

**BRIEF CURRICULUM VITAE
GLEN VAN DER KRAAK**

Present Position: Professor Department of Integrative Biology,
College of Biological Science,
University of Guelph

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Education:

B.Sc. Hons. (1st Class Hons)	University of Manitoba	1976
M.Sc.	University of Manitoba	1979
Ph.D.	University of British Columbia	1984

Positions:

Interim Dean	August 2019-Dec 2020	College of Biological Science
Associate Dean, Research Chair	Nov 2003- July 2019 July 2000 - Dec 2003	College of Biological Science Department of Zoology
Professor	July 1997 - present	Zoology (now Integrative Biology)
Associate Professor	July 1993 - June 1997	Zoology
Assistant Professor	July 1987-June 1993	Zoology
Adjunct Professor	July 1994-present	Department of Biology University of Waterloo
Adjunct Professor	July 2008 -present	Department of Biology McMaster University
Adjunct Professor	July 2008-present	Department of Biology Wilfrid Laurier University
Director	July 1996- August 2000	Axelrod Institute of Ichthyology University of Guelph
Postdoctoral Fellow	Feb 1984- June 1987	Department of Zoology University of Alberta

1. Roles and regulation of eicosanoids during the periovulatory period in the zebrafish (NSERC Funded). Together with my students, I exploited the daily spawning of zebrafish in order to characterize the temporal sequence of changes in ovarian hormones during the periovulatory period and have made seminal discoveries on the roles of the maturation inducing steroid $17\alpha,20\beta$ dihydroxy-4-pregnen-3-one ($17\alpha,20\beta$ P) and eicosanoids. We showed that spontaneous and gonadotropin-induced ovulation involved the increased synthesis of $17\alpha,20\beta$ P at the time of oocyte maturation (around 3:00 AM) followed by the activation of the arachidonic acid pathway through the induction of *cpla2* and *ptsg2* and increased prostaglandins to coincide

with ovulation at dawn (Lister and Van Der Kraak, 2008; 2009). Using inhibitors of eicosanoid metabolism we demonstrated that lipoxygenase products of arachidonic acid metabolism were critical to ovulation whereas cyclooxygenase products were critical to both ovulation and spawning (Knight et al, submitted). To our surprise *in vitro* studies with ovarian follicles showed that human chorionic gonadotropin (hCG) and adenylate cyclase activators had no effect on PG synthesis or *cpla2* and *ptgs2* expression (Irwin et al. submitted). This raised questions as to the signals that mediate eicosanoid metabolism and whether the actions of gonadotropins involved signal transduction pathways other than protein kinase A or were indirect through the activation of other signaling molecules. We went on to show that protein kinase C activators and $17\alpha,20\beta$ P were highly effective regulators of PG synthesis along with *cpla2* and *ptgs2* expression and that these effects were developmentally regulated being seen in full grown but not mid-vitellogenic follicles (Irwin et al. submitted) . This latter response paralleled the changes in the nuclear progesterone receptor which is thought to mediate the actions of $17\alpha,20\beta$ P. These studies have revealed far more complexity in the importance of eicosanoids during the periovulatory period and that the appearance of nuclear progesterone receptors in the ovarian follicle may be one of the landmark features involved in determining which ovarian follicles are destined to ovulate.

2. Insulin-like growth factors (IGFs) as local regulators of ovarian function in the zebrafish (NSERC Funded). For many years my lab has investigated the roles played by local hormones and growth factors in the regulation of gonadal growth and differentiation in fish. We have made important discoveries on the IGF family members in the ovary and their multiple roles in controlling ovarian follicle development. This included showing that several members of the IGF family members including ligands (*igf2a*, *igf2b* and *igf3*) and receptors (*igf1ra* and *igf1rb*) are expressed in the zebrafish ovary (Nelson et al. 2010a). A major discovery was that hCG and adenylate cyclase activators increased *igf3* in full grown and mid-vitellogenic follicles (Irwin and Van Der Kraak, 2012). Furthermore, our work demonstrated that IGFs promoted ovarian follicles to develop the competency to undergo oocyte maturation (maturation competency), induce both oocyte maturation, and steroidogenesis and function as a survival factor by preventing ovarian follicular cell apoptosis (Nelson and Van Der Kraak, 2010; Irwin et al. 2012). We were surprised by the marked reduction in *igf3* expression in follicles as they transitioned from oocyte maturation to ovulation. Subsequently we showed that hormones and signal transduction pathways associated with the initiation of the ovulatory phase (i.e. $17\alpha,20\beta$ P, PKC activators and prostaglandins) strongly inhibited basal and hCG-stimulated *igf3* expression (Irwin et al, submitted). Collectively, this work has demonstrated the interplay between LH, IGFs and prostaglandins as ovarian follicles progress from oocyte maturation through to ovulation and led us to hypothesize that the IGF system is involved in the promotion of oocyte maturation but that suppression of the IGF system may be essential for ovulation to proceed.

3. Ovarian atresia: apoptosis and yolk processing (NSERC funded). The current model of vertebrate follicular atresia is built around the concept that granulosa cell apoptosis is the underlying mechanism of follicular degeneration. Our studies have been unable to demonstrate a

link between granulosa cell apoptosis and atresia in teleost ovarian follicles (Wood et al. 2005; *Biochemistry and Molecular Biology of Fishes*, 6; 303-328). Granulosa cells in atretic teleost follicles display features of differentiation (e.g. hypertrophy, migration) but no evidence of apoptosis (e.g. oligonucleosomal DNA fragmentation, nuclear condensation). Because teleost oocytes contain large quantities of yolk and are produced in large numbers, the degradation and recovery of this valuable energy store is of key interest. This lead us to postulate that the initial stages of teleost atresia may require proteolytic enzymes to cleave yolk proteins before atresia can proceed. We showed that zebrafish follicles subjected to serum-starvation have increased cathepsin B-like activity prior to caspase-3 activation and that a specific cathepsin B inhibitor decreased caspase-3-like activity (Eykelbosch and Van Der Kraak, 2012). Regulation of cathepsin B activity during apoptosis was not at the level of gene transcription but rather was regulated either at the level of protein processing, release of the enzyme, or by a change in expression of an endogenous inhibitor. This work provides the first example of cathepsin B activation during atresia in fish.

4. Use of small bodied fish in determining the actions of endocrine disrupting chemicals (EDCs) (NSERC, Canadian Water Network and Environment Canada funded). There has been a world-wide effort in the development and application of *in vivo* whole animal testing methods that can be used to assess the hazards posed by chemicals in the environment that affect the endocrine system and ultimately growth, reproduction or development. My lab has been a leader in developing and applying short term tests with adult fathead minnow and zebrafish to assess reproductive function following exposure to complex effluents including those from the Alberta oil sands (Kavanagh et al. 2011, 2012, 2013), pulp and paper mills (van den Heuvel et al, 2010; Parrott et al 2010; Kovacs et l. 2011, 2013; Martel et al, 2011 and municipal sewage treatment plants (Lister et al, 2010; Parker et al. 2014. We subsequently showed that pharmaceuticals found in the environment including non-steroidal anti-inflammatory drugs, birth control pills, and selective serotonin reuptake inhibitors also affect reproductive function (Lister and Van Der Kraak, 2008; Lister et al 2009; Morthurst et al. 2013, Cosme et al. submitted). We have used this approach to identify sites in the pulp and paper manufacturing process responsible for the generation and release of EDCs to the environment and to identify effluent treatment strategies to reduce the release of EDCs during municipal sewage treatment. My research in this area has garnered significant attention including the opportunity to participate in the Royal Society of Canada's evaluation of the health and environmental impacts of the Canada's oil sands industry.

5. Environmental endocrinology (NSERC, NSERC strategic, Environment Canada and ECORISK Funded). I have collaborated widely in the application of endocrine testing techniques to the study of fish and amphibians in the wild. This work has been instrumental in demonstrating the dynamics of hormones changes that accompany spawning migrations in sockeye salmon (Cooke et al. 2008 a, b; Hanson et al, 2008; Crossin et al. 2010; Donaldson et al 2010), sexual maturity in frogs (DuPreez et al, 2008, 2009) and stress in fish (O'Conner et al,

2009; 2012; Dey et al. 2010). This work has garnered attention both nationally and internationally and has led to my involvement with the International Program on Chemical Safety of the World Health Organization in dealing with the human health and ecological risk assessments and on EDCs. Most recently, this has contributed to the development of a quantitative weight of evidence approach to provide a framework that can be used to assist the decision-making process when assessing environmental chemicals (Van Der Kraak et al. 2014). My contributions in this area and with the basic research on reproductive physiology were instrumental in my selection as the 2014 F.E.J Fry Medalist of the Canadian Society of Zoologists.

Graduate Students

Current Students	Degree/ Date(Year)	% of Supervision	Co-supervisor
Y. Badlani	M.Sc.2020- Exp	100	No
S. Baker	Ph.D. 2020 Exp	100	No
C. Sing-Judge	MSc. 2021 Exp	50	MacLatchy

Graduate Students Completed: MSc Students 23; PhD Students 10

Kellner, R. 1993. The regulation of prostaglandin E and F synthesis by preovulatory follicles of goldfish and coho salmon. M.Sc. Thesis. Department of Zoology, University of Guelph. 63 pp.

Wade, M.G. 1993. Multifactorial control of steroid hormone and prostaglandin production by the testis of the goldfish. Ph.D. Thesis. Department of Zoology, University of Guelph. 153 pp. (NSERC Scholar.)

Srivastava, R.K. 1994. Multifactorial regulation of steroidogenesis and DNA synthesis by ovarian follicles of goldfish (*Carassius auratus*). Ph.D. Thesis. Department of Zoology, University of Guelph. 231 pp.

Jardine, J.J. 1994. Impacts of physical stressors on physiological fitness of white sucker at a bleached kraft pulp mill site. M.Sc. Thesis. Department of Zoology, University of Guelph. 92 pp.

Post, N.D. 1994. The role of 17β -estradiol in the intra-ovarian regulation of steroid production in the goldfish. M.Sc. Thesis. Department of Zoology, University of Guelph. 58 pp.

McMaster, M.E. 1995. Mechanisms of reproductive dysfunction in white sucker (*Catostomus commersoni*), brown bullhead (*Ictalurus nebulosus*) and goldfish (*Carassius auratus*) exposed to various pulp mill effluents and polyaromatic hydrocarbon contamination. Ph.D. Thesis. Department of Zoology, University of Guelph. 282 pp.(NSERC Scholar.)

- McDougall, T.M. 1996 The regulation of prostaglandin synthesis by epidermal growth factor and related peptides in the ovary of the goldfish and rainbow trout. M.Sc. Thesis. Department of Zoology, University of Guelph. 63 pp.
- Tremblay, L. 1998. The use of in vitro and in vivo assays to characterise the effects of estrogenic compounds in the rainbow trout (*Oncorhynchus mykiss*). Ph.D. Thesis. Department of Zoology, University of Guelph. 140 pp.
- Moore, K. 1999. Effects of temperature changes on reproduction of rainbow trout (*Oncorhynchus mykiss*). MSc 120 pp.
- Wells, K. 1999. Characteristics of androgen receptors in goldfish and rainbow trout. M.Sc. Thesis. Department of Zoology, University of Guelph. 57 pp.
- Evanson, M. 2000. Effects of selected polycyclic aromatic hydrocarbons on testosterone production in goldfish and rainbow trout. M.Sc. Thesis. Department of Zoology, University of Guelph. 78 pp.
- Lister, A. 2001. Regulation of testosterone production by cytokines in the goldfish. M.Sc. Thesis. Department of Zoology, University of Guelph. 79 pp.
- Calp, K. 2002. Regulation of steroidogenesis in the goldfish ovary by activin and transforming growth factor-beta. M.Sc. Thesis. Department of Zoology, University of Guelph. 118 pp. (NSERC Scholar.)
- Wood, A.W. 2002. Apoptosis, Atresia and Ovarian Development: A Piscine Perspective, Ph.D. Thesis. Department of Zoology, University of Guelph. 164 pp. (NSERC, OGS Scholar.)
- Marlatt, V. 2003. Evaluating In vitro methods to assess xenoestrogens in fish, M.Sc. Thesis. Department of Zoology, University of Guelph. 93 pp
- Leaños-Castañeda, O. 2003. Disrupción endócrina mediada por los isómeros del DDT en tilapia (*Oreochromis niloticus*) in vivo. 228 pp. Ph.D thesis University CINVESTAVA, Unidad, Merida. (Co-supervisor Dr. Gerardo Gold-Bouchet)
- Oakes. K. D. 2004. Oxidative stress and bioindicators of reproductive function in fish exposed to pulp and paper mill effluents. Ph.D. Thesis. Department of Zoology, University of Guelph. 290 pp. (NSERC, OGS Scholar.) 290 pp. (NSERC, OGS Scholar.)
- Alsop, D.A. 2005. Retinoid biology and toxicology in fish and frogs. Department of Integrative Biology, University of Guelph. Ph.D thesis. Department of Integrative Biology, University of Guelph. 225 pp. (NSERC, OGS Scholar.)
- Regan. C.M. 2005. Regulation and expression of androgen receptor mRNA in rainbow trout at different stages of spermatogenesis. M.Sc. Thesis .Department of Integrative Biology, University of Guelph 103 pp.
- Eykelbosh, A. J. 2006. The regulation of apoptosis in serum-starved zebrafish follicles: involvement of signal transduction pathways, survival factors and cathepsin B. M.Sc. thesis, Department of Integrative Biology, University of Guelph. 98 pp.

- Ings, J.M. 2006. Steroidogenesis in the zebrafish ovary: Basic physiology and application to endocrine disruption. M.Sc. thesis. Department of Integrative Biology, University of Guelph 104 pp. (NSERC Scholar).
- Simpson, C. 2008. Importance of retinoic acid and retinoid receptors in zebrafish (*Danio rerio*) ovarian function. M.Sc. Thesis. Department of Integrative Biology, University of Guelph. 116 pp.
- Lister, A. 2009. Prostaglandins in the zebrafish ovary: role, regulation and modulation by environmental pharmaceuticals. Ph.D. thesis. Department of Integrative Biology, University of Guelph. 229pp (NSERC Scholar)
- Nelson, S. N. 2009. The regulation and role of the insulin-like growth factor system in zebrafish (*Danio rerio*) ovarian development. M.Sc. thesis. Department of Integrative Biology, University of Guelph. 93 pp. (NSERC Scholar).
- Fuzzen, M. 2010. Regulation of the endocrine stress response and the modulating effects of sex steroids in zebrafish (*Danio rerio*). M.Sc. thesis. Department of Integrative Biology, University of Guelph. 92pp.
- Irwin, D.A. 2011. The regulation and function of the ovarian derived-insulin like growth factor system in zebrafish. M.Sc. thesis. Department of Integrative Biology, University of Guelph 70 pp.
- Melnyk, N.C. 2011. Regulation of prostaglandin synthesis in the zebrafish ovary. M.Sc. thesis. Department of Integrative Biology, University of Guelph 82 pp.
- Kavanagh, R. 2013. Effects of oil sands process affected waters and their associated constituents on fathead minnow (*Pimephales promelas*) reproductive physiology. Ph.D. thesis. Department of integrative Biology. 158 pp. (NSERC Scholar)
- Knight, O. 2014. Characterizing the role of eicosanoids in maturation-Inducing steroid-mediated ovulation and spawning in the zebrafish (*Danio rerio*). M.Sc. thesis. University of Guelph 75 pp. (Ontario Graduate Fellowship)
- Cosme, M. 2014. Inhibition of spawning in zebrafish (*Danio rerio*): adverse outcome pathways of quinacrine and ethinylestradiol. M.Sc. thesis. Department of Integrative Biology. University of Guelph. 96 pp.
- Schilling, C. 2015. Mechanisms of reproductive inhibition in zebrafish exposed in zebrafish (*Danio rerio*) exposed to ethinylestradiol, nitrate and ammonia. M.Sc. thesis. University of Guelph. 89 pp.
- McDermid, C. 2016. Progesterone as an endocrine disrupting chemical (EDC): Reproductive effects of waterborne progesterone on female zebrafish (*Danio rerio*). M.Sc. thesis. Department of Integrative Biology. 82 pp.
- Partch, T. 2017. Characterization of the ovarian corticotropin-releasing factor system and its anti-steroidogenic effects in zebrafish. M.Sc. thesis. Department of Integrative Biology. 82 pp.

- Sritharan, A. 2017. Peroxisome proliferator-activated receptors (PPARs), phthalates and reproduction in the female zebrafish (*Danio rerio*). M.Sc. thesis. Department of Integrative Biology. 81 pp.
- Hunter H. 2018. Tumor Necrosis Factor α and Ovulation in the Zebrafish (*Danio rerio*). Tumor Necrosis Factor α and Ovulation in the Zebrafish (*Danio rerio*). M.Sc. thesis. Department of Integrative Biology. 105 pp.
- Baker, S.J.C. 2021. The role and regulation of prostaglandins and their receptors in ovulation in the zebrafish, 1 *Danio rerio*. *PhD. Thesis Department of Integrative Biology*. 198 pp.
- Badlani, Y. 2021. Characterization of miRNAs in full grown follicles in the zebrafish ovary. M.Sc. thesis. Department of Integrative Biology. 101 pp.
- Sing-Judge, C. 2022. Effects of 17 α -ethinylestradiol (EE2) 2 on gonadal development and gene expression in larval mummichog. (*Fundulus heteroclitus*). MSc thesis. Department of Biology. Wilfrid Laurier University 126 pp. (co-advised with D. MacLatchy).

Postdoctoral Fellows (> 3 months duration)

- Dr. D. MacLatchy (July 93 - August 94)
 Dr. J. Meadus (May 94 - September 94) (jointly with E.J. Squires)
 Dr. Z. Yao (November 94 - December 95)
 Dr. C. Brumley (October 95 - September 96)
 Dr. D. Janz (Oct 95 - August 97)
 Dr. L. Tremblay (Feb 98-August 98)
 Dr. A. Hobby (October 00-Feb. 02)
 Dr. O. Leanos (September 2003-August 2004)
 Dr .P. Mohensi (Feb 2012-April 2012; May 2013-present)

Visiting Scientists

Carlos Soares, Univ Santa Catharina Brazil, July 2012-August 2013.

Research Advisory Boards

U.S. Environmental Protection Agency: Science Advisory Board, Ecological Processes and Effects Committee for EPA's Aquatic Life Water Quality Criteria. June 30-July 1, 2008
 Washington DC.

Recent Research Funding

Names of Investigators	Agency, Program, Project Title	Total Amount	Years of tenure
Van Der Kraak	Ontario Ministry of Env, Cons and Parks. Ammonia and estrogen effects on fish reproduction	\$111,250	2021-2023

Van Der Kraak and Hanner	Syngenta Crop Protection	\$96,000 US	2021-2023
Van Der Kraak	NSERC, DG. Multifactorial regulation of Ovarian function	\$165,000	2020-2025
Van Der Kraak et al.	NSERC RTI High Throughput Real-Time PCR (qPCR)	\$146,175	2020-2021
Servos and Van Der Kraak	NSERC CRD Assessing the Impact of Wastewater Treatment Plant Upgrades	\$70,500 Guelph portion	2019-2021
MacLatchy and Van Der Kraak	NSERC CRD Pulp mill effects on the mummichog	\$38,000 Guelph portion	2019-2021
Van Der Kraak	Ministry of the Environment and Climate Change	\$35,000	2017-2018
Van Raay et al.	NSERC RTI: Zebrafish holding facility	\$149,300	2017-2018
Gillis et al	NSERC RTI: Digital droplet PCR	\$140,157	2016-2017
Sores, Mena Silva and Van Der Kraak	CnPQ Brazil , Env Toxicology of pulp mill effluents; Visiting Professor University of Santa Catarina	\$450,000 CAN	2014-2017
Servos et al	NSERC Strategic Grant, Recovery of fish populations exposed to municipal wastes	\$77,000 Guelph portion	2014-2017
Van Der Kraak	NSERC DG: Multifactorial regulation of ovarian function in fish	\$245,000	2015-2020
Newman et al.	NSERC RTI: Solid phase extraction system	\$81,835	2015-2016
McBean and Van Der Kraak	Royal Bank of Canada, Aboriginal water resource management at Guelph	\$1,000,000	2013-2018
Nakla et al.	NSERC CREATE, Water	\$26,000	2013-2016
Van Der Kraak	Fed Dev South Ont, Southern Ontario Water Consortium Personnel	\$57,000	2012-2014
Wright et al.	NSERC RTI, Respirometry equipment	\$81,292	2013-2014
Van Der Kraak	Syngenta Crop Protection, Atrazine and stress	\$46,690	2012-2013
MacLatchy et al	Environment Canada, Impacts of Pulp mills	\$19,145	2012-2013
Barker et al.	Fed Dev South Ont, Southern Ontario Water Consortium (ecotox and analytical)	\$675,391 Guelph portion	2012-2014
Servos et al.	Canadian Water Network: emerging contaminants	\$50,000	2012-2014
Van Der Kraak	NSERC Discovery: Multifactorial regulation of gonadal function in fish	\$250,000	2010-15
Heyland et al.	NSERC RTI: Gamma counter	\$63,000	2011-12

Bernier et al.	NSERC RTI: Laser illumination and capture	\$69,258	2011-12
Metcalfe et al.	Canadian Water Network: emerging contaminants	\$75,000 Guelph portion	2010- 2012
Van Der Kraak	Canadian Water Network: oil sands wastes	\$25,000 Guelph portion	2009- 2011
Parker et al.	Canadian Water Network: Wastewater effluents	\$30,000 (Guelph portion)	2010- 2012

Awards

F.E.J. Fry Medal: 2014. Canadian Society of Zoologists. Given to a Canadian Zoologist who has made an outstanding contribution to knowledge and understanding of an area in Zoology.

Sigma Xi – Guelph Chapter, Award for Excellence in Research, 2002
NSERC University Research Fellow, July 1987 - July 1997

Event Administration (last 7 years)

Council Member, North American Society for Comparative Endocrinology (meetings in Ann Arbor 2011, Queretaro, Mexico 2013, Ottawa 2015), Conference, 2010-07-01 -2015-06-30

Steering Committee, Focused topic meeting on endocrine disrupting chemicals, Conference, 2013-01-01 -2015-01-01

Member Organizing Committee, Lessons Learned, Challenges and Opportunities: The US Endocrine Disruptor Screening Program, Conference, 2012-06-01 -2013-05-01

Member Organizing Committee, 7th International Symposium on Fish Endocrinology, Conference, 2011-07-01 -2012-09-15

Member Organizing Committee, Pollutant Responses in Marine Organisms, Conference, 2010-05-22 -2011-05-31

Member Organizing Committee, Aquatic Toxicity Workshop, Conference, 2009-08-01 - 2010-10-30

Member Organizing Committee, 6th International Symposium on Fish Endocrinology, Conference, 2007-01-01 -2008-07-31

Editorial Activities

Associate Editor, Comparative Biochemistry and Physiology, Journal 2002/1 - ongoing
Associate Editor, General and Comparative Endocrinology, Journal 2001/1 – ongoing
Associate editor, Journal of Experimental Zoology, Journal 2017/1 -ongoing

Associate Editor, Environmental Toxicology, Journal 1999/1 - 2015/6
Associate Editor, Journal of Experimental Zoology, Journal 1998/1 - 2015/6
Associate Editor, Environmental Toxicology and Chemistry, 2007/1 - 2010/3
Editorial Board-Fish Physiology and Biochemistry-2022

Organizational Review Activities

Reviewer, University of Goteborg (Gothenburg) Review of academic programs in the faculty of science. 2010-02-01 - 2010-12-31

Committee Memberships

Committee Member, Committee on animal alternative needs in environmental risk assessment, Health and Environmental Sciences Institute 2010/1 - ongoing

Committee Member, Management Committee, Southern Ontario Water Consortium 2011/1 - ongoing

Committee Member, Royal Society of Canada Expert Panel on Environmental and Health Impacts of Canada's Oil Sands Industry, Royal Society of Canada 2009/1 - 2011/12

Committee Member, NSERC Discovery Grant Accelerator Program, Natural Sciences and Engineering Research Council of Canada (NSERC) 2009/2 - 2009/6

Committee Member, Science Advisory Panel, National Exposure Research Laboratory - US Environmental Protection Agency 2008/5 - 2008/11

Member Endocrine Methods Validation Advisory Committee, United States Environmental Protection Agency. - Nov -2004- November 2006.

Member US Environmental Protection Agency Peer Review Panel for Impact of Nanotechnology on Human Health and the Environment. Baltimore Maryland, May15-17, 2006

Member US Environmental Protection Agency Peer Review Panel for Exposure Measuring Tools for Endocrine Disrupting Chemicals in Mixtures- July 14-15, 2005

Workshops

Investigation of Cause Workshop- Measuring the effects of treated pulp/paper mill effluents on fish reproduction. May 19-20, 2005 National Water Research Institute Burlington ON.

Molecular Biology and Risk Assessment: Evaluation of the Potential roles of Genomics in Regulatory Toxicology September 18-21, 2005. Pellston MI.

Endocrine Toxicants: Ecological and Population Health Impacts. October 28, 2005. University of Ottawa. Ottawa, ON

Presentations (last 9 years)

1. Van Der Kraak, G., Matsumoto, J. Schilling, C. and Servos, M. (2019). Short term tests utilizing the zebrafish to assess the impacts of municipal wastewater effluents. 33rd annual Toxicology Symposium. March 9, 2019, Guelph]
Main Audience: Researcher
Invited: Yes, Keynote: Yes

2. Van Der Kraak, G. (2018). Ovulation in the Zebrafish: From Fundamental to Applied Studies. Symposium Reproduction in exotic and wildlife species. Réseau Québécois en Reproduction, November 12, 2018. Montreal.
Main Audience: Researcher
Invited: Yes, Keynote: Yes

3. Van Der Kraak, G. 2017. Defining the endocrine targets that mediate the environmental regulation of reproduction. 18th International Congress on Comparative Endocrinology Lake Louise. June 4-9, 2017.
Main Audience: Researcher
Invited: Yes, Keynote: No

4. Hunter H and Van Der Kraak G. 2017. The role of the immune system during ovulation in the zebrafish *Danio rerio*. 18th International Congress on Comparative Endocrinology Lake Louise. June 4-9, 2017.
Main Audience: Researcher
Invited: No, Keynote: No

5. Sritharan A and Van Der Kraak G 2017. Peroxisomal proliferator-activated receptors (PPARs), Phthalates and reproduction in zebrafish. 18th International Congress on Comparative Endocrinology Lake Louise. June 4-9, 2017.
Main Audience: Researcher
Invited: No, Keynote: No

6. Arens, C., J. Arens, N. Hogan, R. Kavanagh, F. Berrue, G. Van Der Kraak, M. van den Heuvel. Population impacts in White Sucker (*Catostomus commersonii*) exposed to oil sands-derived contaminants in the Athabasca River. Canadian Ecotoxicology Workshop. Sept 25-28, 2016 Edmonton AB.
Main Audience: Researcher
Invited: No, Keynote: No

7. MacLatchy, D., T. Kovacs, P. Martel, M. McMaster, B. Connor, J. Parrott, M. van den Heuvel, G. Van Der Kraak, M. Hewitt, 2016. Investigation of cause: A multi-cycle review of contributions to pulp & paper EEM. Canadian Ecotoxicology Workshop. Sept 25-28, 2016 Edmonton AB.
Main Audience: Researcher
Invited: Yes, Keynote: No

8. Van Der Kraak, G., D.A. Irwin, J. Matsumoto, C. McDermid and O. Knight. Regulation of the ovarian IGF system in the zebrafish ovary. 8th International Symposium on Fish endocrinology. Gothenburg, Sweden June 28-July 2, 2016.
Main Audience: Researcher
Invited: Yes, Keynote: No

9. Partch, T, G. Van Der Kraak and N.J. Bernier. The corticotropin-releasing factor system has anti-estrogenic actions in the zebrafish ovary. 8th International Symposium on Fish endocrinology. Gothenburg, Sweden June 28-July 2, 2016.
Main Audience: Researcher
Invited: No, Keynote: No

10. Van Der Kraak, G., J. Matsumoto, C. Schilling and M. Servos. 2016. Reliance on whole animal tests to detect the reproductive effects of municipal wastewater effluents. Society of Environmental Toxicology and Chemistry Nov 6-10, 2016. Orlando.
Main Audience: Researcher
Invited: No, Keynote: No
11. Van Der Kraak, G. (2016). Basic and applied studies of ovulation in Fish. York University. Feb 22, 2016 Toronto.
Main Audience: Researcher
Invited: Yes, Keynote: No
12. Van Der Kraak, G., P. Mohseni, N. Hahn, R. Frank, M. Hewitt and M. Hajababaei (2015). Naphthenic acid mixtures accelerate differentiation of mouse embryonic stem cells and promotes cardiac development. Society of Environmental Toxicology and Chemistry. Nov1-5, 2015. Salt Lake City.
Main Audience: Researcher
Invited: Yes, Keynote: No
13. Van Der Kraak, G., and A. Lister (2015). The fidelity of adverse outcome pathways: a case study with bisphenol A. Society of Environmental Toxicology and Chemistry. Nov1-5, 2015. Salt Lake City.
Main Audience: Researcher
Invited: Yes, Keynote: No
14. Van Der Kraak, G. (2015). The ovarian IGF system. Department seminar, Department of Biological Sciences, University of Alberta, Edmonton, Canada
Main Audience: Researcher
Invited: Yes, Keynote: No
15. Courtney McDermid and Glen Van Der Kraak. (2015). Comparing rapid screening bioassays to assess the impacts of progestins on reproduction in the zebrafish. North American Society for Comparative Endocrinology, Ottawa, Canada
Main Audience: Researcher
Invited: No, Keynote: No
16. Trevor Partch, Nicholas Bernier and Glen Van Der Kraak. (2015). Demonstration of an Ovarian Corticotropin-Releasing Factor System in the Zebrafish, *Danio rerio*. North American Society of Comparative Endocrinology, Ottawa, Canada
Main Audience: Researcher
Invited?: No, Keynote?: No
17. Van Der Kraak, G. (2015). Gorbman Bern Lecture: The multiple regulatory networks controlling ovulation in teleosts. Ottawa, June 21-15, 2015. North American Society for Comparative Endocrinology, Ottawa, Canada
Main Audience: Researcher
Invited: Yes, Keynote: Yes
18. Van Der Kraak, G. (2015). Autocrine and paracrine control of ovarian function in fish. Seminar Department of Biochemistry, Universidade Federal de Santa Catarina,, Florianopolis, Brazil
Main Audience: Researcher
Invited: Yes, Keynote: No
19. Van Der Kraak, G. (2015). The regulation and function of ovarian-derived insulin-like growth factors in zebrafish (*Danio rerio*). Seminar Department of Biology, McMaster University, Hamilton, Canada
Main Audience: Researcher
Invited: Yes, Keynote: No

20. Van Der Kraak, G. Endocrine Disrupting Chemicals. UN Strategic Approach to International Chemicals Management. Geneva Switzerland December 12, 2015.
Main Audience: Policy Makers
Invited: Yes, Keynote: No
21. Van Der Kraak G. (2014). Critical comments on the WHO-UNEP state of the science report on endocrine disruptors. 5th International Fresenius Conference, Cologne, Germany
Main Audience: Researcher
Invited: Yes, Keynote: Yes
22. Van Der Kraak G, Cosme M, Lister A. (2014). Identification of the pathways that mediate the actions of environmental pharmaceuticals on spawning success in the zebrafish. Aquatic toxicity workshop, Ottawa, Canada
Main Audience: Researcher
Invited: Yes, Keynote: No
23. Schilling C, MacLatchy D, Van Der Kraak G. (2014). Mechanisms of reproductive inhibition in zebrafish exposed to EE2 and NH3.. Aquatic toxicity workshop, Ottawa, Canada
Main Audience: Researcher
Invited: No, Keynote: No
24. Van Der Kraak G. (2014). The sex lives of fish: Science Policy and beyond. CSEE CSZ SCL meeting Montreal, Montreal, Canada
Main Audience: Researcher
Invited: Yes, Keynote: Yes
25. Schilling C, Van Der Kraak G, MacLatchy D,. (2014). Mechanisms of reproductive inhibition in zebrafish exposed to EE2 and NH3. CSEE CSZ SCL meeting Montreal, Montreal, Canada
Main Audience: Researcher
Invited: No, Keynote: No
26. Van Der Kraak G, (2014). Endocrine disruptors: Update on the 2012 WHO/UNEP report. Crop Life of Canada Spring Dialog Days, Ottawa, Canada
Main Audience: Decision Maker
Invited: Yes, Keynote: Yes
27. Van Der Kraak, G. (2014). Science and policy of endocrine disruptors. Laurentian SETAC, Guelph, Canada
Main Audience: Researcher
Invited: Yes, Keynote: Yes
28. Van Der Kraak G. (2014). Science and policy of endocrine disruptors: Sitting at the crossroads. SETAC Focused Topic Meeting on Endocrine Disrupting Chemical Testing and Risk Assessment Approaches and Implications. Raleigh, United States
Main Audience: Researcher
Invited: Yes, Keynote: Yes
29. Metcalfe C, Gillis P, Gagne F, Van Der Kraak G, Jasinska E, Goss G, Moon T, Servos M,. (2013). Biomarkers of exposure of fish and mussels to contaminants of emerging concern downstream of wastewater treatment plants. Society of Environmental Toxicology and Chemistry Annual Conference, Nashville, United States
Main Audience: Researcher
Invited: No, Keynote: No
30. Mihaich E, Becker R, Borghoff S, Casey W, Dourson M, Fowle J, Hartong T, Holsapple M, Jones B, Juberg D, Kroner O, Lamb J, Marty S, Rinkle L, Van Der Kraak G, Wade M, Willett c,. (2013).

Workshop on the learned, challenges and opportunities: The endocrine disruptor screening program.
Society of Environmental Toxicology and Chemistry Annual Conference, Nashville, United States

Main Audience: Researcher

Invited: No, Keynote: No

31. Van Der Kraak G, K. R. Solomon, M. Hanson, W. Kloas, A. Hosmer,. (2013). A quantitative approach to weight of evidence in eco-toxicological risk assesemnt. Society of Environmental Toxicology and Chemistry Annual Conference, Nashville, United States

Main Audience: Researcher

Invited: Yes, Keynote: No

32. Van Der Kraak G, Knight O,. (2013). The role of eicosanoids in steroid-induced ovulation and spawning in the zebrafish. The First Zebrafish for Personalized and Precision Medicine Conference, Toronto, Canada

Main Audience: Researcher

Invited: No, Keynote: No

33. Van Der Kraak G, Irwin D, Anderson H,. (2013). Regulation of ovarian insulin-like growth factor expression in the zebrafish ovary. North American Society for Comparative Endocrinology, Queretaro, Mexico

Main Audience: Researcher

Invited: No. Keynote: No

34. Cosme M, Lister A, Van Der Kraak G, (2013). Disruption of ovarian prostaglandin and steroid biosynthetic pathways and reduced spawning in zebrafish exposed in vivo to Quinacrine. North American Society for Comparative Endocrinology, Queretaro, Mexico

Main Audience: Researcher

Invited: No, Keynote: No

35. Knight O, Van Der Kraak G. (2013). Using a modified bioassay to determine the role of eicosanoids in zebrafish ovulation and spawning. North American Society for Comparative Endocrinology, Queretaro, Mexico

Main Audience: Researcher

Invited: No, Keynote: No

36. Knight O, Van Der Kraak G,. (2013). Sex, eicosanoids, and zebrafish. Canadian Society of Zoologists, Guelph, Canada

Main Audience: Researcher

Invited?: No, Keynote?: No

37. Cosme M, Lister A, Van Der Kraak G. (2013). Quinocrine exposure: Negative impacts on spawning and biosynthesis of prostaglandins and steroids in the zebrafish ovary. Canadian Society of Zoologists, Guelph, Canada

Main Audience: Researcher

Invited: No, Keynote: No

38. Schilling C, Van Der Kraak G, MacLatchy D. (2013). Responses of zebrafish to ethinyl-estradiol administered via slow release microspheres. Canadian Society of Zoologists, Guelph, Canada Main Audience: Researcher

Main Audience: Researcher

Invited: No, Keynote: No

39. Van Der Kraak G,. (2013). Use of Small bodied fish to assess the impacts of emerging contaminants. Canadian Water Network, Toronto, Canada

Main Audience: Researcher

Invited: Yes, Keynote: No

40. Van Der Kraak G, Hansen M, Kloas W, Hosmer A, Solomon K,. (2012). A Methodological Approach to Weight of Evidence in Ecotoxicological Risk Assessment. Society of Environmental Toxicology and Chemistry Annual Meeting, Los Angeles, United States
Main Audience: Researcher
Invited: No, Keynote: No
41. Van Der Kraak G, Melnyk N, Knight O, Irwin D, Lister A,. (2012). Multiple roles of 17 α ,20 β dihydroxy-4-prenene-3- in zebrafish reproduction. 7th International Symposium on Fish Endocrinology, Buenos Aires, Argentina
Main Audience: Researcher
Invited: Yes, Keynote: No
42. Van Der Kraak G, Lister A,. (2012). Interactions of temperature and endocrine disruptors on reproductive fitness. Symposium Impact of climate change on fish endocrine systems. 7th International Symposium on Fish Endocrinology, Buenos Aires, Argentina
Main Audience: Researcher
Invited: Yes, Keynote: Yes
43. Van Der Kraak G, Irwin D, Melnyk N, Lister A,. (2012). Insulin-Like Growth Factor 3 Regulates Ovarian Function in the Zebrafish. 10th International Congress on the Biology of Fish, Madison, United States
Main Audience: Researcher
Invited: No, Keynote: No
44. Knight O, Van Der Kraak G,. (2012). Steroidal regulation of ovulation via activation of the arachidonic acid pathway in zebrafish. 10th International Congress on the Biology of Fish, Madison, United States
Main Audience: Researcher
Invited: No, Keynote: No
45. Van Der Kraak G. (2012). Update RSC Report – Environmental and Health Impacts of Canada's Oil Sands. Oil sands water research forum, Calgary, Canada
Main Audience: Researcher
Invited: Yes, Keynote: No
46. Van Der Kraak G. (2012). Endocrine disruption in amphibians. Cornell University, Department of Veterinary Physiology, Seminar Series, Ithaca, United States
Main Audience: Researcher
Invited: Yes, Keynote: No
47. Van Der Kraak G,. (2012). Herbicides and reproductive fitness in frogs. Environment Canada Seminar Series, Burlington, Canada
Main Audience: Researcher
Invited: Yes, Keynote: No
48. Van Der Kraak G,. (2012). Endocrinology applications in the wildlife. University of Ontario Institute of Technology, Department of Biology Seminar Series, Oshawa, Canada
Main Audience: Researcher
Invited: Yes, Keynote: No
49. Arens C, Hogan N, Van Der Kraak G,. (2011). Evaluating sub-lethal effects of oil sands process-affected waters on the white sucker. Society of Environmental Toxicology and Chemistry Annual Conference, Boston, United States
Main Audience: Researcher
Invited: No, Keynote: No

50. van den Heuvel M, Hogan N, Roloson S, Van Der Kraak G. (2011). A comparison of reproductive performance of yellow perch held in experimental ponds containing oil sands affected waters over a 13- year period. Society of Environmental Toxicology and Chemistry Annual Conference, Boston, United States
Main Audience: Researcher
Invited: No, Keynote: No
51. Van Der Kraak G, Matsumoto J, Alkema K, Parker W,. (2011). Impacts of sewage effluent and ammonia on reproduction in zebrafish. Society of Environmental toxicology and Chemistry Annual Meeting, Boston, United States
Main Audience: Researcher
Invited: No, Keynote: No
52. Van Der Kraak G. (2011). Environmental endocrinology: Applications to understanding the fitness of wildlife. International Society for Wildlife Endocrinology, Toronto, Canada
Main Audience: Researcher
Invited: Yes, Keynote: Yes
53. Irwin D, Van Der Kraak G. (2011). Regulation of the novel Insulin-like growth factor III Ligand in the ovary of zebrafish. North American Society of Comparative Endocrinology, Ann Arbor, United States
Main Audience: Researcher
Invited No, Keynote: No
54. Melnyk N, Lister A, Van Der Kraak G. (2011). Regulation of ovarian prostaglandin synthesis in the zebrafish: actions of 17α , 20β -dihydroxy-4-pregnen-3-one and insulin-like growth factor-1. North American Society of Comparative Endocrinology, Ann Arbor, United States
Main Audience: Researcher
Invited: No, Keynote: No
55. Knight O, Matsumoto J, Van Der Kraak G. (2011). Characterizing aquaporin 1b expression during ovarian follicular development in the zebrafish *Danio rerio*. North American Society of Comparative Endocrinology, Ann Arbor, United States
Main Audience: Researcher
Invited: No, Keynote: No
56. Van Der Kraak G, Matsumoto J. (2011). Reproductive effects of treated sewage effluents in zebrafish. Centre for Control of Emerging Contaminants Annual Conference, Waterloo, Canada
Main Audience: Researcher
Invited: No, Keynote: No
57. Irwin D, Van Der Kraak G,. (2011). The regulation of insulin-like growth factor 3 in the ovary of zebrafish. Canadian Society of Zoologists, Ottawa, Canada
Main Audience: Researcher
Invited: No, Keynote: No
58. Melnyk N, Lister A, Van Der Kraak G,. (2011). Regulation of ovarian prostaglandin synthesis in the zebrafish: Actions of gonadotropin, $17\text{-}\alpha$, $20\text{-}\beta$ -dihydroxy-4-pregnen-3-one and insulin-like growth factor. Canadian Society of Zoologists, Ottawa, Canada
Main Audience: Researcher
Invited: No, Keynote: No
59. Van Der Kraak G, Alkema K, Matsumoto J. (2011). Investigating the interactive effects of ammonia and sewage effluent on reproduction in the zebrafish. Pollution Responses in Marine Organisms, Los Angeles, United States
Main Audience: Researcher
Invited: No, Keynote: No

60. Van Der Kraak G, (2011). Impacts of Oil sands Operations. Royal Canada Institute Annual Symposium Dinner, Toronto, Canada
Main Audience: Researcher
Invited: Yes, Keynote: No
61. Van Der Kraak G. (2011). The Royal Society of Canada Oil sands report: Water Quantity and Quality Issues. Canadian Water Network Oil Sands Research Meeting, Waterloo, Canada
Main Audience: Researcher
Invited: No, Keynote: No
62. Van Der Kraak G. (2010). Endocrine disrupting compounds in effluents. Water Working Group, Environment Canada, Ottawa, Canada
Main Audience: Researcher
Invited: Yes, Keynote: No
63. Fuzzen M, Van Der Kraak G, Bernier N., (2010). Stirring up new ideas about the regulation of the HPlaxis in zebrafish (*Danio rerio*). Canadian Society of Zoologists, Vancouver, Canada
Main Audience: Researcher
Invited: No, Keynote: No
64. Van Der Kraak G, Alkema K, Lister A, Van Wyngaarden M., (2010). Ammonia, Oxygen and the reproductive toxicity of sewage effluent in the zebrafish. Aquatic Toxicity Workshop, Toronto, Canada
Main Audience: Researcher
Invited: No, Keynote: No
63. Van Der Kraak G, Lister A, Alkema K, Melnyk N, Nelson S., (2010). Endocrine Control of Oocyte Maturation and Ovulation in the zebrafish. 9yh International Fish Biology Congress, Barcelona, Spain
Main Audience: Researcher
Invited: Yes, Keynote: No
65. Van Der Kraak G, Matsumoto J. (2009). Survival, growth and iono-regulatory performance in Atlantic salmon smolts was not affected by atrazine exposure. Society of Environmental Toxicology and Chemistry, New Orleans, United States
Main Audience: Researcher
Invited: No, Keynote: No
67. Hewitt M, Kovacs T, MacLatchy D, McMaster M, Parrott J, van den Heuvel M, Van Der Kraak G., (2009). Development of appropriate tests for investigating the causes and solutions of pulp and paper mill effluents on fish reproduction. Society of Environmental Toxicology and Chemistry, New Orleans, United States
Main Audience: Researcher
Invited: No, Keynote: No
68. Van Der Kraak G, Lister A, Ings J, Simpson C, Matsumoto J. (2009). Development of Short Term Reproductive Bioassays Using Spawning Zebrafish. Pulp and Paper Mill Effluent Fate and Effects Conference, Fredericton, Canada
Main Audience: Researcher
Invited: Yes, Keynote: No
69. Van Der Kraak G, Kavanaugh R. (2009). Impaired reproduction of fathead minnow in oil sands process affected waters. Canadian Water Network Oil Sands Research meeting, Waterloo, Canada
Main Audience: Researcher
Invited: No, Keynote: No

70. Kavanagh R, Solomon K, Van Der Kraak G, Frank R, Farwell A, Dixon G, MacKinnon M, Burnison K, Headley ,. (2008). Oil sands constituents and their effects on the reproductive physiology of fathead minnows (*Pimephales promelas*). Society of Environmental Toxicology and Chemistry, Tampa, United States

Main Audience: Researcher

Invited: No, Keynote: No

71. Van Der Kraak G, Lister A, Regan C, van Zwol J. (2008). Sewage Effluent and Environmentally Relevant Drugs Impair Reproduction in Zebrafish. Society of Environmental Toxicology and Chemistry Annual Meeting, Tampa, United States

Main Audience: Researcher

Invited: No, Keynote No

72. Van Der Kraak G, Lister A. (2008). The Role of Prostaglandins in Ovulation of Zebrafish. 6th International Symposium on Fish Endocrinology, Calgary, Canada

Main Audience: Researcher

Invited: Yes, Keynote: No

73. Simpson C, Van Der Kraak G, (2008). Investigation of the effects of retinoic acid on zebrafish (*Danio rerio*) ovarian function. 6th International Symposium of Fish Endocrinology, Calgary, Canada

Main Audience: Researcher

Invited: No, Keynote: No

Workshops

1. Effects of Pharmaceuticals and personal care products in the environment. What are the big questions? Niagara on the Lake Ontario, April 10-12, 2011.

Main Audience: Researcher

Invited: Yes; Keynote: No

Papers published in journals H Index=82

268. Abdollahpour, H., G. Van Der Kraak and B. Falahatkar. 2022. Effect of water temperature and food availability on growth performance, sex ratio and gonadal development in juvenile convict cichlid (*Amatitlania nigrofasciata*). *Journal of Thermal Biology* (in press).

267. Batista-Silva, H., Dambrós, B.F, de Moura, K.R., Elie, N. Delalande, C., Glen Van Der Kraak, G., F. R.M. B. Silva. 2022. Calcium influx and spermatogenesis in the testis and liver enzyme activities in the zebrafish are rapidly modulated by the calcium content of the water. *Comparative Biochemistry and Physiology, Part A* in press

266. Batista-Silva, H., K. Rodrigues, K. R. Sousa de Moura, N. Elie, G. Van Der Kraak, C. Delanande, F. R.M. B. Silva. 2022. In vivo and in vitro short-term bisphenol A exposures disrupt testicular energy metabolism and negatively impact spermatogenesis in zebrafish. *Reproductive Toxicology*. 107:10-21.

265. Marlatt VL, S. Bayen, D. Castaneda-Cortès, G. Delbès, P. Grigorova, V.S. Langlois, C.J. Martyniuk , C.D. Metcalfe, L. Parent, A. Rwigemera, P. Thomson, and G. Van Der Kraak. 2022. Impacts of endocrine disrupting chemicals on reproduction in wildlife and humans. *Environmental Research* Volume 208, 15 May 2022, 112584

264. Abdollahpour, H., G. Van Der Kraak and B. Falahatkar. 2021. The effects of long-term thyroxine administration on hematological, biochemical and immunological features in sterlet sturgeon (*Acipenser ruthenus*). *Aquaculture* 544: 737065.

263. Baker S.J.C, E. Corrigan, N. Melnyk, R. Hilker and G. Van Der Kraak. 2021. Nuclear progesterone receptor regulates ptger4b and PLA2G4A expression in zebrafish (*Danio rerio*) ovulation. *General and Comparative Endocrinology* 311:113842. doi: 10.1016/j.ygcen.2021.113842.
262. Baker, S.J.C. and G. Van Der Kraak. ADAMTS1 is regulated by the EP4 receptor in the zebrafish ovary. *General and Comparative Endocrinology* 311:113835. doi: 10.1016/j.ygcen.2021.113835.
261. Delbes, G., Blazquez, M.M., J. Fernandino, P. Grigorova, B. F. Hales, C. Metcalfe; L. Navarro-Martin, L. Parent, B. Robaire, A. Rwigemera. G. Van Der Kraak, M. Wade, and V. L. Marlatt. 2022. Effects of endocrine disrupting chemicals on gonad development: mechanistic insights from fish and mammals. *Environmental Research* 204 Part B: 112040.
260. De Oliveira, V., A.J.G. Castro, P. A. Cesconetto, A. Zamoner, J. J. Bernardes, A. Res De Oliviera Nuner, C. H. Soares, G. Van Der Kraak and F.R.M.B. Silva. 2021. Triterpene betulin may be involved in the acute effects of pulp and paper mill effluent on testis physiology in zebrafish. *Toxicology In Vitro* 73:105147. doi: 10.1016/j.tiv.2021.105147.
259. De Oliveira, V., A. J. G. Castro, K. Marins, A. K. Bittencourt Mendes, G. Leite, A. Zamoner, G. Van Der Kraak and F.R.M.B. Silva. 2021. Pyriproxyfen induces intracellular calcium overload and alters antioxidant defenses in *Danio rerio* testis that may influence ongoing spermatogenesis. *Environmental Pollution*. 270:116055.
258. Smith PN, Armbrust KL, Chen W, Brain RA, Galic N, Ghebremichael L, Giddings JM, Hanson ML, Maul JD, Van Der Kraak G, Solomon KR. 2021. Assessment of risks to listed species from the use of atrazine in the USA: A perspective. *Journal of Toxicology and Environmental Health B J Toxicol Environ Health B Critical Reviews* 24: 223-306. doi: 10.1080/10937404.2021.1902890.
257. Batista-Silva, H., B. F. Dambrós, K. Rodrigues, P. A. Cesconetta, A. Zamoner, K. R. Sousa de Moura, A. J. G. Castro*, G. Van Der Kraak and F. R.M. Silva. 2020. Acute exposure to bis(2-ethylhexyl) phthalate disrupts calcium homeostasis, energy metabolism and induces oxidative stress in the testis of *Danio rerio*. *Biochimie* 175: 23-33.
256. Batista-Silva, H., K. Rodrigues, K. R.S. De Moura, G. Van Der Kraak, C. Delalande,-Lecapitaine and F.R.M.B. Silva. 2020. Role of bisphenol A on calcium influx and its potential toxicity on the testis of *Danio rerio*. *Ecotoxicology and Environmental Safety*. 202: 110876.
255. De Oliveira, V.S., A. J. G. Castro, F. R. Silva, J. T. Domingues, A. Z De Souza, D. L. Scheffer, A. Latini, C H. L. Soares, G. Van Der Kraak and F.R.M.B. Silva. 2020. A Brazilian pulp mill effluent disrupts energy metabolism in immature rat testis and alter Sertoli cell secretion and mitochondrial activity. *Animal Reproduction* 17(2):e20190116
254. Rodrigues, K., H. Batista-Silva, K. R. S. De Moura, G. Van Der Kraak, and F.R.M.B. Silva. 2020. Dibutyl phthalate rapidly alters calcium homeostasis in the gills of *Danio rerio* *Chemosphere* 258:127408.
253. Abdollahpour, H., B. Falahatkar, I. Efatpanah, B. Meknatkhah, Glen Van Der Kraak. 2019. Hormonal and physiological changes in Sterlet sturgeon *Acipenser ruthenus* treated with thyroxine. *Aquaculture* 507: 293-300.
252. Baker, S. J.C and G. Van Der Kraak. 2019. Investigating the role of prostaglandin receptor isoform EP4b in zebrafish ovulation. *General and Comparative Endocrinology*. 283: 113228.
251. Hanson, M.L., K.R. Solomon, G. Van Der Kraak and R.L. Brain. 2019. Effects of Atrazine on Fish and Amphibians: Update of the Weight of Evidence. *Critical Reviews in Toxicology* 49: 670-709.

250. Masoudi Asil, S., A.A. Kenari, G.R. Mianji, and G. Van Der Kraak. 2019. Estimation of arachidonic acid requirement for improvement of pre-maturation growth, egg and larval quality in the female Blue gourami (*Trichopodus trichopterus*; Pallas, 1770). A model for the anabantid family. *Journal of the World Aquaculture Society*. 50: 359-373.
249. Abdollahpour, B. Falahatkar, I. Efatpanah, B. Meknathah and G. Van Der Kraak. 2018. Influence of thyroxine on spawning performance and larval development of Sterlet sturgeon *Acipenser ruthens*. *Aquaculture* 497: 134-139.
248. Castro, A.J.G., I.E. Baptista, K.R.S. de Moura. F.Padilha, J. Tonietto, A. Z. P. de Souza, A.ZP, C.H.L.Soaes, F.R.M.B. Silva and G. Van Der Kraak G. 2018. Exposure to a Brazilian pulp mill effluent impacts the testis and liver in the zebrafish. *Comp Biochem Physiol C Toxicol Pharmacol*. 206-207:41-47.
247. Marjan, P., G.J. Van Der Kraak, D.L. MacLatchy, M. L.M. Fuzzen, L. M. Bragg, M. E. McMaster, G R. Tetreault, and M.R. Servos. 2018. Assessing recovery of *in vitro* steroid production in male rainbow darter (*Etheostoma caeruleum*) in response to municipal wastewater treatment plant infrastructure changes. *Environmental Toxicology and Chemistry* 37: 501-514.
246. Masoudi Asil, S. M., A.A. Kenari, G.R. Mianji, and G. Van Der Kraak. 2018. Effect of different levels of dietary arachidonic acid on calcium, thyroid hormone, and cortisol levels in vitellogenesis and maturation stages of female blue gourami (*Trichopodus trichopterus*, Pallas, 1770). *Journal Fisheries Science and Technology* 7:109-116
245. Norberg-King, T., M. Embry, S. Belanger, T. Braunbeck, J. Butler, P. Dorn, B. Farr, P. Guiney, S. Hughes, M. Sellin J effries, R. Journal, M. Léonard,, M. McMaster, J. Oris, K. Ryder,, H. Segner, T. Senac, G. Van Der Kraak , G. Whale, P. Wilson, 2018. An International Perspective on the Tools and Concepts for Effluent Toxicity Assessments in the Context of Animal Alternatives. *Environmental Toxicology and Chemistry* 37:2745-2757.
244. Parker,G.H. and G. Van Der Kraak, 2018. Use of metal-rich slag as a source of grit and its effects on pigeon health and fitness, *J. Env. Sci. Pollut. Res.* 4(2) (2018) 256–267.9
243. Arens C., J. Arens, N. Hogan, R. Kavanagh, F. Berru e, G.J.Van Der Kraak, and M. van den Heuve. 2017. Population impacts in White Sucker (*Catostomus commersonii*) exposed to oil sands-derived contaminants in the Athabasca River. *Environmental Toxicology and Chemistry*. 36 :2058-2067.
242. Elmer L.K., C.M. O'Connor, D.P. Philipp, G. Van Der Kraak, K.M. Gilmour, W.G. Willmore, B.L. Barthel, and S.J. Cooke. 2017. Oxidative ecology of paternal care in wild smallmouth bass, *Micropterus dolomieu*. *Journal of Experimental Biology* 220:1905-1914
241. Martel P.H., B. I. O'Connor, T.G. Kovacs, M.R. van den Heuvel, J.L. Parrott, M.E. McMaster, D.L. MacLatchy, G.J. Van Der Kraak and L.M. Hewitt. 2017. The relationship between organic loading and effects on fish reproduction for pulp mill effluents across Canada. *Environmental Science and Technology* 51:3499-3507.
240. Asil, S. M., A.A. Kenari, G.R. Miyanji, G. Van Der Kraak 2017. The influence of dietary arachidonic acid on growth, reproductive performance, and fatty acid composition of ovary, egg and larvae in an anabantid model fish, Blue gourami (*Trichopodus trichopterus*; Pallas, 1770). *Aquaculture* 476: 8-18.
239. Borgert,C.J., R. A. Becker, B. D. Carlton, M. Hanson, P.L. Kwiatkowski, M.S. Marty, L.S. McCarty, T.F. Quill, K. Solomon, G. Van Der Kraak, R. J. Witorsch, and K. D. Yi. 2016. Does GLP enhance the quality of toxicological evidence for regulatory decisions? *Toxicological Sciences* 151: 206-213.
238. Borgert, C. R. Becker, M. Hanson, S. Marty, L.S. McCarty, T. Quill, K. Solomon, G. Van Der Kraak, R. Witorsch. 2016. As we were saying. *Toxicological Sciences* <https://doi.org/10.1093/toxsci/kfw201>

237. Arens, C, N. Hogan, R. Kavanagh, K. Kidd, G. Van Der Kraak and M. van den Heuvel. 2015. Sublethal effects of aged oil sands-affected water on white sucker (*Catostomus commersoni*). *Environmental Toxicology and Chemistry* 34: 589-599.
236. Cosme, M., A. Lister and G. Van Der Kraak. 2015. Inhibition of spawning in zebrafish (*Danio rerio*): Adverse outcome pathways of quinacrine and ethinylestradiol. *General and Comparative Endocrinology* 219:89-101.
235. Jasinska, E.T., G. Goss, P.L. Gillis, G.J. Van Der Kraak, J. Matsumoto, A. A. de Souza Machado, M.M. Giacomini, T. W. Moon, A. Massarsky, F. Gagné, M.R. Servos, J. Wilson, T. Sultana, C. D. Metcalfe. 2015. Assessment of biomarkers for contaminants of emerging concern in aquatic organisms downstream of a municipal wastewater discharge. *Science of the Total Environment* 530-531: 140-153.
234. Knight, O. and G. Van Der Kraak. 2015. The role of eicosanoids in 17 α , 20 β dihydroxy-4-pregnen-3-one-induced ovulation and spawning in *Danio rerio*. *General and Comparative Endocrinology* 213:50-58.
233. Lamb IV J.C., P. Boffetta, W.G. Foster, J. Goodman, K.L. Hentz, L.R. Rhomberg, J. Staveley, G. Swaen, G. Van Der Kraak, A.L. Williams. 2015. Comments on the Opinions Published by Bergman et al. (2015) on Critical Comments on the WHO-UNEP State of the Science of Endocrine Disrupting Chemicals (Lamb et al. 2014) *Regulatory Pharmacology and Toxicology* 73:754-757.
232. Mohseni P., N. Hahn, R.A. Frank, L.M. Hewitt, M. Hajababaei, G. Van Der Kraak. 2015. Naphthenic acid mixtures from oil sands process-affected water enhance differentiation of mouse embryonic stem cells and affect development of the heart. *Environmental Science and Technology* 49: 10165-10172.
231. Poursaeid, S., B. Falahatkar, G. Van Der Kraak. 2015. Short-term effects of cortisol implantation on blood biochemistry and thyroid hormones in previtellogenic great sturgeon *Huso huso*. *Comparative Biochemistry and Physiology Part A: Molecular & Integrative Physiology* 179: 197-203.
230. Van Der Kraak, G., J. Matsumoto, M. Kim and A. J. Hosmer. 2015. Atrazine and its degradates have little effect on the corticosteroid stress response in the zebrafish. *Comparative Biochemistry and Physiology: Part C Pharmacology and Toxicology* 170:1-7.
229. Chambers, J.E., H. Griem, R.J. Kendall, H. Segner, R.M. Sharpe and G. Van Der Kraak. 2014. Human and ecological risk assessment of a crop protection chemical: A case study with the azole fungicide epoxiconazole. *Critical Reviews in Toxicology* 44: 176-210.
228. Juberg D.R., S.J. Borghoff, R.A. Becker, W. Casey, T. Hartung, M.P. Holsapple, M.S. Marty, E.M. Mihaich, G. Van Der Kraak, M.G. Wade, C.E. Willett, M.E. Andersen, C.J. Borgert, K.K. Coady, M.L. Dourson, J.R. Fowle, L.E. Gray, J.C. Lamb, L.S. Ortego, T.T. Schug, C.M. Toole, L.M. Zorrilla, O.L. Kroner, J. Patterson, L.A. Rinckel, B.R. Jones. 2014. t4 workshop report - Lessons learned, challenges, and opportunities: The U.S. Endocrine Disruptor Screening Program. *ALTEX* 31: 63-78.
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