In our paper, we focus on addressing problems of water quality forecast and the building of the lake’s evaluation system. Then we apply them into Chao Hu. Lastly, we analyze the results, meanwhile, putting forward suggestions on the improvement of the land management.

First and foremost, we build a model to predict the water quality and potentially-toxic algal blooms. We divide the model into two sections. The first is the Export Coefficient Model, which is used to estimate and forecast nitrogen and phosphorus load under the different land-use. On the basis of obtaining N and P outputs, BP neural network model is built by combining with indictors as inputs like temperature, PH and so on to predict potentially-toxic algal blooms. To ground this model in reality, we incorporate 91 groups data collected from the websites for train and 19 groups data used for the test. The data of Chao Hu are used for simulation. The simulation results agree well with real situation indicating that the model is efficient and reliable.

Secondly, we build the lake evaluation model based on [analytic](http://cn.bing.com/dict/clientsearch?mkt=zh-CN&setLang=zh&form=BDVEHC&ClientVer=BDDTV3.5.0.4311&q=%E5%B1%82%E6%AC%A1%E5%88%86%E6%9E%90%E6%B3%95" \t "_blank) [hierarchy](http://cn.bing.com/dict/clientsearch?mkt=zh-CN&setLang=zh&form=BDVEHC&ClientVer=BDDTV3.5.0.4311&q=%E5%B1%82%E6%AC%A1%E5%88%86%E6%9E%90%E6%B3%95" \t "_blank) [process](http://cn.bing.com/dict/clientsearch?mkt=zh-CN&setLang=zh&form=BDVEHC&ClientVer=BDDTV3.5.0.4311&q=%E5%B1%82%E6%AC%A1%E5%88%86%E6%9E%90%E6%B3%95" \t "_blank). We collect the values of seven indexes judging lakes through local knowledge and expertise. Then we use AHP to determine the weight of seven factors and finally evaluate Chao Hu successfully. We draw conclusion that Chao Hu lies in Ⅲ，belonging to middle level.

Eventually, the [sensitivity](http://cn.bing.com/dict/clientsearch?mkt=zh-CN&setLang=zh&form=BDVEHC&ClientVer=BDDTV3.5.0.4311&q=%E6%A8%A1%E5%9E%8B%E7%81%B5%E6%95%8F%E6%80%A7%E5%88%86%E6%9E%90" \t "_blank) [analysis](http://cn.bing.com/dict/clientsearch?mkt=zh-CN&setLang=zh&form=BDVEHC&ClientVer=BDDTV3.5.0.4311&q=%E6%A8%A1%E5%9E%8B%E7%81%B5%E6%95%8F%E6%80%A7%E5%88%86%E6%9E%90" \t "_blank) of the evaluation [model](http://cn.bing.com/dict/clientsearch?mkt=zh-CN&setLang=zh&form=BDVEHC&ClientVer=BDDTV3.5.0.4311&q=%E6%A8%A1%E5%9E%8B%E7%81%B5%E6%95%8F%E6%80%A7%E5%88%86%E6%9E%90) [is](http://cn.bing.com/dict/clientsearch?mkt=zh-CN&setLang=zh&form=BDVEHC&ClientVer=BDDTV3.5.0.4311&q=%E6%A8%A1%E5%9E%8B%E7%81%B5%E6%95%8F%E6%80%A7%E5%88%86%E6%9E%90" \t "_blank) [carried](http://cn.bing.com/dict/clientsearch?mkt=zh-CN&setLang=zh&form=BDVEHC&ClientVer=BDDTV3.5.0.4311&q=%E6%A8%A1%E5%9E%8B%E7%81%B5%E6%95%8F%E6%80%A7%E5%88%86%E6%9E%90" \t "_blank) out [to](http://cn.bing.com/dict/clientsearch?mkt=zh-CN&setLang=zh&form=BDVEHC&ClientVer=BDDTV3.5.0.4311&q=%E6%A8%A1%E5%9E%8B%E7%81%B5%E6%95%8F%E6%80%A7%E5%88%86%E6%9E%90" \t "_blank) [ensure](http://cn.bing.com/dict/clientsearch?mkt=zh-CN&setLang=zh&form=BDVEHC&ClientVer=BDDTV3.5.0.4311&q=%E6%A8%A1%E5%9E%8B%E7%81%B5%E6%95%8F%E6%80%A7%E5%88%86%E6%9E%90" \t "_blank) the [utility](http://cn.bing.com/dict/clientsearch?mkt=zh-CN&setLang=zh&form=BDVEHC&ClientVer=BDDTV3.5.0.4311&q=%E6%A8%A1%E5%9E%8B%E7%81%B5%E6%95%8F%E6%80%A7%E5%88%86%E6%9E%90). It is found that the model is shortage of [insufficient](http://cn.bing.com/dict/clientsearch?mkt=zh-CN&setLang=zh&form=BDVEHC&ClientVer=BDDTV3.5.0.4311&q=%E6%A8%A1%E5%9E%8B%E7%A8%B3%E5%AE%9A%E6%80%A7%E4%B8%8D%E8%B6%B3) [stability](http://cn.bing.com/dict/clientsearch?mkt=zh-CN&setLang=zh&form=BDVEHC&ClientVer=BDDTV3.5.0.4311&q=%E6%A8%A1%E5%9E%8B%E7%A8%B3%E5%AE%9A%E6%80%A7%E4%B8%8D%E8%B6%B3" \t "_blank) by analyzing the [sensitivity](http://cn.bing.com/dict/clientsearch?mkt=zh-CN&setLang=zh&form=BDVEHC&ClientVer=BDDTV3.5.0.4311&q=%E6%A8%A1%E5%9E%8B%E7%81%B5%E6%95%8F%E6%80%A7%E5%88%86%E6%9E%90) of environmental awareness, for lakes evaluation is a complicated system and cannot be described by simple indexes. So the model need to be improved.