

**BACKGROUND INFORMATION AND  
CONFIDENTIAL CONFLICT OF INTEREST DISCLOSURE**  
*For General Scientific and Technical Studies and Assistance*

NAME: Keith R. Cooper

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CURRENT EMPLOYER: Rutgers University

SAB: \_\_\_\_\_

Standing Committee: \_\_\_\_\_

There are two parts to this form, Part I Background Information, and Part II Confidential Conflict of Interest Disclosure. Complete both parts, **sign and date** this form on the last page, and e-mail the form to [njsab@dep.state.nj.us](mailto:njsab@dep.state.nj.us). **Retain a copy for your records.**

**PART I - BACKGROUND INFORMATION**

Please provide the information requested below regarding relevant organizational affiliations, government service, public statements and positions, research support, and additional information (if any). Information is "relevant" if it is related to — and might reasonably be of interest to others concerning — your knowledge, experience, and personal perspectives regarding the subject matter and issues to be addressed by the committee activity for which this form is being prepared. ~~If some or all of the requested information is contained in your curriculum vitae, you may if you prefer simply attach your CV to this form supplemented by additional responses or comments below as necessary.~~

**I. ORGANIZATIONAL AFFILIATIONS.**

Report your relevant business relationships (as an employee, owner, officer, director, consultant, etc.) and your relevant remunerated or volunteer non-business relationships (e.g., professional organizations, trade associations, public interest or civic groups, etc.).

|      |  |  |
|------|--|--|
| None |  |  |
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**II. GOVERNMENT SERVICE.**

Report your relevant service (full-time or part-time) with federal, state, or local government in the United States (including elected or appointed positions, employment, advisory board memberships, military service, etc.).

I have been a University professor since 1981. I am on the USEPA STARR Grant review committee. I currently serve on the Board for NJ Sea Grant as the Rutgers representative.

**II. RESEARCH SUPPORT.**

Report relevant information regarding both public and private sources of research support (other than your present employer), including sources of funding, equipment, facilities, etc.

Currently I am the Deputy Director of the JGPT which is part of a NIEHS Training Grant. I also have funding through the Center Grant that is funded by NIEHS. I currently have a grant with the NJDEP for work on pharmaceuticals in sewage treatment plants and their biological effects.

**IV. PUBLIC STATEMENTS AND POSITIONS.** List your relevant articles, testimony, speeches, etc., by date, title, and publication (if any) in which they appeared, or provide relevant representative examples if numerous. Provide a brief description of relevant positions of any organizations or groups with which you are closely identified or associated.

I am a member of the Society of Toxicology and the Society for Environmental Toxicology and Chemistry. I have published approximately 100 papers on various topics dealing with environmental issues that range from animal toxicity to human risk assessment.

**Honors**

Sigma Xi, Vice President Hudson/Delaware SETAC Chapter (1988), President and President Elect Hudson/Delaware Society of Environmental Toxicology and Chemistry (SETAC) Chapter (1989-1991), SETAC Academic Committee 1987-1989, Liaison between SETAC and Society of Toxicology (1989-1996), Chairman and member NJ Governors Pesticide Council 1991-2005, Member N.J. Bioterrorism Task Force (2001-2006).

**Papers**

1) Sean M. Bugel, Lori A. White, Keith R. Cooper. 2009. Impaired reproductive health of killifish (*Fundulus heteroclitus*) inhabiting Newark Bay, NJ, a chronically contaminated estuary. *Aquatic Toxicology*. (accepted).

- 2) Domico, L., Yang I., Buckley B., Zeevalk, G.D. and Cooper, K.R. 2009. Measurement of the Mn/Zn-ethylene-bis-dithiocarbamate Mancozeb in biological matrixes and demonstration of uptake by neuronal cells. *Tox. Sci.* (submitted).
- 3) Ming-Wei Chao, John Kozlosky, Iris P. Po, Kathy K. H. Svoboda, Robert Laumbach, Keith Cooper and Marion K. Gordon 2009. Capillary endothelial tubes as an in vitro culture model to study the effects of diesel exhaust particles. *Toxicology*. (submitted).
- 4) Hillegass, J., Villano, C.V., Cooper, K.R., and White, L.A. 2009. The role of matrix metalloproteinase expression in zebrafish (*Danio rerio*) craniofacial development. *Matrix Biology* (submitted).
- 5) Amy DeMicco, Keith R. Cooper, Jason R. Richardson, and Lori A. White. 2009. Developmental Neurotoxicity of Pyrethroid Pesticides in Zebrafish Embryos. *Tox. Sci.* (accepted).
- 6) Keith R. Cooper and Wintermyer M. 2009. A Critical Review: 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) effects on gonad development in bivalve mollusks. *J. Envir. Science and Health Part C*. (accepted).
- 7) McCormick J.M., Haggblom M.M., Cooper, K.R., and White L.A. 2009. The Brominated flame Retardant, Tetrabromobisphenol A (TBPA) and its metabolites, bisphenol A (BPA) and Tetrabromobisphenol A dimethyl ether (TBPA DME), cause chemical specific lesions in the developing zebrafish (*Dania rerio*) embryo. *Tox. Sci.* (submitted).
- 8) Gloria B. Post, Judith B. Louis, Keith R. Cooper, Betty Jane Boros-Russo and Lippincott, R. Lee. 2009. Occurrence and potential significance of perfluorooctanoic acid (PFOA) detected in New Jersey public drinking water systems. *Envir. Sci. Technol.* 43, 4547-4554.
- 9) Gutierrez, M. M., Golden, D. M., Cooper, K.R., Reuhl, K.A., Ledoux, T. A. and Robson, M. G. 2009. Variation in secondary sexual characteristics in male frogs (*Rana catesbeiana* and *R. clamitans melanota*) from New Jersey agricultural fields. *Herpetological Review*. (in press)
- 10) Spitsbergen, J. M., Blazer, Vicki S., Bowser, Paul R., Cheng, Keith C., Cooper, Keith R., Cooper, Timothy K., Frasca Jr., Salvatore, Groman, David B., Harper, Claudia M., Law, Jerry M. (Mac), Marty, Gary D., Smolowitz, Roxanna M., St. Leger, Judy, Wolf, Douglas C., Wolf, Jeffrey C., (2008). Finfish and aquatic invertebrate pathology resources for now and the future. *Comparative Biochemistry and Physiology, Part C* 149 (2009) 249-257 doi: 10.1016/j.cbpc.2008.10.002
- 11) Hillegass, J.M., Villano, C.M., Cooper, K.R. and White, L.A. 2008. Glucocorticoids Alter Craniofacial Development and Increase Expression and Activity of Matrix Metalloproteinases in Developing Zebrafish (*Danio rerio*). *Tox Sci* 102, 413-424.
- 12) Hillegass, J.M., Villano, C.M., Cooper, K.R. and White, L.A. 2007. Matrix metalloproteinase-13 (MMP-13) is required for zebrafish (*Danio rerio*) development and is a target for glucocorticoids. *Tox. Sci.* 100(1), 168-179.
- 13) Domico, L., Cooper, K.R., Bernard, I.P. and Zeevalk, G. 2007. Reactive oxygen species generation by the ethylene-bis-dithiocarbamate (EBDC) fungicide mancozeb and its contribution to neuronal toxicity in mesencephalic cells. *Neurotoxicology*; doi:10.1016/j.neuro.2007.04.008.
- 14) Wintermyer M.L. and Cooper, K.R. 2007. The development of an aquatic bivalve model: Evaluating the toxic effects on gametogenesis following 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) exposure in the eastern oyster (*Crassostrea virginica*). *Aquatic Toxicology*. 81, 10-26.
- 15) Domico, L., Zeevalk, G., Bernard, L., and Cooper, K., 2006. Acute neurotoxic effects of Mancozeb and Maneb in mesencephalic neuronal cultures are associated with mitochondrial dysfunction. *Journal of Neuroscience*. 27, 816-825.
- 16) Patyna, P.J., Brown, R.A., Davi, R.A., Letinski, D.J., Thomas, P.E., Cooper, K.R. and Parkerton, T.F. 2005. Hazard evaluation of diisononyl and diodecyl phthalate in a Japanese Medaka multigeneration assay.

Ecotoxicology and Environmental Safety. 65 (1), 36-47.

17) Wintermyer, M., Skaidas, A., Roy, A., Yang, Y., Georgopoulos, P., Burger, J. and Cooper, K., 2005. The development of a physiological-based-pharmacokinetic (PBPK) model using the distribution of 2,3,7,8-tetrachlorodibenzo-p-dioxin in the tissues of the eastern oyster (*Crassostrea virginica*). *Marine Environmental Research* 60, 133-152.

18) Gemma J, Mesia-Vela S., Wintermyer, ML, Cooper K.R, Kauffman FC and Porte C. 2004. Esterification of vertebrate-like steroids in the eastern oyster (*Crassostrea virginica*). *Marine Environmental Research* 58, 481-484.

19) Hunter J.G., Burger, J and Cooper K.R. 2003. Use of an integrated food web model for Ecological Risk Assessment. *J. Environmental Science and Health*. 38, 1201-1214.

20) Wintermyer M. and Cooper K. 2003. Dioxin/furan and polychlorinated biphenyl concentrations in eastern oysters (*Crassostrea virginica* Gmelin) tissues and the effects on egg fertilization and development. *J. Shellfish Res.* 22, 737-746.

21) Burger J, Hunter J.G. and Cooper K. R. 2001 Using integrated food web and population based models for environmental monitoring and decision making. *Remediation* 12(1), 87-102.

22) Ward P.M., Wohlt J.E., Zajac P.K. and Cooper K.R. 2000. Chemical and physical properties of processed newspaper compared to wheat straw and wood shavings as animal bedding. *J. Dairy Sci.* 83, 359-367.

23) Rappe C., Anderson R., Cooper K., Bopp R., Fiedler H., Howell F., and Bonner M. 2000. PCDDs in naturally-formed and man-made lake sediment cores from southern Mississippi, USA. *Organohalogen Compounds*.

24) Nacci D., Coiro L., Champlin D., Jayaraman S., Munns Jr., W., Specker J. and Cooper, K.R. 2000. Adaptation of wild fish populations to dioxin-like environmental contamination. *Marine Envir. Research* 134, 9-17.

25) Cooper K.R. and Patyna S. A. 2000. Multi-generation assay evaluating phthalates in Japanese medaka (*Oryzias latipes*) and biochemical imprinting. *Endocrine-disrupting Substance Testing in Medaka, International Symposium*. Environmental Agency, Government of Japan. pp. 44-46.

26) Iba I. M., Fung J., Cooper K.R., Thomas P.E., Wagner G., Park Y. 2000. Effect of gestational and lactational 2,3,7,8-tetrachlorodibenzo-p-dioxin exposure on the level and catalytic activities of hepatic microsomal Cyp1A in prepubertal and adult rats. *Biochemical Pharmacology* 59, 1147-1154.

27) Patyna, P.J., Davi, R.D., Parkerton, T.F., Brown, R.P., and Cooper K.R. 1999. A proposed multi generational protocol for Japanese medaka *Oryzias latipes* to evaluate effects of endocrine disrupters. *The Science of the Total Environment* 233, 211-220.

#### INVITED TALKS

Exxon/Mobile Seminar Series: Methyl-tertbutyl ether is anti-angiogenic in rodent and fish model systems. What is the Mechanism(s)? March 2009.

NJDEP Seminar Series, Historical and Current Impacts from Environmental Chemicals. Trenton, N.J. April 2008.

University of Maine, Impacts of Legacy and Emerging Contaminants on Coastal Aquatic Ecosystems. Orno, Maine October 2008

Society of Toxicology and Environmental Chemistry November 2007. Environmental Epidemiology using the Eastern Oyster (*Crassostrea virginica*) Examining Reproductive Endpoints. Invited platform presentation. Nov. 2007.

Cooper, K.R. Keynote Speaker: Hindsight 20/20 or 20/2007 Historical Lessons from Environmental Chemicals. NESETAC meeting June 2007.

Cooper, K.R. Opening Remarks: Extinction of Toxicology? Mid-Atlantic Chapter Society of Toxicology, Fall 2006 meeting Neurotoxicology: Basics and Beyond. Bordentown, New Jersey October 2006.

Cooper, K.R. New Jersey State Agriculture Convention. Future of Land Grant Institutions & Cooperative Extension. Agricultural Industry Joint Leadership Meeting. January 24-25, 2005.

Cooper, K.R. Reproductive Impacts of Persistent Organic Compounds on Aquatic Invertebrate Organisms: Passaic River Symposium: Who's Doing What? Montclair State University and NJDOT. Montclair, New Jersey June 9, 2004.

Cooper, K.R. What is The Role of Good Science in Assessing Comparative Risks Dealing with Seafood Consumption? Symposium: Seafood: Assessing the Benefits and Risks. Rutgers Cooperative Extension New Brunswick, New Jersey. June 8, 2004.

Cooper, K. R. Reproductive Effects of Low Dose Chronic Exposure of Dioxin-Like Compounds on Aquatic Organisms, Implications for Ecosystem Health: A Case study of Eastern Oyster (*C. virginica*) during Gametogenesis. Baltic Envirovet. Vilnius, Lithuania October 15-19, 2003.

Cooper, K.R. Determination of New Jersey Specific Soil Bioaccumulation Factors Using *Lumbricus terrestris*. N.J. Department of Environmental Protection Lecture Series. Trenton, N.J. March 4, 2003.

Cooper, K.R. and Patyna, S. A multi-generation assay evaluating phthalates in Japanese medaka (*Oryzias latipes*) and biochemical imprinting. International Symposium: Endocrine-Disrupting Substance testing in Medaka Nagoya, Japan, March 17-20, 2000

Cooper, K.R. Endocrine disruptors. (Platform Presentation) Hudson-Delaware SETAC Meeting. Stockton, NJ April 27, 2000

Cooper, K.R. Impact of endocrine compounds on reproductive success at the population level (Keynote Speaker). Persistent Contaminants Taipei, Taiwan. May 31, 2000.

Cooper, K.R. Endocrine and reproductive effects following dietary phthalate exposure in the Japanese medaka multi generation assay. University of Florida, Toxicology and Environmental Health Seminar Series. October 8, 1999.

**V. ADDITIONAL INFORMATION.**

If there are relevant aspects of your background or present circumstances not addressed above that might reasonably be construed by others as affecting your judgment in matters within the assigned task of the committee or panel on which you have been invited to serve, and therefore might constitute an actual or potential source of bias, please describe them briefly.

None

## PART II CONFIDENTIAL CONFLICT OF INTEREST DISCLOSURE

INSTRUCTIONS

It is essential that the work of committees of the SAB used in the development of reports not be compromised by any significant conflict of interest. For this purpose, the term "conflict of interest" means any financial or other interest which conflicts with the service of the individual because it (1) could significantly impair the individual's objectivity or (2) could create an unfair competitive advantage for any person or organization. Except for those situations in which the Department determines that a conflict of interest is unavoidable and promptly and publicly discloses the conflict of interest, no individual can be appointed to serve (or continue to serve) on a committee of the department used in the development of reports if the individual has a conflict of interest that is relevant to the functions to be performed.

The term "conflict of interest" means something more than individual bias. There must be an interest, ordinarily financial, that could be directly affected by the work of the committee.

Conflict of interest requirements are *objective* and *prophylactic*. They are not an assessment of one's actual behavior or character, one's ability to act objectively despite the conflicting interest, or one's relative insensitivity to particular dollar amounts of specific assets because of one's personal wealth. Conflict of interest requirements are objective standards designed to eliminate certain specific, potentially compromising situations from arising, and thereby to protect the individual, the other members of the committee, the Department, and the public interest. The individual, the committee, and the department should not be placed in a situation where others could reasonably question, and perhaps discount or dismiss, the work of the committee simply because of the existence of conflicting interests.

The term "conflict of interest" applies only to *current interests*. It does not apply to past interests that have expired, no longer exist, and cannot reasonably affect current behavior. Nor does it apply to possible interests that may arise in the future but do not currently exist, because such future interests are inherently speculative and uncertain. For example, a pending formal or informal application for a particular job is a current interest, but the mere possibility that one might apply for such a job in the future is not a current interest.

The term "conflict of interest" applies not only to the personal interests of the individual but also to the *interests of others* with whom the individual has substantial common financial interests if these interests are relevant to the functions to be performed. Thus, in assessing an individual's potential conflicts of interest, consideration must be given not only to the interests of the individual but also to the interests of the individual's spouse and minor children, the individual's employer, the individual's business partners, and others with whom the individual has substantial common financial interests. Consideration must also be given to the interests of those for whom one is acting in a fiduciary or similar capacity (e.g., being an officer or director of a corporation, whether profit or nonprofit, or serving as a trustee).

Much of the work of this department involves scientific and technical issues across a broad range of activities. Such activities may include, for example: defining research needs, priorities, opportunities and agendas; addressing questions of human or ecological health; providing scientific and technical assistance; assessing the state of scientific or technical knowledge on particular subjects and in particular fields. Such activities frequently address scientific and technical issues that are sufficiently broad in scope that they do not implicate specific financial interests or conflict of interest concerns.

However, where such activities address more specific issues having significant financial implications — e.g., funding option A versus option B, government development or evaluation of a

specific proprietary technology, — careful consideration must be given to possible conflict of interest issues with respect to the appointment of members of committees that will be used by the department in the development of reports to be utilized by the department.

The overriding objective of the conflict of interest inquiry in each case is to identify whether there are interests — primarily financial in nature — that conflict with the committee service of the individual because they could impair the individual's objectivity or could create an unfair competitive advantage for any person or organization. The fundamental question in each case is does the individual, or others with whom the individual has substantial common financial interests, have identifiable interests that could be directly affected by the outcome of the project activities of the committee on which the individual has been invited to serve? For projects involving advice regarding awards of contracts, grants, etc., this department is also guided by the principle that an individual should not participate in any decision regarding the award of a contract or grant or any other substantial economic benefit to the individual or to others with whom the individual has substantial common financial interests or a substantial personal or professional relationship.

The application of these concepts to specific scientific and technical studies and assistance projects must necessarily be addressed in each case on the basis of the particular facts and circumstances involved. The questions set forth below are designed to elicit information from you concerning possible conflicts of interest that are relevant to the functions to be performed by the particular committee on which you may be invited to serve.

1. **FINANCIAL INTERESTS.** (a) Taking into account stocks, bonds, and other financial instruments and investments including partnerships (but excluding broadly diversified mutual funds and any investment or financial interests valued at less than \$10,000), do you or, to the best of your knowledge others with whom you have substantial common financial interests, have financial investments that could be affected, either directly or by a direct effect on the business enterprise or activities underlying the investments, by the outcome of the project activities of the committee on which you may be invited to serve?

(b) Taking into account real estate and other tangible property interests, as well as intellectual property (patents, copyrights, etc.) interests, do you or, to the best of your knowledge others with whom you have substantial common financial interests, have property interests that could be directly affected by the outcome of the project activities of the committee on which you may be invited to serve?

(c) Could your employment or self-employment (or the employment or self-employment of your spouse), or the financial interests of your employer or clients (or the financial interests of your spouse's employer or clients) be directly affected by the outcome of the project activities of the committee on which you may be invited to serve?

(d) Taking into account research funding and other research support (e.g., equipment, facilities, industry partnerships, research assistants and other research personnel, etc.), could your current research funding and support (or that of your close research colleagues and collaborators) be directly affected by the outcome of the project activities of the committee on which you may be invited to serve?

(e) Could your service on the committee on which you may be invited to serve create a specific financial or commercial competitive advantage for you or others with whom you have substantial common financial interests?

If the answer to all of the above questions under FINANCIAL INTERESTS is either "no" or "not applicable," check here  (NO).

If the answer to any of the above questions under FINANCIAL INTERESTS is "yes," check here  (YES), and briefly describe the circumstances on the last page of this form.

**2. OTHER INTERESTS.**

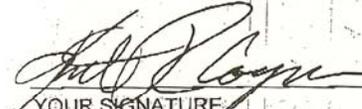
- (a) Is the central purpose of the project for which this disclosure form is being prepared a critical review and evaluation of your own work or that of your employer?
- (b) Do you have any existing professional obligations (e.g., as an officer of a scientific or engineering society) that effectively require you to publicly defend a previously established position on an issue that is relevant to the functions to be performed in this committee activity?
- (c) To the best of your knowledge, will your participation in this committee activity enable you to obtain access to a competitor's or potential competitor's confidential proprietary information?
- (d) If you are or have ever been a NJ State employee, to the best of your knowledge are there any state conflict of interest restrictions that may be applicable to your service in connection with this committee activity?
- (e) If you are a NJ State employee, are you currently employed by a state agency that is sponsoring this project? If you are not a NJ State employee, are you an employee of any other sponsor (e.g., a private foundation) of this project?
- (f) If the committee activity for which this form is being prepared involves reviews of specific proposals for contract, grant, etc. awards to be made by NJDEP, do you or others with whom you have substantial common financial interests, or a familial or substantial professional relationship, have an interest in receiving or being considered for awards that are currently the subject of the review being conducted by this committee?
- (g) If the committee activity for which this form is being prepared involves developing requests for proposals, work statements, and/or specifications, etc., are you interested in seeking an award under the program for which the committee on which you have been invited to serve is developing the request for proposals, work statement, and/or specifications — or, are you employed in any capacity by, or do you have a financial interest in or other economic relationship with, any person or organization that to the best of your knowledge is interested in seeking an award under this program?

If the answer to all of the above questions under OTHER INTERESTS is either "no" or "not applicable," check here  (NO).

If the answer to any of the above questions under OTHER INTERESTS is "yes," check here  (YES), and briefly describe the circumstances on the last page of this form.

EXPLANATION OF "YES" RESPONSES:

*During your period of service in connection with the activity for which this form is being completed, any changes in the information reported, or any new information, which needs to be reported, should be reported promptly by written or electronic communication to the NJDEP Office of Science staff representative.*

  
\_\_\_\_\_  
YOUR SIGNATURE

Dec 18, 2009  
\_\_\_\_\_  
DATE

Reviewed by: \_\_\_\_\_  
NJDEP

\_\_\_\_\_  
DATE



