December 15, 2014

Ms. Mary Nichols
Board Chairman
California Air Resources Board
1001 "I" Street
Sacramento, CA 95814

Submitted via web

**Re: Rice Cultivation Projects Compliance Offset Protocol and Staff Report released October 28, 2014**

Dear Chairman Nichols:

Please accept the following comments from Environmental Defense Fund (EDF) on the Draft of the Rice Cultivation Projects Compliance Offset Protocol (Rice Protocol), released October 28, 2014.

EDF applauds the extensive work the California Air Resources Board (ARB) has put into the Rice Protocol since the first workshop in March 2013. We particularly appreciate the updates and revisions ARB made to the June 20 version. ARB has a long standing reputation for developing informed and scientifically sound policies and regulations; this protocol is no exception. We believe that the Rice Protocol is an important step in the generation of offsets from agriculture. This protocol is the logic starting point as rice growers are one of the most progressive industries when it comes to both feeding the world and protecting the environment. The industry has demonstrated this through the listing of the first rice cultivation offset project with the American Carbon Registry (ACR) last March. They are also in the process of developing a project with growers in the Midsouth which will also be listed with ACR. We are hopeful these projects will encourage other growers to participate, providing capped entities with high-quality offsets from U.S. rice growers.

EDF supports the October 28 version of the Rice Cultivation Projects Compliance Offset Protocol and we are looking forward to the Board's approval of this protocol at the December Board Meeting. In response to the Staff Report and October 28 version of the protocol, EDF provides the following feedback on the Rice Protocol:

**I.** The Rice Protocol is rigorous
**II.** Consolidated reporting will allow more growers to participate
**III.** The Verification Pilot will determine the most cost-effective certification mechanism for agriculture projects
**IV.** ARB staff have thoroughly investigated wildlife and environmental impacts of the protocol
**V.** The Rice Protocol sets a precedent for a Nutrient Management Protocol
**VI.** Maintaining confidential business information is critical
**VII.** EDF recommended edits and modifications
**VIII.** Conclusion

## I. The Rice Protocol is rigorous

The Staff Report demonstrates the rigor employed by ARB staff to finalize the Rice Protocol. Significant thought and effort have gone into the current version, which demonstrates ARB's view on the important role of agriculture in meeting California's greenhouse gas (GHG) reduction targets. This rigor includes the identification and simplification of a process-based biogeochemical model as well as extensive stakeholder outreach.

The Rice Protocol is the first protocol to use a process-based model, the DeNitrification DeComposition (DNDC) model, which is an important tool to quantify GHG emission reductions from agriculture-based offset projects. The DNDC model generates detailed and accurate emission reductions for biological systems. As a part of this rulemaking, ARB conducted extensive due diligence in reviewing and selecting the DNDC model for use in the Rice Protocol.

DNDC is a very detailed model and as such requires significant inputs and generates comprehensive outputs. We support the ARB's ongoing effort to develop a simplified front and back end to the tool to make it more accessible to growers and offset project developers. This tool will ease the burden of entering input data into DNDC and consolidating DNDC output data, and thus will lower the barriers to the adoption of the protocol. We encourage the ARB to continue to fast-track the development of the tool in preparation for the training of ARB-Accredited Verification Bodies, ARB Approved Offset Project Registries, Offset Project Operators (OPO) and Authorized Project Designees (APD) to take place in the spring of 2015.

In developing this protocol, the ARB held four Technical Working Group meetings and two Workshops, in addition to independent consultations and presentations with technical experts. The Technical Working Group included more than 70 participants. In addition, ARB staff involved diverse stakeholders throughout the process, including rice growers in California and the Midsouth, the California Department of Food and Agriculture (CDFA), agricultural trade groups (California Rice Commission, California Farm Bureau), conservation groups (Ducks Unlimited, Point Blue Conservation Science, Audubon Society), project developers, project registries (American Carbon Registry, Climate Action Reserve), verification bodies, and compliance entities. The California State Board of Food and Agriculture mentioned in their November 5, 2014 letter to Chairman Nichols (attached at the end of this letter) that they "are encouraged by the involvement and collaboration of many stakeholders in the development of the protocol and understand the critical need of having the appropriate science and metrics in place."[1]

## II. Consolidated reporting will allow more growers to participate

For agricultural offset protocols to generate emission reductions, growers need to combine their individual GHG emission reductions into quantities large enough to be cost effective to implement and sell to compliance entities. Many compliance entities will only purchase projects which have the potential to generate more than 25,000 metric tons. To get to scale, there are two significant drivers important to making these projects successful– reporting and verification.

We are pleased that the ARB will allow multiple growers to report their GHG emission reductions on a single Offset Project Data Report (OPDR) (Staff Report p. 20). The identification of each OPO in the consolidated OPDR will allow the project to continue if there is a problem with one of the OPOs. Consolidating growers in one report will reduce the overall time and paperwork required to create a project. There are significant data collection requirements necessary to produce an OPDR from rice cultivation activities and the reductions per acre are forecasted to be small – less than one ton per acre. Therefore, we applaud the ARB's willingness to create a consolidated reporting template, which will reduce the time required to participate, thus encouraging more growers to undertake GHG-reducing activities.

## III. The Verification Pilot will determine the most cost-effective certification mechanism for agriculture projects

Verification is the single largest and most time-consuming cost of developing agricultural offset projects. According to EDF's economic analysis, this cost is typically 50% of the total

[1] McNamara, Craig. "Request for Rice Protocol Approval." Letter to ARB Chairman Mary Nichols. 5 Nov. 2014. California State Board of Food and Agriculture. Web. http://www.cdfa.ca.gov/State_Board/pdfs/2014Nichols_OffsetProtocol.pdf. *Attached.*

project development cost. In order for the agricultural sector to participate in California's Cap-and-Trade program, risk-based and randomized verification is necessary. As no voluntary projects have generated offsets from land-based agricultural practices, we recognize that risk-based randomized verification is a challenging proposition.

We support the proposed Rice Cultivation Pilot Verification Program, during which traditional verification and risk-based and randomized verification will be conducted side-by-side and the results of the two will be compared (Staff Report p.19). Traditional verification could be interpreted by verifiers as requiring a verification body to visit each participating farm. This process is time consuming and expensive and will hinder the development of agricultural offsets. We encourage the development of a risk-based and randomized verification procedure which requires the verifier to review the APD's business and data management processes including the types of supporting evidence, evidence collection and evidence storage in order to develop a thorough risk-based sampling plan. This sampling plan could include confirmation data such as remote sensing. In addition, the inclusion of statistically randomized sampling allows for science-based verification. Under this approach, the verifier would develop a verification plan based upon their assessment of the projects risks in much the same way as verifiers currently develop their Sampling Plan as required under section 95977.1(b)(3)(G) of the Cap-and-Trade regulations. This approach is much more cost effective and can demonstrate the reasonable assurance standard required for offset projects.

As a part of risk-based and randomized verification, the verifier would be required to visit the APD's office in order to conduct a thorough review of all processes, procedures, controls, and records for rigor, consistency, and accuracy. The verifier would interview the OPOs in a project depending upon their risk assessment identified through the Sampling Plan. If the Sampling Plan results in an Adverse Offset Verification Statement or a Qualified Positive Offset Verification Statement, the verifier and the APD would have the opportunity to increase the number of OPOs visited in order to determine errors with the report and to generate a Positive Offset Verification Statement.

The design of the Verification Pilot is critically important. EDF encourages the ARB to work with a diverse team in its development, much as it did with the development of the Rice Protocol. We recommend that the team should include a statistician, an agronomist, a grower or grower representative, a scientist from CDFA, a representative from the UC Cooperative Extension, a carbon project verifier, and a representative from one of the Offset Project Registries.

The results from this Verification Pilot will be useful in developing specific verification requirements for future agriculture-based projects. We believe that this approach is consistent

with the design and intent of the Cap-and-Trade regulations and encourage the development of offset projects from rice producers and allow for greater participation of the agriculture sector in meeting the state's GHG reduction goal. We look forward to additional information on the Verification Pilot Program to be released next year and will encourage our rice growing partners to apply for the Verification Pilot funding.

Despite the steps forward with the Verification Pilot, we are concerned with the cost of requiring "[e]ach project…be independently verified and an offset verification statement issues for each project under the consolidated OPDR" (Staff Report p. 20). Maintaining this requirement will lower the probability of OPOs and APDs participating, given the high cost of verification. We hope that the Pilot Verification Program will demonstrate the value of risk-based and randomized verification for these types of projects.

We are encouraged that the updated Rice Protocol simplifies documentation requirements by providing multiple and flexible options, including "remote sensing, video conferences, digital photographs (dated and geotagged), or digital escrow services." (Staff Report p.18) These verification choices will reduce costs by permitting the use of a variety of low-cost technologies to the benefit of OPOs and APDs. We recommend that ARB continue to investigate, consider, and include other innovative verification technologies as they are developed.

## IV. The Staff have thoroughly investigated wildlife and environmental impacts

The ARB has done a significant amount of work to analyze the potential environmental and habitat impacts that could occur due to implementation of the Rice Protocol. We appreciate that the protocol only allows project activities during the rice growing season (Staff Report p. 39). We are encouraged by the Staff's research that the Early Drainage practice "could serve as a benefit to giant garter snake populations" (Staff Report p. 45). Also, we are pleased to see that rice cultivation within the Butte Sink Wildlife Management Area will not be eligible to participate, considering the critical importance of that habitat for waterfowl (Staff Report p. 40).

## V. This Protocol sets a precedent for a Nutrient Management Protocol

EDF has been investigating what protocol would be the most natural next step, given available data, overall potential GHG reduction potential, applicability to California, and overall feasibility for project implementation. The Staff Report and Rice Protocol provide a strong foundation for future agricultural protocols. In particular these documents provide adequate guidance for consolidated reporting of projects, lay a foundation for risk-based verification through the Verification Pilot, and establish a rigorous standard for modeling reductions. These are important structural necessities for any agricultural protocols and projects to be included in the California Cap-and-Trade market.

The Rice Protocol has established a framework that can enable the creation of a Nutrient Management Protocol. A Nutrient Management Protocol would supply compliance entities with additional high-quality agriculture-based offsets. A Nutrient Management Protocol could easily be designed with crop and geographically based modules. This protocol could start with a California-based crop such as almonds and be rapidly expanded to include corn, leafy greens, sugar beets and barley. To do this, the Quantification Methodologies chapter would be amended to include the new crop quantification equations. The other chapters, such as Assessment Boundary, Monitoring, Reporting, and Verification would all be written to apply to all applications of fertilizer, regardless of crop. This approach would allow the ARB to expand the protocol without having to design a separate protocol for each crop considered.

## VI. Maintaining confidential business information is important

We understand the need for transparency for the Rice Protocol, as with all compliance offset protocols. However, this must also be balanced with protecting confidential business information. Therefore, we recommend the ARB provide detailed guidance regarding the specific grower information which will be made publically available and which data will be maintained by the ARB (Staff Report p. 20). In order to ensure grower participation, it is important to recognize the willingness and ability of growers to protect details of their operation that could be considered confidential business information (CBI). Of particular note and concern is 7.1 (b)(7) – ownership and operational structures. While disclosure to ARB is acceptable, public release of this information could damage a grower's business model and adequate data protection should be provided.

## VII. Recommended edits and modifications

The following edits will increase the clarity of the Rice Protocol.

A. Suggested changes to 10% rule to maximize producer participation

The Protocol Section 2.2(c) should be changed to reflect the same intention as described in the Staff Report which states that:

> "For avian species nesting in rice fields, to minimize potential effects on habitat for late broods (i.e., families with recently hatched young), the proposed Rice Cultivation Protocol requires that **at least ten percent of a participating rice field's perimeter is not to be shared with** a public road, a field also employing Early Drainage in Preparation for Harvest, or land zoned for commercial, industrial, residential, planning, special, or mixed use. This requirement serves to protect habitat connectivity and would further reduce any potential effects on late broods." (Staff Report p. 39)

Based on this language, the Rice Protocol should be amended as follows:

> For wildlife conservation purposes in the California Rice Growing Region, ~~no more than 10%~~at least ten percent of a participating field's perimeter ~~may be~~ is not to be shared with a public road, a field that is also employing early drainage in preparation for harvest activities or land zoned for commercial, industrial, residential, planning, special, or mixed use to be eligible for crediting.

B. Suggested changes to better explain the Early Drainage activities for rice growers who are new to the practice.

In the Staff Report, we suggest the following on page 10:

> ~~The protocol requires that in California standing water must be present at least 24 days after fifty-percent heading or 26 days after forty-percent heading.~~
>
> "A grower needs to start draining the field so that there will be no standing water left and the field is still fully saturated at 24 days after fifty percent heading. A specific day cannot be included because the draining time will vary depending on the size of the field. While the participating field will be drained, the soil must still be saturated to ensure that the yield will not be impacted."

Additionally, the language "26 days after forty-percent heading" must be removed, as it does not accurately represent the early drain activity.

In the Rice Protocol, we recommend the inclusion of a definition of a drained field in Section 1.2(a):

> "Drained field" means a field with exposed saturated soil and no standing water.

Finally, we propose changes to Section 2.2(b).

> (b) Early drainage in preparation for harvest activities must follow the requirements below:
>
> > (1) For early drainage in preparation for harvest activities in the California Rice Growing Region, there must not be standing water present within a 50-foot radius of the water the inlet check of a participating field 24 days after fifty-percent heading.

(2) While the participating field will be drained, the soil must still be saturated to ensure that the yield will not be impacted.

(3) Rice crop from each field must be sampled to determine fifty-percent heading using the following criteria:

(A) At least three rice crop samples must be taken;
(B) No sample shall be taken within a 50-foot radius of the water inlet or within the area impacted by cold water;
(C) All samples shall be equally spaced in the field;
(D) Each sample must cut all the tillers and main stems in at least a one square foot area with uniform grain maturity;
(E) Samples will be combined then separated into two categories:
1. Heading; and
2. Not heading;
(F) Greater than or equal to fifty-percent of the tillers and main stems must be heading; and
(G) If less than fifty-percent of tillers and main stems are heading, producers will be required to resample until there is at least fifty-percent heading. ~~but greater than or equal to forty-percent of tillers and main stems are heading, resampling is not required. In this case there must be standing water present within a 50-foot radius of the water inlet of a field 26 days after the sampling date~~
(H) Standard procedure must be used for the collection of field samples. These procedures must be detailed enough so that any qualified agronomist would be able to accurately repeat the previous determination of fifty percent heading.

B. We propose the following corrections to Section 1.2 of the Rice Protocol:
   a. Protocol 1.2(a)(4) Butte Sink Wildlife **M**anagement Area
   b. Protocol 1.2(a)(37) remove the reference to section 4.6, which does not exist
   c. Protocol 1.2(c) include Methane $CH_4$

C. For all of the Project Activities, we propose the following changes to Appendix A to decrease the redundancy in general field information requirements:

   (a) General information for each participating field:
      (1) Field geographic coordinates, county, and state for each field, and parcel number;

(2) Flooding[2] and drainage[3] dates (during the growing season and during post-harvest period);
(3) Begin and end date of harvesting on the participating field;
(4) Post-harvest~~ing~~ residue management (e.g. burning, incorporation or baling) description and dates;
(5) Amount of herbicides applied for the baseline period cultivation cycle and the project scenario cultivation cycle;[4]
(6) Fertilization types, amounts, rate and application methods and dates for each application,[5] including dates of all fertilization events relative to planting date (both pre-flood and top-dressed after flooding);
~~(7) Harvest date;~~
~~(8) Mass of crop residue removed after harvest, the fraction of removed crop residue;~~
(7) Estimate of crop residue remaining in the participating field, depending on the post-harvest residue management practice indicated above.
~~(9) For seeding preparation and enhancement, dates of flooding relative to the planting date;~~
~~(10) Dates of all fertilization events relative to planting date (both pre-flood and top-dressed after flooding);~~
~~(11) Dates of all fertilizer applications;~~
~~(12) Rate, type of fertilizer and application method for each fertilizer application; and~~
(~~13~~8) Moisture content for milled rice from the year with maximum observed rice yield; and
(~~14~~9) Dates and depth of all tillage events for preparing the fields for planting and post-harvest residue management.

(b) Additional information for dry seeding projects:
(1) Planting preparation description and date;
(2) Planting date and method; and
(3) The date a field is fully flooded after dry seeding. ~~in preparation for seeding.~~

(c) Additional information for early drainage in preparation for harvest projects:
(1) The date that the ~~water~~ board(s) were pulled from the weirs or the flooding of the field was stopped~~; and~~
(2) ~~Harvest date~~

(d) Additional ~~I~~information for alternate wetting and drying:

[2] For each **participating** field, the flood date shall be the date that the flooding starts.
[3] For each **participating** field, the drainage date shall be the date that the drainage starts or soil is exposed without standing water if there is no overt action that starts drainage.
[4] Amounts of herbicide used in the baseline scenario cultivation cycle do not need to be verified.
[5] The fertilizer type must correctly reflect its ammonium-nitrate composition.

(1) The date that the ~~water~~ board(s) were pulled from the weirs or the flooding of the field was stopped~~; and~~

~~(2) Harvest date~~

(3) Soil moisture reading date, number of readings, and the results of the readings.

## VIII. Conclusion

We appreciate the hard work that went into the development of the Rice Protocol and we look forward to having the Board consider the Rice Protocol at the ARB's December Board meeting. This protocol demonstrates the role and opportunity agriculture can play within California's Cap-and-Trade program to generate valuable offsets and contribute toward the state's 2020 goal. We agree with the California State Board of Food and Agriculture that "This protocol is essential because it not only recognizes the important role that the California agricultural sector can have in offsetting greenhouse gas emissions but it can also serve as an impetus for further emission reduction practices by farmers and ranchers."[6]

Once the Board passes the Rice Protocol, EDF will support ARB efforts to implement the above described Verification Pilot. Streamlined requirements, while still ensuring rigorous execution, will allow the greatest uptake of the practices and the generation of GHG reductions. We are excited to help ARB and CDFA pilot specific reporting and verification requirements, which will make it easier and less expensive for farmers to participate in the Rice Protocol.

We thank ARB for this opportunity to offer comments. We look forward to continued collaboration with ARB and other stakeholders throughout the implementation of this and other agriculture-based offset protocols.

Sincerely,

Robert T. Parkhurst

Robert Parkhurst
Director, Agriculture Greenhouse Gas Markets
Environmental Defense Fund

[6] *Op. cit.*

CA State Board of Food and Agriculture

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Riverside Unified School
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November 5, 2014

Chairman Mary Nichols
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95814

Dear Chairman Nichols:

On behalf of the California State Board of Food and Agriculture, we request that the California Air Resources Board (ARB) approve the Compliance Offset Protocol for Rice Cultivation Projects within California's Emissions Trading Program. This protocol is essential because it not only recognizes the important role that the California agricultural sector can have in offsetting greenhouse gas emissions but it can also serve as an impetus for further emission reduction practices by farmers and ranchers.

The establishment of carbon markets is fundamentally important to the efforts of the State of California in mitigating climate change. Practices such as methane reduction, carbon sequestration, and nitrous oxide reduction are integral steps that agriculture can take to reduce overall state emissions. An adopted Offset Protocol for Rice Cultivation will further agricultural research, stakeholder collaboration and investment in other potential agricultural offset sectors.

ARB has the opportunity through the adoption of the Compliance Offset Protocol for Rice Cultivation Projects to tap agriculture's potential to assist in the reduction of greenhouse gas emissions. We are encouraged by the involvement and collaboration of many stakeholders in the development of the protocol and understand the critical need of having the appropriate science and metrics in place. We thank you for your work in helping to develop this protocol and look forward to seeing rice cultivation offsets being included within California's Emissions Trading Program.

Sincerely,

Craig McNamara

cc: Secretary Karen Ross, California Department of Food and Agriculture