency of involved citizens	Ongoing
5.1C	Form an agreement with project participants to ensure future participation in CLMP revision and implementation	Memorandum of Understanding (MOU) are in place from all stakeholders involved with the CLMP
5.1D	Produce an annual CLMP progress report	Ongoing – Proceeding from the annual review meeting and addendum's to the CLMP and IS will form the progress report

Category – Public education and community involvement initiatives:

Action #	Description	Comments
3.1C	Coordinate a “Fire Preparedness” informational display	Incorporated into CLSS display plus two years of bulk mail out of the FireSmart Manual 2005 and 2006
	Develop a “Wildfire and Property Protection” video	Available at the Centre Resource Library on DVD and Video (VCR)
3.2A	Update/install informative signage (examples available) – Note: there are now right-of-way restrictions on signage placement due to the Olympics	Noxious weed signage has been placed. Still require: Watershed signage (Water districts?), Fisheries signage at spawning creeks, Fisheries Lifecycle signage, Aquatic Plant signage including EWM (also information posters)
3.2E	Continue media releases	Ongoing – Stewardship Corner in CL NEWS weekly, GF Gazette on specific issues, Trail Times specific issues
3.2F	Develop and distribute a water conservation brochure (other brochure development as required)	Completed but should be updated for spring 2008. Distribution via mail, email, Vacation Rental Agency, Real Estate, Sandwich Board, RDKB, Chamber of Commerce, Businesses, and project specific delivery landowner contact by Volunteers
3.2G	Develop and deliver an Internet-based habitat atlas for the Christina Lake watershed (information handouts available) SHIM	Starting Spring 2008 Foreshore mapping and Inventory (pending funding) – CLMP maps are currently available on SHIM (DFO) and Ecocat (MOE) Brad Mason will have a budget ready by Feb 29 – ascertain levels of data required for lake and tributaries. Liaison with RDKB Grace McGregor. Contact Stacy Wilkerson MOE Victoria possible funding
3.2H	Develop and deliver a map-based pamphlet about natural resources in the Christina Lake watershed (example available)	BCLSS has the template to do this and we could draw information from the CLMP to produce this – funding will need to be applied for and some help from MOE (Vic Jensen) for content (production costs required)
3.3A	Determine community’s interest in applying for a Community Forest license	Several meetings and inquiries indicated that the Community Capacity for this endeavor is not adequate at this time.
3.3C	Coordinate local “Lake Clean-Up Day” event	Ongoing - annual event – this year May 17 th , 2008
3.3F	Promote acquisition and conservation of District Lot 498	Parks Function – RDKB

3.4A.B	Develop and deliver school/group programs (fisheries, water quality etc.)	Ongoing – require more funding for resources and handouts
4.1A	Improve distribution of water quality and other data to the public	MOE WQ http://www.env.bc.ca/wat/wq – place link on CLSS Website (SHIM and Ecocat links are in place). I
	Establish a method of receiving and updating data as it becomes available	Maintain contact with all stakeholders (MOE, DFO, RDKB etc.)

Category – Continue and expand upon current monitoring programs:

Action #	Description	Comments
1.1A	Establish a volunteer biological water quality monitoring program for major lake tributaries and Christina Creek	CLSS resource library has the Streamkeepers handbooks and modules as well as the Save our streams manual. Requires MOE help, training, and a Volunteer group leader to organize the program and reporting mechanisms. Who will take the lead? Vic Jensen sampled Sutherland and Sandner Creeks in Aug of 2006 and will also sample in winter of 2007. Will pass on information when available. Vic Jensen will help with sampling and training. Fall sampling (once a year) and will need dedicated Volunteers.
1.1C	Support recommendations in Cavanagh <i>et al.</i> (1994) to expand the current MOE water quality monitoring program	Ongoing – spring and fall sampling.
	IHA Recreational Water Quality – Summer Program (new)	IHA no longer doing summer recreational water quality sampling. Set up process for the summer of 2008 – Doug Shannon has volunteered to do this sampling on a weekly basis from June to the end of August (contact water districts to coordinate sample p/u and delivery to GF hospital) Contact IHA Ingo Frankfurt
1.1D	Establish a volunteer hydrometric data collection program	Volunteer capacity and costs make this prohibitive at this time. The data obtained is very important pertaining to long term planning (water quality, drought etc.) Vic Jensen –most valuable single hydrometric site is Christina Creek; there was a Water Survey of Canada site on the creek in the past that would perhaps be a spot to try and reactivate the data collection. Brad Mason suggested contacting John Heinonen in Vancouver for potential funding assistance.
	Lake Level Measurements	Simple lake level measurements would be useful long term information on net inflow. See Wasa website re lake level collection by Volunteers. Also see website on this type of monitoring at www.dnr.state.mn.us/volunteering/lakelevelmn.html Requires a dedicated Lakeshore owner Volunteer (English Cove?)
1.2C	Conduct shoreline and tributary survey to identify potential	The information obtained from the Foreshore

	<p>restoration sites</p> <p>Habitat degradation: if the stock assessment shows there are problems with recruitment (more for kokanee and rainbow trout), what is the current state of the habitat (in particular where do rainbow trout spawn) and what benefits could possibly accrue to the lake if restoration is undertaken?</p>	<p>Mapping and Inventory (Spring 2008) can be used as a baseline for planning. Ryan Durand has offered to help with SHIM tributary work.</p> <p>Currently, McRae and Sutherland Creek require attention due to Kokanee spawning habitat degradation. Sandner Creek requires info. Signage to help protect mouth of creek from recreational boating etc – and buoys? A fund has been started for McRae Creek.</p>
1.2E	Conduct sediment core sample collection and analysis	<p>Selkirk College – funding required and boat costs for platform boat (Tintanic?) Vic Jensen will be talking to a Prof. at UBCO and see what he thinks of the idea. Costly venture and data may not be useful.</p>
2.4C	Promote a survey of Eurasian watermilfoil infestation sites and conduct inventories of terrestrial noxious and invasive weeds	<p>EWM – Aqua Technex completed the CL EWM Control Program Evaluation and Report Nov 2006 for the RDKB. Recommendations from this report have been incorporated in the EWM Program. Initial GPS and infestation sites plotted in the fall of 2007. 2007 Annual Report available at RDKB.com</p> <p>Terrestrial – BWMC ongoing and updated annually (see Appendix E CLMP mapsheet 14). Steering Committee working on Strategic Management Plan – guidelines for annual action and education planning</p>

Category – Fisheries and wildlife initiatives:

Action #	Description	Comments
2.1A	Assess potential fish habitat gains/losses associated with barrier removal on McRae Creek	Logjam is gone due to Trans Canada Trail debris torrent and flooding in 2006 – kokanee can no longer access this stream from the lake as boulders and cobbles have washed down to the mouth of this system. There has been a community fund started to help with McRae Creek. Advantage to remove debris at mouth = access for kokanee and rainbow trout. Disadvantage= potential problems downstream/private property damage. A Hydrologist and Biologist will assess McRae and Sutherland after spring freshette 2008.
2.2E	Provide support for a hydro acoustic kokanee population assessment	Acoustical and Trawl Surveys were conducted in 2005 and 2006 but did not take place in 2007
2.2F	Conduct kokanee shore spawner enumeration	Ongoing – Survey's performed 2001 to 2007 - not done in winter of 2008.
2.2G	Conduct kokanee stream spawner enumeration	Ongoing (many concerns per enumeration data for the past few years)
2.2H	Conduct creel surveys	MOE methodology Creel Tech 2007? CL Marina interested?
2.2I	Conduct research about exotic species interactions with native species in aquatic ecosystems	<p>MOE/ONA Large Lake Studies</p> <p>Note: Currently there are 10 introduced species in Christina Lake with 1 species (Yellow Perch) not confirmed as a sample was not obtained</p> <p><u>Rationale:</u> A need for basic stock assessment information on kokanee, rainbow trout, and Burbot; methods could include spawner surveys for each species, more creel data, in-lake population assessments, and fry assessments.</p> <p>Exotic species interactions – What is the status of these species? What are the possible impacts of all of the warm water species in the lake? Are <i>mysis relicta</i> a problem? What can be done about any of the exotics if they are a problem?</p> <p>Over fishing: New regulations are in place for Christina Lake; they need to be followed up with</p>

		creel surveys and aerial boat counts to determine if they are being effective or if they need to be changed (made more or less stringent).
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RECOMMENDED LONG TERM ACTION ITEMS FOR ANNUAL REVIEW

The Christina Lake Management Plan action items recommended for annual review and are considered long term priorities are as follows (the numbers beside each long term action relate to Table 39):

Action #	Description	Comments
1.1B	Conduct an assessment of groundwater quality	IHA – Sutherland Creek GW Assessment completed? Advantages= Determine NPS impacts to GW quality. Disadvantages= Very costly, program commitment. Need to discuss with Des Anderson.
1.1E	Organize volunteer water sampling program for major lake tributaries	Need to organize existing data first – Community watershed data and objectives being prepared for Moody and Italy/Sutherland Creeks (Dennis Einarson)
1.2A	Encourage “Best Management Practices for sediment and erosion control for public roads	RDKB? Development requirements for those who subdivide/develop to plan for roads, storm water run off, servicing etc. Liquid waste management plan? Work with MOT, MOF, and others responsible for road maintenance to ensure that acceptable and effective measures to minimize sediment impacts. BMP website www.env.gov.bc.ca/wld/BMP/bmpinfo.html
1.2B	Encourage responsible forestry practices in the watershed	On referral system for BCTS and Pope and Talbot (Interfor?) Drinking Water Protection Act – manage activities to prevent potential harm to drinking water quality – Enacted?
1.2D	Promote shoreline enhancement project	Have handed out information to some property owners who have requested information on native vegetation and cutting techniques as well as permitting information (phone numbers, website etc.) Local Real Estate Agent and Certified Wastewater Practitioner purchased “On the Living Edge” shoreline protection books.
1.3A	Fecal contaminants and sediment are often carried to surface water through similar delivery mechanisms as outlined in actions 1.2 (a,b,c)	Implement actions as described in 1.2 Report of high e.coli in samples Moody Creek Sept 2007 (Barry Brandow)
1.3B	Seek out government subsidy programs for property owners wishing to upgrade septic systems	RDKB? Tax incentive?
1.3C	Investigate the potential for community sewage systems	May want to review this at a later date when

		scientific data is obtained to ascertain conditions (see nutrient model 1.4C) CLAAS – proposed Centre in Community Nature Park – “Living Machine” concept
1.3D	Consider conducting a sanitary survey of onsite sewage disposal systems and the possibility of septic inspections on private property as part of the condition of sale. Septic systems have been identified as a potential pollution risk at Christina Lake (Cavanagh et al, 1994). A functional, sanitary survey of the existing septic systems could provide valuable data about the locations and proper operation of systems and help identify the actual risk, if any, of lake pollution from onsite sewage disposal. The data from this study could used to plan future infrastructure and gain support for potential changes in waste disposal methods at Christina Lake.	IHA has documentation regarding septic systems but not in digital database SHIM – possible to look for direct lines into lake
1.4A	Nutrient contaminants can be carried to surface water by the same delivery mechanisms (surface runoff) that carry sediment and fecal contaminants)	Implement actions as described in 1.2 and 1.3
1.4B	Conduct sediment core analysis	See 1.2E Selkirk College?
1.4C	Develop a nutrient model for Christina Lake	MOE?
2.1B	Restoring shoreline habitat will improve fish habitat	Implement action 1.2D
2.2A	Promote a fisheries inventory study for Christina Lake	We need to know how many of each stock, age classes, limiting factors etc. MOE and CLSS Partner for Funding? Also see 2.2I
2.2B	Conduct DNA testing on kokanee, rainbow trout, westslope cutthroat (stream resident)	MOE?
2.2C	Conduct a population assessment of Burbot (<i>Lota lota</i>)	MOE? Andrew Wilson mentioned that he was waiting for a survey to be completed with live catch traps and we could possible use this as a model to conduct a survey here
2.2D	Determine status of the non-native mysis shrimp (<i>Mysis relicta</i>) population in Christina Lake	Could this be done at the same time as the acoustical/trawl surveys (at night)? Also see 2.2I
2.3A	Promote the establishment of wildlife corridors, natural environment parks, and green spaces	RDKB parks function. The BC Land Conservancy also is working on some parcels of land within the watershed “conservation covenants”.
2.3B	Preserve and/or protect habitat for species at risk	Need a proper inventory of species to determine requirements see 2.4A
2.4A	Promote a wildlife inventory study for the Christina Lake area	Who can do? MOE was planning to do this at some point. What about BC Parks for the

		Gladstone area? Selkirk College?
2.4B	Conduct plant surveys	TEM, VRI? Barb Stewart?
3.1A	Public education about shoreline impacts	Held a shoreline protection workshop series in 2006, Spill Kits and Info. Package Summer 2007, and will compile information package as part of the 2007 annual review meeting. Several action items can be incorporated into this as a Foreshore Protection Project – FAT 2002 updated and sent to all shoreline property owners, signage, posters, SHIM (percentage disturbance and habitat/fisheries values, shoreline liaison summer 2008, shoreline team in partnership with MOE (COS) 2009 – BC Parks? , and RAR taking into consideration community capacity and requirements. A separate package to all new property owners – environmental welcome wagon concept – obtain title transfer information from Water Districts? RDKB?
	Development Application Referral Process	RDKB, APC, CLSS, MOE, DFO – develop a workable referral system pertaining to all development applications
3.1B	Pilot noxious weed assessment program	BWMC Barb Stewart – Strategic Planning 2007, Several sites treated: - Blueweed Hwy3 1km north of junction with East Lake Drive to south of Christina Creek, lower Santa Rosa Rd., Swanson/Wilkerson/Hunter Frontage Rds, Cascade Gravel Pit, Columbia and Western Trail north of Fife Rd. All weeds were treated along Hwy 395 to the border crossing. Leafy spurge was treated Hwy 3 to Lone Pine Pit and on Columbia and Western Trail south of Paulson Bridge. Patches of Yellowdevil hawkweed were treated along Stewart Creek FSR and on McRae Rd, Farron Main, Bonanza FSR and in Christina Lake Community Park. Orange hawkweed was treated in Christina Lake Park and there was no regrowth on the site off Wilkinson Rd. Hoary alyssum was treated on the C&W and Trail from Grand Forks to Santa Rosa Rd and north of Fife Rd. Six releases of <i>Larinus obtutus</i> were done on the C&W trail north of Paulson Bridge.

3.1C	Encourage residents to make their home/property fire safe (also see short term action items related to this topic)	A multi action item – RDKB planning RIEP will be completed by 2009
3.2B	Public education on fisheries issues	Ongoing – via media releases reports, emails, and website linkages. Posters, signage project 2008 – Parks and Rec Committee
3.2C	Public education about non-native plant issues in the CL watershed	Ongoing – CLSS and BWMC –2007 Installation of invasive plant signs, landowner contact treatment options, CLSS acted as a main distribution point for invasive plant education materials, Yellow flag iris pull in Christina Creek by volunteers, Cross Borders Tour at Christina Lake Community Park. Signage/Posters project 2008 – Parks and Rec Committee
3.2D	Encourage residents to become involved in the Forest Stewardship Planning public review process (previously called Forest Development Plans)	Ongoing – CLSS houses maps and information on cutblocks etc.
3.2I	Support initiatives to phase our 2 stroke engines from the lake	Spill Kits information brochures and CL Marina converting all rentals to 4 stroke Spring 2008
3.2J	Provide information on impacts of fertilizer/pesticide use	Ongoing – CLSS has distributed brochures, media releases etc.
3.3 B	Coordinate Community Milfoil Pull Day	Have done this event once in 2005, RDKB Program. Busy Beaver Ltd. has been hired by many private land owners to remove Eurasian watermilfoil. CLSS spill kits also had a brochure pertaining to EWM
3.3D	Coordinate BC Rivers Day Event	Volunteer capacity?
3.3E	Coordinate a Lake Awareness Day Event	CLSS and other NGO's have put on this event for several years and have not had another for three years as other projects such as the spill kit project and Bartlett's Fair took up a lot of Volunteer time over 2 summers in a row
4.1B	To be removed as the same as 5.1A	n/a

The action items listed above were selected for long term implementation for a variety of reasons. Mainly due to cost and current funding availability and identified research gaps indicated that other field work would have to be performed prior to endeavoring certain aspects of each long term action.